# C08F

## MACROMOLECULAR COMPOUNDS OBTAINED BY REACTIONS ONLY INVOLVING CARBON-TO-CARBON UNSATURATED BONDS

## Definition statement

*This place covers:*

Homopolymers and copolymers of compounds having one or more unsaturated radicals, each having one or more carbon-to-carbon unsaturated bonds and optionally other functional groups such as aromatic rings, halogens, carboxylic acid, ester or anhydride groups, groups containing nitrogen or other heteroatoms such as Si, S, B or P. These polymers are also known as addition polymers.

The above polymers include polyethylene, polypropylene, polybutene, polymers of vinyl chloride, vinyl acetate or vinyl pyrrolidone, styrene or divinylbenzene, polyacrylates, polymethacrylates, butadiene or isoprene polymers, allyl polymers, acrylonitrile polymers, maleic anhydride polymers, vinylidene polymers, tetrafluoroethylene polymers and many others including those in the "Synonyms" section below.

Other specific polymers such as copolymers of hydrocarbons and mineral oils, petroleum resins, terpene resins, copolymers of drying oils with other monomers or coumarone-indene copolymers.

Graft polymers are considered to be macromolecular compounds obtained by polymerising monomers containing at least one ethylenically unsaturated aliphatic radicals on to or in the presence of preformed polymeric compounds.

Block polymers wherein blocks are linked by reactions involving only carbon-to-carbon unsaturated bonds.

Other types of polymer formed via carbon-to-carbon unsaturated bonds, e.g. by inter-reacting polymers involving only carbon-to-carbon unsaturated bond in the absence of non-macromolecular monomers.

Polymerisation processes, in bulk, in solution, in suspension, in emulsion, in gaseous or solid state, using regulators (e.g. chain terminators, retarders or short-stopping agents), in presence of compounding ingredients, or initiated by wave energy, particle radiation or electric current; including processes of polymerisation characterized by special features of the polymerisation apparatus used.

Polymerisation initiators or catalysts, e.g. Ziegler-Natta, anionic, cationic, redox or transition metal initiators or initiators for radiation polymerisation, or metallocenes.

Post-polymerisation treatments of the above types of polymer (but not of rubbers) including purification, catalyst removal and separating polymers from non-polymers.

Chemical modification of the above types of polymer (but not of rubbers) by after-treatment, e.g. oxidation, reduction, epoxidation, hydrolysis, halogenation or dehalogenation, sulfonation, cyclisation or partial depolymerisation.

## Relationships with other classification places

Relationship with other subclasses of classes C08 and C09:

Polysaccharides and their derivatives are classified in subclass C08B.

Treatment and chemical modification of rubbers, including conjugated diene rubbers, are classified in subclass C08C – however synthesis of rubbers and treatment or chemical modification of non-conjugated diene-rubbers covered per se in this subclass (C08F) are classified in this subclass (C08F).

Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds (usually known as condensation polymers) are classified in subclass C08G. This includes unsaturated polyesters, polyamides or polyurethanes, silicone-type polymers with unsaturated groups and block polymers formed by interreacting polymers in the absence of monomers, as long as the mechanism for reaction is of C08G type.

Derivatives of natural macromolecular polymers, e.g. derived from proteins or vulcanised oils, are classified in subclass C08H.

Working-up, general processes of compounding and after-treatment not covered by this subclass are classified in subclass C08J. These include making solutions, dispersions etc., plasticising, compounding with additives, e.g. colouring or masterbatching, crosslinking, manufacture of articles or shaped materials, chemical treatment or coating of such articles, making porous, cellular or foamed materials, and recovery or working up of waste materials.

Use or choice of inorganic or non-macromolecular organic materials as compounding agents are classified in subclass C08K.

Compositions of macromolecular compounds, either with other macromolecular compounds or with other ingredients, including compositions of polysaccharides, rubbers or natural macromolecular compounds, are classified in subclass C08L.

Coating compositions and other polymer compositions for similar uses, e.g. paints, inks, woodstains and printing pastes, are classified in subclass C09D.

Adhesives and adhesive processes are classified in subclass C09J.

Materials for applications not otherwise provided for, or applications of materials not otherwise provided for, are classified in subclass C09K. These include sealing or anti-slip materials, heat-transfer, heat-exchange or heat-storage materials, drilling compositions, luminescent or tenebrescent materials, etching, surface-brightening or pickling materials, antioxidant materials, soil-conditioning or soil-stabilising materials, liquid crystal or fireproofing materials.

Subclasses C08B - C08L are generally function-oriented subclasses in relation to the polymers they cover, while C09D - C09K are application-oriented subclasses in relation to the said polymers.

The preparation for medical, dental or toilet purposes is classified in A61K.

**Multiple Classification**

Biocidal, pest repellant, pest attractant, or plant growth regulatory activity of chemical compounds or preparations is further classified in A01P.

Application of macromolecular compositions as biocides, pest repellants, pest attractants, or plant growth activity regulators is further classified in subclass A01N.

Therapeutic activity of chemical compounds or medicinal preparations is further classified in subclass A61P.

Uses of cosmetics or similar toilet preparations are further classified in subclass A61Q.

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Catalysts in general (other than polymerisation catalysts); Apparatus for chemical or physical processes | B01J |
| Chemical or physical laboratory apparatus for general use | B01L |

| | |
|---|---|
| Use of polymers as moulding materials or materials for moulds, reinforcements, fillers or preformed parts | B29K |
| Layered products | B32B |
| Preparation of hydrocarbons from hydrocarbons containing a smaller number of carbon atoms (i.e, oligomers with 10 or fewer repeat units). | C07C 2/00 |
| Preparation of hydrocarbons from hydrocarbons containing the same number of carbon atoms. | C07C 5/00 |
| Production of liquid hydrocarbon mixtures from lower carbon number hydrocarbons, e.g. by oligomerisation for lubricating purposes | C10G 50/00 |
| Production of polymers using enzymes containing carbon-to carbon unsaturated bonds. | C12P |
| Graft polymerisation of monomers on to fibres, threads, yarns, fabrics or fibrous goods made from such materials. | D06M 14/00 |

## Special rules of classification

Classification guidance:

- In this subclass, boron and silicon are considered as metals.
- Last place priority rule: Within this subclass, in the absence of an indication to the contrary in the scheme or definitions, classification is made in the last appropriate place.
- Macromolecular compounds and their preparation are classified in the groups for the type of compound prepared.
- General processes for the preparation of macromolecular compounds according to more than one main group are classified in the groups for the processes employed (C08F 2/00 - C08F 8/00).
- Processes for the preparation of macromolecular compounds are also classified in the groups for the types of reactions employed, if of interest.
- Subject matter relating only to homopolymers is classified only in groups C08F 110/00 - C08F 138/00.
- Subject matter relating only to copolymers is classified only in groups C08F 210/00 - C08F 246/00.
- In the absence of sufficient information from the document, subject matter relating to both homopolymers and copolymers is classified in groups C08F 10/00 - C08F 38/00.
- For classification purposes, the "majority" monomer in C08F is based on the teaching of the document being classified. For instance, if the document describes the relative amounts of monomers in terms of weight, the majority monomer for classification is based on weight. If the document describes the relative amounts of monomers by chemical units, e.g. moles, the majority monomer for classification is determined based on chemical amount (e.g. mole) as described by the document.
- In groups C08F 210/00 - C08F 238/00, in the absence of an indication to the contrary, a copolymer is classified as a single symbol according to the major monomeric component and the full copolymer is classified as a Combination Set (C-Set) as explained below. The minority comonomer(s) is/are only classified in a C-set.
- This subclass also covers compositions based on monomers which form macromolecular compounds classifiable in this subclass including those that are also classified in coatings C09D 4/00 or adhesives C09J 4/00.
- If the monomers are defined, classification is made according to the polymer to be formed in groups C08F 10/00 - C08F 246/00 if no preformed polymer is present; or in groups C08F 251/00 - C08F 291/00 if a preformed polymer is present; in group C08F 292/00 if inorganic material is present.
- In this subclass, polymer, catalyst and/or process are classified if appropriate. However, care should be taken that only aspects which contribute to the invention are classified.

Allocation of Indexing codes:

- Orthogonal indexing codes C08F 2500/01 - C08F 2500/39 are not allocated as single symbol(s) and are only used as subsequent symbol(s) in C-Sets.

**Combination sets (C-Sets):**

In this subclass, C-Sets classification is applied to the following groups, listed in the table below, if the document discloses a pertinent combination of technical features that cannot be covered by the allocation of a single symbol. The fourth column of the table indicates the place where the detailed information about the C-Sets construction and the associated syntax rules can be found, in the definition section "Special rules of classification".

| C-SETS ID | BASE SYMBOL | SUBSEQUENT SYMBOL(S) | C-SETS FORMULA; LOCATION OF C-SETS RULES |
|---|---|---|---|
| #C8Fa | C08F 6/00 - C08F 6/28 | C08L 23/00 - C08L 57/12(excluding breakdown indexing codes) | (C08F 6/00 - C08F 6/28, C08L 23/00 - C08L 57/12), post polymerisation treatments, and the polymer to be treated; see C08F 6/00 |
| #C8Fb1 | C08F 8/00 - C08F 8/50 | C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04, C08F 238/00 - C08F 299/08 | (C08F 8/00 - C08F 8/50, C08F), single step chemical modification by after - treatment, and the polymer to be modified; see C08F 8/00 |
| #C8Fb2 | C08F 8/00 - C08F 8/50 | C08F 8/00 - C08F 8/50, C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04, C08F 238/00 - C08F 299/08 | (C08F 8/00 - C08F 8/50, C08F 8/00 - C08F 8/50, ..., C08F), multistep chemical modifications by after-treatment, and the polymer to be modified; see C08F 8/00 |
| #C8Fc | C08F 10/00 - C08F 10/14, C08F 12/00 - C08F 12/36, C08F 14/06, C08F 14/18 - C08F 14/28, C08F 36/00 - C08F 36/22, C08F 110/00 - C08F 110/14, C08F 112/00 - C08F 112/36, C08F 136/00 - C08F 136/22, C08F 210/00 - C08F 210/18, C08F 212/00 - C08F 212/36, C08F 236/00 - C08F 236/22 | C08F 2/00 - C08F 2/60 | (C08F, C08F 2/00 - C08F 2/60), homo- and/ or copolymers and the process used to prepare them; see C08F 10/00 |

| | | | |
|---|---|---|---|
| #C8Fd | C08F 10/00 - C08F 10/14, C08F 12/00 - C08F 12/36, C08F 36/00 - C08F 36/22, C08F 110/00 - C08F 110/14, C08F 112/00 - C08F 112/36, C08F 136/00 - C08F 136/22, C08F 210/00 - C08F 210/18, C08F 212/00 - C08F 212/36, C08F 236/00 - C08F 236/22 | C08F 4/00 - C08F 4/82 | (C08F, C08F 4/00 - C08F 4/82, …), homo- and/or copolymers and the catalyst(s) used to prepare them; see C08F 10/00 |
| #C8Fe | C08F 110/02 - C08F 110/14 | C08F 2500/01 - C08F 2500/39 | (C08F 110/02 - C08F 110/14, C08F 2500/01 - C08F 2500/39,...), polyolefin homopolymers and their characteristics or properties; see C08F 110/00 |
| #C8Fg | C08F 210/02 - C08F 210/18 (exclusions apply, see C-Set rules) | C08F 210/02 - C08F 238/04, (exclusions apply, see C-Set rules), C08F 2500/01 - C08F 2500/39 | (C08F 210/02 - C08F 210/18, C08F 210/02 - C08F 238/04,..., C08F 2500/01 - C08F 2500/39,...), polyolefin copolymers and their characteristics or properties; see C08F 210/00 |
| #C8Fh | C08F 210/02 - C08F 238/04 (exclusions apply, see C-Set rules) | C08F 210/02 - C08F 238/04 (exclusions apply, see C-Set rules) | ( C08F 210/02 - C08F 238/04 , C08F 210/02 - C08F 238/04 , ...), synthesis of random copolymers; see C08F 210/00 |
| #C8Fi | C08F 251/00 - C08F 292/00 | C08F 210/00 - C08F 238/04 (exclusions apply, see C-Set rules) | (C08F 251/00 - C08F 292/00, C08F 210/00 - C08F 238/04, ...), synthesis of graft copolymers; see C08F 251/00 |

The specific C-Sets rule is located at only one place of the base symbol in the section "Special rules of classification" in the definition.

If the C-Sets rule is applicable to all groups of a subclass, it is located at the subclass level only. If the same C-Sets rule is applicable to multiple groups or subgroups within the same subclass, the C-Sets rule is placed at the highest group or subgroup of the multiple groups.

In this subclass, all exemplified polymers should be classified as separate C-Sets. In the absence of examples, at least one C-Set is given on the basis of sufficient disclosure in the document.

## Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

| | |
|---|---|
| Addition polymers | Polymers in which unsaturated monomer molecules join together to form a polymer in which the molecular formula of the repeat unit is identical (except for the double bond) with that of the monomer. |
| Aliphatic radical | An acyclic or non-aromatic carbocyclic carbon skeleton which is terminated by every bond to: a) an element other than carbon; b) a carbon atom having a double bond to one atom other than carbon or; c) an aromatic carbocyclic ring or a heterocyclic ring.$CH_2$=CH-O-$CH_2$-$CH_2$-NH-COO-$CH_2$-$CH_2$-OH are classified in group C08F 16/28; $CH_2$=CH-CO-CH=$CH_2$ are classified in group C08F 16/36; $CH_2$=CH-$C_6H_4$-Cl are classified in group C08F 12/18. |
| Block polymers | Polymers formed by polymerisation of monomers on to a macromolecule having groups capable of inducing the formation of new polymer chains bound at one or both ends of the starting macromolecule, or by polymerisation using successively different catalyst types or successively different monomer systems without deactivating the intermediate polymer. |
| Condensation polymers | Polymers in which water or some other simple molecule is eliminated from two or more monomer molecules as they combine to form the polymer or crosslinks between polymer chains. These polymers are generally in subclass C08G. |
| Copolymers | Usually denotes polymers of two chemically distinct monomers, and sometimes denotes polymers containing more than two types of monomer unit. |
| Graft polymers | Macromolecular compounds obtained by polymerising monomers on to preformed polymers or on to inorganic materials. Such preformed polymers could be rubbers, polysaccharides, condensation polymers, homopolymers or copolymers of the addition polymer type. If groups other than ethylenically unsaturated bonds are involved in the reaction, like heteroatoms-containing groups, then the reaction is not an addition polymerisation. It is considered to be a chemical modification in the sense of C08F 8/00 and the product obtained is not a graft polymer according to C08F .It is to be noted that, however, the products obtained by a coupling reaction as defined in C08G 81/00 are also called graft polymers. |
| Homopolymers | Polymers resulting from the polymerisation of one species of (real, implicit or hypothetically) monomers or polymers with a single type of repeating unit. |
| Repeat(ing) unit | The unit in an addition polymer which is repeated throughout the molecule; for example in polyethylene the repeat unit is:–CH2-CH2-. |

## Synonyms and Keywords

*In patent documents, the following abbreviations are often used:*

| | |
|---|---|
| ABS | Acrylonitrile-butadiene-styrene copolymer |
| AIBN | 2,2'-Azobisisobutyronitrile (initiator) |
| AMMA | Acrylonitrile-methylmethacrylate copolymer |

| | |
|---|---|
| AMPS | Acrylamidomethylpropanesulfonic acid |
| BR | Butadiene rubber |
| CTFE | Chloro-trifluoroethylene |
| DVB | Divinyl benzene |
| EAA | Ethylene-acrylic acid copolymer |
| EPDM | Ethylene-propylene-diene-monomer |
| EPR | Ethylene-propylene rubber |
| EVOH | Ethylene-vinyl alcohol copolymer |
| HDPE | High-density polyethylene |
| HEMA | Hydroxyethyl methacrylate |
| LDPE | Low-density polyethylene |
| LLDPE | Linear low-density polyethylene |
| NR | natural rubber |
| PAN | Polyacrylonitrile |
| PE | Polyethylene |
| PMMA | Poly(methyl methacrylate) |
| PP | Polypropylene |
| PS | Polystyrene |
| PTFE | Polytetrafluoroethylene |
| PVA | Poly(vinyl alcohol) or poly(vinyl acetate) |
| PVAC | Poly(vinyl acetate) |
| PVC | Poly(vinyl chloride) |
| PVOH | Poly(vinyl alcohol) |
| PVP | Poly(vinyl pyrrolidone) |
| SAN | Styrene-acrylonitrile copolymer |
| SBR | Styrene-butadiene rubber |
| SBS | Styrene-butadiene-styrene block polymer |
| SIS | Styrene-isoprene styrene block polymer- |
| TAC | Triallyl cyanurate |

# C08F 2/00

## Processes of polymerisation

### Definition statement

*This place covers:*

Polymerisation processes and characteristic features thereof which result in addition polymers (C08F polymers), e.g. polymerisation of polyolefins, poly(meth)acrylates, polystyrenes.

Polymerisation processes in the presence of non-macromolecular organic or inorganic compounding agents.

## Relationships with other classification places

When a polymerisation process is conducted in the presence of a macromolecular compound, additional classification in C08F 251/00 - C08F 291/00 is allocated.

When a polymerisation process is conducted in the presence of an inorganic compound such that a monomer is grafted onto the inorganic material, additional classification in C08F 292/00 is allocated.

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Chemical modification by after-treatment | C08F 8/00 |
| Polymerisation processes resulting in condensation polymers; Crosslinking or curing of preformed polymers. | C08G |
| Crosslinking | C08J 3/24 |

## Special rules of classification

Classification guidance:

- Although every polymerisation is conducted according to a process and using a catalyst, in C08F 2/00 or subgroups, only documents which disclose the polymerisation process as the invention or as a characterizing feature of the invention are classified.
- If a process of polymerisation is specifically used for only one type of polymer, it is classified in C08F 2/00 or subgroups only using a Combination set (C-Set) per #C8Fc. For details see the "Combination sets" section of Combination sets at C08F.
- However, if a process is exemplified for polymers not listed as part of #C8Fc, then a classification in C08F 2/00 is allocated as a single symbol without using the C-Set format.
- Last place priority rule: In C08F 2/00 - C08F 2/60, the last place rule is only applied starting from the two dots level.
- In the subgroups C08F 2/18 - C08F 2/30, it should be precisely distinguished between suspension polymerisation and emulsion polymerisation. If a water-soluble catalyst system is used, the polymerisation is conducted as an emulsion polymerisation (C08F 2/22). If the invention lies in the emulsifying agent, the document is classified in the groups C08F 2/24 - C08F 2/30
- In the subgroups C08F 2/46 - C08F 2/60, only polymerisation processes involving ethylenically unsaturated monomers are classified, not crosslinking of preformed polymers.

Allocation of indexing codes:

- In C08F 2/00 and subgroups, C08F 2400/02 is allocated as Additional information (ADD) if the invention relates to control or adjustment of polymerisation parameters.
- In C08F 2/38, an additional Indexing Code from C08F 2438/00 - C08F 2438/03 is allocated as a single symbol if the invention relates to living radical polymerisation such as e.g. Radical polymerisation processes according to the RAFT (Reversible Addition Fragmentation chain Transfer) or ATRP (Atom Transfer Radical Polymerisation) mechanism.

**C-Sets classification:**

In this group, C-Sets (e.g. #C8Fc) are used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 10/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 4/00

## Polymerisation catalysts

## Definition statement

*This place covers:*

Polymerisation catalysts and co-catalysts, which are used for the polymerisation of unsaturated monomers wherein the polymerisation process forms addition (C08F) polymers, e.g. a polymerisation catalyst used for the polymerisation of polyolefins, poly(meth)acrylates, polystyrenes.

