

CPC**COOPERATIVE PATENT CLASSIFICATION****C10M**

LUBRICATING COMPOSITIONS (well drilling compositions [C09K 8/02](#)); **USE OF CHEMICAL SUBSTANCES EITHER ALONE OR AS LUBRICATING INGREDIENTS IN A LUBRICATING COMPOSITION** ({lubricants for medical use [A61](#)} ; mould release, i.e. separating, agents for metals [B22C 3/00](#), for plastics or substances in a plastic state, in general [B29C 33/56](#), for glass [C03B 40/02](#); use of particular substances in particular apparatus or conditions, see [F16N](#) or the relevant groups for the application, e.g. [A21D 8/08](#), [B21C 9/00](#), [H01B 3/18](#); immersion oils for microscopy [G02B 21/33](#))

NOTES

1. In this subclass, the following terms are used with the meanings indicated:
 - "lubricant" or "lubricating composition" includes cutting oils, hydraulic fluids, metal drawing compositions, flushing oils, slushing oils, or the like;
 - "aliphatic" includes "cycloaliphatic".
2. In respect of the classification of mixtures, attention is drawn to Note (4) (e) below.
3. In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place. Thus, a compound having an aromatic ring is classified as aromatic regardless of whether the substituent(s) of interest are on the ring or on an aliphatic part of the molecule.
4. In this subclass:
 - a. metal or ammonium salts of a compound are classified as that compound;
 - b. salts or adducts formed between two or more organic compounds are classified according to all compounds forming the salt or adduct, if of interest;
 - c. a specified compound, e.g. phenols, acids, substituted by a macromolecular hydrocarbon radical is classified as that compound;
 - d. base-materials or thickeners or additives consisting of a mixture for which no specific main group is provided are classified in the most indented group covering all essential constituents of the mixture, for example,
 - a base-material mixture of ketone and amide - group [C10M 105/00](#)
 - a base-material mixture of ketone and ether - group [C10M 105/08](#)
 - an additive mixture of long and short chain esters - group [C10M 129/00](#)
 - an additive mixture of short chain aliphatic and aromatic carboxylic acids- group [C10M 129/26](#);
 - e. except for aqueous lubricating compositions containing more than 10% water, which are classified separately, classification is made according to the type of ingredient or mixture of types of ingredient (base-material, thickener or additive) which characterises the composition. Attention is drawn to the fact that a mixture of essential ingredients characterised by only one of its components, rather than by the mixture as a whole, is not classified as a mixture, e.g. a lubricating composition consisting of:
 - a known base-material and a new additive is classified only in the "additive" part of the classification scheme;
 - a known base-material with both a thickener and a further additive as essential ingredients, which may be individually classified as a mixture of thickener and additive;

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(continued)

- known base-material with a combination of additives as essential ingredients, which may be individually known or not, is classified in the appropriate place for the additive mixture.
5. In this subclass, it is desirable to add the indexing codes of:
- subclass [C10M](#), relating to the chemical constitution of individual compounds of the lubricating compositions;
 - subclass [C10N](#), relating to physico-chemical aspects of the lubricating compositions or of their compounding ingredients.
- For more information about the way of allocating these indexing codes, see the notes after the titles of the respective subclasses.
6. In this subclass, until May 2003, indexing codes were added, relating to:
- each of the essential ingredients of a mixture. However, in the case of an aqueous lubricating composition covered by group [C10M 173/00](#), the presence of water is not indicated;
 - each of the essential reactants of a reaction product covered by groups [C10M 109/02](#), [C10M 121/04](#) or [C10M 159/12](#)
- The indexing codes, which are chosen from groups [C10M 101/00](#) to [C10M 109/00](#), [C10M 113/00](#) to [C10M 121/00](#), [C10M 125/00](#) to [C10M 139/00](#), [C10M 143/00](#) to [C10M 155/00](#), [C10M 159/00](#) or [C10M 163/00](#) to [C10M 167/00](#), were given using Combination Sets.
7. In this subclass, until May 2003, the indexing codes of subclass [C10N](#) were added.
- Documents classified with Combination Sets according to internal Notes 2), 3) and 5) are in the state of being reclassified according to Note 1).

WARNING

The following groups are no longer used for the classification of new documents from January, 1978:

– [C10M 1/00](#) to [C10M 7/00](#)

The backlog of these groups is continuously being reclassified in groups [C10M 101/00](#) to [C10M 177/00](#).

IPC3 groups

- | | |
|------------------|--|
| C10M 1/00 | Liquid compositions essentially based on mineral lubricating oils or fatty oils; Their use as lubricants |
| C10M 1/08 | . with additives |
| C10M 3/00 | Liquid compositions essentially based on lubricating components other than mineral lubricating oils or fatty oils and their use as lubricants; Use as lubricants of single liquid substances (compositions in general essentially based on macromolecular compounds C08L) |
| C10M 5/00 | Solid or semi-solid compositions containing as the essential lubricating ingredient mineral lubricating oils or fatty oils and their use |
| C10M 7/00 | Solid or semi-solid compositions essentially based on lubricating components other than mineral lubricating oils or fatty oils and their use as lubricants; Use as lubricants of single solid or semi-solid substances (compositions in general essentially based on macromolecular compounds C08L) |