## Relationships with other classification places

Post-polymerisation treatments: (C08F 6/00)

Catalysts comprising the elements, oxides, or hydroxides of magnesium, boron, aluminium, carbon, silicon, titanium, zirconium, or hafnium: B01J 21/00

Catalysts comprising metals or metal oxides or hydroxides, not provided for in groups: B01J 21/00, B01J 23/00

Catalysts comprising the elements or compounds of halogens, sulfur, selenium, tellurium, phosphorus or nitrogen; Catalysts comprising carbon compounds: B01J 27/00

Catalysts comprising molecular sieves: B01J 29/00

Catalysts comprising hydrides, coordination complexes or organic compounds: B01J 31/00

Organic compounds used for making ligands (of metal complexes): C07C - C07F

Oligomerisation: C07C 2/00, C07C 4/00, C07C 5/00

Acyclic, carbocyclic, or heterocyclic compounds containing elements other than carbon, hydrogen, halogen, oxygen, nitrogen, sulfur, selenium, or tellurium: C07F

Metallocenes: C07F 17/00

Polymers obtained by reactions only involving carbon-to-carbon unsaturated bonds (C08F polymers): C08F 10/00 - C08F 299/08

Block copolymers: C08F 293/00 - C08F 297/086

Compositions comprising C08F polymers: C08L 9/00 - C08L 57/12

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Photopolymerisation with sensitising agents | C08F 2/50 |
| Polymers obtained by reactions only involving carbon-to-carbon unsaturated bonds (C08F polymers) | C08F 10/00 - C08F 299/08 |
| Catalysts in general (other than polymerisation catalysts) | B01J |
| Specific uses of nanostructures | B82Y 30/00 |
| Organic compounds used for making ligands (of metal complexes) | C07C - C07F |
| Oligomerisation | C07C 2/00, C07C 4/00, C07C 5/00 |

| | |
|---|---|
| Polymerisation catalysts used in polymerisation resulting in condensation polymers | C08G |
| Nanoparticles | C08J 5/005 |
| Compositions of C08F polymers | C08L 9/00 - C08L 57/12 |
| Combinatorial chemistry | C40B 10/00- C40B 99/00 |

## Special rules of classification

Classification guidance:

If a catalyst is exemplified for polymers not listed as part of #C8Fd, then a classification in C08F 4/00 is allocated as a single symbol without using the C-Set format.

Last place priority rule:

In the group C08F 4/00, the last place rule is only applied within subgroups having the same number of dots, e.g. when the procatalyst contains Ti, a symbol in C08F 4/64 or subgroups is given, except for:

- Metallocene catalysts classified in C08F 4/619-C08F 4/61927, C08F 4/639-C08F 4/63927 or C08F 4/659 - C08F 4/65927. For these subgroups, one symbol is attributed to the invention and all the other components of the catalyst system, e.g. support, activator or kind of metallocene, are classified as Additional information (ADD).
- Catalysts comprising multidentate ligands classified in the subgroups of C08F 4/60003 (or in the corresponding subgroups of C08F 4/62003, C08F 4/64003, C08F 4/68008, C08F 4/69008 or C08F 4/7001).

In groups C08F 4/602 - C08F 4/62, C08F 4/622 - C08F 4/64 and C08F 4/642 - C08F 4/68, the following term is used with the meaning indicated: "component" comprises a transition metal or a compound thereof, pretreated or not.

Definitions of groups of chemical elements:

Alkali metals: Li, Na, K, Rb, Cs, Fr

Alkaline earth metals: Ca, Sr, Ba, Ra

Lanthanides: elements with atomic numbers 57 - 71 inclusive

Rare earths: Sc, Y, Lanthanides

Actinides: elements with atomic numbers 89 - 103 inclusive

Refractory metals: Ti, V, Cr, Zr, Nb, Mo, Hf, Ta, W

Halogens: F, Cl, Br, I, At

Noble gases: He, Ne, Ar, Kr, Xe, Rn

Platinum group: Os, Ir, Pt, Ru, Rh, Pd

Noble metals: Ag, Au, Platinum group

Light metals: alkali metals, alkaline earth metals, Be, Al, Mg

Heavy metals: metals other than light metals

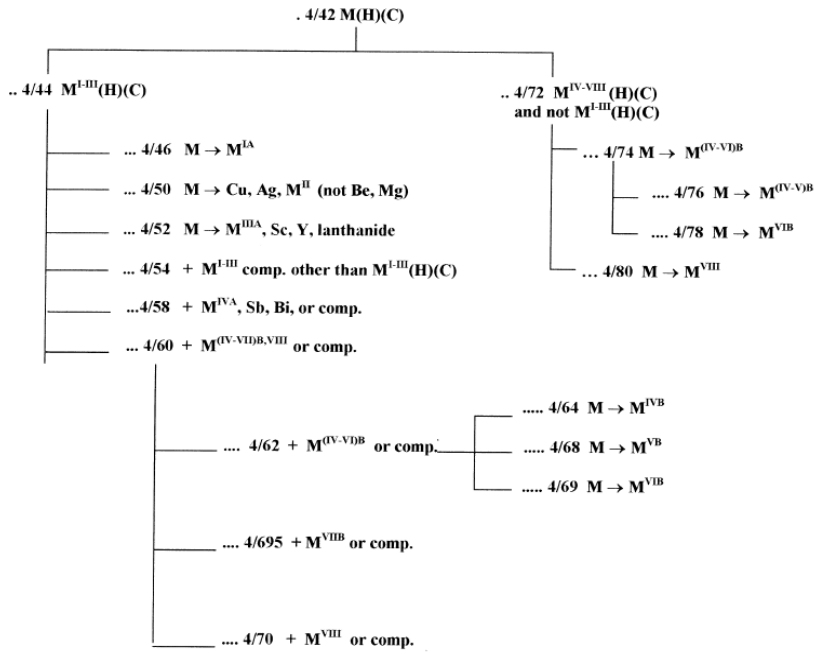
Iron group: Fe, Co, Ni

Non-metals: H, C, N, P, O, S, Se, Te, noble gases, halogens

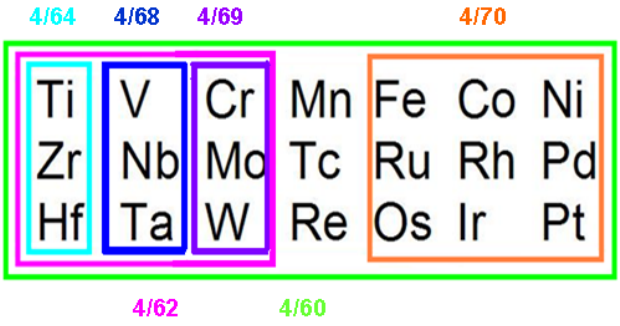
Metals: elements other than non-metals including Boron and Silicon

Transition elements: elements with atomic numbers 21 - 30 inclusive, 39 - 48 inclusive, 57 - 80 inclusive, 89 upwards

The subdivision of the metals into the different subgroups of C08F 4/00 can be represented as follows:




In C08F 4/60 - C08F 4/70 the different metal compounds are classified according to the following scheme:




C08F 4/60: Ti,V,Cr,Mn,Fe,Co,Ni,Zr,Nb,Mo,Tc,Ru,Rh,Pd,Hf,Ta,W,Re,Os,Ir,Pt

C08F 4/62: Ti,V,Cr,Zr,Nb,Mo,Hf,Ta,W

C08F 4/64: Ti,Zr,Hf

C08F 4/68: V,Nb,Ta

C08F 4/69: Cr,Mo,W

C08F 4/70: Fe,Co,Ni,Ru, Rh,Pd,Os,Ir,Pt

Although every polymerisation is conducted according to a process and using a catalyst, in C08F 4/00 or subgroups, only documents that disclose the polymerisation catalyst as the invention or as an essential feature of the invention are classified.

The subgroups C08F 4/72 - C08F 4/82 are dedicated to catalysts without organometallic co-catalyst where the procatalyst is a metal, a metal hydride or a metallo-organic compound not provided for in C08F 4/44, i.e. Groups 4-10: Ti-Ni; Zr-Pd; Hf-Pt or Si, e.g. Ti(allyl).

Procatalysts having a multidentate ligand are classified in subgroups of C08F 4/60003, C08F 4/62003, C08F 4/64003, C08F 4/68008, C08F 4/69008, C08F 4/7001 according to the structure of their ligand.

Attention is drawn to the use of the following Indexing Codes for further information about the catalyst:

C08F 2410/00 - C08F 2410/08 are used to further characterise the catalyst, e.g. multinuclear or dual.

C08F 2420/00 - C08F 2420/12 are only used for catalyst compounds containing Cp or analogue ligand to further characterise their structure.

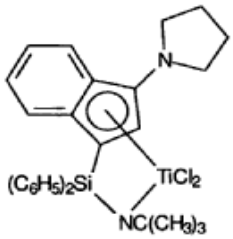
When prepolymerisation is a special feature of the invention, group C08F 4/6092, C08F 4/6292 or C08F 4/6492 is given, e.g. catalyst containing an organic hydrocarbon compound containing aliphatic unsaturation;

When the catalyst comprises a specific non metallic external electron donor containing oxygen, a group C08F 4/6094, C08F 4/6294 or C08F 4/6494 is given, e.g. catalyst containing an organic compound containing oxygen;

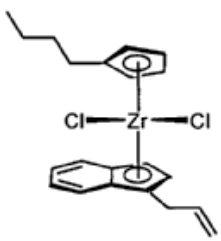
When the catalyst comprises a specific external electron donor containing silicon, a group C08F 4/6065, C08F 4/6265 or C08F 4/6465 is given, e.g. catalyst comprising at least two different metals, containing silicon.

Structure of Specific Procatalysts

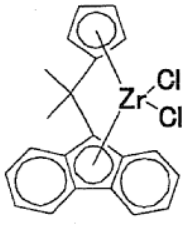
1. Metallocenes classified in C08F 4/619, C08F 4/639, C08F 4/659 or subgroups.
   - Constrained geometry catalyst or CGC (transition metal complexes bearing linked amido ligands): e.g. classified in C08F 4/6592 (Component of C08F 4/64 containing a transition metal-carbon bond containing at least one Cp (cyclopentadienyl), Ind (indenyl) or Flu (fluorenyl) ring)




   - Unbridged metallocenes: e.g. classified in C08F 4/65925 (Component of C08F 4/64 containing a transition metal-carbon bond containing 2 non-bridged Cp rings)

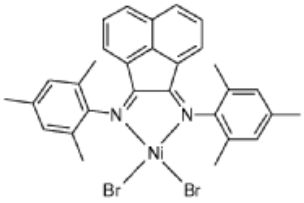



   - Bridged metallocenes: e.g. classified in C08F 4/65927 (Component of C08F 4/64 containing a transition metal-carbon bond containing 2 bridged Cp rings)

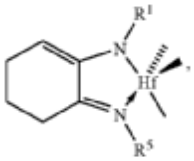



2. Procatalysts with Multidentate ligands in C08F 4/60, C08F 4/62, C08F 4/64, C08F 4/68, C08F 4/69 and C08F 4/70.

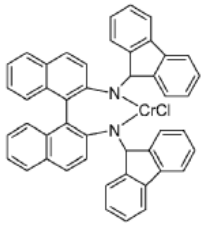
- C08F 4/7006: compound of C08F 4/70 having a bidentate neutral NN ligand e.g.



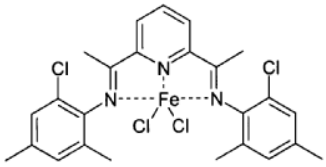

- C08F 4/64044: compound of C08F 4/64 having a bidentate monoanionic NN ligand.



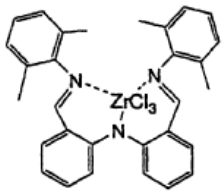

- C08F 4/69181: compound of C08F 4/69 having a bidentate dianionic NN ligand .



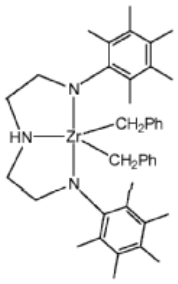

- C08F 4/7042: compound of C08F 4/70 having a tridentate neutral NNN ligand



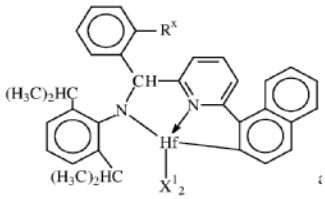

- C08F 4/64113: compound of C08F 4/64 having a tridentate monoanionic NNN ligand



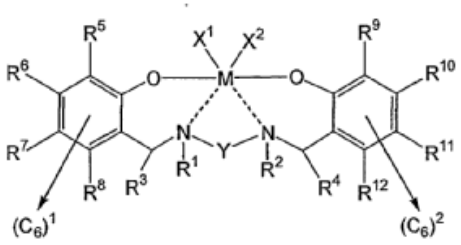
- C08F 4/64148: compound of C08F 4/64 having a tridentate dianionic NN(R)N ligand



- C08F 4/64144: compound of C08F 4/64 having a tridentate dianionic NN(R)C ligand.



- C08F 4/64189: compound of C08F 4/64 having a tetradentate dianionic ONNO ligand



**C-Sets classification:**

In this group, C-Sets (e.g. #C8Fd) are used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 10/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

## Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

| | |
|---|---|
| Cp or Cp* | Cyclopentadienyl |
| Pro-catalyst | Component or compound of C08F 4/60 |

## Synonyms and Keywords

| | |
|---|---|
| Cocatalyst | Activator |
| Cp, Cp* | Cp or Cp* Cyclopentadienyl, Me5C5 |
| Flu | Fluorenyl |
| Ind | Indenyl |
| MAO,MMAO,DIBAO or IBAO | Alumoxane, aluminoxane |

| | |
|---|---|
| Procatalyst | Catalyst component |

# C08F 6/00

## Post-polymerisation treatments (C08F 8/00 takes precedence; of conjugated diene rubbers C08C)

### Definition statement

*This place covers:*

The physical modification by post-polymerisation treatment of macromolecular compounds which belong to any among the groups C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04 and C08F 238/00 - C08F 299/08.

### Relationships with other classification places

Treatment of rubbers (homo- or copolymers of dienes classified in C08F 36/00, C08F 136/00, C08F 236/00) , are classified in subclass C08C – however synthesis of rubbers and treatment or chemical modification of non-conjugated diene-rubbers covered per se in this subclass (C08F) are classified in this subclass (C08F).

Working-up; general processes of compounding; are classified in C08J.

### References

#### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Chemical modification by after-treatment | C08F 8/00 |
| Treatment of rubbers, e.g. natural rubber or diene rubbers (homo- or copolymers of dienes classified in C08F 36/00, C08F 136/00, C08F 236/00) | C08C 1/00 - C08C 19/44 |

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Macromolecular homopolymers and copolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 10/00 - C08F 38/04 |
| Macromolecular homopolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 110/00 - C08F 138/04 |
| Macromolecular copolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 210/00 - C08F 301/00 |
| Processes for making harmful chemical substances harmless or less harmful | A62D 3/00 |
| Separation | B01D 1/00 - B01D 71/82 |
| Reactors for chemical or physical processes | B01J 19/00 |
| Shaping or joining of plastics; shaping of substances in a plastic state, in general; after-treatment of the shaped products, e.g. repairing | B29C 31/00 - B29C 73/34 |
| Post-polymerisation treatments of addition polymers of aldehydes or cyclic oligomers thereof or of ketones | C08G 2/28 |

| | |
|---|---|
| Post-polymerisation treatments of polymeric products of isocyanates or isothiocyanates | C08G 18/82 |
| Post-polymerisation treatments of macromolecular compounds obtained by reactions forming a carboxylic ester link, e.g. polyesters | C08G 63/88 - C08G 63/90 |
| Post-polymerisation treatments of macromolecular compounds obtained by reactions forming a carbonic ester link in the main chain of the macromolecule, e.g. polycarbonates | C08G 64/40 - C08G 64/406 |
| Post-polymerisation treatments of macromolecular compounds obtained by reactions forming an ether link in the main chain of the macromolecule (e.g. polyethers) | C08G 65/30, C08G 65/46 |
| Post-polymerisation treatments of macromolecular compounds obtained by reactions forming a carboxylic amide link in the main chain of the macromolecule (e.g. polyamides) | C08G 69/46 |
| Post-polymerisation treatments of macromolecular compounds obtained by reactions forming a linkage containing silicon with or without sulphur, nitrogen, oxygen or carbon in the main chain of the macromolecule | C08G 77/32 - C08G 77/36 |
| Post-polymerisation treatments in general processes for preparing compounds provided for in C08G | C08G 85/002 |
| Working up; General processes of compounding; After-treatment not covered by subclasses C08B, C08C, C08F, C08G | C08J 3/00 - C08J 9/42 |
| Crosslinking, e.g. vulcanising, of macromolecules | C08J 3/24 |
| Treatment by wave energy or particle radiation | C08J 3/28 |
| Recovery or working up of waste materials | C08J 11/00, C08J 11/28 |
| Compositions (other than coating, adhesive) of macromolecular compounds obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08L 23/00 - C08L 57/12 |
| Coating compositions, e.g. paints, varnishes, lacquers; filling-pastes; chemical paint or ink removers; inks; correcting fluids; woodstains; pastes or solids for colouring or printing; use of materials therefore | C09D 1/00 - C09D 201/10 |
| Adhesives; non-mechanical aspects of adhesive processes in general; adhesive processes not provided for elsewhere; use of materials as adhesives | C09J 1/00 - C09J 201/10 |
| Adaptive control systems | G05B 13/00 |

## Special rules of classification

**Combination sets (C-Sets):**

**C-Sets statement: #C8Fa**

- In group C08F 6/00 the post polymerisation treatment of polymers is classified in the form of C-Sets according to #C8Fa.
- In #C8Fa, the base symbol, representing the post polymerisation treatment, is taken from the groups C08F 6/00 - C08F 6/28, whereas the subsequent symbol representing the polymer to be treated is taken from the groups C08L 23/00 - C08L 57/12.
- In the case of a post-polymerisation treatment of a mixture of polymers, then the base symbol, representing the post polymerisation treatment, is taken from the groups C08F 6/00 - C08F 6/28, whereas the subsequent symbol representing the polymer in majority to be treated is taken from the groups C08L 23/00 - C08L 57/12. If the mixture contains two polymers in equal amounts then two separate C-Sets are given based on each polymer.
- In #C8Fa C-Sets are always allocated as Invention information (I).

**C-Sets syntax rules:**

- Each C-Set shall contain exactly two symbols.
- Duplicate symbols are not allowed in these C-Sets.
- Breakdown indexing codes are not allowed as either base or subsequent symbols.
- The order of symbols in these C-Sets is relevant as it reflects the post-polymerisation treatment of polymers as the base symbol and the polymer to be treated as the subsequent symbol.

**C-Sets examples:**

- #C8Fa: Coagulation of poly-methyl methacrylate is classified as (C08F 6/22, C08L 33/12).
- #C8Fa: Coagulation of a 65/35 mixture of polyvinylchloride (PVC) and polytetrafluoroethylene (PTFE) is classified as (C08F 6/22, C08L 27/06).
- #C8Fa: Coagulation of a 50/50 mixture of PVC and PTFE is classified as (C08F 6/22, C08L 27/06) and (C08F 6/22, C08L 27/18).
- #C8Fa: Separating polyvinyl alcohol from a solution by precipitation with addition of salts is classified as (C08F 6/12, C08L 29/04).
- #C8Fa: Removing catalyst/metal residues from polyethylene homopolymer is classified as (C08F 6/02, C08L 23/06).
- #C8Fa: Treatment of a polymer based on acrylic acid and salts thereof with water to form a hydrogel is classified as (C08F 6/008, C08L 33/02).
- #C8Fa: Removing residual monomer from molten or solid polypropylene homopolymer is classified as (C08F 6/005, C08L 23/12).
- #C8Fa: Purification of polytetrafluoroethylene, e.g. separation of fluorinated emulsifiers after polymerisation in the production process of polytetrafluoroethylene is classified as (C08F 6/16, C08L 27/18).

**C-Sets searches:**

- C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

## Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

| | |
|---|---|
| Post-polymerisation treatment | Treatment steps taking place after a polymerisation process, being mainly physical steps, such as purification, isolation |
| Chemical modification by after-treatment | Chemical modification of a polymer, e.g. functionalisation, polymer-analogous reactions |
| Working-up; general processes of compounding; covered by C08J | Processes of treating or compounding macromolecular substances such as mixing polymers, powdering or granulating, plasticising, compounding with additives, using masterbatching techniques, crosslinking; manufacture of articles or shaped materials containing macromolecular substances; chemical treatment or coating of shaped articles made of macromolecular substances; working up of macromolecular substances to porous or cellular articles or materials and after-treatment thereof |

## Synonyms and Keywords

| | |
|---|---|
| Residual monomer | rest monomer, unreacted monomer |
| Post-polymerisation treatment | after-polymerisation treatment |
| Removal of residual monomers by chemical reaction | post-polymerisation, after-polymerisation, scavenging, chasing |

| | |
|---|---|
| Solid wetted polymer | polymer gel, coagulum, filter cakes, swollen resins, wetted by either water or organic solvents |
| Fractionation | separation of monomer - oligomer - polymer, separation of low and high molecular weight fractions |

## C08F 6/003

### {from polymer solutions, suspensions, dispersions or emulsions without recovery of the polymer therefrom}

#### Definition statement

*This place covers:*

Removal of residual monomers by physical means from solutions, suspensions, dispersions or emulsions of polymers, without isolating the polymer therefrom.