Base-Materials

| | |
|--------------------|--|
| C10M 101/00 | Lubricating compositions characterised by the base-material being a mineral or fatty oil (containing more than 10% water C10M 173/00) |
| C10M 101/02 | . Petroleum fractions |
| C10M 101/025 | . . {waxes} |
| C10M 101/04 | . Fatty oil fractions |
| C10M 103/00 | Lubricating compositions characterised by the base-material being an inorganic material (containing more than 10% water C10M 173/00) |
| C10M 103/02 | . Carbon; Graphite |
| C10M 103/04 | . Metals; Alloys |
| C10M 103/06 | . Metal compounds |
| C10M 105/00 | Lubricating compositions characterised by the base-material being a non-macromolecular organic compound |
| C10M 105/02 | . Well-defined hydrocarbons (petroleum fractions C10M 101/02) |
| C10M 105/04 | . . aliphatic |
| C10M 105/06 | . . aromatic |
| C10M 105/08 | . containing oxygen |
| C10M 105/10 | . . having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms |
| C10M 105/12 | . . . monohydroxy |
| C10M 105/14 | . . . polyhydroxy |
| C10M 105/16 | . . having hydroxy groups bound to a carbon atom of a six-membered aromatic ring |
| C10M 105/18 | . . Ethers, e.g. epoxides |
| C10M 105/20 | . . Aldehydes; Ketones |
| C10M 105/22 | . . Carboxylic acids or their salts |
| C10M 105/24 | . . . having only one carboxyl group bound to an acyclic carbon atom, cycloaliphatic carbon atom or hydrogen |
| C10M 105/26 | . . . having more than one carboxyl group bound to an acyclic carbon atom or cycloaliphatic carbon atom |
| C10M 105/28 | . . . having only one carboxyl group bound to a carbon atom of a six-membered aromatic ring |
| C10M 105/30 | . . . having more than one carboxyl group bound to a carbon atom of a six-membered aromatic ring |
| C10M 105/32 | . . Esters |
| C10M 105/34 | . . . of monocarboxylic acids |
| C10M 105/36 | . . . of polycarboxylic acids |
| C10M 105/38 | . . . of polyhydroxy compounds |
| C10M 105/40 | . . . containing free hydroxy or carboxyl groups |

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| C10M 105/42 | <ul style="list-style-type: none"> Complex esters, i.e. compounds containing at least three esterified carboxyl groups and derived from the combination of at least three different types of the following five types of compound: Monohydroxy compounds, polyhydroxy compounds, monocarboxylic acids, polycarboxylic acids and hydroxy carboxylic acids |
| C10M 105/44 | <ul style="list-style-type: none"> derived from the combination of monocarboxylic acids, dicarboxylic acids and dihydroxy compounds only and having no free hydroxy or carboxyl groups |
| C10M 105/46 | <ul style="list-style-type: none"> derived from the combination of monohydroxy compounds, dihydroxy compounds and dicarboxylic acids only and having no free hydroxy or carboxyl groups |
| C10M 105/48 | <ul style="list-style-type: none"> of carbonic acid |
| C10M 105/50 | <ul style="list-style-type: none"> containing halogen |
| C10M 105/52 | <ul style="list-style-type: none"> containing carbon, hydrogen and halogen only |
| C10M 105/525 | <ul style="list-style-type: none"> {halogenated waxes} |
| C10M 105/54 | <ul style="list-style-type: none"> containing carbon, hydrogen, halogen and oxygen |
| C10M 105/56 | <ul style="list-style-type: none"> containing nitrogen |
| C10M 105/58 | <ul style="list-style-type: none"> Amines, e.g. polyalkylene polyamines, quaternary amines (polyalkylene polyamines with eleven or more monomer units C10M 107/44) |
| C10M 105/60 | <ul style="list-style-type: none"> having amino groups bound to an acyclic or cycloaliphatic carbon atom |
| C10M 105/62 | <ul style="list-style-type: none"> containing hydroxy groups |
| C10M 105/64 | <ul style="list-style-type: none"> having amino groups bound to a carbon atom of a six-membered aromatic ring |
| C10M 105/66 | <ul style="list-style-type: none"> containing hydroxy groups |
| C10M 105/68 | <ul style="list-style-type: none"> Amides; Imides |
| C10M 105/70 | <ul style="list-style-type: none"> as ring hetero atom |
| C10M 105/72 | <ul style="list-style-type: none"> containing sulfur, selenium or tellurium |
| C10M 105/74 | <ul style="list-style-type: none"> containing phosphorus |
| C10M 105/76 | <ul style="list-style-type: none"> containing silicon |
| C10M 105/78 | <ul style="list-style-type: none"> containing boron |
| C10M 105/80 | <ul style="list-style-type: none"> containing atoms of elements not provided for in groups C10M 105/02 to C10M 105/78 |
| C10M 107/00 | Lubricating compositions characterised by the base-material being a macromolecular compound |
| C10M 107/02 | <ul style="list-style-type: none"> Hydrocarbon polymers; Hydrocarbon polymers modified by oxidation |
| C10M 107/04 | <ul style="list-style-type: none"> Polyethene |
| C10M 107/06 | <ul style="list-style-type: none"> containing propene |
| C10M 107/08 | <ul style="list-style-type: none"> containing butene |
| C10M 107/10 | <ul style="list-style-type: none"> containing aliphatic monomer having more than 4 carbon atoms |
| C10M 107/12 | <ul style="list-style-type: none"> containing aromatic monomer, e.g. styrene |
| C10M 107/14 | <ul style="list-style-type: none"> containing conjugated diens |
| C10M 107/16 | <ul style="list-style-type: none"> containing non-conjugated diene |
| C10M 107/18 | <ul style="list-style-type: none"> Hydrocarbon polymers modified by oxidation |

- C10M 107/20
 - containing oxygen ([C10M 107/18 takes precedence](#))
- C10M 107/22
 - • Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
- C10M 107/24
 - • • containing monomers having an unsaturated radical bound to an alcohol, aldehyde, ketonic, ether, ketal or acetal radical
- C10M 107/26
 - • • containing monomers having an unsaturated radical bound to an acyloxy radical of a saturated carboxylic or carbonic acid
- C10M 107/28
 - • • containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate
- C10M 107/30
 - • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
- C10M 107/32
 - • • Condensation polymers of aldehydes or ketones; Polyesters; Polyethers
- C10M 107/34
 - • • • Polyoxyalkylenes
- C10M 107/36
 - • Polysaccharides, e.g. cellulose
- C10M 107/38
 - containing halogen
- C10M 107/40
 - containing nitrogen
- C10M 107/42
 - • Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
- C10M 107/44
 - • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
- C10M 107/46
 - containing sulfur
- C10M 107/48
 - containing phosphorus
- C10M 107/50
 - containing silicon
- C10M 107/52
 - containing boron
- C10M 107/54
 - containing atoms of elements not provided for in groups [C10M 107/02](#) to [C10M 107/52](#)

- C10M 109/00**
Lubricating compositions characterised by the base-material being a compound of unknown or incompletely defined constitution ([C10M 101/00 takes precedence](#))
- C10M 109/02
 - Reaction products

- C10M 111/00**
Lubrication compositions characterised by the base-material being a mixture of two or more compounds covered by more than one of the main groups [C10M 101/00](#) to [C10M 109/00](#), each of these compounds being essential
- C10M 111/02
 - at least one of them being a non-macromolecular organic compound
- C10M 111/04
 - at least one of them being a macromolecular organic compound
- C10M 111/06
 - at least one of them being a compound of the type covered by group [C10M 109/00](#)

Thickeners**NOTE**

A thickener is an agent which solidifies other liquid components to form a grease (solid lubricants consisting of solid components [C10M 101/00](#) to [C10M 111/00](#)).

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|-----------------------------|--|
| C10M 113/00 | Lubricating compositions characterised by the thickening agent being an inorganic material |
| C10M 113/02 | <ul style="list-style-type: none"> Carbon; Graphite |
| C10M 113/04 | <ul style="list-style-type: none"> Sulfur |
| C10M 113/06 | <ul style="list-style-type: none"> Metals; Alloys |
| C10M 113/08 | <ul style="list-style-type: none"> Metal compounds |
| C10M 113/10 | <ul style="list-style-type: none"> Clays; Micas |
| C10M 113/12 | <ul style="list-style-type: none"> Silica |
| C10M 113/14 | <ul style="list-style-type: none"> Glass |
| C10M 113/16 | <ul style="list-style-type: none"> Inorganic material treated with organic compounds, e.g. coated |
| C10M 115/00 | Lubricating compositions characterised by the thickener being a non-macromolecular organic compound other than a carboxylic acid or salt thereof |
| C10M 115/02 | <ul style="list-style-type: none"> Hydrocarbons (petroleum fractions C10M 121/02) |
| C10M 115/04 | <ul style="list-style-type: none"> containing oxygen |
| C10M 115/06 | <ul style="list-style-type: none"> containing halogen |
| C10M 115/08 | <ul style="list-style-type: none"> containing nitrogen |
| C10M 115/10 | <ul style="list-style-type: none"> containing sulfur |
| C10M 115/12 | <ul style="list-style-type: none"> containing phosphorus |
| C10M 117/00 | Lubricating compositions characterised by the thickener being a non-macromolecular carboxylic acid or salt thereof |
| C10M 117/02 | <ul style="list-style-type: none"> having only one carboxyl group bound to an acyclic carbon atom, cycloaliphatic carbon atom or hydrogen |
| C10M 117/04 | <ul style="list-style-type: none"> containing hydroxy groups |
| C10M 117/06 | <ul style="list-style-type: none"> having more than one carboxyl group bound to an acyclic carbon atom or cycloaliphatic carbon atom |
| C10M 117/08 | <ul style="list-style-type: none"> having only one carboxyl group bound to a carbon atom of a six-membered aromatic ring |
| C10M 117/10 | <ul style="list-style-type: none"> having more than one carboxyl group bound to a carbon atom of a six-membered aromatic ring |
| C10M 119/00 | Lubricating compositions characterised by the thickener being a macromolecular compound |
| C10M 119/02 | <ul style="list-style-type: none"> Hydrocarbon polymers; Hydrocarbon polymers modified by oxidation |
| C10M 119/04 | <ul style="list-style-type: none"> containing oxygen (hydrocarbon polymers modified by oxidation C10M 119/02) |

- C10M 119/06
 - . . Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
- C10M 119/08
 - . . . containing monomers having an unsaturated radical bound to an alcohol, aldehyde, ketonic, ether, ketal or acetal radical
- C10M 119/10
 - . . . containing monomers having an unsaturated radical bound to an acyloxy radical of a saturated carboxylic or carbonic acid
- C10M 119/12
 - . . . containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate
- C10M 119/14
 - . . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
- C10M 119/16
 - . . . Condensation polymers of aldehydes or ketones; Polyesters; Polyethers
- C10M 119/18
 - Polyoxyalkylenes
- C10M 119/20
 - . . Polysaccharides, e.g. cellulose
- C10M 119/22
 - . containing halogen
- C10M 119/24
 - . containing nitrogen
- C10M 119/26
 - . containing sulfur
- C10M 119/28
 - . containing phosphorus
- C10M 119/30
 - . containing atoms of elements not provided for in groups [C10M 119/02](#) to [C10M 119/28](#)

- C10M 121/00**
Lubricating compositions characterised by the thickener being a compound of unknown or incompletely defined constitution
- C10M 121/02
 - . Petroleum fractions, e.g. tars
- C10M 121/04
 - . Reaction products

- C10M 123/00**
Lubricating compositions characterised by the thickener being a mixture of two or more compounds covered by more than one of the main groups [C10M 113/00](#) to [C10M 121/00](#), each of these compounds being essential (inorganic materials coated with organic compounds [C10M 113/16](#))
- C10M 123/02
 - . at least one of them being a non-macromolecular compound
- C10M 123/04
 - . at least one of them being a macromolecular compound
- C10M 123/06
 - . at least one of them being a compound of the type covered by group [C10M 121/00](#)

Additives

- C10M 125/00**
Lubricating compositions characterised by the additive being an inorganic material
- C10M 125/02
 - . Carbon; Graphite
- C10M 125/04
 - . Metals; Alloys
- C10M 125/06
 - . Sulfur
- C10M 125/08
 - . Metal carbides or hydrides
- C10M 125/10
 - . Metal oxides, hydroxides, carbonates or bicarbonates
- C10M 125/12
 - . Metal carbonyls

- C10M 125/14
 - Water ([aqueous lubricating compositions containing more than 10% water C10M 173/00](#))
- C10M 125/16
 - Hydrogen peroxide; Oxygenated water
- C10M 125/18
 - Compounds containing halogen
- C10M 125/20
 - Compounds containing nitrogen
- C10M 125/22
 - Compounds containing sulfur, selenium or tellurium
- C10M 125/24
 - Compounds containing phosphorus, arsenic or antimony
- C10M 125/26
 - Compounds containing silicon or boron, e.g. silica, sand
- C10M 125/28
 - . Glass
- C10M 125/30
 - . Clay