## C08F 6/005

### {from solid polymers}

#### Definition statement

*This place covers:*

Removal of residual monomers by physical means from solid polymers or polymer melts.

## C08F 6/02

### Neutralisation of the polymerisation mass, e.g. killing the catalyst (short-stopping C08F 2/42 ){also removal of catalyst residues}

#### Definition statement

*This place covers:*

Neutralisation of the polymer mass covers also killing the catalyst, removing catalyst residues, removing of metals and metal residues in general, extraction processes therefore or cation exchange processes therefore.

## C08F 6/06

### Treatment of polymer solutions {(C08F 6/001, C08F 6/006, C08F 6/008, C08F 6/02, C08F 6/04 take precedence)}

#### Definition statement

*This place covers:*

Treatment of polymer solutions covers solvent exchange treatment, nano-filtration, micro-filtration and ultra-filtration.

#### References

##### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Removal of residual monomers by physical means | C08F 6/001 |
| Removal of residual monomers by chemical reaction | C08F 6/006 |

| | |
|---|---|
| Treatment of solid polymer wetted by water or organic solvents | C08F 6/008 |
| Neutralisation of the polymerisation mass | C08F 6/02 |
| Fractionation | C08F 6/04 |

## C08F 6/10

### Removal of volatile materials, e.g. solvents {(C08F 6/001, C08F 6/003, C08F 6/005, C08F 6/006, C08F 6/008, C08F 6/02, C08F 6/04 take precedence)}

#### Definition statement

*This place covers:*

Removal of volatile materials covers only removal of solvents but not removal of monomers.

#### References

##### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Removal of residual monomers by physical means | C08F 6/001 |
| Removal of residual monomers by physical means from polymer solutions, suspensions, dispersions or emulsions without recovery of the polymer therefrom | C08F 6/003 |
| Removal of residual monomers by physical means from solid polymers | C08F 6/005 |
| Removal of residual monomers by chemical reaction | C08F 6/006 |
| Treatment of solid polymer wetted by water or organic solvents | C08F 6/008 |
| Neutralisation of the polymerisation mass | C08F 6/02 |
| Fractionation | C08F 6/04 |

## C08F 6/12

### Separation of polymers from solutions

#### Definition statement

*This place covers:*

Separation of polymers from solutions covers osmosis, precipitation, phase separation.

## C08F 6/16

### Purification

#### Definition statement

*This place covers:*

Purification of polymer emulsions covers separation of surfactants or emulsifiers from polymers.

## C08F 6/18

### Increasing the size of the dispersed particles

### Definition statement

*This place covers:*

Increasing the size of dispersed particles, e.g. agglomeration.

## C08F 6/20

### Concentration

### Definition statement

*This place covers:*

Concentration of polymer emulsions, e.g. membrane filtration processes, production of high solids.

## C08F 6/22

### Coagulation

### Definition statement

*This place covers:*

Coagulation of polymer emulsions, e.g. with salts, salt-free, by high shear forces, (e.g. for sewage purification, sewage treatment, waste water purification, waste water treatment).

## C08F 8/00

### Chemical modification by after-treatment (graft polymers, block polymers, crosslinking with unsaturated monomers or with polymers C08F 251/00 - C08F 299/00; of conjugated diene rubbers C08C)

### Definition statement

*This place covers:*

The chemical modification by after-treatment (or post-treatment) of macromolecular compounds which belong to any among the groups C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04 and C08F 238/00 - C08F 299/08.

### Relationships with other classification places

Chemical modification of rubbers (homo- or copolymers of dienes classified in C08F 36/00, C08F 136/00, C08F 236/00) are classified in subclass C08C; however, synthesis of rubbers and treatment or chemical modification of non-conjugated diene-rubbers covered per se in this subclass (C08F) are classified in this subclass (C08F).

### References

#### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Graft polymers, block polymers or cross-linking reactions with unsaturated monomers or polymers | C08F 251/00 - C08F 299/08 |

| | |
|---|---|
| Chemical modification of diene rubbers, e.g. natural rubber or diene rubbers (homo- or copolymers of dienes classified in C08F 36/00, C08F 136/00, C08F 236/00) | C08C |

***Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Use of compositions of macromolecular compounds or of compositions of derivatives of said macromolecular compounds in pesticides or herbicides | A01N 25/10 |
| Use of compositions of macromolecular compounds or of compositions of derivatives of said macromolecular compounds in pharmaceuticals or cosmetics | A61K 8/81, A61K 8/90, A61K 8/91 |
| Use of compositions of macromolecular compounds or of compositions of derivatives of said macromolecular compounds in explosives | C06B |
| Crosslinking in general | C08J |
| Cross-linking, e.g. vulcanising, of macromolecules when specific crosslinking aspects not classifiable in C08G, C08F or C08K are involved | C08J 3/24 - C08J 3/26 |
| Treatment by wave energy or particle radiation | C08J 3/28 |
| Chemical treatment or coating of shaped articles made of macromolecular substances | C08J 7/00 - C08J 7/18 |
| Recovery or working-up of waste material made of polymers by chemically breaking down the molecular chains of polymers or breaking of crosslinks, e.g. devulcanisation | C08J 11/10 - C08J 11/28 |
| Use of inorganic or non-macromolecular organic substances as compounding ingredients | C08K |
| Compositions of macromolecular compounds obtained by reactions involving only carbon-to-carbon unsaturated bonds or compositions of derivatives of said macromolecular compounds | C08L 23/00 - C08L 57/12 |
| Compositions of unspecified macromolecular compounds or compositions of derivatives of said unspecified macromolecular compounds | C08L 101/00 - C08L 101/16 |
| Polymeric dyes; reaction products of dyes with monomers or with macromolecular compounds | C09B 69/10 |
| Coating compositions based on organic macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds and coating compositions based on derivatives of said macromolecular compounds | C09D 123/00 - C09D 157/12 |
| Coating compositions based on unspecified macromolecular compounds and coating compositions based on derivatives of said unspecified macromolecular compounds | C09D 201/00 - C09D 201/10 |
| Chemical modification of drying oils | C09F 7/00 - C09F 7/10 |
| Adhesives based on organic macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds and adhesives based on derivatives of said macromolecular compounds | C09J 123/00 - C09J 157/12 |
| Adhesives based on unspecified macromolecular compounds and adhesives based on derivatives of said unspecified macromolecular compounds | C09J 201/00 - C09J 201/10 |

| | |
|---|---|
| Use of compositions of macromolecular compounds or of derivatives of said macromolecular compounds in materials for miscellaneous applications not provided for elsewhere | C09K |
| Use of compositions of macromolecular compounds or of compositions of derivatives of said macromolecular compounds in lubricants | C10M |
| Use of compositions of macromolecular compounds or of compositions of derivatives of said macromolecular compounds in detergents | C11D |
| Use of compositions of macromolecular compounds or of compositions of derivatives of said macromolecular compounds in artificial filaments or fibres | D01F |
| Use of compositions of macromolecular compounds or of compositions of derivatives of said macromolecular compounds in textile treating compositions | D06 |
| Other features in dyeing solid macromolecular substances in any form | D06P 5/00 - D06P 5/30 |

## Special rules of classification

Classification guidance

- One or more single C08F 8/00 symbols are allocated when a C08F polymer is modified.
- When there are exemplified modifications of specific C08F polymers and the modifications are covered by C08F 8/00 - C08F 8/50, a C-Sets classification is given to indicate the kind of chemical modification and the nature of the polymer involved. For the detail of C-Sets rules, see C-Sets classification in C08F.
- When there is no exemplified modification of any specific C08F polymer in a document, and the polymers potentially concerned by the modification(s) cannot be described by one single C08F polymer symbol, only one or more single C08F 8/00 symbols describing the modification(s) taught in the document should be allocated, i.e. there is no Combination set allocated in this case. For example, C08F 8/32 is given when the document discloses the reaction with an amine compound for various types of C08F polymers, e.g., polyacrylates, graft or block copolymers or polyolefines, but does not exemplify any particular polymer being modified in an example.
- When a chemical modification of a C08F polymer (as defined above under the definition statement) does not correspond to any among the specific chemical modifications defined in the subdivisions C08F 8/02 - C08F 8/50, then the main group C08F 8/00 should be utilized for the purpose of the C-Set classification or for the purpose of allocating a single symbol.

Allocation of Indexing Codes

- The Indexing Code C08F 2800/10 should be given in order to indicate that the proportions of the comonomers in a copolymer to be modified are expressed as molar percentage.
- The Indexing Code C08F 2800/20 should be given in order to indicate that the proportions of the comonomers in a copolymer to be modified are expressed as weight or mass percentages.
- The Indexing Code C08F 2810/10 should be given in order to indicate that the chemical modification of a polymer includes a reactive processing step (i.e. high shear forces are applied to a polymer, e.g. in an extruder or a similar processing apparatus) which leads, inter alia, to morphological and/or rheological modifications thereof (e.g. a visbreaking).
- The Indexing Code C08F 2810/20 should be given in order to indicate that the chemical modification of a polymer leads to a crosslinking thereof, either explicitly or inherently.
- The Indexing Code C08F 2810/30 should be given in order to indicate that the chemical modification of a polymer leads to the formation or introduction of aliphatic or alicyclic unsaturated groups therein.
- The Indexing Code C08F 2810/40 should be given in order to indicate that the chemical modification of a polymer takes place solely at one end or both ends of the polymeric backbone, i.e. not in the side or lateral chains thereof.

- The Indexing Code C08F 2810/50 should be given in order to indicate that the chemical modification of a copolymer takes place only on one or more of the monomers present in minority.

**Combination sets (C-Sets):**

**C-Sets statement : #C8Fb1 and #C8Fb2**

- In group C08F 8/00, the chemical modification by after-treatment of polymers and the polymer to be modified is classified in the form of C-Sets.
- #C8Fb1 represents a single-step chemical modification whereas #C8Fb2 represents a multistep chemical modification.
- In #C8Fb1, the base symbol, representing the chemical modification step, is taken from the groups C08F 8/00 - C08F 8/50, whereas the subsequent symbol representing the modified polymer is taken from the groups C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04 and C08F 238/00 - C08F 299/08.
- In #C8Fb2, the base symbol, representing the last chemical modification step, is taken from the groups C08F 8/00 - C08F 8/50, whereas the subsequent symbol(s) starting with the symbol(s) representing the previous modification step(s) in descending order is (are) taken from the groups C08F 8/00 - C08F 8/50 and ending with the last symbol representing the polymer to be modified which is taken from the groups C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04 and C08F 238/00 - C08F 299/08.
- In addition to the C-Set, all C08F 8/00 and its subgroups in the C-Set, representing the chemical modification step(s), are also allocated as single symbols.
- In #C8Fb1 and C8Fb2, C-Sets are always allocated as Invention information (I).

**C-Sets syntax rules:**

- Each C-Set shall contain at least two symbols.
- Duplicate symbols are allowed in these C-Sets for the C08F 8/00 and its subgroups symbol(s) only.
- The order of symbols in these C-Sets is relevant as it reflects the chemical modification step(s) and the polymer to be modified; in #C8Fb2 the chronological sequence for multistep modifications is read from right to left in the C-Set.

**C-Sets examples:**

- #C8Fb1: 95% hydrolysis of polyvinyl acetate homopolymer is classified as (C08F 8/12, C08F 118/08).
- #C8Fb2: Sulfonation then complete hydrolysis of polyvinyl acetate-polystyrene copolymer (vinyl acetate in majority) is classified as (C08F 8/12, C08F 8/36, C08F 218/08).
- #C8Fb2: Sulfonation then complete hydrolysis of polyvinyl acetate-polystyrene copolymer (styrene in majority) is classified as (C08F 8/12, C08F 8/36, C08F 212/08).
- #C8Fb1: Partial depolymerisation of a polyolefin (e.g. claimed), but without disclosure of any example illustrating said depolymerisation is classified as (C08F 8/50, C08F 10/00).
- #C8Fb1: Example 1: a homopolymer of vinyl acetate is hydrolyzed; this is classified as (C08F 8/12, C08F 118/08). Example 2: a copolymer comprising a majority of repeating units derived from vinyl acetate is hydrolyzed; this is classified as (C08F 8/12, C08F 218/08). In a situation where a document includes Example 1 and Example 2, the two C-Sets mentioned above are given.
- #C8Fb1: a fully hydrolyzed polyvinylamine homopolymer wherein the amine function is quaternized in order to prepare an ammonium salt derivative thereof is classified as (C08F 8/44, C08F 126/02).
- #C8Fb1: a polyvinylamine (with no details provided as to the hydrolysis degree of its polyvinylformamide precursor such that the polyvinylamine may be a fully hydrolyzed homopolymer or a partially hydrolyzed copolymer) wherein the amine function is quaternized in order to prepare an ammonium salt derivative thereof is classified as (C08F 8/44, C08F 26/02).
- #C8Fb2: a polyisobutylene homopolymer with vinylidene end groups which has been modified in a first step with maleic anhydride through an "Alder-ene" reaction, then hydrolyzed in a second step

and finally amidated with an amine compound is classified as (C08F 8/32, C08F 8/12, C08F 8/46, C08F 110/10).

- #C8Fb2: the (partial or complete) hydrolysis of a polyvinyl acetate homopolymer in a first step, followed by the subsequent condensation with butyraldehyde followed by a cyclisation leading to a polymer containing vinyl butyral repeating units is classified in (C08F 8/48, C08F 8/28, C08F 8/12, C08F 118/08).
- #C8Fb2: A sulfur-containing group is introduced into a polyethylene homopolymer followed by the introduction of a silicon containing group therein and a partial depolymerisation step; is classified in (C08F 8/50, C08F 8/42, C08F 8/34, C08F 110/02).
- #C8Fb2: A sulfur-containing group should be introduced into a polyolefin followed by the introduction of a silicon containing group therein and a partial depolymerisation step should finally be performed (e.g. claimed); with no disclosure of any example wherein this sequence of modifications has been effectively applied to a particular polyolefin, classification is in (C08F 8/50, C08F 8/42, C08F 8/34, C08F 10/00).

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 8/02

## Alkylation

## Definition statement

*This place covers:*

The transfer of an alkyl group from a molecule to macromolecular compounds which belong to any one among the groups C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 138/04, C08F 210/00 - C08F 234/04 and C08F 238/00 - C08F 299/08.

## Special rules of classification

The alkyl group which is transferred may contain one or more non-alkyl hydrocarbon substituents such as an aromatic ring.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 8/30

## Introducing nitrogen atoms or nitrogen-containing groups

## Definition statement

*This place covers:*

The introduction of nitrogen atoms or nitrogen-containing groups into macromolecular compounds which belong to any one among the groups C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04 and C08F 238/00 - C08F 299/08.

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Polymeric products of isocyanates or thiocyanates | C08G 18/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 8/32

### by reaction with amines

## Definition statement

*This place covers:*

The introduction of nitrogen atoms or nitrogen-containing groups, by reaction with amines, into macromolecular compounds which belong to any one among the groups C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04 and C08F 238/00 - C08F 299/08.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 8/42

### Introducing metal atoms or metal-containing groups

## Definition statement

*This place covers:*

The introduction of metal atoms or metal-containing groups into macromolecular compounds which belong to any one among the groups C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04 and C08F 238/00 - C08F 299/08.

In C08F, boron and silicon are considered as metals.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 8/46

### Reaction with unsaturated dicarboxylic acids or anhydrides thereof, e.g. maleinisation

## Definition statement

*This place covers:*

The reaction of macromolecular compounds which belong to any one among the groups C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04 and C08F 238/00 - C08F 299/08 with unsaturated dicarboxylic acids or anhydrides thereof when the chemical reaction involved comprises a condensation reaction with at least one of the carboxylic acid functions, a ring opening of an anhydride function or an "ene" reaction.

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Macromolecular compounds obtained by polymerising unsaturated dicarboxylic acids or anhydrides thereof on to macromolecular compounds according to any among the groups C08F 251/00 - C08F 291/18, e.g. by free radical reaction | C08F 251/00 - C08F 291/18 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses

# C08F 8/48

## Isomerisation; Cyclisation

### Definition statement

*This place covers:*

Isomerisations and/or cyclisations performed on macromolecular compounds which belong to any one among the groups C08F 10/00 - C08F 34/04, C08F 38/00 - C08F 38/04, C08F 110/00 - C08F 134/04, C08F 138/00 - C08F 138/04, C08F 210/00 - C08F 234/04 and C08F 238/00 - C08F 299/08.

### Special rules of classification

Classification guidance

- When the cyclisation leads to the formation of an epoxide ring, classification is only allocated in C08F 8/08.
- When the cyclisation leads to the formation of a lactone ring, classification is only allocated in C08F 8/16.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 10/00

## Homopolymers and copolymers of unsaturated aliphatic hydrocarbons having only one carbon-to-carbon double bond

### Definition statement

*This place covers:*

Polyolefins when both polyolefin homopolymers and polyolefin copolymers having a majority of olefin monomer units are exemplified, e.g. ethylene (co)polymers, propylene (co)polymers, butene (co)polymers.

### Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 110/00.
- If a document exemplifies only copolymers, it is classified in C08F 210/00.
- Compositions comprising a polymer of C08F 10/00 are classified in C08L 23/00.
- Coating compositions comprising a polymer of C08F 10/00 are classified in C09D 123/00.
- Adhesive compositions comprising a polymer of C08F 10/00 are classified in C09J 123/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of olefin monomers as defined in group C08F 10/00 are classified in C08F 255/00 (graft copolymers).

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Films containing a polymer classified in C08F 10/00 or subgroups | C08J 5/18 |

| | |
|---|---|
| Fibres containing a polymer classified in C08F 10/00 or subgroups | D01F |

## Special rules of classification

Classification guidance

- Attention is also drawn to the definitions of C08F 2/00 and C08F 4/00.
- If classification is made for a use, e.g. fibre or film, the polymer as such should be indexed with the corresponding Indexing Codes in C08F.

**Combination sets (C-Sets):**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fc and #C8Fd) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fc and #C8Fd in this group below.

**C-Sets statement: #C8Fc**

- In #C8Fc, the base symbol, representing the polymer, is taken from the following groups: C08F 10/00 - C08F 10/14; C08F 12/00 - C08F 12/36; C08F 14/06; C08F 14/18 - C08F 14/28; C08F 36/00 - C08F 36/22; C08F 110/00 - C08F 110/14; C08F 112/00 - C08F 112/36; C08F 136/00 - C08F 136/22; C08F 210/00 - C08F 210/18; C08F 212/00 - C08F 212/36; C08F 236/00 - C08F 236/22. The subsequent symbol representing the polymerisation process feature is taken from the groups C08F 2/00 - C08F 2/60.
- When a process feature is disclosed for the synthesis of both homo- and copolymers, the base symbol is taken from the groups C08F 10/00 - C08F 10/14, C08F 12/00 - C08F 12/36, C08F 14/06, C08F 14/18 - C08F 14/28, or C08F 36/00 - C08F 36/22, on the basis of the majority monomer.
- When a process feature is disclosed for the synthesis of homo-polymers only, the base symbol is taken from the groups C08F 110/00 - C08F 110/14, C08F 112/00 - C08F 112/36, or C08F 136/00 - C08F 136/02.
- When a process feature is disclosed for the synthesis of copolymers only, the base symbol is taken from the groups C08F 210/00 - C08F 210/18, C08F 212/00 - C08F 212/36, or C08F 236/00 - C08F 236/22, on the basis of the monomer in majority in the copolymer. If the copolymer contains two monomers in equal amounts then two separate C-Sets are given based on each monomer.
- When several process features are disclosed for the synthesis of a (co)polymer, one C-Set for each process feature is given.
- When there are examples to more than one kind of (co)polymer, within the same main group symbol with the same process feature, only one C-Set is provided using as the base symbol, the furthest indented symbol that covers all of the (co)polymers, e.g. if the same process feature is exemplified for polypropylene homopolymer, polybutene homopolymer, and propylene-butene copolymer, then C08F 10/04 would be utilized as the base symbol of the C-Set.
- In #C8Fc C-Sets are always allocated as Invention information (I).

**C-Sets syntax rules:**

- Each C-Set shall contain exactly two symbols.
- Duplicate symbols are not allowed in these C-Sets.
- The order of symbols in these C-Sets is relevant as it reflects the homo- and/or copolymer as the base symbol, followed by the polymerisation process used to prepare that polymer as the subsequent symbol.

**C-Sets examples:**

- #C8Fc: Gas phase process using chain-transfer agent for the (co)polymerisation of ethylene is classified as (C08F 10/02, C08F 2/38) (for the "chain transfer agent" feature) and (C08F 10/02, C08F 2/34) (for the "gas phase" aspect).