- C10M 127/00**
Lubricating compositions characterised by the additive being a non-macromolecular hydrocarbon ([petroleum fractions C10M 159/04](#))
- C10M 127/02
 - well-defined aliphatic
- C10M 127/04
 - well-defined aromatic
- C10M 127/06
 - Alkylated aromatic hydrocarbons

- C10M 129/00**
Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing oxygen
- C10M 129/02
 - having a carbon chain of less than 30 atoms
- C10M 129/04
 - . Hydroxy compounds
- C10M 129/06
 - . . having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms
- C10M 129/08
 - . . . containing at least 2 hydroxy groups
- C10M 129/10
 - . . . having hydroxy groups bound to a carbon atom of a six-membered aromatic ring
- C10M 129/12
 - with condensed rings
- C10M 129/14
 - containing at least 2 hydroxy groups
- C10M 129/16
 - . Ethers
- C10M 129/18
 - . . Epoxides
- C10M 129/20
 - . . Cyclic ethers having 4 or more ring atoms, e.g. furans, dioxolanes
- C10M 129/22
 - . Peroxides; Ozonides
- C10M 129/24
 - . Aldehydes; Ketones
- C10M 129/26
 - . Carboxylic acids; Salts thereof
- C10M 129/28
 - . . having carboxyl groups bound to acyclic or cycloaliphatic carbon atoms
- C10M 129/30
 - . . . having 7 or less carbon atoms
- C10M 129/32
 - monocarboxylic
- C10M 129/34
 - polycarboxylic
- C10M 129/36
 - containing hydroxy groups
- C10M 129/38
 - having 8 or more carbon atoms
- C10M 129/40
 - monocarboxylic
- C10M 129/42
 - polycarboxylic
- C10M 129/44
 - containing hydroxy groups

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| C10M 129/46 | cycloaliphatic |
| C10M 129/48 | . . . having carboxyl groups bound to a carbon atom of a six-membered aromatic ring |
| C10M 129/50 | monocarboxylic |
| C10M 129/52 | polycarboxylic |
| C10M 129/54 | containing hydroxy groups |
| C10M 129/56 | . . . Acids of unknown or incompletely defined constitution |
| C10M 129/58 | Naphthenic acids |
| C10M 129/60 | Tall oil acids |
| C10M 129/62 | Rosin acids |
| C10M 129/64 | . . . Acids obtained from polymerised unsaturated acids |
| C10M 129/66 | . . Epoxidised acids or esters |
| C10M 129/68 | . . Esters (epoxidised C10M 129/66) |
| C10M 129/70 | . . . of monocarboxylic acids |
| C10M 129/72 | . . . of polycarboxylic acids |
| C10M 129/74 | . . . of polyhydroxy compounds |
| C10M 129/76 | . . . containing free hydroxy or carboxyl groups |
| C10M 129/78 | . . . Complex esters, i.e. compounds containing at least three esterified carboxyl groups and derived from the combination of at least three different types of the following five types of compound: monohydroxy compounds, polyhydroxy compounds, monocarboxylic acids, polycarboxylic acids, hydroxy carboxylic acids |
| C10M 129/80 | derived from the combination of monocarboxylic acids, dicarboxylic acids and dihydroxy compounds only and having no free hydroxy or carboxyl groups |
| C10M 129/82 | derived from the combination of monohydroxy compounds, dihydroxy compounds and dicarboxylic acids only and having no free hydroxy or carboxyl groups |
| C10M 129/84 | . . . of carbonic acid |
| C10M 129/86 | . having a carbon chain of 30 or more atoms |
| C10M 129/88 | . . Hydroxy compounds |
| C10M 129/90 | . . . having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms |
| C10M 129/91 | . . . having hydroxy groups bound to a carbon atom of a six-membered aromatic ring |
| C10M 129/92 | . . Carboxylic acids |
| C10M 129/93 | . . . having carboxyl groups bound to acyclic or cycloaliphatic carbon atoms |
| C10M 129/94 | . . . having carboxyl groups bound to a carbon atom of a six-membered aromatic ring |
| C10M 129/95 | . . Esters |
| C10M 131/00 | Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing halogen |
| C10M 131/02 | . containing carbon, hydrogen and halogen only |
| C10M 131/04 | . . aliphatic |

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|--------------------|---|
| C10M 131/06 | . . aromatic |
| C10M 131/08 | . containing carbon, hydrogen, halogen and oxygen |
| C10M 131/10 | . . Alcohols; Ethers; Aldehydes; Ketones |
| C10M 131/12 | . . Acids; Salts or esters thereof |
| C10M 131/14 | . Halogenated waxes |
| C10M 133/00 | Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing nitrogen |
| C10M 133/02 | . having a carbon chain of less than 30 atoms |
| C10M 133/04 | . . Amines, e.g. polyalkylene polyamines; Quaternary amines (polyalkylene polyamines with eleven or more monomer units C10M 149/22) |
| C10M 133/06 | . . . having amino groups bound to acyclic or cycloaliphatic carbon atoms |
| C10M 133/08 | containing hydroxy groups |
| C10M 133/10 | cycloaliphatic |
| C10M 133/12 | . . . having amino groups bound to a carbon atom of a six-membered aromatic ring |
| C10M 133/14 | containing hydroxy groups |
| C10M 133/16 | . . Amides; Imides |
| C10M 133/18 | . . . of carbonic or haloformic acids |
| C10M 133/20 | Ureas; Semicarbazides; Allophanates |
| C10M 133/22 | . . containing a carbon-to-nitrogen double bond, e.g. guanidines, hydrazones, semicarbazones |
| C10M 133/24 | . . Nitriles |
| C10M 133/26 | . . containing a nitrogen-to-nitrogen double bond |
| C10M 133/28 | . . . Azo compounds |
| C10M 133/30 | . . containing a nitrogen-to-oxygen bond |
| C10M 133/32 | . . . containing a nitro group |
| C10M 133/34 | . . . containing a nitroso group |
| C10M 133/36 | . . . Hydroxylamines |
| C10M 133/38 | . . Heterocyclic nitrogen compounds |
| C10M 133/40 | . . . Six-membered ring containing nitrogen and carbon only |
| C10M 133/42 | Triazines |
| C10M 133/44 | . . . Five-membered ring containing nitrogen and carbon only |
| C10M 133/46 | Imidazoles |
| C10M 133/48 | . . . the ring containing both nitrogen and oxygen |
| C10M 133/50 | Morpholines |
| C10M 133/52 | . having a carbon chain of 30 or more atoms |
| C10M 133/54 | . . Amines |
| C10M 133/56 | . . Amides; Imides |
| C10M 133/58 | . . Heterocyclic compounds |

C10M 135/00

Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing sulfur, selenium or tellurium

C10M 135/02

- Sulfurised compounds

C10M 135/04

- • Hydrocarbons

C10M 135/06

- • Esters, e.g. fats

C10M 135/08

- containing a sulfur-to-oxygen bond

C10M 135/10

- • Sulfonic acids or derivatives thereof

C10M 135/12

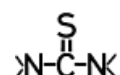
- Thio-acids; Thiocyanates; Derivatives thereof

C10M 135/14

- • having a carbon-to-sulfur double bond

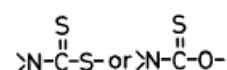
C10M 135/16

- • • thiourea type, i.e. containing the group



C10M 135/18

- • • thiocarbamic type, e.g. containing the groups



C10M 135/20

- Thiols; Sulfides; Polysulfides

C10M 135/22

- • containing sulfur atoms bound to acyclic or cycloaliphatic carbon atoms

C10M 135/24

- • • containing hydroxy groups; Derivatives thereof

C10M 135/26

- • • containing carboxyl groups; Derivatives thereof

C10M 135/28

- • containing sulfur atoms bound to a carbon atom of a six-membered aromatic ring

C10M 135/30

- • • containing hydroxy groups; Derivatives thereof

C10M 135/32

- Heterocyclic sulfur, selenium or tellurium compounds

C10M 135/34

- • the ring containing sulfur and carbon only

C10M 135/36

- • the ring containing sulfur and carbon with nitrogen or oxygen

C10M 137/00

Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing phosphorus

C10M 137/02

- having no phosphorus-to-carbon bond

C10M 137/04

- • Phosphate esters

C10M 137/06

- • • Metal salts

C10M 137/08

- • • Ammonium or amine salts

C10M 137/10

- • • Thio derivatives

C10M 137/105

- • • • {not containing metal}

C10M 137/12

- having a phosphorus-to-carbon bond

C10M 137/14

- • containing sulfur

C10M 137/16

- having a phosphorus-to-nitrogen bond

C10M 139/00

Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing atoms of elements not provided for in groups [C10M 127/00](#) to [C10M 137/00](#)

C10M 139/02

- Esters of silicon acids

C10M 139/04

- having a silicon-to-carbon bond, e.g. silanes

- C10M 139/06
- having a metal-to-carbon bond ([metal complexes of unknown constitution C10M 159/18](#))
- C10M 141/00** **Lubricating compositions characterised by the additive being a mixture of two or more compounds covered by more than one of the main groups [C10M 125/00](#) to [C10M 139/00](#), each of these compounds being essential**
- C10M 141/02
- at least one of them being an organic oxygen-containing compound
- C10M 141/04
- at least one of them being an organic halogen-containing compound
- C10M 141/06
- at least one of them being an organic nitrogen-containing compound
- C10M 141/08
- at least one of them being an organic sulfur-, selenium- or tellurium-containing compound
- C10M 141/10
- at least one of them being an organic phosphorus-containing compound
- C10M 141/12
- at least one of them being an organic compound containing atoms of elements not provided for in groups [C10M 141/02](#) to [C10M 141/10](#)
- C10M 143/00** **Lubricating compositions characterised by the additive being a macromolecular hydrocarbon or such hydrocarbon modified by oxidation**
- C10M 143/02
- Polyethene
- C10M 143/04
- containing propene
- C10M 143/06
- containing butene
- C10M 143/08
- containing aliphatic monomer having more than 4 carbon atoms
- C10M 143/10
- containing aromatic monomer, e.g. styrene
- C10M 143/12
- containing conjugated diene
- C10M 143/14
- containing non-conjugated diene
- C10M 143/16
- containing cycloaliphatic monomer
- C10M 143/18
- Oxidised hydrocarbons, i.e. oxidised subsequent to macromolecular formation
- C10M 145/00** **Lubricating compositions characterised by the additive being a macromolecular compound containing oxygen ([oxidised hydrocarbons C10M 143/18](#))**
- C10M 145/02
- Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
- C10M 145/04
- . containing monomers having an unsaturated radical bound to an alcohol, aldehyde, ketonic, ether, ketal or acetal radical
- C10M 145/06
- . containing monomers having an unsaturated radical bound to an acyloxy radical of a saturated carboxylic or carbonic acid
- C10M 145/08
- . . Vinyl esters of a saturated carboxylic or carbonic acid
- C10M 145/10
- . containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate
- C10M 145/12
- . . . monocarboxylic
- C10M 145/14
- Acrylate; Methacrylate
- C10M 145/16
- . . . polycarboxylic
- C10M 145/18
- Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
- C10M 145/20
- . Condensation polymers of aldehydes or ketones