- #C8Fc: Multistep process for the homopolymerisation of ethylene is classified as (C08F 110/02, C08F 2/001).
- #C8Fc: Multistep process for the copolymerisation of ethylene in majority with an alpha-alkene is classified as (C08F 210/16, C08F 2/001).
- #C8Fc: Multistep process for the (co)polymerisation of propylene and/or butene is classified as (C08F 10/04, C08F 2/001).
- #C8Fc: Process of preparation of ethylene-vinyl acetate copolymers (ethylene in majority) in aqueous medium in the presence of a polymeric surfactant is classified as (C08F 210/02, C08F 2/20), if chain-transfer agent is also used (C08F 210/02, C08F 2/38) is also given.
- #C8Fc: Process using chain-transfer agent for the polymerisation of styrenic-type monomers is classified as (C08F 12/08, C08F 2/38).
- #C8Fc: Multistep process for the homopolymerisation of styrene is classified as (C08F 112/08, C08F 2/001).
- #C8Fc: Process of preparation of styrene-butyl acrylate copolymers (styrene in majority) in aqueous medium in the presence of a polymeric surfactant is classified as (C08F 212/08, C08F 2/20), if chain-transfer agent is also used (C08F 212/08, C08F 2/38) is also given.
- #C8Fc: Process using chain-transfer agent for the (co)polymerisation of vinylidene fluoride monomer is classified as (C08F 14/22, C08F 2/38).
- #C8Fc: Process for the emulsion (co)polymerisation of vinyl chloride is classified as (C08F 14/06, C08F 2/22).
- #C8Fc: Process using chain-transfer agent for the (co)polymerisation of butadiene is classified as (C08F 36/06, C08F 2/38).
- #C8Fc: Process for the homopolymerisation of isoprene in suspension is classified as (C08F 136/08, C08F 2/18).
- #C8Fc: Process of preparation of butadiene-styrene copolymers (butadiene in majority) in aqueous medium in the presence of a polymeric surfactant is classified as (C08F 236/06, C08F 2/20), if chain-transfer agent is also used (C08F 236/06, C08F 2/38) is also given.

**C-Sets statement: #C8Fd**

- In #C8Fd, the base symbol, representing the polymer, is taken from the following groups: C08F 10/00 - C08F 10/14; C08F 12/00 - C08F 12/36; C08F 36/00 - C08F 36/22; C08F 110/00 - C08F 110/14; C08F 112/00 - C08F 112/36; C08F 136/00 - C08F 136/22; C08F 210/00 - C08F 210/18; C08F 212/00 - C08F 212/36; C08F 236/00 - C08F 236/22. The subsequent symbol representing the polymerisation catalyst(s) is (are) taken from the groups C08F 4/00 - C08F 4/82.
- A C-Set is given for each exemplified catalyst or catalyst mixture.
- When there are examples to more than one kind of (co)polymer within the same main group symbol with the same catalyst, only one C-Set is provided using the furthest indented symbol that covers all of the (co)polymers, e.g. if the same catalyst is exemplified for polypropylene homopolymer (C08F 110/06), and polyethylene homopolymer (C08F 110/02), then C08F 110/00 would be utilized as the base symbol of the C-Set.
- When a catalyst is used for the synthesis of both homo- and copolymers, the base symbol is taken from the groups C08F 10/00 - C08F 10/14, C08F 12/00 - C08F 12/36, or C08F 36/00 - C08F 36/22 on the basis of the majority monomer.
- When a catalyst is used for the synthesis of homo-polymers only, the base symbol is taken from the groups C08F 110/00 - C08F 110/14, C08F 112/00 - C08F 112/36, or C08F 136/00 - C08F 136/22.
- When a catalyst is used for the synthesis of copolymers only, the base symbol is taken from the groups C08F 210/00 - C08F 210/14, C08F 212/00 - C08F 212/36, or C08F 236/00 - C08F 236/22 on the basis of the monomer in majority in the copolymer. If the copolymer contains two monomers in equal amounts then two separate C-Sets are given based on each monomer.
- When a mixture of catalysts is used for the synthesis of a (co)polymer, one C-Set is given with subsequent symbols for each of the catalysts.

- In the case of a mixture of catalysts comprising a catalyst which contains a transition metal-carbon bond of groups or subgroups C08F 4/60, C08F 4/62 or C08F 4/64, another C-Set is also given wherein the subsequent symbol is respectively taken from C08F 4/61904, C08F 4/63904 or C08F 4/65904.
- In #C8Fd C-sets are always allocated as Invention information (I).

**C-Sets syntax rules:**

- Each C-Set shall contain at least two symbols.
- Duplicate symbols are allowed in these C-Sets as subsequent symbols.
- The order of symbols in these C-Sets is relevant as it reflects the homo- and or copolymer as the base symbol and the polymerisation catalyst(s) used to prepare that polymer as the subsequent symbol(s).

**C-Sets examples:**

- #C8Fd: Process using n-butyl lithium for the homopolymerisation of ethylene is classified as (C08F 110/02, C08F 4/48).
- #C8Fd: Process using $Me_2Si$(Cyclopentadienyl)(Fluorenyl)$ZrCl_2$ together with $AlEt_3$ for the homopolymerisation of propylene is classified as (C08F 110/06, C08F 4/65927).
- #C8Fd: Process using 2,6-bis[1-(2,6-diisopropyl-phenylimino)ethyl]pyridine iron (II) chloride together with methylaluminoxane for the copolymerisation of ethylene with octene is classified as (C08F 210/16, C08F 4/7042).
- #C8Fd: Process using $Me_2Si$(Cyclopentadienyl)(Fluorenyl)$ZrCl_2$ and $Cp_2TiCl_2$ together with $AlEt_3$ for the homopolymerisation of propylene is classified as (C08F 110/06, C08F 4/65927, C08F 4/65925) and as (C08F 110/06, C08F 4/65904).
- #C8Fd: Process using a mixture of peroxy compounds for the homopolymerisation of styrene is classified as (C08F 112/08, C08F 4/38).
- #C8Fd: Process using an azo compound for the homopolymerisation of styrene is classified as (C08F 112/08, C08F 4/04).
- #C8Fd: Process of preparation of divinyl benzene/methyl methacrylate copolymers (divinyl benzene in majority) using metallic lithium as initiator (C08F 212/36, C08F 4/482).
- #C8Fd: Process using n-Butyl Lithium for the copolymerisation of isoprene (in majority) with butadiene into copolymers is classified as (C08F 236/08, C08F 4/48).
- #C8Fd: Process using neodymium versatate together with $AlEt_3$ for the homopolymerisation of butadiene is classified as (C08F 136/06, C08F 4/545).

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

**Searches for documents prior to or after Jan. 2020 using C-Sets rule #C8Fd:**

- Before Jan. 2020, each C-Set in #C8Fd was limited to exactly two symbols such that a process using a mixture of catalysts was allocated a separate C-Set for each catalyst. For example, a process using $Me_2Si$(Cyclopentadienyl)(Fluorenyl)$ZrCl_2$ and $Cp_2TiCl_2$ together with $AlEt_3$ for the homopolymerisation of propylene was classified as (C08F 110/06, C08F 4/65927), (C08F 110/06, C08F 4/65925) and (C08F 110/06, C08F 4/65904).
- After January 2020, each C-Set in C08Fd may contain more than one catalysts. For example, a process using $Me_2Si$(Cyclopentadienyl)(Fluorenyl)$ZrCl_2$ and $Cp_2TiCl_2$ together with $AlEt_3$ for the homopolymerisation of propylene is classified as (C08F 110/06, C08F 4/65927, C08F 4/65925) and as (C08F 110/06, C08F 4/65904).

# C08F 12/00

## Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an aromatic carbocyclic ring

### Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more unsaturated aliphatic radicals, each radical having only one carbon-to-carbon double bond, and at least one being terminated by an aromatic carbocyclic ring, e.g. 1-propenylbenzene, alpha-methyl-styrene, vinyl naphthalene.

### Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 112/00.
- If a document exemplifies only copolymers, it is classified in C08F 212/00.
- Compositions comprising a polymer of C08F 12/00 are classified in C08L 25/00.
- Coating compositions comprising a polymer of C08F 12/00 are classified in C09D 125/00.
- Adhesive compositions comprising a polymer of C08F 12/00 are classified in C09J 125/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of aromatic monomers as defined in group C08F 12/00 are classified in C08F 257/00 (graft copolymers).

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Post-polymerisation treatments of polymers of C08F 12/00 | C08F 6/00 |
| Chemical modification by after-treatment of polymers of C08F 12/00 | C08F 8/00 |
| Graft copolymers that are obtained by grafting vinyl aromatic monomers on to polymers of conjugated dienes | C08F 279/04 - C08F 279/06 |
| Macromolecular compounds obtained by polymerising monomers on to polymers modified by introduction of aliphatic unsaturated end or side groups | C08F 290/044, C08F 290/124 |
| Block copolymers | C08F 293/00 - C08F 297/086 |
| Layered products essentially comprising synthetic resin | B32B 27/08, B32B 27/30 |
| Treatment or chemical modification of rubbers (e.g. SBR rubber) | C08C |
| Working-up of macromolecular substances to porous or cellular articles or materials comprising polymers of C08F 12/00; After-treatment thereof | C08J 9/0061 |
| Making expandable particles comprising polymers of C08F 12/00 | C08J 9/16 |
| Compositions of copolymers of conjugated diene hydrocarbons with styrene, e.g. SBR rubber | C08L 9/06 - C08L 9/08 |
| Copolymers of ethene with monomers including an aromatic carbocyclic ring | C08L 23/0838 |
| Compositions of copolymers of allyl alcohol with vinyl-aromatic monomers | C08L 29/08 |
| Grafted styrene block copolymer based compositions, e.g. grafted SBS, grafted SEBS or grafted SEPS | C08L 51/006 |

| | |
|---|---|
| Compositions of graft copolymers with graft base being a rubber, e.g. high impact polystyrene type based compositions (HIPS) | C08L 51/04 |
| Styrene block copolymer based compositions, e.g. SBS, SEBS or SEPS | C08L 53/00 - C08L 53/025 |
| ABS (acrylonitrile butadiene styrene) based compositions | C08L 55/02 |
| Artificial filaments or fibres comprising aromatic vinyl resins | D01F 6/22, D01F 6/42, D01F 6/56 |
| Insulators consisting of aromatic vinyl resins | H01B 3/442 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fc and #C8Fd) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fc and #C8Fd in C08F 10/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

## Synonyms and Keywords

*In patent documents, the following abbreviations are often used:*

| | |
|---|---|
| ABS | Acrylonitrile butadiene styrene |
| AMS | alpha-Methyl-styrene or isopropenyl styrene |
| At-PS, a-PS, aPS | Atactic polystyrene |
| DVB | Divinyl benzene |
| HIPS | High impact polystyrene |
| It-PS, i-PS, iPS | Isotactic polystyrene |
| PS | Polystyrene |
| SAN | Styrene acrylonitrile copolymer |
| SBR | Styrene butadiene rubber |
| St-PS, s-PS, sPS | Syndiotactic polystyrene |
| SBS | Styrene butadiene styrene block copolymer |
| SIS | Styrene isoprene styrene block copolymer |

# C08F 14/00

## Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen

### Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen, e.g. vinyl chloride, vinylidene chloride, 1,2- dichloroethene, vinyl fluoride, vinylidene fluoride, trifluorochloroethene, tetrafluoroethene or hexafluoropropene.

### Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 114/00.
- If a document exemplifies only copolymers, it is classified in C08F 214/00.
- Compositions comprising a polymer of C08F 14/00 are classified in C08L 27/00.
- Coating compositions comprising a polymer of C08F 14/00 are classified in C09D 127/00.
- Adhesive compositions comprising a polymer of C08F 14/00 are classified in C09J 127/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 14/00 are classified in C08F 259/00 (graft copolymers).

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fc) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fc in C08F 10/00 (#C8Fc is only applicable to groups C08F 14/06 and C08F 14/18 -C08F 14/28).

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 16/00

## Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an alcohol, ether, aldehydo, ketonic, acetal or ketal radical

### Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or moreunsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an alcohol, ether, aldehydo, ketonic, acetal or ketal radical, e.g. poly(vinyl alcohol).

### Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 116/00.

- If a document exemplifies only copolymers, it is classified in C08F 216/00.
- Compositions comprising a polymer of C08F 16/00 are classified in C08L 29/00.
- Coating compositions comprising a polymer of C08F 16/00 are classified in C09D 129/00.
- Adhesive compositions comprising a polymer of C08F 16/00 are classified in C09J 129/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 16/00 are classified in C08F 261/00 (graft copolymers).
- If the polymerisation process is of interest, then a single symbol may be allocated in C08F 2/00 or subgroups.
- If the polymerisation catalyst is of interest, then a single symbol may be allocated in C08F 4/00 or subgroups.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 18/00

### Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, of carbonic acid or of a haloformic acid

## Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, of carbonic acid or of a haloformic acid, e.g. vinyl acetate.

## Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 118/00.
- If a document exemplifies only copolymers, it is classified in C08F 218/00.
- Compositions comprising a polymer of C08F 18/00 are classified in C08L 31/00.
- Coating compositions comprising a polymer of C08F 18/00 are classified in C09D 131/00.
- Adhesive compositions comprising a polymer of C08F 18/00 are classified in C09J 131/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 18/00 are classified in C08F 263/00 (graft copolymers).
- If the polymerisation process is of interest, then a single symbol may be allocated in C08F 2/00 or subgroups.
- If the polymerisation catalyst is of interest, then a single symbol may be allocated in C08F 4/00 or subgroups.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 20/00

## Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride, ester, amide, imide or nitrile thereof

## Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride, ester, amide, imide or nitrile thereof, e.g. methyl methacrylate, acrylonitrile, acrylamide.

## Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 120/00.
- If a document exemplifies only copolymers, it is classified in C08F 220/00.
- Compositions comprising a polymer of C08F 20/00 are classified in C08L 33/00.
- Coating compositions comprising a polymer of C08F 20/00 are classified in C09D 133/00.
- Adhesive compositions comprising a polymer of C08F 20/00 are classified in C09J 133/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 20/00 are classified in C08F 265/00 (graft copolymers).
- If the polymerisation process is of interest, then a single symbol may be allocated in C08F 2/00 or subgroups.
- If the polymerisation catalyst is of interest, then a single symbol may be allocated in C08F 4/00 or subgroups.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 22/00

## Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof

### Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more unsaturated aliphatic radicals each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof, e.g. di- or polyacrylates,di- or polyacrylamide, cyanoacrylate.

### Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 122/00.
- If a document exemplifies only copolymers, it is classified in C08F 222/00.
- Compositions comprising a polymer of C08F 22/00 are classified in C08L 35/00.
- Coating compositions comprising a polymer of C08F 22/00 are classified in C09D 135/00.
- Adhesive compositions comprising a polymer of C08F 22/00 are classified in C09J 135/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 22/00 are classified in C08F 267/00 (graft copolymers).
- If the polymerisation process is of interest, then a single symbol may be allocated in C08F 2/00 or subgroups.
- If the polymerisation catalyst is of interest, then a single symbol may be allocated in C08F 4/00 or subgroups.

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 24/00

## Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a heterocyclic ring containing oxygen (cyclic esters of polyfunctional acids C08F 18/00; cyclic anhydrides of unsaturated acids C08F 20/00, C08F 22/00)

## Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a heterocyclic ring containing oxygen, e.g. methylene lactones.

## Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 124/00.
- If a document exemplifies only copolymers, it is classified in C08F 224/00.
- Compositions comprising a polymer of C08F 24/00 are classified in C08L 37/00.
- Coating compositions comprising polymers of C08F 24/00 are classified in C09D 137/00.
- Adhesive compositions comprising polymers of C08F 24/00 are classified in C09J 137/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 24/00 are classified in C08F 269/00 (graft copolymers).
- Esters containing epoxy radicals in addition to the carboxy oxygen are classified in C08F 20/32, e.g. glycidyl methacrylate.
- If the polymerisation process is of interest, then a single symbol may be allocated in C08F 2/00 or subgroups.
- If the polymerisation catalyst is of interest, then a single symbol may be allocated in C08F 4/00 or subgroups.

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Cyclic esters of polyfunctional acids | C08F 18/00 |
| Cyclic anhydrides of unsaturated acids | C08F 20/00, C08F 22/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 26/00

## Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a single or double bond to nitrogen or by a heterocyclic ring containing nitrogen

### Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a single or double bond to nitrogen or by a heterocyclic ring containing nitrogen, e.g. diallylamine, N-vinyl-pyrrolidine or N-vinyl-pyrrolidone.

### Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 126/00.
- If a document exemplifies only copolymers, it is classified in C08F 226/00.
- Compositions comprising a polymer of C08F 26/00 are classified in C08L 39/00.
- Coating compositions comprising a polymer of C08F 26/00 are classified in C09D 139/00.
- Adhesive compositions comprising a polymer of C08F 26/00 are classified in C09J 139/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 26/00 are classified in C08F 271/00 (graft copolymers).
- Esters containing a heterocyclic ring containing nitrogen are classified in C08F 20/34, e.g. pyridino methacrylate or C08F 20/36, e.g. 2-N-morpholinoethyl methacrylate.
- If the polymerisation process is of interest, then a single symbol may be allocated in C08F 2/00 or subgroups.
- If the polymerisation catalyst is of interest, then a single symbol may be allocated in C08F 4/00 or subgroups.

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 28/00

## Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a bond to sulfur or by a heterocyclic ring containing sulfur

### Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one

being terminated by a bond to sulfur or by a heterocyclic ring containing sulfur, e.g. ethyl vinyl sulfide, 2-vinylthiophene.

## Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 128/00.
- If a document exemplifies only copolymers, it is classified in C08F 228/00.
- Compositions comprising a polymer of C08F 28/00 are classified in C08L 41/00.
- Coating compositions comprising a polymer of C08F 28/00 are classified in C09D 141/00.
- Adhesive compositions comprising a polymer of C08F 28/00 are classified in C09J 141/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 28/00 are classified in C08F 273/00 (graft copolymers).
- Esters containing sulfur are classified in C08F 20/38, e.g. 2-sulfoethyl methacrylate.
- If the polymerisation process is of interest, then a single symbol may be allocated in C08F 2/00 or subgroups.
- If the polymerisation catalyst is of interest, then a single symbol may be allocated in C08F 4/00 or subgroups.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 30/00

## Homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and containing phosphorus, selenium, tellurium or a metal

## Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and containing phosphorus, selenium, tellurium or a metal, e.g. 2-phosphoethyl methacrylate, vinyl triethoxysilane.

## Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 130/00.
- If a document exemplifies only copolymers, it is classified in C08F 230/00.
- Compositions comprising a polymer of C08F 30/00 are classified in C08L 43/00.
- Coating compositions comprising a polymer of C08F 30/00 are classified in C09D 143/00.
- Adhesive compositions comprising a polymer of C08F 30/00 are classified in C09J 143/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 30/00 are classified in C08F 275/00 (graft copolymers).
- If the polymerisation process is of interest, then a single symbol may be allocated in C08F 2/00 or subgroups.
- If the polymerisation catalyst is of interest, then a single symbol may be allocated in C08F 4/00 or subgroups.

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride, ester, amide, imide, or nitrile thereof | C08F 20/00 |
| Homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides, or nitriles thereof | C08F 22/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 32/00

## Homopolymers and copolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system

## Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from cyclic compounds having no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system, e.g. norbornene.

## Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 132/00.
- If a document exemplifies only copolymers, it is classified in C08F 232/00.
- Compositions comprising a polymer of C08F 32/00 are classified in C08L 45/00.
- Coating compositions comprising a polymer of C08F 32/00 are classified in C09D 145/00.
- Adhesive compositions comprising a polymer of C08F 32/00 are classified in C09J 145/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 32/00 are classified in C08F 277/00 (graft copolymers).
- Ethylidene norbornene (co)polymer is classified in C08F 36/20.
- If the polymerisation process is of interest, then a single symbol may be allocated in C08F 2/00 or subgroups.
- If the polymerisation catalyst is of interest, then a single symbol may be allocated in C08F 4/00 or subgroups.

- Macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain by other mechanism than in C08F are classified in C08G 61/00, e.g polymers obtained by ring-opening metathesis polymerization.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 34/00

## Homopolymers and copolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain and having one or more carbon-to-carbon double bonds in a heterocyclic ring (cyclic esters of polyfunctional acids C08F 18/00; cyclic anhydrides or imides C08F 22/00)

## Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from cyclic compounds having no unsaturated aliphatic radicals in a side chain and having one or more carbon-to-carbon double bonds in a heterocyclic ring , e.g. 1,3-dihydropyran.

## Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 134/00.
- If a document exemplifies only copolymers, it is classified in C08F 234/00.
- Compositions comprising a polymer of C08F 34/00 are classified in C08L 45/00.
- Coating compositions comprising a polymer of C08F 34/00 are classified in C09D 145/00.
- Adhesive compositions comprising a polymer of C08F 34/00 are classified in C09J 145/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 34/00 are classified in C08F 277/00 (graft copolymers).
- If the polymerisation process is of interest, then a single symbol may be allocated in C08F 2/00 or subgroups.
- If the polymerisation catalyst is of interest, then a single symbol may be allocated in C08F 4/00 or subgroups.

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Cyclic esters of polyfunctional acids | C08F 18/00 |
| Cyclic anhydrides or imides | C08F 22/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 36/00

## Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds (C08F 32/00 takes precedence)

## Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds, e.g. butadiene, isoprene.

## Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 136/00.
- If a document exemplifies only copolymers, it is classified in C08F 236/00.
- Compositions comprising a homo- or copolymer of conjugated diene hydrocarbons and derivatives of these polymers are classified in C08L 9/00 –C08L 21/02.
- Compositions comprising a natural rubber are classified in C08L 7/00.
- Compositions comprising an unconjugated diene polymer are classified in C08L 47/00.
- Coating compositions comprising a homopolymer or copolymer of conjugated diene hydrocarbons and their derivatives are classified in C09D 109/00 – C09D 121/02.
- Coating compositions comprising a natural rubber are classified in C09D 107/00.
- Coating compositions comprising an unconjugated diene polymer are classified in C09D 147/00.
- Adhesive compositions comprising a polymer of conjugated diene hydrocarbons and their derivatives are classified in C09J 109/00 – C09J 121/02.
- Adhesive compositions comprising a natural rubber are classified in C09J 107/00.
- Adhesive compositions comprising an unconjugated diene polymer are classified in C09J 147/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers as defined in group C08F 36/00 are classified in C08F 279/00 (graft copolymers).
- Macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain by other mechanism than in C08F are classified in C08G 61/00, e.g polymers obtained by ring-opening metathesis polymerization.
- A chemically modified conjugated diene homopolymer or copolymer is classified in one of the C08F 36/00 – C08F 36/22 groups, and in at least one of the C08C 19/00 – C08C 19/44 groups.

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Homopolymers and copolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system | C08F 32/00 |

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Macromolecular homopolymers or copolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 10/00 - C08F 38/04 |
| Macromolecular homopolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 110/00 - C08F 138/04 |
| Macromolecular copolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 210/00 - C08F 238/04 |
| Copolymer of isobutene with minor part of conjugated dienes | C08F 210/12 |
| Copolymers of vinyl aromatic monomers with minor part of conjugated dienes | C08F 212/08 |
| Graft copolymers that are obtained by polymerising monomers on to polymers of conjugated dienes | C08F 279/00 - C08F 279/06 |
| Macromolecular compounds obtained by polymerising monomers on to polymers modified by introduction of aliphatic unsaturated end or side groups | C08F 290/048, C08F 290/128 |
| Block copolymers | C08F 293/00 - C08F 297/086 |
| Chemical compositions of tyres | B60C 1/00 |
| Treatment or chemical modification of rubbers | C08C 1/00 - C08C 19/44 |
| Ethene-propene or ethene-propene-diene copolymers | C08L 23/16 |
| Copolymers of isobutene; Butyl rubber; Homopolymers or copolymers of other iso-olefins | C08L 23/22 |
| Grafted styrene block copolymer based compositions, e.g. grafted SBS, grafted SEBS or grafted SEPS | C08L 51/006 |
| Styrene block copolymer based compositions, e.g. SBS, SEBS or SEPS | C08L 53/00 - C08L 53/025 |
| ABS (acrylonitrile butadiene styrene) based compositions | C08L 55/02 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fc and #C8Fd) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 10/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

### Synonyms and Keywords

*In patent documents, the following abbreviations are often used:*

| | |
|---|---|
| ABS | Acrylonitrile butadiene styrene |
| BR | Butadiene rubber |
| CR | Chloroprene rubber |
| IIR | Isobutylene isoprene rubber or butyl rubber |
| IR | Isoprene rubber |
| NBR | Nitrile butadiene rubber or acrylonitrile-butadiene rubber |
| NR | Natural rubber |
| SAN | Styrene acrylonitrile copolymer |
| SBR | Styrene butadiene rubber |

## C08F 36/20

### unconjugated

### Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more unsaturated aliphatic compounds, at least one having only two unconjugated carbon-to-carbon double bonds.

### Special rules of classification

While classifying homopolymers and copolymers of compounds having two unconjugated carbon-to-carbon double bonds in C08F 36/20, attention should be given to the precedence rule to C08F 32/00.

Thus, 1,5-hexadiene or 3-vinyl-1-cyclohexene homopolymers or copolymers are classified in C08F 36/20, while homopolymers or copolymers of 1,3-cyclohexadiene are classified in C08F 32/06.

## C08F 38/00

### Homopolymers and copolymers of compounds having one or more carbon-to-carbon triple bonds

### Definition statement

*This place covers:*

Homopolymers and copolymers having a majority of monomer units derived from one or more carbon-to-carbon triple bonds, e.g acetylene or vinylacetylene.

### Relationships with other classification places

- If a document exemplifies only homopolymers, it is classified in C08F 138/00.
- If a document exemplifies only copolymers, it is classified in C08F 238/00.
- Compositions comprising a polymer of C08F 38/00 are classified in C08L 49/00.
- Coating compositions comprising a polymer of C08F 38/00 are classified in C09D 149/00.
- Adhesive compositions comprising a polymer of C08F 38/00 are classified in C09J 149/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 38/00 are classified in C08F 281/00 (graft copolymers).

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 110/00

## Homopolymers of unsaturated aliphatic hydrocarbons having only one carbon-to-carbon double bond

## Definition statement

*This place covers:*

Homopolymers of unsaturated aliphatic hydrocarbons having only one carbon-to-carbon double bond, e.g. ethylene, propylene, butene.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 10/00.
- If a document exemplifies only copolymers, it is classified in C08F 210/00.
- Compositions comprising a homopolymer of C08F 110/00 are classified in C08L 23/00.
- Coating compositions comprising a homopolymer of C08F 110/00 are classified in C09D 123/00.
- Adhesive compositions comprising a homopolymer of C08F 110/00 are classified in C09J 123/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 110/00 are classified in C08F 255/00 (graft copolymers).

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Films containing a polymer classified in C08F 110/00 or subgroups | C08J 5/18 |
| Fibres containing a polymer classified in C08F 110/00 or subgroups | D01F |

## Special rules of classification

Classification guidance

- Attention is also drawn to the definitions of C08F 2/00 and C08F 4/00.

**Combination sets (C-Sets)**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fc, #C8Fd and #C8Fe) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fc and #C8Fd in C08F 10/00
- See C-Sets #C8Fe in this group below

**C-Sets statement : #C8Fe**

- In groups C08F 110/00 – C08F 136/22, homo-polymers and their characteristics or properties are classified in the form of C-Sets.
- In #C8Fe , the base symbol, representing the homo-polymer, is taken from the groups C08F 110/02 - C08F 110/14, whereas the subsequent symbol(s) representing the characteristics or properties is/are taken from the groups C08F 2500/01 - C08F 2500/39.
- In #C8Fe C-Sets are always allocated as Additional information (ADD).
- Orthogonal indexing codes C08F 2500/01 - C08F 2500/39 are not allocated as single symbol(s).

**C-Sets syntax rules:**

- Each C-Set shall contain at least two symbols.
- Duplicate symbols are not allowed in these C-Sets.
- The order of subsequent symbols reflecting the characteristics or properties in these C-Sets is not relevant.
- Orthogonal indexing codes C08F 2500/01 - C08F 2500/39 only are used as subsequent symbol(s) in C-Sets.

**C-Sets examples:**

- #C8Fe : Syndiotactic homopolymer of propylene is classified as (C08F 110/06, C08F 2500/16) (ADD).
- #C8Fe : Polypropylene homopolymer having a bimodal molecular weight distribution and low density is classified as (C08F 110/06, C08F 2500/05, C08F 2500/08) (ADD).
- #C8Fe : Bimodal, high molecular weight homopolymer of ethylene is classified as C08F 110/02, C08F 2500/01, C08F 2500/05) (ADD).

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 112/00

## Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an aromatic carbocyclic ring

### Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, each radical having only one carbon-to-carbon double bond, and at least one being terminated by an aromatic carbocyclic ring, e.g. 1-propenylbenzene, alpha-methyl-styrene, vinyl naphthalene.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 12/00.
- If a document exemplifies only copolymers, it is classified in C08F 212/00.
- Compositions comprising a homopolymer of C08F 112/00 are classified in C08L 25/00.
- Coating compositions comprising a homopolymer of C08F 112/00 are classified in C09D 125/00.
- Adhesive compositions comprising a homopolymer of C08F 112/00 are classified in C09J 125/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of aromatic monomers as defined in group C08F 112/00 are classified in C08F 257/00 (graft copolymers).

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Post-polymerisation treatments of polymers of C08F 112/00 | C08F 6/00 |
| Chemical modification by after-treatment of polymers of C08F 112/00 | C08F 8/00 |
| Graft copolymers that are obtained by grafting vinyl aromatic monomers on to polymers of conjugated dienes | C08F 279/04 - C08F 279/06 |
| Macromolecular compounds obtained by polymerising monomers on to polymers modified by introduction of aliphatic unsaturated end or side groups | C08F 290/044, C08F 290/124 |
| Block copolymers | C08F 293/00 - C08F 297/086 |
| Layered products essentially comprising synthetic resin | B32B 27/08, B32B 27/30 |
| Treatment or chemical modification of rubbers (e.g. SBR rubber) | C08C |
| Working-up of macromolecular substances to porous or cellular articles or materials comprising polymers of C08F 112/00; After-treatment thereof | C08J 9/0061 |
| Making expandable particles comprising polymers of C08F 112/00 | C08J 9/16 |
| Compositions of copolymers of conjugated diene hydrocarbons with styrene, e.g. SBR rubber | C08L 9/06 - C08L 9/08 |
| Copolymers of ethene with monomers including an aromatic carbocyclic ring | C08L 23/0838 |
| Compositions of copolymers of allyl alcohol with vinyl-aromatic monomers | C08L 29/08 |
| Grafted styrene block copolymer based compositions, e.g. grafted SBS, grafted SEBS or grafted SEPS | C08L 51/006 |
| Compositions of graft copolymers with graft base being a rubber, e.g. high impact polystyrene type based compositions (HIPS) | C08L 51/04 |
| Styrene block copolymer based compositions, e.g. SBS, SEBS or SEPS | C08L 53/00 - C08L 53/025 |
| ABS (acrylonitrile butadiene styrene) based compositions | C08L 55/02 |
| Artificial filaments or fibres comprising aromatic vinyl resins | D01F 6/22, D01F 6/42, D01F 6/56 |
| Insulators consisting of aromatic vinyl resins | H01B 3/442 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fc and #C8Fd) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fc and #C8Fd in C08F 10/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

### Synonyms and Keywords

*In patent documents, the following abbreviations are often used:*

| | |
|---|---|
| ABS | Acrylonitrile butadiene styrene |
| AMS | alpha-Methyl-styrene or isopropenyl styrene |
| at-PS, a-PS, aPS | Atactic polystyrene |
| DVB | Divinyl benzene |
| HIPS | High impact polystyrene |
| it-PS, i-PS, iPS | Isotactic polystyrene |
| PS | Polystyrene |
| SAN | Styrene acrylonitrile copolymer |
| SBR | Styrene butadiene rubber |
| st-PS, s-PS, sPS | Syndiotactic polystyrene |
| SBS | Styrene butadiene styrene block copolymer |
| SIS | Styrene isoprene styrene block copolymer |

## C08F 114/00

### Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen

### Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen, e.g. vinyl chloride, vinylidene chloride, 1,2- dichloroethene, vinyl fluoride, vinylidene fluoride, trifluorochloroethene, tetrafluoroethene or hexafluoropropene.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 14/00.
- If a document exemplifies only copolymers, it is classified in C08F 214/00.
- Compositions comprising a homopolymer of C08F 114/00 are classified in C08L 27/00.
- Coating compositions comprising a homopolymer of C08F 114/00 are classified in C09D 127/00.
- Adhesive compositions comprising a polymer of C08F 114/00 are classified in C09J 127/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 114/00 are classified in C08F 259/00 (graft copolymers).

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 116/00

## Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an alcohol, ether, aldehydo, ketonic, acetal or ketal radical

### Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an alcohol, ether, aldehydo, ketonic, acetal or ketal radical, e.g. poly(vinyl alcohol).

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 16/00.
- If a document exemplifies only copolymers, it is classified in C08F 216/00.
- Compositions of the polymers of C08F 116/00 are classified in C08L 29/00.
- Coating compositions comprising a homopolymer of C08F 116/00 are classified in C09D 129/00.
- Adhesive compositions comprising a homopolymer of C08F 116/00 are classified in C09J 129/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 116/00 are classified in C08F 261/00 (graft copolymers).

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 118/00

## Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, of carbonic acid or of a haloformic acid

### Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, of carbonic acid or of a haloformic acid, e.g. poly(vinyl acetate).

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 18/00.
- If a document exemplifies only copolymers, it is classified in C08F 218/00.
- Compositions of the polymers of C08F 118/00 are classified in C08L 31/00.
- Coating compositions comprising a polymer of C08F 118/00 are classified in C09D 131/00.
- Adhesive compositions comprising a polymer of C08F 118/00 are classified in C09J 131/00.

- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 118/00 are classified in C08F 263/00 (graft copolymers).

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 120/00

## Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride, ester, amide, imide or nitrile thereof

## Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride, ester, amide, imide or nitrile thereof, e.g. pyridino methacrylate, 2-N-morpholinoethyl methacrylate.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 20/00.
- If a document exemplifies only copolymers, it is classified in C08F 220/00.
- Compositions comprising a homopolymer of C08F 120/00 are classified in C08L 33/00.
- Coating compositions comprising a homopolymer of C08F 120/00 are classified in C09D 133/00.
- Adhesive compositions comprising a homopolymer of C08F 120/00 are classified in C09J 133/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 120/00 are classified in C08F 265/00 (graft copolymers).

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 122/00

## Homopolymers of compounds having one or more unsaturated aliphatic radicals each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof

### Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof, e.g. di- or polyacrylates,di- or polyacrylamide, cyanoacrylate.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 22/00.
- If a document exemplifies only copolymers, it is classified in C08F 222/00.
- Compositions of the polymers of C08F 122/00 are classified in C08L 35/00.
- Coating compositions comprising a homopolymer of C08F 122/00 are classified in C09D 135/00.
- Adhesive compositions comprising a homopolymer of C08F 122/00 are classified in C09J 135/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 122/00 are classified in C08F 267/00 (graft copolymers).

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 124/00

## Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a heterocyclic ring containing oxygen (cyclic esters of polyfunctional acids C08F 118/00; cyclic anhydrides of unsaturated acids C08F 120/00, C08F 122/00)

### Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a heterocyclic ring containing oxygen, e.g. methylene lactones.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 24/00.

- If a document exemplifies only copolymers, it is classified in C08F 224/00.
- Compositions comprising a homopolymer of C08F 124/00 are classified in C08L 37/00.
- Coating compositions comprising a homopolymer of C08F 124/00 are classified in C09D 137/00.
- Adhesive compositions comprising a homopolymer of C08F 124/00 are classified in C09J 137/00.
- Macromolecular compounds obtained by polymerising monomers on to polymers of monomers as defined in group C08F 124/00 are classified in C08F 269/00 (graft copolymers).
- Homopolymers of esters containing epoxy radicals in addition to the carboxy oxygen are classified in C08F 120/32, e.g. glycidyl methacrylate.

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Homopolymers of cyclic esters of polyfunctional acids | C08F 118/00 |
| Homopolymers of cyclic anhydrides of unsaturated acids | C08F 120/00, C08F 122/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 126/00

## Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a single or double bond to nitrogen or by a heterocyclic ring containing nitrogen

## Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a single or double bond to nitrogen or by a heterocyclic ring containing nitrogen, e.g. diallylamine, N-vinyl-pyrrolidine or N-vinyl-pyrrolidone.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 26/00.
- If a document exemplifies only copolymers, it is classified in C08F 226/00.
- Compositions comprising a homopolymer of C08F 126/00 are classified in C08L 39/00.
- Coating compositions comprising a homopolymer of C08F 126/00 are classified in C09D 139/00.
- Adhesive compositions comprising a homopolymer of C08F 126/00 are classified in C09J 139/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 126/00 are classified in C08F 271/00 graft copolymers).

- Esters containing a heterocyclic ring containing nitrogen are classified in C08F 120/34, e.g. pyridino methacrylate or C08F 120/36, e.g. 2-N-morpholinoethyl methacrylate.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 128/00

## Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a bond to sulfur or by a heterocyclic ring containing sulfur

## Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a bond to sulfur or by a heterocyclic ring containing sulphur, e.g. .ethyl vinyl sulfide, 2-vinylthiophene.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 28/00.
- If a document exemplifies only copolymers, it is classified in C08F 228/00.
- Compositions comprising a homopolymer of C08F 128/00 are classified in C08L 41/00.
- Coating compositions comprising a homopolymer of C08F 128/00 are classified in C09D 141/00.
- Adhesive compositions comprising a homopolymer of C08F 128/00 are classified in C09J 141/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 128/00 are classified in C08F 273/00 (graft copolymers).

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 130/00

## Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and containing phosphorus, selenium, tellurium or a metal

### Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and containing phosphorus, selenium, tellurium or a metal, e.g. 2-phosphoethyl methacrylate, vinyl triethoxysilane.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 30/00.
- If a document exemplifies only copolymers, it is classified in C08F 230/00.
- Compositions comprising a homopolymer of C08F 130/00 are classified in C08L 43/00.
- Coating compositions comprising a homopolymer of C08F 130/00 are classified in C09D 143/00.
- Adhesive compositions comprising a homopolymer of C08F 130/00 are classified in C09J 143/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 130/00 are classified in C08F 275/00 (graft copolymers).

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride, ester, amide, imide, or nitrile thereof | C08F 120/00 |
| Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides, or nitriles thereof | C08F 122/00 |

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 132/00

## Homopolymers of cyclic compounds containing no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system

### Definition statement

*This place covers:*

Homopolymers of cyclic compounds containing no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system, e.g. norbornene.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 32/00.
- If a document exemplifies only copolymers, it is classified in C08F 232/00.
- Compositions comprising a homopolymer of C08F 132/00 are classified in C08L 45/00.
- Coating compositions comprising a homopolymer of C08F 132/00 are classified in C09D 145/00.
- Adhesive compositions comprising a homopolymer of C08F 132/00 are classified in C09J 145/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 132/00 are classified in C08F 277/00 (graft copolymers).
- Ethylidene norbornene homopolymer is classified in C08F 136/20.
- Macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain by other mechanism than in C08F are classified in C08G 61/00, e.g polymers obtained by ring-opening metathesis polymerization.

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 134/00

## Homopolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain and having one or more carbon-to-carbon double bonds in a heterocyclic ring (cyclic esters of polyfunctional acids C08F 118/00; cyclic anhydrides or imides C08F 122/00)

### Definition statement

*This place covers:*

Homopolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain and having one or more carbon-to-carbon double bonds in a heterocyclic ring, e.g. 1,3-dihydropyran.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 34/00.
- If a document exemplifies only copolymers, it is classified in C08F 234/00.
- Compositions comprising a homopolymer of C08F 134/00 are classified in C08L 45/00.

- Coating compositions comprising a homopolymer of C08F 134/00 are classified in C09D 145/00.
- Adhesive compositions comprising a homopolymer of C08F 134/00 are classified in C09J 145/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 134/00 are classified in C08F 277/00 (graft copolymers).

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Homopolymers of cyclic esters of polyfunctional acids | C08F 118/00 |
| Homopolymers of cyclic anhydrides or imides | C08F 122/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 136/00

## Homopolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds (C08F 132/00 takes precedence)

## Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds, e.g. butadiene, isoprene.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 36/00.
- If a document exemplifies only copolymers, it is classified in C08F 236/00.
- Compositions comprising a homopolymer of C08F 136/00 are classified in C08L 47/00.
- Compositions comprising a homopolymer of conjugated diene hydrocarbons and derivatives of these polymers are classified in C08L 9/00 - C08L 21/02.
- Compositions of natural rubbers are classified in C08L 7/00.
- Coating compositions comprising a homopolymer of C08F 136/00 are classified in C09D 147/00.
- Coating compositions comprising a homopolymer or copolymer of conjugated diene hydrocarbons and their derivatives are classified in C09D 109/00 – C09D 121/02.
- Coating compositions comprising a natural rubber are classified in C09D 107/00.
- Adhesive compositions comprising a natural rubber or a (co)polymer of conjugated diene hydrocarbons and their derivatives are classified in C09J 107/00 – C09J 121/02.
- Adhesive compositions comprising a homopolymer of C08F 136/00 are classified in C09J 147/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers as defined in group C08F 136/00 are classified in C08F 279/00 (graft copolymers).

- Macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain by other mechanism than in C08F are classified in C08G 61/00, e.g polymers obtained by ring-opening metathesis polymerization.
- A chemically modified conjugated diene homopolymer is classified in one of the C08F 136/00 – C08F 136/22 groups, and in at least one of the C08C 19/00 – C08C 19/44 groups.

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Homopolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system | C08F 132/00 |

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Macromolecular homopolymers or copolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 10/00 - C08F 38/04 |
| Macromolecular homopolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 110/00 - C08F 130/00, C08F 134/00 - C08F 138/04 |
| Macromolecular copolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 210/00 - C08F 238/04 |
| Macromolecular compounds obtained by polymerising monomers on to polymers modified by introduction of aliphatic unsaturated end or side groups | C08F 290/048, C08F 290/128 |
| Block copolymers | C08F 293/00 - C08F 297/086 |
| Chemical compositions of tyres | B60C 1/00 |
| Treatment or chemical modification of rubbers | C08C 1/00 - C08C 19/44 |
| Ethene-propene or ethene-propene-diene copolymers | C08L 23/16 |
| Copolymers of isobutene; Butyl rubber; Homopolymers or copolymers of other iso-olefins | C08L 23/22 |
| Grafted styrene block copolymer based compositions, e.g. grafted SBS, grafted SEBS or grafted SEPS | C08L 51/006 |
| Styrene block copolymer based compositions, e.g. SBS, SEBS or SEPS | C08L 53/00 - C08L 53/025 |
| ABS (acrylonitrile butadiene styrene) based compositions | C08L 55/02 |

## Special rules of classification

Polymers of C08F 132/00 (homopolymers of cyclic compounds having no unsaturated aliphatic radical in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system) take precedence over C08F 136/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fc and #C8Fd) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 10/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

## Synonyms and Keywords

*In patent documents, the following abbreviations are often used:*

| | |
|---|---|
| ABS | Acrylonitrile butadiene styrene |
| BR | Butadiene rubber |
| CR | Chloroprene rubber |
| IIR | Isobutylene isoprene rubber or butyl rubber |
| IR | Isoprene rubber |
| NBR | Nitrile butadiene rubber or acrylonitrile-butadiene rubber |
| NR | Natural rubber |
| SAN | Styrene acrylonitrile copolymer |
| SBR | Styrene butadiene rubber |

# C08F 136/20

### unconjugated

## Definition statement

*This place covers:*

Homopolymers of compounds having one or more unsaturated aliphatic radicals, at least one having only two unconjugated carbon-to-carbon double bonds.

## Special rules of classification

While classifying homopolymers of compounds having two unconjugated carbon-to-carbon double bonds in C08F 136/20, attention should be given to the precedence rule to C08F 132/00.

Thus, 1,5-hexadiene or 3-vinyl-1-cyclohexene homopolymers are classified in C08F 136/20, while homopolymers of 1,3-cyclohexadiene are classified in C08F 132/06.

# C08F 138/00

### Homopolymers of compounds having one or more carbon-to-carbon triple bonds

## Definition statement

*This place covers:*

Homopolymers of compounds having one or more carbon-to-carbon triple bonds, e.g. acetylene or vinylacetylene.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 38/00.
- If a document exemplifies only copolymers, it is classified in C08F 238/00.
- Compositions comprising a homopolymer of C08F 138/00 are classified in C08L 49/00.
- Coating compositions comprising a homopolymer of C08F 138/00 are classified in C09D 149/00.
- Adhesive compositions comprising a homopolymer of C08F 138/00 are classified in C09J 149/00.
- Macromolecular compounds obtained by polymerising monomers on to homopolymers of C08F 138/00 are classified in C08F 281/00 (graft copolymers).

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 210/00

### Copolymers of unsaturated aliphatic hydrocarbons having only one carbon-to-carbon double bond

## Definition statement

*This place covers:*

Copolymers having a majority of monomer units of unsaturated aliphatic hydrocarbons having only one carbon-to-carbon double bond, e.g. copolymers of ethylene, propylene, butene.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 10/00.
- If a document exemplifies only homopolymers, it is classified in C08F 110/00.
- Compositions comprising a copolymer of C08F 210/00 are classified in C08L 23/00.
- Coating compositions comprising a copolymer of C08F 210/00 are classified in C09D 123/00.
- Adhesive compositions comprising a copolymer of C08F 210/00 are classified in C09J 123/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 210/00 are classified in C08F 255/00 (graft copolymers).

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Films containing a polymer classified in C08F 210/00 or subgroups | C08J 5/18 |
| Fibres containing a polymer classified in C08F 210/00 or subgroups | D01F |

## Special rules of classification

Classification guidance

- Attention is also drawn to the definitions of C08F 2/00 and C08F 4/00.

**Combination sets (C-Sets):**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fc, #C8Fd, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fc and #C8Fd in C08F 10/00
- See C-Sets #C8Fg and #C8Fh in this group below
- See C-Sets #C8Fi in C08F 251/00

**C-Sets statement : #C8Fg**

- In group C08F 210/00, copolymers and their characteristics or properties are classified in the form of C-Sets.
- In #C8Fg, the base symbol, representing the monomer in majority in the copolymer, is taken from the groups C08F 210/02 - C08F 210/18, whereas the subsequent symbol(s) starting with the symbol(s) representing the further co-monomer(s) in descending amounts is (are) taken from the groups C08F 210/02 - C08F 238/04 ending with the last symbol(s) representing the characteristic(s) or property(ies) which is/are taken from the groups C08F 2500/01 - C08F 2500/39.
- In #C8Fg, the following symbols within C08F 210/02-C08F 238/04 are not utilized as subsequent symbols: C08F 210/12, C08F 210/18, C08F 212/10, C08F 214/10, C08F 214/184, C08F 214/186, C08F 214/188, C08F 214/202, C08F 214/205, C08F 214/207, C08F 214/222, C08F 214/225, C08F 214/227, C08F 214/242, C08F 214/245, C08F 214/247, C08F 214/262, C08F 214/265, C08F 214/267, C08F 214/282, C08F 214/285, C08F 214/287, C08F 218/12, C08F 218/16, C08F 220/46, C08F 220/48, C08F 222/08, C08F 236/10 and C08F 236/12.
- In copolymers having monomers in equal amounts, separate C-Sets based on each of these monomers as base symbol are given.
- A single symbol is also given according to the monomer present in the highest amount in the copolymer.
- #C8Fg C-Sets are always allocated as Additional information (ADD).
- Orthogonal indexing codes C08F 2500/01 - C08F 2500/39 are not allocated as single symbol(s).

**C-Sets syntax rules:**

- Each C-Set shall contain at least three symbols.
- Duplicate symbols are allowed in these C-Sets for the C08F 210/02 - C08F 210/18 symbols only.
- The order of symbols in these C-Sets is relevant for the C08F 210/02 - C08F 210/18 symbols as reflects the relative amounts of the monomers in the copolymer. The order of the C08F 2500/01 – C08F 2500/39 subsequent symbols reflecting the characteristics or properties in these C-Sets is not relevant.
- Orthogonal indexing codes C08F 2500/01 - C08F 2500/39 are only used as subsequent symbol(s) in C-Sets.

**C-Sets examples:**

- #C8Fg: Low density polyethylene-butene (ethylene in majority) is classified as (C08F 210/16, C08F 210/08, C08F 2500/08) (ADD).
- #C8Fg: Long chain-branched ethylene-acrylic acid copolymer is classified as (C08F 210/02, C08F 220/06, C08F 2500/09) (ADD).
- #C8Fg: Ethylene-propylene-butadiene copolymer with MFI and special particle form is classified as (C08F 210/18, C08F 210/06, C08F 236/06, C08F 2500/12, C08F 2500/24) (ADD).
- #C8Fg: Heterophasic copolymers resulting from a 2-step process, where in a first step a isotactic homopolymer of propylene is prepared, which is then transferred to a second reactor where a copolymer of ethylene and propylene is prepared, and if ethylene is the monomer in majority in the final polymer, which is further characterized by its melt flow rate, then this heterophasic copolymer is classified as (C08F 210/16, C08F 210/06, C08F 2500/12) (ADD). Moreover, the homopolymer of propylene obtained after the first stage is classified as (C08F 110/06, C08F 2500/15) (ADD) according to # C8Fe.

- #C8Fg: A copolymer ethylene-hexene characterised by a high density, a melt flow index and a particular size, is classified as (C08F 210/16, C08F 210/14, C08F 2500/07, C08F 2500/12, C08F 2500/24) (ADD).
- #C8Fg: A copolymer ethylene-propylene-norbornene (NB) (for which the respective amounts are given in decreasing order) is classified as (C08F 210/18, C08F 210/06, C08F 232/08, C08F 2500/25) (ADD).

**C-Sets statement : #C8Fh**

- Classification of documents using #C8Fh started in April 2012.
- In groups C08F 210/02 - C08F 238/04 the copolymers are classified on the basis of their monomeric compositions in the form of C-Sets.
- In #C8Fh, the base symbol, representing the monomer in majority, is taken from the groups C08F 210/02 - C08F 238/04, whereas the subsequent symbol(s) representing the further comonomer(s) in descending amounts is (are) taken from C08F 210/02 - C08F 238/04.
- In copolymers having monomers in equal amounts, separate C-Sets based on each of these monomers as base symbol are given.
- In #C8Fh, the following symbols within C08F 210/02 - C08F 238/04 are not utilized as base or subsequent symbols: C08F 210/12, C08F 210/18, C08F 212/10, C08F 214/10, C08F 214/184, C08F 214/186, C08F 214/188, C08F 214/202, C08F 214/205, C08F 214/207, C08F 214/222, C08F 214/225, C08F 214/227, C08F 214/242, C08F 214/245, C08F 214/247, C08F 214/262, C08F 214/265, C08F 214/267, C08F 214/282, C08F 214/285, C08F 214/287, C08F 218/12, C08F 218/16, C08F 220/46, C08F 220/48, C08F 222/08, C08F 236/10 and C08F 236/12.
- A single symbol is also given according to the monomer present in the highest amount in the copolymer.
- Copolymers, wherein the monomer in majority is taken from the groups C08F 210/02 - C08F 210/18 and for which their characteristics or properties are also disclosed, are classified according to #C8Fg and not according to #C8Fh.
- In #C8Fh C-Sets are always allocated as Additional information (ADD).

**C-Sets syntax rules:**

- Each C-Set shall contain at least two symbols.
- Duplicate symbols are allowed in these C-Sets.
- The order of symbols in these C-Sets is relevant as it reflects the relative amounts of the monomers in the copolymer.

**C-Sets examples:**

- #C8Fh: a copolymer comprising 95 parts of methyl methacrylate and 5 parts of methacrylic acid is classified as (C08F 220/14, C08F 220/06) (ADD).
- #C8Fh: a copolymer comprising 60 parts of butyl acrylate, 35 parts of styrene and 5 parts of vinyl trimethoxy silane is classified as (C08F 220/1804, C08F 212/08, C08F 230/085) (ADD).
- #C8Fh: A copolymer ethylene-butyl acrylate (ethylene in majority) is classified as (C08F 210/02, C08F 220/1804) (ADD).
- #C8Fh: A copolymer ethylene-hexene (ethylene in majority) is classified as (C08F 210/16, C08F 210/14) (ADD).
- #C8Fh: A copolymer ethylene-propylene (50/50) is classified as (C08F 210/16, C08F 210/06) and (C08F 210/06, C08F 210/16) (ADD).
- #C8Fh: a copolymer comprising 60 parts of butyl acrylate, 35 parts of styrene and 5 parts of 2-phosphoethyl methacrylate is classified as (C08F 220/1804, C08F 212/08, C08F 230/02) (ADD).

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

**C-Sets searches using #C8Fh for documents prior to April 2012:**

Prior to April 2012 when C-Sets #C8Fh was not used for classification, the copolymers in C08F 210/02 - C08F 238/04 were classified using only single symbols. The following classification rules can be used when searching for copolymers disclosed in a document prior to April 2012:

- A single symbol corresponding to the monomer in majority was given as Invention information (I), and one or several separate single symbol(s) for the monomer(s) in minority or for a monomer of interest in the copolymer were given as Additional information (A).
- Example: A copolymer of 60 parts of butyl acrylate, 30 parts of hydroxyethyl acrylate and 10 parts of acrylic acid can besearched in C08F 220/18 (INV) in combination with C08F 220/20 (ADD), optionally also with C08F 220/06 (ADD).

Also see Special rules of classification in C08F 214/00 for the same classification rules using single symbols for copolymers in C08F 214/00.

# C08F 212/00

## Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an aromatic carbocyclic ring

### Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units having one or more unsaturated aliphatic radicals having only one carbon-to-carbon double bond, and at least one being terminated by an aromatic carbocyclic ring, e.g. 1-propenylbenzene, alpha-methyl-styrene, vinyl naphthalene.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 12/00.
- If a document exemplifies only homopolymers, it is classified in C08F 112/00.
- Compositions comprising a copolymer of C08F 212/00 are classified in C08L 25/00.
- Coating compositions comprising a copolymer of C08F 212/00 are classified in C09D 125/00.
- Adhesive compositions comprising a copolymer of C08F 212/00 are classified in C09J 125/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 212/00 are classified in C08F 257/00 (graft copolymers).

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Post-polymerisation treatments of polymers of C08F 212/00 | C08F 6/00 |
| Chemical modification by after-treatment of polymers of C08F 212/00 | C08F 8/00 |
| Graft copolymers that are obtained by grafting vinyl aromatic monomers on to polymers of conjugated dienes | C08F 279/04 - C08F 279/06 |
| Macromolecular compounds obtained by polymerising monomers on to polymers modified by introduction of aliphatic unsaturated end or side groups | C08F 290/044, C08F 290/124 |
| Block copolymers | C08F 293/00 - C08F 297/086 |
| Layered products essentially comprising synthetic resin | B32B 27/08, B32B 27/30 |
| Treatment or chemical modification of rubbers, e.g. SBR rubber | C08C |

| | |
|---|---|
| Working-up of macromolecular substances to porous or cellular articles or materials comprising polymers of C08F 212/00; After-treatment thereof | C08J 9/0061 |
| Making expandable particles comprising polymers of C08F 112/00 | C08J 9/16 |
| Compositions of copolymers of conjugated diene hydrocarbons with styrene (SBR rubber) | C08L 9/06 - C08L 9/08 |
| Copolymers of ethene with monomers including an aromatic carbocyclic ring | C08L 23/0838 |
| Compositions of copolymers of allyl alcohol with vinyl-aromatic monomers | C08L 29/08 |
| Grafted styrene block copolymer based compositions, e.g. grafted SBS, grafted SEBS or grafted SEPS | C08L 51/006 |
| Compositions of graft copolymers with graft base being a rubber, e.g. high impact polystyrene type based compositions (HIPS) | C08L 51/04 |
| Styrene block copolymer based compositions, e.g. SBS, SEBS or SEPS | C08L 53/00 - C08L 53/025 |
| ABS (acrylonitrile butadiene styrene) based compositions | C08L 55/02 |
| Artificial filaments or fibres comprising aromatic vinyl resins | D01F 6/22, D01F 6/42, D01F 6/56 |
| Insulators consisting of aromatic vinyl resins | H01B 3/442 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fc, #C8Fd, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fc and #C8Fd in C08F 10/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

## Synonyms and Keywords

| | |
|---|---|
| ABS | Acrylonitrile butadiene styrene |
| AMS | alpha-Methyl-styrene or isopropenyl styrene |
| at-PS, a-PS, aPS | Atactic polystyrene |
| DVB | Divinyl benzene |
| HIPS | High impact polystyrene |
| it-PS, i-PS, iPS | Isotactic polystyrene |
| PS | Polystyrene |
| SAN | Styrene acrylonitrile copolymer |
| SBR | Styrene butadiene rubber |
| st-PS, s-PS, sPS | Syndiotactic polystyrene |

| | |
|---|---|
| SBS | Styrene butadiene styrene block copolymer |
| SIS | Styrene isoprene styrene block copolymer |

# C08F 214/00

## Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen

### Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units havingone or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen, e.g. vinyl chloride, vinylidene chloride, 1,2- dichloroethene, vinyl fluoride, vinylidene fluoride, trifluorochloroethene, tetrafluoroethene or hexafluoropropene.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 14/00.
- If a document exemplifies only homopolymers, it is classified in C08F 114/00.
- Compositions comprising a copolymer of C08F 214/00 are classified in C08L 27/00.
- Coating compositions comprising a copolymer of C08F 214/00 are classified in C09D 127/00.
- Adhesive compositions comprising a copolymer of C08F 214/00 are classified in C09J 127/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 214/00 are classified in C08F 259/00 (graft copolymers).

### Special rules of classification

Classification guidance

- Groups C08F 214/00 – C8F214/287 provide for classification information about the comonomers in minority.
- In C08F 214/00, the information about comonomers relevant to the invention, and that are not sufficiently identified in the C08F 214/00 subgroups, is preferably given in the form of an additional symbol that does not form part of a C-Set.
- Classification is done by allocating a single symbol of invention corresponding to the monomer in majority (taken at the last appropriate place in the group C08F 214/00) and by allocating one or several separate single additional symbol(s) for the monomer(s) in minority or for a monomer of interest in the copolymer (taken in the groups C08F 210/00 - C08F 238/04).
- Example: A terpolymer of vinylidene fluoride, a perfluorinated vinyl ether and 1,3,3,3,-tetrafluoropropene (60:30:10) is classified in C08F 214/222 (INV) in combination with C08F 214/182 (ADD) and C08F 214/184 (ADD).

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00
- The use of C-Sets (according to #C8Fh) for classifying the monomeric composition of copolymers having a monomer in majority taken from one of the groups of C08F 214/00 has not been systematically used, since these groups already provide classification information about the comonomers in minority.

Therefore, symbols disclosing the halogenated vinyl monomers from one of the groups of C08F 214/00 are only used as subsequent symbols in #C8Fh (at the exception of C08F 214/10, C08F 214/184, C08F 214/186, C08F 214/188, C08F 214/202, C08F 214/205, C08F 214/207, C08F 214/222, C08F 214/225, C08F 214/227, C08F 214/242, C08F 214/245, C08F 214/247, C08F 214/262, C08F 214/265, C08F 214/267, C08F 214/282, C08F 214/285, C08F 214/287, see special rules of C08F 210/00).

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 216/00

## Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an alcohol, ether, aldehydo, ketonic, acetal or ketal radical

## Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an alcohol, ether, aldehydo, ketonic, acetal or ketal radical, e.g. vinyl alcohol.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 16/00.
- If a document exemplifies only homopolymers, it is classified in C08F 116/00.
- Compositions comprising a copolymer of C08F 216/00 are classified in C08L 29/00.
- Coating compositions comprising a copolymer of C08F 216/00 are classified in C09D 129/00.
- Adhesive compositions comprising a copolymer of C08F 216/00 are classified in C09J 129/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 216/00 are classified in C08F 261/00 (graft copolymers).

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 218/00

## Copolymers {of compounds} having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, of carbonic acid or of a haloformic acid

### Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, of carbonic acid or of a haloformic acid, e.g. vinyl acetate.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 18/00.
- If a document exemplifies only homopolymers, it is classified in C08F 118/00.
- Compositions comprising a copolymer of C08F 218/00 are classified in C08L 31/00.
- Coating compositions comprising a copolymer of C08F 218/00 are classified in C09D 131/00.
- Adhesive compositions comprising a copolymer of C08F 218/00 are classified in C09J 131/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 218/00 are classified in C08F 263/00 (graft copolymers).

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses

# C08F 220/00

## Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride ester, amide, imide or nitrile thereof

### Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride ester, amide, imide or nitrile thereof, e.g. pyridino methacrylate, 2-N-morpholinoethyl methacrylate.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 20/00.
- If a document exemplifies only homopolymers, it is classified in C08F 120/00.
- Compositions comprising a copolymer of C08F 220/00 are classified in C08L 33/00.
- Coating compositions comprising a copolymer of C08F 220/00 are classified in C09D 133/00.
- Adhesive compositions comprising a copolymer of C08F 220/00 are classified in C09J 133/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 220/00 are classified in C08F 265/00 (graft copolymers).