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|--------------------|--|
| C10M 145/22 | . . Polyesters |
| C10M 145/24 | . . Polyethers |
| C10M 145/26 | . . . Polyoxyalkylenes |
| C10M 145/28 | of alkylene oxides containing 2 carbon atoms only |
| C10M 145/30 | of alkylene oxides containing 3 carbon atoms only |
| C10M 145/32 | of alkylene oxides containing 4 or more carbon atoms |
| C10M 145/34 | of two or more specified different types |
| C10M 145/36 | etherified |
| C10M 145/38 | esterified |
| C10M 145/40 | . Polysaccharides, e.g. cellulose |
| C10M 147/00 | Lubricating compositions characterised by the additive being a macromolecular compound containing halogen |
| C10M 147/02 | . Monomer containing carbon, hydrogen and halogen only |
| C10M 147/04 | . Monomer containing carbon, hydrogen, halogen and oxygen |
| C10M 149/00 | Lubricating compositions characterised by the additive being a macromolecular compound containing nitrogen |
| C10M 149/02 | . Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds |
| C10M 149/04 | . . containing monomers having an unsaturated radical bound to an amino group |
| C10M 149/06 | . . containing monomers having an unsaturated radical bound to an amido or imido group |
| C10M 149/08 | . . containing monomers having an unsaturated radical bound to a nitrile group |
| C10M 149/10 | . . containing monomers having an unsaturated radical bound to a nitrogen-containing hetero ring |
| C10M 149/12 | . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds |
| C10M 149/14 | . . a condensation reaction being involved |
| C10M 149/16 | . . . between the nitrogen-containing monomer and an aldehyde or ketone |
| C10M 149/18 | . . . Polyamides |
| C10M 149/20 | . . . Polyureas |
| C10M 149/22 | . . . Polyamines |
| C10M 151/00 | Lubricating compositions characterised by the additive being a macromolecular compound containing sulfur, selenium or tellurium |
| C10M 151/02 | . Macromolecular compounds obtained by reactions involving only carbon-to-carbon unsaturated bonds |
| C10M 151/04 | . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds |
| C10M 153/00 | Lubricating compositions characterised by the additive being a macromolecular compound containing phosphorus |

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|--------------------|---|
| C10M 153/02 | <ul style="list-style-type: none"> Macromolecular compounds obtained by reactions involving only carbon-to-carbon unsaturated bonds |
| C10M 153/04 | <ul style="list-style-type: none"> Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds |
| C10M 155/00 | Lubricating compositions characterised by the additive being a macromolecular compound containing atoms of elements not provided for in groups C10M 143/00 to C10M 153/00 |
| C10M 155/02 | <ul style="list-style-type: none"> Monomer containing silicon |
| C10M 155/04 | <ul style="list-style-type: none"> Monomer containing boron |
| C10M 157/00 | Lubricating compositions characterised by the additive being a mixture of two or more macromolecular compounds covered by more than one of the main groups C10M 143/00 to C10M 155/00, each of these compounds being essential |
| C10M 157/02 | <ul style="list-style-type: none"> at least one of them being a halogen-containing compound |
| C10M 157/04 | <ul style="list-style-type: none"> at least one of them being a nitrogen-containing compound |
| C10M 157/06 | <ul style="list-style-type: none"> at least one of them being a sulfur-, selenium- or tellurium-containing compound |
| C10M 157/08 | <ul style="list-style-type: none"> at least one of them being a phosphorus-containing compound |
| C10M 157/10 | <ul style="list-style-type: none"> at least one of them being a compound containing atoms of elements not provided for in groups C10M 157/02 to C10M 157/08 |
| C10M 159/00 | Lubricating compositions characterised by the additive being of unknown or incompletely defined constitution (carboxylic acids with less than 30 carbon atoms in the chain, of unknown or incompletely defined constitution C10M 129/56) |
| C10M 159/005 | <ul style="list-style-type: none"> {Macromolecular compounds, e.g. macromolecular compounds composed of alternatively specified monomers not covered by the same main group} |
| C10M 159/02 | <ul style="list-style-type: none"> Natural products |
| C10M 159/04 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> Petroleum fractions, e.g. tars, solvents |
| C10M 159/06 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> Waxes, e.g. ozocerite, ceresine, petrolatum, slack-wax |
| C10M 159/08 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> Fatty oils |
| C10M 159/10 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> Rubber |
| C10M 159/12 | <ul style="list-style-type: none"> Reaction products |
| C10M 159/123 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> {obtained by phosphorus or phosphorus-containing compounds, e.g. P x S x with organic compounds} |
| C10M 159/126 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> {with hydrocarbon polymers} |
| C10M 159/14 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> obtained by Friedel-Crafts condensation |
| C10M 159/16 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> obtained by Mannich reactions |
| C10M 159/18 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> Complexes with metals |
| C10M 159/20 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> Reaction mixtures having an excess of neutralising base, e.g. so-called overbasic or highly basic products |
| C10M 159/22 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> containing phenol radicals |
| C10M 159/24 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> containing sulfonic radicals |

C10M 161/00 Lubricating compositions characterised by the additive being a mixture of a macromolecular compound and a non-macromolecular compound, each of these compounds being essential

C10M 163/00 Lubricating compositions characterised by the additive being a mixture of a compound of unknown or incompletely defined constitution and a non-macromolecular compound, each of these compounds being essential

NOTE

{ Compositions containing compounds covered by [C10M 159/005](#) as compounds of unknown or incompletely defined constitution are classified in [C10M 161/00](#)}

C10M 165/00 Lubricating compositions characterised by the additive being a mixture of a macromolecular compound and a compound of unknown or incompletely defined constitution, each of these compounds being essential

NOTE

{ Compositions containing compounds covered by [C10M 159/005](#), as compounds of unknown or incompletely defined constitution are classified in [C10M 157/00](#)}

C10M 167/00 Lubricating compositions characterised by the additive being a mixture of a macromolecular compound, a non-macromolecular compound and a compound of unknown or incompletely defined constitution, each of these compounds being essential

NOTE

{ Compositions containing compounds covered by [C10M 159/005](#), as compounds of unknown or incompletely defined constitution are classified in [C10M 161/00](#)}

Mixtures of base-materials, thickeners and additives

C10M 169/00 Lubricating compositions characterised by containing as components a mixture of at least two types of ingredient selected from base-materials, thickeners or additives, covered by the preceding groups, each of these compounds being essential

C10M 169/005 . {Particular lubricating compositions}

WARNING

This group is no longer used for the classification of new documents

C10M 169/02 . Mixtures of base-materials and thickeners

C10M 169/04 . Mixtures of base-materials and additives

C10M 169/041 . . {the additives being macromolecular compounds only}

C10M 169/042 . . {the additives being compounds of unknown or incompletely defined constitution only}

- C10M 169/044 . . {the additives being a mixture of non-macromolecular and macromolecular compounds}
- C10M 169/045 . . {the additives being a mixture of compounds of unknown or incompletely defined constitution and non-macromolecular compounds}
- C10M 169/047 . . {the additives being a mixture of compounds of unknown or incompletely defined constitution and macromolecular compounds}
- C10M 169/048 . . {the additives being a mixture of compounds of unknown or incompletely defined constitution, non-macromolecular and macromolecular compounds}
- C10M 169/06 . Mixtures of thickeners and additives

Compositions characterised by physical properties

NOTE

Attention is drawn to Note (5) following the title of the subclass.

- C10M 171/00** Lubricating compositions characterised by purely physical criteria, e.g. containing as base-material, thickener or additive, ingredients which are characterised exclusively by their numerically specified physical properties, i.e. containing ingredients which are physically well-defined but for which the chemical nature is either unspecified or only very vaguely indicated (chemically defined ingredients C10M 101/00 to C10M 169/00; petroleum fractions C10M 101/02, C10M 121/02, C10M 159/04)
- C10M 171/001 . {Electrorheological fluids; smart fluids}
 - C10M 171/002 . {Traction fluids}
 - C10M 171/004 . {Foam inhibited lubricant compositions}
 - C10M 171/005 . {Volatile oil compositions; Vaporous lubricants}
 - C10M 171/007 . {Coloured or dyes-containing lubricant compositions}
 - C10M 171/008 . {Lubricant compositions compatible with refrigerants}
 - C10M 171/02 . Specified values of viscosity or viscosity index
 - C10M 171/04 . Specified molecular weight or molecular weight distribution
 - C10M 171/06 . Particles of special shape or size

Aqueous lubricating compositions

NOTE

Attention is drawn to Note (5) following the title of the subclass.

- C10M 173/00** Lubricating compositions containing more than 10% water
- C10M 173/02 . not containing mineral or fatty oils
 - C10M 173/025 . . {for lubricating conveyor belts}

Working-up

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| C10M 175/00 | Working-up used lubricants to recover useful products {(destructive distillation C10B ; extraction and elimination of PCBs C10G 7/006 , C10G 21/006 , C10G 25/006 ; combustion processes F23G ; Filtration, filters in general B01D); Cleaning (in a mechanical way B08B ; integrated processes C23 ; solid waste B09B)} |
| C10M 175/0008 | . {with the use of adsorbentia} |
| C10M 175/0016 | . {with the use of chemical agents} |
| C10M 175/0025 | . {by thermal processes} |
| C10M 175/0033 | . . {using distillation processes; devices therefor} |
| C10M 175/0041 | . . {by hydrogenation processes} |
| C10M 175/005 | . {using extraction processes; apparatus therefor} |
| C10M 175/0058 | . {by filtration and centrifugation processes; apparatus therefor} |
| C10M 175/0066 | . {Use of electrical and magnetical means} |
| C10M 175/0075 | . {synthetic oil based} |
| C10M 175/0083 | . {Lubricating greases} |
| C10M 175/0091 | . {Treatment of oils in a continuous lubricating circuit (e.g. motor oil system)} |
| C10M 175/02 | . mineral-oil based |
| C10M 175/04 | . aqueous emulsion based |
| C10M 175/06 | . by ultra-filtration or osmosis |

Preparation or after-treatment

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| C10M 177/00 | Special methods of preparation of lubricating compositions; Chemical modification by after-treatment of components or of the whole of a lubricating composition, not covered by other classes |
|--------------------|--|

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| C10M 2201/00 | Inorganic compounds or elements as ingredients in lubricant compositions |
| C10M 2201/003 | . used as base material |
| C10M 2201/006 | . used as thickening agents |
| C10M 2201/02 | . Water |
| C10M 2201/022 | . . Hydrogen peroxide; Oxygenated water |
| C10M 2201/04 | . Elements |
| C10M 2201/0403 | . . used as base material |
| C10M 2201/0406 | . . used as thickening agents |
| C10M 2201/041 | . . Carbon; Graphite; Carbon black |
| C10M 2201/0413 | . . . used as base material |
| C10M 2201/0416 | . . . used as thickening agents |
| C10M 2201/042 | . . . halogenated, i.e. graphite fluoride |
| C10M 2201/0423 | used as base material |

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| C10M 2201/0426 | used as thickening agents |
| C10M 2201/043 | . . Sulfur; Selenenium; Tellurium |
| C10M 2201/0433 | . . . used as base material |
| C10M 2201/0436 | . . . used as thickening agents |
| C10M 2201/05 | . . Metals; Alloys |
| C10M 2201/053 | . . . used as base material |
| C10M 2201/056 | . . . used as thickening agents |
| C10M 2201/06 | . Metal compounds (of chromium C10M 2201/086) |
| C10M 2201/0603 | . . used as base material |
| C10M 2201/0606 | . . used as thickening agents |
| C10M 2201/061 | . . Carbides; Hydrides; Nitrides |
| C10M 2201/0613 | . . . used as base material |
| C10M 2201/0616 | . . . used as thickening agents |
| C10M 2201/062 | . . Oxides; Hydroxides; Carbonates or bicarbonates |
| C10M 2201/0623 | . . . used as base material |
| C10M 2201/0626 | . . . used as thickening agents |
| C10M 2201/063 | . . Peroxides |
| C10M 2201/064 | . . Carbonyls |
| C10M 2201/065 | . . Sulfides; Selenides; Tellurides |
| C10M 2201/0653 | . . . used as base material |
| C10M 2201/0656 | . . . used as thickening agents |
| C10M 2201/066 | . . . Molybdenum sulfide |
| C10M 2201/0663 | used as base material |
| C10M 2201/0666 | used as thickening agents |
| C10M 2201/08 | . Inorganic acids or salts thereof (of phosphorus C10M 2201/085 , of chromium C10M 2201/086 , of boron C10M 2201/087 ; metal carbonates or bicarbonates C10M 2201/062) |
| C10M 2201/0803 | . . used as base material |
| C10M 2201/0806 | . . used as thickening agent |
| C10M 2201/081 | . . containg halogen |
| C10M 2201/082 | . . containing nitrogen (nitrides C10M 2201/061) |
| C10M 2201/083 | . . . nitrites |
| C10M 2201/084 | . . containing sulfur, selenium or tellurium (sulfides, tellurides, selenides C10M 2201/065) |
| C10M 2201/085 | . Phosphorus oxides, acids or salts |
| C10M 2201/0853 | . . used as base material |
| C10M 2201/0856 | . . used as thickening agent |
| C10M 2201/086 | . Chromium oxides, acids or salts |
| C10M 2201/0863 | . . used as base material |
| C10M 2201/0866 | . . used as thickening agent |
| C10M 2201/087 | . Boron oxides, acids or salts |