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 222/00

## Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides, or nitriles thereof

## Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; salts, anhydrides, esters, amides, imides, or nitriles thereof, e.g. di- or polyacrylates,di- or polyacrylamide, cyanoacrylate.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 22/00.
- If a document exemplifies only homopolymers, it is classified in C08F 122/00.
- Compositions comprising a copolymer of C08F 222/00 are classified in C08L 35/00.
- Coating compositions comprising a copolymer of C08F 222/00 are classified in C09D 135/00.
- Adhesive compositions comprising a copolymer of C08F 222/00 are classified in C09J 135/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 222/00 are classified in C08F 267/00 (graft copolymers).

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 224/00

## Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a heterocyclic ring containing oxygen (cyclic esters of polyfunctional acids C08F 218/00; cyclic anhydrides of unsaturated acids C08F 220/00, C08F 222/00)

## Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units havingone or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a heterocyclic ring containing oxygen, e.g. methylene lactones.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 24/00.
- If a document exemplifies only homopolymers, it is classified in C08F 124/00.
- Compositions comprising a copolymer of C08F 224/00 are classified in C08L 37/00.
- Coating compositions comprising a copolymer of C08F 224/00 are classified in C09D 137/00.
- Adhesive compositions comprising a copolymer of C08F 224/00 are classified in C09J 137/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 224/00 are classified in C08F 269/00 (graft copolymers).
- Copolymers derived from a majority of monomer units of esters containing epoxy radicals in addition to the carboxy oxygen are classified in C08F 220/32, e.g. glycidyl methacrylate.

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Copolymers of cyclic esters of polyfunctional acids | C08F 218/00 |
| Copolymers of cyclic anhydrides of unsaturated acids | C08F 220/00, C08F 222/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 226/00

## Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a single or double bond to nitrogen or by a heterocyclic ring containing nitrogen

## Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a single or double bond to nitrogen or by a heterocyclic ring containing nitrogen, e.g. diallylamine, N-vinyl-pyrrolidine or N-vinyl-pyrrolidone.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 26/00.
- If a document exemplifies only homopolymers, it is classified in C08F 126/00.
- Compositions comprising a copolymer of C08F 226/00 are classified in C08L 39/00.
- Coating compositions comprising a copolymer of C08F 226/00 are classified in C09D 139/00.
- Adhesive compositions comprising a copolymer of C08F 226/00 are classified in C09J 139/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 226/00 are classified in C08F 271/00 (graft copolymers).
- Copolymers derived from a majority of monomer units of esters containing a heterocyclic ring containing nitrogen are classified in C08F 220/34, e.g. pyridino methacrylate or C08F 220/36, e.g. 2-N-morpholinoethyl methacrylate.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 228/00

## Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a bond to sulfur or by a heterocyclic ring containing sulfur

### Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units havingone or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a bond to sulfur or by a heterocyclic ring containing sulphur, e.g. ethyl vinyl sulfide, 2-vinylthiophene.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 28/00.
- If a document exemplifies only homopolymers, it is classified in C08F 128/00.
- Compositions comprising a copolymer of C08F 228/00 are classified in C08L 41/00.
- Coating compositions comprising a copolymer of C08F 228/00 are classified in C09D 141/00.
- Adhesive compositions comprising a copolymer of C08F 228/00 are classified in C09J 141/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 228/00 are classified in C08F 273/00 (graft copolymers).

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 230/00

## Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and containing phosphorus, selenium, tellurium or a metal

### Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and containing phosphorus, selenium, tellurium or a metal, e.g. 2-phosphoethyl methacrylate, vinyl triethoxysilane.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 30/00.
- If a document exemplifies only homopolymers, it is classified in C08F 130/00.
- Compositions comprising a copolymer of C08F 230/00 are classified in C08L 43/00.

- Coating compositions comprising a copolymer of C08F 230/00 are classified in C09D 143/00.
- Adhesive compositions comprising a copolymer of C08F 230/00 are classified in C09J 143/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 230/00 are classified in C08F 275/00 (graft copolymers).

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride, ester, amide, imide, or nitrile thereof | C08F 220/00 |
| Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides, or nitriles thereof | C08F 222/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 232/00

## Copolymers of cyclic compounds containing no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system

## Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units of cyclic compounds containing no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system, e.g. norbornene.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 32/00.
- If a document exemplifies only homopolymers, it is classified in C08F 132/00.
- Compositions comprising a copolymer of C08F 232/00 are classified in C08L 45/00.
- Coating compositions comprising a copolymer of C08F 232/00 are classified in C09D 145/00.
- Adhesive compositions comprising a copolymer of C08F 232/00 are classified in C09J 145/00.

- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 232/00 are classified in C08F 277/00 (graft copolymers).
- Macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain by other mechanism than in C08F are classified in C08G 61/00, e.g polymers obtained by ring-opening metathesis polymerization.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 234/00

## Copolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain and having one or more carbon-to-carbon double bonds in a heterocyclic ring (cyclic esters of polyfunctional acids C08F 218/00; cyclic anhydrides or imides C08F 222/00)

## Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units having no unsaturated aliphatic radicals in a side chain and having one or more carbon-to-carbon double bonds in a heterocyclic ring, e.g. 1,3-dihydropyran.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 34/00.
- If a document exemplifies only homopolymers, it is classified in C08F 134/00.
- Compositions comprising a copolymer of C08F 234/00 are classified in C08L 47/00.
- Coating compositions comprising a copolymer of C08F 234/00 are classified in C09D 147/00.
- Adhesive compositions comprising a copolymer of C08F 234/00 are classified in C09J 147/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 234/00 are classified in C08F 279/00 (graft copolymers).

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Copolymers of cyclic esters of polyfunctional acids | C08F 218/00 |
| Copolymers of cyclic anhydrides or imides | C08F 222/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 236/00

## Copolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds (C08F 232/00 takes precedence)

## Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds, e.g. butadiene, isoprene, 2-ethylidene-5-norbornene.

## Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 36/00.
- If a document exemplifies only homopolymers, it is classified in C08F 136/00.
- Compositions comprising a copolymer of C08F 236/00 are classified in C08L 47/00.
- Compositions of homo- or copolymers of conjugated diene hydrocarbons and derivatives of these polymers are classified in C08L 9/00 - C08L 21/02.
- Compositions of natural rubbers are classified in C08L 7/00.
- Compositions of unconjugated diene polymers are classified in C08L 47/00.
- Coating compositions comprising a copolymer of C08F 236/00 are classified in C09D 147/00.
- Coating compositions comprising a copolymer of conjugated diene hydrocarbons and their derivatives are classified in C09D 109/00 – C09D 121/02.
- Coating compositions comprising a natural rubber are classified in C09D 107/00.
- Adhesive compositions comprising a natural rubber or a (co)polymer of conjugated diene hydrocarbons and their derivatives are classified in C09J 107/00 – C09J 121/02.
- Adhesive compositions comprising a copolymer of C08F 236/00 are classified in C09J 147/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 236/00 are classified in C08F 279/00 (graft copolymers).
- Macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain by other mechanism than in C08F are classified in C08G 61/00, e.g polymers obtained by ring-opening metathesis polymerization.
- A chemically modified conjugated diene copolymer is classified in one of the C08F 236/00 – C08F 236/22 groups, and in at least one of the C08C 19/00 – C08C 19/44 groups.

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Copolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system | C08F 232/00 |

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Macromolecular homopolymers or copolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 10/00 - C08F 38/04 |
| Macromolecular homopolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 110/00 - C08F 138/04 |
| Macromolecular copolymers obtained by reactions involving only carbon-to-carbon unsaturated bonds | C08F 210/00 - C08F 238/04 |
| Copolymer of isobutene with minor part of conjugated dienes | C08F 210/12 |
| Copolymers of vinyl aromatic monomers with minor part of conjugated dienes | C08F 212/08 |
| Macromolecular compounds obtained by polymerising monomers on to polymers modified by introduction of aliphatic unsaturated end or side groups | C08F 290/048, C08F 290/128 |
| Block copolymers | C08F 293/00 - C08F 297/086 |
| Chemical compositions of tyres | B60C 1/00 |
| Treatment or chemical modification of rubbers | C08C 1/00 - C08C 19/44 |
| Ethene-propene or ethene-propene-diene copolymers | C08L 23/16 |
| Copolymers of isobutene; Butyl rubber; Homopolymers or copolymers of other iso-olefins | C08L 23/22 |
| Grafted styrene block copolymer-based compositions, e.g. grafted SBS, grafted SEBS or grafted SEPS | C08L 51/006 |
| Styrene block copolymer-based compositions, e.g. SBS, SEBS or SEPS | C08L 53/00 - C08L 53/025 |
| ABS (acrylonitrile butadiene styrene) based compositions | C08L 55/02 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fc, #C8Fd, #C8Fg, #C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places: in C08F 10/00.

- See C-Sets #C8Fc and #C8Fd in C08F 10/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

## Synonyms and Keywords

*In patent documents, the following abbreviations are often used:*

| | |
|---|---|
| ABS | Acrylonitrile butadiene styrene |
| AMS | alpha-Methyl-styrene or isopropenyl styrene |
| At-PS, a-PS, aPS | Atactic polystyrene |
| DVB | Divinyl benzene |
| HIPS | High impact polystyrene |
| It-PS, i-PS, iPS | Isotactic polystyrene |
| PS | Polystyrene |
| SAN | Styrene acrylonitrile copolymer |
| SBR | Styrene butadiene rubber |

# C08F 236/10

### with vinyl-aromatic monomers

## Definition statement

*This place covers:*

Copolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds, with vinyl-aromatic monomers.

## Special rules of classification

Attention should be drawn when classifying copolymers in this group with C-Sets. C08F 236/10 is not used with #C8Fh C-Sets but is allocated as a separate single symbol.

Thus butadiene-styrene copolymer with butadiene in majority is classified as C08F 236/10 and as (C08F 236/06, C08F 212/08).

# C08F 236/12

### with nitriles

## Definition statement

*This place covers:*

Copolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds, with nitrile monomers.

## Special rules of classification

Attention should be drawn when classifying copolymers in this group with C-Sets. C08F 236/12 is not used with #C8Fh C-Sets but is allocated as a separate single symbol.

Thus butadiene-acrylonitrile copolymer with butadiene in majority is classified as C08F 236/12 and as (C08F 236/06, C08F 220/44).

# C08F 236/20

## unconjugated

### Definition statement

*This place covers:*

Copolymers having a majority of monomer units derived from one or more unsaturated aliphatic compounds, at least one having only two unconjugated carbon-to-carbon double bonds.

### Special rules of classification

While classifying copolymers of compounds having two unconjugated carbon-ton-carbon double bonds in C08F 236/20, attention should be given to the precedence rule to C08F 232/00.

Thus, copolymers of 1,5-hexadiene or of 3-vinyl-1-cyclohexene are classified in C08F 236/20, while copolymers of 1,3-cyclohexadiene are classified in C08F 232/06.

# C08F 238/00

## Copolymers of compounds having one or more carbon-to-carbon triple bonds

### Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units having one or more carbon-to-carbon triple bonds, e.g. acetylene or vinylacetylene.

### Relationships with other classification places

- If a document exemplifies both homopolymers and copolymers, it is classified in C08F 38/00.
- If a document exemplifies only homopolymers, it is classified in C08F 138/00.
- Compositions comprising a copolymer of C08F 238/00 are classified in C08L 49/00.
- Coating compositions comprising a copolymer of C08F 238/00 are classified in C09D 149/00.
- Adhesive compositions comprising a copolymer of C08F 238/00 are classified in C09J 149/00.
- Macromolecular compounds obtained by polymerising monomers on to copolymers of C08F 238/00 are classified in C08F 281/00 (graft copolymers).

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2, #C8Fg, C8Fh and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fg and #C8Fh in C08F 210/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 240/00

## Copolymers of hydrocarbons and mineral oils, e.g. petroleum resins

### Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units of hydrocarbons and mineral oils, e.g. petroleum resins.

### Relationships with other classification places

- Compositions comprising a copolymer of mineral oil hydrocarbons are classified in C08L 57/02.
- Coating compositions comprising a copolymer of mineral oil hydrocarbons are classified in C09D 157/02.
- Adhesive compositions comprising a copolymer of mineral oil hydrocarbons are classified in C09J 157/02.

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses

# C08F 242/00

## Copolymers of drying oils with other monomers

### Definition statement

*This place covers:*

Copolymers derived from a majority of monomer units of semi-drying or drying oils, e.g. linseed oil, tung oil, walnut oil, poppy seed oil, perilla oil, oiticica oil, safflower oil, fish oil, tall oil, soybean oil, sunflower oil, rapeseed oil, dehydrated castor oil.

### Relationships with other classification places

- Compositions comprising a copolymer of drying oils are classified in C08L 91/005.
- Coating compositions comprising a copolymer of drying oils are classified in C09D 191/005.
- Adhesive compositions comprising a copolymer of mineral oil hydrocarbons are classified in C09J 191/005.

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Copolymers of monocarboxylic acids having ten or more carbon atoms or copolymers of derivatives thereof | C08F 220/62 - C08F 220/70 |
| Chemical modification of drying oils, e.g. by polymerisation | C09F 7/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 244/00

## Coumarone-indene copolymers

## Definition statement

*This place covers:*

Copolymers containing repeating units derived from the comonomers coumarone and indene.

## Relationships with other classification places

- Compositions comprising a copolymer of C08F 244/00 are classified in C08L 45/02.
- Coating compositions comprising a copolymer of C08F 244/00 are classified in C09D 145/02.
- Adhesive compositions comprising a copolymer of C08F 244/00 are classified in C09J 145/02.

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Homopolymers and copolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system, e.g. having two condensed rings | C08F 32/00 |
| Homopolymers and copolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a heterocyclic ring, e.g. in a ring containing oxygen | C08F 34/00 |
| Copolymers of cyclic compounds containing no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system, e.g. having condensed rings | C08F 232/00 |
| Copolymers of cyclic compounds having no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a heterocyclic ring, e.g. in a ring containing oxygen | C08F 234/00 |
| Developers in electrography, electrophotography and magnetography wherein the binders for toner particles comprise polymers of unsaturated cyclic compounds having no unsaturated aliphatic groups in a side-chain, e.g. coumarone-indene resins | G03G 9/08735 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

## Synonyms and Keywords

*In patent documents, the following abbreviations are often used:*

| | |
|---|---|
| Coumarone | Benzofuran, CAS RN: 271-89-6 |
| Indene | CAS RN: 95-13-6 |
| Coumarone-indene copolymer | CAS RN: 35343-70-5 |

# C08F 246/00

### Copolymers in which the nature of only the monomers in minority is defined

## Definition statement

*This place covers:*

Copolymers in which the nature of the comonomer(s) providing the repeating unit(s) present in majority is either not specified or not particularly restricted, whereas the nature of the comonomer(s) providing the repeating unit(s) present in minority (on the basis of the molar percentage or weight percentage values as the case may be) is clearly specified.

## Relationships with other classification places

- Compositions comprising a copolymer of C08F 246/00 are classified in C08L 57/04.
- Coating compositions comprising a copolymer of C08F 246/00 are classified in C09D 157/04.
- Adhesive compositions comprising a copolymer of C08F 246/00 are classified in C09J 157/04.

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 251/00

## Macromolecular compounds obtained by polymerising monomers on to polysaccharides or derivatives thereof

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polysaccharide or derivative thereof.

Grafting of polysaccharide films.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

### Relationships with other classification places

- Compositions comprising an already-formed graft polymer obtained by polymerisation of a monomer in the presence of a polysaccharide are classified in C08L 51/02.
- Coating compositions comprising an already-formed graft copolymer obtained by polymerisation of a monomer in the presence of a polysaccharide are classified in C09D 151/02.
- Coating compositions comprising an unsaturated monomer and a polymer (polymerisation in situ while on the substrate) which leads to a graft copolymer are classified in C09D 4/06.
- Adhesive compositions comprising an already-formed graft copolymer obtained by polymerisation of a monomer in the presence of a polysaccharide are classified in C09J 151/02.
- Adhesive compositions comprising an unsaturated monomer and a polymer (polymerisation in situ while on the substrate) which leads to a graft copolymer are classified in C09J 4/06.
- Chemical modifications of C08F polymers are classified in C08F 8/00. When no chain extension occurs but only one monomer is attached to the backbone, the reaction is not considered to be a grafting but a chemical modification and is classified in C08F 8/00. This is for example the case of reaction of maleic anhydride through "ene" reaction which is classified in C08F 8/46.
- Chemical modification of rubber with an unsaturated monomer (if no grafting takes place) is classified in C08C 19/28.
- Grafting through reaction of two polymers via condensation reaction is classified in C08G, in particular C08G 81/00.
- Grafting on fibres is classified in D06M 14/00 - D06M 14/36.
- Grafting on a shaped article is classified in C08J 7/16.
- When the process used is a living radical polymerisation process, Indexing Codes C08F 2438/00 - C08F 2438/03 are additionally allocated.

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Polysaccharides and their derivatives | C08B |
| Photosensitive compositions for lithography | G03F |
| Photosensitive material | G03F 7/004 |
| Photosensitive material comprising a monomer and a binder | G03F 7/032 - G03F 7/037 |

## Special rules of classification

Classification guidance

- If the pre-formed polymer is a copolymer, the symbol corresponding to the pre-formed polymer is selected in C08F 251/00 - C08F 291/00 on the basis of the monomer in majority in the pre-formed polymer, wherein the "majority" is as defined at the subclass level.
- In cases of co-grafting, i.e. a monomer is reacted in the presence of two pre-formed polymers, both symbols related to each pre-formed polymer C08F 251/00 - C08F 291/00 are given. For example co-grafting of a monomer onto a polyethylene and a polysiloxane will be classified in C08F 255/02 and C08F 283/12.
- If a seed polymer is used, it is ignored for classification.
- For core shell polymers, the order of addition of the monomers is considered for classification.

Example: A core shell polymer obtained by:

- polymerisation of styrene
- polymerisation of acrylic acid in the presence of the polymer obtained in the previous bulleted item is classified in C08F 257/02 and with a C-Set as explained below.

**Combination sets (C-Sets):**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in this group below

**C-Sets statement: #C8Fi**

- In groups C08F 251/00 - C08F 292/00, copolymers obtained by polymerisation of monomers in the presence of a pre-formed polymer or inorganic material are classified in the form of C-Sets.
- In #C8Fi, the base symbol, representing the pre-formed polymer, is taken from the groups C08F 251/00 - C08F 292/00, whereas the subsequent symbol(s) representing the monomer(s) is (are) taken from C08F 210/00 - C08F 238/04.
- In #C8Fi, the following symbols within C08F 210/02 - C08F 238/04 are not utilized as subsequent symbols: C08F 210/12, C08F 210/18, C08F 212/10, C08F 214/10, C08F 214/184, C08F 214/186, C08F 214/188, C08F 214/202, C08F 214/205, C08F 214/207, C08F 214/222, C08F 214/225, C08F 214/227, C08F 214/242, C08F 214/245, C08F 214/247, C08F 214/262, C08F 214/265, C08F 214/267, C08F 214/282, C08F 214/285, C08F 214/287, C08F 218/12, C08F 218/16, C08F 220/46, C08F 220/48, C08F 222/08, C08F 236/10 and C08F 236/12.
- When several monomers are reacted in the presence of one pre-formed polymer, then one C-set is given with subsequent symbols for each of the monomers.
- If monomers are reacted in the presence of a mixture of pre-formed polymers, one C-Set for each pre-formed polymer is given as indicated in the bullet above.
- In any case, a single symbol corresponding to the base symbol of the C-Set is also given.
- In #C8Fi C-Sets are always allocated as Invention information (I).

**C-Sets syntax rules:**

- Each C-Set shall contain at least two symbols.
- Duplicate symbols are allowed in these C-Sets as subsequent symbols.
- The order of symbols in these C-Sets is relevant as it reflects the pre-formed polymer as base symbol and the monomer(s) as subsequent symbol(s).

**C-Sets examples:**

- #C8Fi: a graft copolymer obtained by polymerising methyl methacrylate onto a pre-formed butyl acrylate-acrylic acid copolymer (butyl acrylate in majority) is classified as (C08F 265/06, C08F 220/14) and C08F 265/06.

- #C8Fi: a graft copolymer obtained by polymerising a monomeric composition comprising methyl methacrylate, hydroxyethyl acrylate and styrene (60/30/10) onto a pre-formed butyl acrylate-acrylic acid copolymer (butyl acrylate in majority) is classified as one C-Set: (C08F 265/06, C08F 220/14, C08F 220/20, C08F 212/08) and C08F 265/06.
- #C8Fi: a graft copolymer obtained by polymerising butyl acrylate onto a pre-formed polyvinyl alcohol polymer is classified as (C08F 261/04, C08F 220/1804) and C08F 261/04.
- #C8Fi: a graft copolymer obtained by polymerising styrene onto a pre-formed saturated polyester is classified as (C08F 283/02, C08F 212/08) and C08F 283/02.
- #C8Fi: a graft copolymer obtained by polymerising N-vinyl pyrrolidone onto a pre-formed polyurethane modified by introduction of unsaturated side-groups is classified as (C08F 290/147, C08F 226/10) and C08F 290/147.
- #C8Fi: a graft copolymer obtained by polymerising N-vinyl pyrrolidone onto a pre-formed polyester with unsaturation in the backbone is classified as (C08F 283/01, C08F 226/10) and C08F 283/01.
- #C8Fi: a graft copolymer obtained by polymerising N-vinyl pyrrolidone onto a mixture of pre-formed polyester with unsaturation in the backbone and polymethyl methacrylate is classified as two separate C-Sets:(C08F 283/01, C08F 226/10), (C08F 265/06, C08F 226/10), and two single symbols C08F 283/01 and C08F 265/06.
- #C8Fi: A polymer obtained in a multistage process where the first step is the polymerisation of styrene in the presence of a polybutadiene rubber core, this step being classified as (C08F 279/02, C08F 212/08) and C08F 279/02, followed by a step where methyl methacrylate and styrene are added and polymerised, the second step is classified as (C08F 285/00, C08F 220/14, C08F 212/08) and C08F 285/00.

**Searches for documents prior to Jan. 2020:**

- Before Jan. 2020, C-Sets in #C8Fi were limited to exactly two symbols such that a copolymer obtained by polymerisation of several monomers in the presence of a pre-formed polymer was allocated a separate C-Set for each monomer: a graft copolymer obtained by polymerising a monomeric composition comprising methyl methacrylate, hydroxyethyl acrylate and styrene (60/30/10) onto a pre-formed butyl acrylate-acrylic acid copolymer (butyl acrylate in majority) was classified as three separate C-Sets: (C08F 265/06, C08F 220/14) , (C08F 265/06, C08F 220/20), and (C08F 265/06, C08F 212/08) and also in C08F 265/06.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 253/00

## Macromolecular compounds obtained by polymerising monomers on to natural rubbers or derivatives thereof

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a natural rubber or derivatives thereof.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

### Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of rubber are classified in C08L 51/04.

- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of rubber are classified in C09D 151/04.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of rubber are classified in C09J 151/04.
- Also, see the Relationships with other classification places under C08F 251/00.

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 255/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of hydrocarbons as defined in group C08F 10/00

## Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of unsaturated aliphatic hydrocarbons having only one carbon-to-carbon double bond as defined in group C08F 10/00, e.g. polyethylene or polypropylene.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Heterophasic polyolefin (co)polymers obtained by multistage polymeri s ation processes are classified with the C-Set #C8Fc in their respective groups in C08F 10/00, C08F 110/00 or C08F 210/00 and in C08F 2/001.
- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer of aliphatic hydrocarbon containing only one carbon-to-carbon double bonds are classified in C08L 51/06.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer of aliphatic hydrocarbon containing only one carbon-to-carbon double bonds are classified in C09D 151/06.

- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer of aliphatic hydrocarbon containing only one carbon-to-carbon double bonds in C09J 151/06.
- Also, see the Relationships with other classification places under C08F 251/00, particularly the following: Chemical modifications of C08F polymers are classified in C08F 8/00. When no chain extension occurs but only one monomer is attached to the backbone, the reaction is not considered to be a grafting but a chemical modification and is classified in C08F 8/00. This is for example the case of reaction of maleic anhydride through "ene" reaction which is classified in C08F 8/46.

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Multistage polymerisation process characterised by a change in reactor conditions without deactivating the intermediate polymer | C08F 2/001 |

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 257/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of aromatic monomers as defined in group C08F 12/00

## Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least being terminated by an aromatic carbocyclic ring as defined in group C08F 12/00, e.g. polystyrene.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Polymers obtained by polymerising monomers onto block polymers are classified in C08F 287/00.

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 259/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of halogen containing monomers as defined in group C08F 14/00

## Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen as defined in C08F 14/00, e.g. poly(vinyl chloride) or poly(vinylidene fluoride).

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 261/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of oxygen-containing monomers as defined in group C08F 16/00

## Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an alcohol, ether, aldehydo, ketonic, acetal or ketal radical as defined in C08F 16/00, e.g. poly(vinyl alcohol).

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationship with other classification places under C08F 251/00.

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 263/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of esters of unsaturated alcohols with saturated acids as defined in group C08F 18/00

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, of carbonic acid or of a haloformic acid as defined in group C08F 18/00, e.g poly(vinyl acetate).

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

### Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

### Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 265/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of unsaturated monocarboxylic acids or derivatives thereof as defined in group C08F 20/00

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxylic radical or a salt, anhydride, ester, amide, imide or nitrile thereof as defined in group C08F 20/00, e.g poly(methyl acrylate), poly(methyl acrylic acid), polyacrylonitrile, polyacrylamide.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

### Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

### Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 267/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of unsaturated polycarboxylic acids or derivatives thereof as defined in group C08F 22/00

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by only one carboxyl radical and containing at least one other carboxyl radical in the molecule; salts, anhydrides, esters, amides, imides or nitriles thereof as defined in group C08F 22/00, e.g poly(maleic anhydride), poly(vinylidene cyanide).

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

### Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

### Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 269/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of heterocyclic oxygen-containing monomers as defined in group C08F 24/00

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a heterocyclic ring containing oxygen as defined in group C08F 24/00, e.g. methylene lactones.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

### Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationship with other classification places under C08F 251/00.

### Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 271/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of nitrogen-containing monomers as defined in group C08F 26/00

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of nitrogen-containing monomers as defined in group C08F 26/00, e.g. diallylamine, N-vinyl-pyrrolidine or N-vinyl-pyrrolidone.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

### Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

### Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 273/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of sulfur-containing monomers as defined in group C08F 28/00

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a bond to sulfur or by a heterocyclic ring containing sulfur as defined in group C08F 28/00.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 275/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of monomers containing phosphorus, selenium, tellurium or a metal as defined in group C08F 30/00

## Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and containing phosphorus, selenium, tellurium or a metal as defined in group C08F 30/00.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.

- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 277/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of carbocyclic or heterocyclic monomers as defined respectively in group C08F 32/00 or in group C08F 34/00

## Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of cyclic compounds having no unsaturated aliphatic radicals in a side chain, and having one or more carbon-to-carbon double bonds in a carbocyclic ring system as defined in group C08F 32/00 or in a heterocyclic ring as defined in group C08F 34/00.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 279/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of monomers having two or more carbon-to-carbon double bonds as defined in group C08F 36/00

## Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of monomers having two or more carbon-to carbon double bonds as defined in group C08F 36/00, e.g. polybutadiene, polyisoprene or styrene-butadiene polymer.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Compositions of ABS polymer | C08L 55/02 |
| Coating or adhesive composition comprising an ABS polymer | C09D 155/02, C09J 155/02 |

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 281/00

## Macromolecular compounds obtained by polymerising monomers on to polymers of monomers having carbon-to-carbon triple bonds as defined in group C08F 38/00

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer of monomers having carbon-to-carbon triple bonds as defined in group C08F 38/00, e.g. polyacetylene or poly(vinylacetylene).

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

### Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/003.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/003.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/003.
- Also, see the Relationships with other classification places under C08F 251/00.

### Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 283/00

## Macromolecular compounds obtained by polymerising monomers on to polymers provided for in subclass C08G

## Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer from C08G, e.g. polyesters, polycarbonates, polyethers, polyamides, polysiloxanes, polyepoxides.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymeri s ation of a monomer in the presence of a C08G polymer are classified in C08L 51/08.
- Coating compositions comprising a graft polymer obtained by polymeri s ation of a monomer in the presence of a C08G polymer are classified in C09D 151/08.
- Adhesive compositions comprising a graft polymer obtained by polymeri s ation of a monomer in the presence of a C08G polymer are classified in C09J 151/08.
- Also, see the Relationships with other classification places under C08F 251/00.
- Graft polymers obtained by polymerisation of a monomer onto a C08G polymer modified by introduction of aliphatic unsaturated end or side groups are classified in C08F 290/06, C08F 290/14.

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Graft polymers obtained by polymerisation of a monomer onto a C08G polymer modified by introduction of aliphatic unsaturated end or side groups. | C08F 290/06, C08F 290/14 |

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Compositions of graft polymer obtained by polymerisation of a monomer in the presence of a polysiloxane | C08L 51/085 |
| Coating or adhesive composition comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polysiloxane | C09D 151/085, C09J 151/085 |

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00

- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 285/00

## Macromolecular compounds obtained by polymerising monomers on to preformed graft polymers

### Definition statement

*This place covers:*

Core-shell polymers or multistage polymers prepared in at least three polymerisation stages.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

### Relationships with other classification places

See the Relationships with other classification places under C08F 251/00.

### Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 287/00

## Macromolecular compounds obtained by polymerising monomers on to block polymers

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomers on to block polymers.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a block polymer containing at least one sequence of polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C08L 51/006.
- Compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a C08G (block) polymer are classified in C08L 51/08.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a block polymer containing at least one sequence of polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09D 151/006.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer in the presence of a block polymer containing at least one sequence of polymer obtained by reactions involving only carbon-to-carbon double bonds are classified in C09J 151/006.
- Also, see the Relationships with other classification places under C08F 251/00.

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 289/00

### Macromolecular compounds obtained by polymerising monomers on to macromolecular compounds not provided for in groups C08F 251/00 - C08F 287/00

## Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer in the presence of a polymer not provided for in groups C08F 251/00 - C08F 287/00, e.g. protein.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a graft polymer are classified in C08L 51/00.
- Coating compositions comprising a graft polymer are classified in C09D 151/00.
- Adhesive compositions comprising a graft polymer are classified in C09J 151/00.
- Also see the Relationships with other classification places under C08F 251/00.

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 290/00

## Macromolecular compounds obtained by polymerising monomers on to polymers modified by introduction of aliphatic unsaturated end or side groups

## Definition statement

*This place covers:*

This group covers comb polymers obtained by reaction of a monomer with a macromonomer having an end unsaturation. The monomer forms the backbone and the macromonomer forms the teeth of the comb polymer.

Polymers obtained by reaction of a monomer and a macromonomer having side groups or several end groups are also classified in this group.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a homopolymer or copolymer obtained by polymerisation of polymers terminated by a C=C bond are classified in C08L 55/005.
- Coating compositions comprising a homopolymer or copolymer obtained by polymerisation of polymers terminated by a C=C bond are classified in C09D 155/005.
- Adhesive compositions comprising a homopolymer or copolymer obtained by polymerisation of polymers terminated by a C=C bond are classified in C09J 155/005.
- Coating compositions comprising an unsaturated monomer and a polymer, except an unsaturated polymer of C08G, are classified in C09D 4/06.
- Adhesive compositions comprising an unsaturated monomer and a polymer, except an unsaturated polymer of C08G, are classified in C09J 4/06.
- Also, see the Relationships with other classification places under C08F 251/00.

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Copolymers of monocarboxylic acid esters of polyhydric alcohols or phenols | C08F 220/20 |
| Copolymers of monocarboxylic acids esters containing ether chain in the alcohol moiety | C08F 220/285 - C08F 220/288 |
| Graft polymers obtained by polymerisation of a monomer onto a polymer of C08G | C08F 283/00 |

| | |
|---|---|
| Compositions of graft polymer obtained by polymerisation of a monomer in the presence of a C08G polymer | C08L 51/08 |
| Compositions of graft polymer obtained by polymerisation of a monomer in the presence of a polysiloxane | C08L 51/085 |
| Coating or adhesive composition comprising a graft polymer obtained by polymerisation of a monomer in the presence of a C08G polymer | C09D 151/08, C09J 151/08 |
| Coating or adhesive composition comprising a graft polymer obtained by polymerisation of a monomer in the presence of a polysiloxane | C09D 151/085, C09J 151/085 |
| Coating or adhesive obtained by the polymerisation (in situ) of a monomer onto an unsaturated polymer of C08G | C09D 159/00 - C09D 187/00 |

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 291/00

## Macromolecular compounds obtained by polymerising monomers on to macromolecular compounds according to more than one of the groups C08F 251/00 - C08F 289/00

## Definition statement

*This place covers:*

This group is used when the backbone polymer is not specified or if the backbone can be classified in several different groups of C08F 251/00 - C08F 289/00.

For the purpose of classification, any unsaturated monomer polymerised in the presence of any polymer will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the polymer; all these possibilities are classified in this group.

## Relationships with other classification places

- Compositions comprising a graft polymer are classified in C08L 51/00.
- Coating compositions comprising a graft polymer are classified in C09D 151/00.
- Adhesive compositions comprising a graft polymer are classified in C09J 151/00.
- Also, see the Relationships with other classification places under C08F 251/00.

## Special rules of classification

See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 292/00

## Macromolecular compounds obtained by polymerising monomers on to inorganic materials

### Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerising an unsaturated monomer on to inorganic materials, e.g. silica, metal oxides, glass.

For the purpose of classification in this group, any unsaturated monomer polymerised in the presence of any inorganic material will be considered a "graft", wherein the monomer may be grafted, partially grafted or even not actually grafted onto the inorganic material; all these possibilities are classified in this group.

### Relationships with other classification places

- Compositions comprising a graft polymer obtained by polymerisation of a monomer onto an inorganic material are classified in C08L 51/10.
- Coating compositions comprising a graft polymer obtained by polymerisation of a monomer onto an inorganic material are classified in C09D 151/10.
- Adhesive compositions comprising a graft polymer obtained by polymerisation of a monomer onto an inorganic material are classified in C09J 151/10.
- Also, see the Relationships with other classification places under C08F 251/00.
- When a polymerisation process is conducted in the presence of an inorganic material such that the monomer is not actually grafted or there is no evidence that a monomer is grafted onto the inorganic material (e.g. fillers), additional classification in C08F 2/44 is allocated.

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Polymerisation in the presence of compounding ingredients | C08F 2/44 |
| Treatment of silica with macro-molecular organic compound | C09C 1/3072 |
| Treatment with macro-molecular organic compound of inorganic materials, other than fibrous fillers, to enhance their pigmenting or filling properties | C09C 3/10 |

### Special rules of classification

Classification guidance

- See also Special rules of classification under C08F 251/00.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1, #C8Fb2 and #C8Fi) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" at the following places:

- See C-Sets #C8Fb1 and #C8Fb2 in C08F 8/00
- See C-Sets #C8Fi in C08F 251/00

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 293/00

## Macromolecular compounds obtained by polymerisation on to a macromolecule having groups capable of inducing the formation of new polymer chains bound exclusively at one or both ends of the starting macromolecule (on to polymers modified by introduction of unsaturated end groups C08F 290/02)

## Definition statement

*This place covers:*

Block copolymers produced by radical polymerisation.

Block copolymers produced by living radical polymerisation (LRP), e.g. ATRP (Atom Transfer Radical Polymerisation), RAFT (Reversible Addition-Fragmentation chain Transfer, using e.g. di- or tri-thiocarbamate or xanthate) or nitroxy mediated LRP(using e.g. TEMPO).

## Relationships with other classification places

- Macromolecular compounds obtained by interreacting polymers in the absence of monomers, e.g. block polymers (reaction of two polymers via condensation reaction) are classified in C08G 81/00.
- Compositions of block copolymers containing at least one sequence of a polymer obtained by reactions only involving carbon-to-carbon unsaturated bonds are classified in C08L 53/00.
- Coating compositions of block copolymers containing at least one sequence of a polymer obtained by reactions only involving carbon-to-carbon unsaturated bonds are classified in C09D 153/00.
- Adhesive compositions of block copolymers containing at least one sequence of a polymer obtained by reactions only involving carbon-to-carbon unsaturated bonds are classified in C09J 153/00.

## References

### *Limiting references*

*This place does not cover:*

| | |
|---|---|
| Polymerisation of a monomer on to polymers modified by introduction of unsaturated end groups. | C08F 290/02 |

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Cosmetic or toilet preparation comprising block polymers | A61K 8/91 |
| Block- or graft polymers containing polysiloxane sequences | C08G 77/42 |

| | |
|---|---|
| Macromolecular compounds obtained by interreacting polymers in the absence of monomers, e.g. block polymers (reaction of two polymers via condensation reaction); [specific C08G block groups} | C08G 81/00 |

## Special rules of classification

Classification guidance

- Block copolymers obtained by a process involving living radical polymerisation are further classified in C08F 2438/00 - C08F 2438/03 as single symbol.

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 295/00

## Macromolecular compounds obtained by polymerisation using successively different catalyst types without deactivating the intermediate polymer

## Definition statement

*This place covers:*

Macromolecular compounds obtained by polymerisation using successively different catalyst types without deactivating the intermediate polymer.

## References

### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Compositions of block copolymers containing at least one sequence of a polymer obtained by reactions only involving carbon-to-carbon unsaturated bonds | C08L 53/00 |
| Coating or adhesive compositions of block copolymers containing at least one sequence of a polymer obtained by reactions only involving carbon-to-carbon unsaturated bonds; | C09D 153/00, C09J 153/00 |

## Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 297/00

## Macromolecular compounds obtained by successively polymerising different monomer systems using a catalyst of the ionic or coordination type without deactivating the intermediate polymer

### Definition statement

*This place covers:*

Macromolecular compounds obtained by successively polymerising two or more different monomer systems using a catalyst of the ionic or coordination type without deactivating the intermediate polymer.

Block polymers obtained by cationic polymerisation, e.g. isobutylene.

Block polymers obtained by anionic polymerisation.

Block polymers obtained by a catalyst of the coordination type, e.g. metallocene or Ziegler-Natta.

Star polymers if star-block polymers of the type (A-B)n-X, with A-B being a block polymer.

### Relationships with other classification places

- Star homopolymers or copolymers in which the arms are a homo or a copolymer, i.e the arms are not block arms are classified in the respective homo-or copolymer groups.
- Multistage polymerisation processes characterised by a change in reactor conditions without deactivating the intermediate polymer are classified in C08F 2/001. In particular, processes for the multistage polymerisation of olefin leading to heterophasic polymers are classified in C08F 2/001.

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Compositions of block copolymers containing at least one sequence of a polymer obtained by reactions only involving carbon-to-carbon unsaturated bonds, e.g. vinyl-aromatic monomers and conjugated dienes | C08L 53/00 |
| Coating or adhesive compositions of block copolymers containing at least one sequence of a polymer obtained by reactions only involving carbon-to-carbon unsaturated bonds, e.g. of vinyl aromatic monomer and conjugated diene polymers | C09D 153/00, C09J 153/00 |

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 299/00

## Macromolecular compounds obtained by interreacting polymers involving only carbon-to-carbon unsaturated bond reactions, in the absence of non-macromolecular monomers

### Definition statement

*This place covers:*

Macromolecular compounds obtained by interreacting polymers involving only carbon-to-carbon unsaturated bond reactions, in the absence of non-macromolecular monomers, e.g. reaction of polymers having one or more unsaturations.

Crosslinked polymers are the result of an addition reaction occurring between polymer chains containing unsaturated aliphatic radicals (being placed at the middle or end of the backbone or laterally) in the absence of monomeric compounds.

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| | |
|---|---|
| Macromolecular compounds obtained by interreacting polymers involving only carbon-to-carbon unsaturated bond reactions, in the presence of non-macromolecular monomers | C08F 251/00 - C08F 291/00 |
| Macromolecular compounds obtained by interreacting polymers involving reactions other than carbon-to-carbon unsaturated bond reactions | C08G 81/00 |

### Special rules of classification

**C-Sets classification:**

In this group, C-Sets classification (e.g. #C8Fb1 and #C8Fb2) is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the "Special rules of classification" in C08F 8/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.

# C08F 301/00

## Macromolecular compounds not provided for in groups C08F 10/00 - C08F 299/00

### Special rules of classification

At present, no polymer belonging to C08F shall be classified in this group as the subgroups starting from C08F 10/00 - C08F 299/08 encompass all the possible addition polymers.

# C08F 2500/00

## Characteristics or properties of obtained polyolefins; Use thereof

### Special rules of classification

Classification guidance

Orthogonal indexing codes within C08F 2500/00 are not allocated as single symbol(s) and are only used as subsequent symbol(s) in C-Sets.

**C-Sets classification:**

In this group, C-Sets classification according to #C8Fe and #C8Fg is used. The detailed information about the C-Sets construction and the associated syntax rules are found in the Special rules of classification at the following places:

See C-Sets #C8Fe in C08F 110/00.

See C-Sets #C8Fg in C08F 210/00.

**C-Sets searches:**

C-Sets search queries may be made according to C-Sets classification rules described in C08F and related subclasses.