- C10M 2201/0873 . . . used as base material
- C10M 2201/0876 . . . used as thickening agent
- C10M 2201/10 . . Compounds containing silicon
- C10M 2201/1006 . . . used as base material
- C10M 2201/1013 . . . used as thickening agents
- C10M 2201/102 . . . Silicates
- C10M 2201/1023 used as base material
- C10M 2201/1026 used as thickening agents
- C10M 2201/103 Clays; Mica; Zeolites
- C10M 2201/1033 used as base material
- C10M 2201/1036 used as thickening agents
- C10M 2201/105 . . . Silica
- C10M 2201/1053 used as base material
- C10M 2201/1056 used as thickening agents
- C10M 2201/12 . . . Glass
- C10M 2201/123 . . . used as base material
- C10M 2201/126 . . . used as thickening agents
- C10M 2201/14 . . inorganic compounds surface treated with organic compounds
- C10M 2201/145 . . . used as thickening agents
- C10M 2201/16 . . Carbon dioxide
- C10M 2201/18 . . Ammonia

C10M 2203/00 Organic non-macromolecular hydrocarbon compounds and hydrocarbon fractions as ingredients in lubricant compositions

- C10M 2203/003 . . . used as base material
- C10M 2203/006 . . . used as thickening agents
- C10M 2203/02 . . . Well-defined aliphatic compounds
- C10M 2203/0206 used as base material
- C10M 2203/0213 used as thickening agents
- C10M 2203/022 saturated
- C10M 2203/024 unsaturated
- C10M 2203/04 . . . Well-defined cycloaliphatic compounds
- C10M 2203/045 used as base material
- C10M 2203/06 . . . Well-defined aromatic compounds
- C10M 2203/065 used as base material
- C10M 2203/10 . . . Petroleum or coal fractions, e.g. tars, solvents, bitumen
- C10M 2203/1006 used as base material
- C10M 2203/1013 used as thickening agents
- C10M 2203/102 Aliphatic fractions
- C10M 2203/1025 used as base material
- C10M 2203/104 Aromatic fractions

- C10M 2203/1045 . . . used as base material
- C10M 2203/106 . . Naphthenic fractions
- C10M 2203/1065 . . . used as base material
- C10M 2203/108 . . Residual fractions, e.g. bright stocks
- C10M 2203/1085 . . . used as base material

C10M 2205/00 **Organic macromolecular hydrocarbon compounds or fractions, whether or not modified by oxidation as ingredients in lubricant compositions**

NOTE

Copolymers are indexed with the symbol for the main monomer always being present, (e.g. [C10M 2205/026](#), [C10M 2205/022](#)) according to the last place rule, followed by the symbol of the other monomers, (e.g. [C10M 2205/022](#), [C10M 2205/00](#))

- C10M 2205/003 . used as base material
- C10M 2205/006 . used as thickening agents
- C10M 2205/02 . containing acyclic monomers
- C10M 2205/0206 . . used as base material
- C10M 2205/0213 . . used as thickening agents
- C10M 2205/022 . . Ethene
- C10M 2205/0225 . . . used as base material
- C10M 2205/024 . . Propene
- C10M 2205/0245 . . . used as base material
- C10M 2205/026 . . Butene
- C10M 2205/0265 . . . used as base material
- C10M 2205/028 . . containing aliphatic monomers having more than four carbon atoms
- C10M 2205/0285 . . . used as base material
- C10M 2205/04 . containing aromatic monomers, e.g. styrene
- C10M 2205/043 . . used as base material
- C10M 2205/046 . . used as thickening agents
- C10M 2205/06 . containing conjugated dienes
- C10M 2205/063 . . used as base material
- C10M 2205/066 . . used as thickening agents
- C10M 2205/08 . containing non-conjugated dienes
- C10M 2205/083 . . used as base material
- C10M 2205/086 . . used as thickening agents
- C10M 2205/10 . containing cycloaliphatic monomers
- C10M 2205/103 . . used as base material
- C10M 2205/106 . . use as thickening agent
- C10M 2205/12 . Oxidised hydrocarbons, i.e. oxidised subsequent to macromolecular formation
- C10M 2205/123 . . used as base material
- C10M 2205/126 . . used as thickening agents

- C10M 2205/14 . Synthetic waxes, e.g. polythene waxes
- C10M 2205/143 . . used as base material
- C10M 2205/146 . . used as thickening agents
- C10M 2205/16 . Paraffin waxes; Petrolatum, e.g. slack wax
- C10M 2205/163 . . used as base material
- C10M 2205/166 . . used as thickening agent
- C10M 2205/17 . Fisher Tropsch reaction products
- C10M 2205/173 . . used as base material
- C10M 2205/176 . . used as thickening agent
- C10M 2205/18 . Natural waxes, e.g. ceresin, ozocerite, bees wax, carnauba; Degras
- C10M 2205/183 . . used as base material
- C10M 2205/186 . . used as thickening agents
- C10M 2205/20 . Natural rubber; Natural resins
- C10M 2205/203 . . used as base material
- C10M 2205/206 . . used as thickening agents
- C10M 2205/22 . Alkylation reaction products with aromatic type compounds, e.g. Friedel-Crafts
- C10M 2205/223 . . used as base material
- C10M 2205/226 . . use as thickening agent

C10M 2207/00 **Organic non-macromolecular hydrocarbon compounds containing hydrogen, carbon and oxygen as ingredients in lubricant compositions**

NOTE

In this group compounds, (e.g. phenols, succinic acid) substituted by an alkyl group derived from a polymerised olefin are not considered as macromolecular compounds

- C10M 2207/003 . used as base material
- C10M 2207/006 . used as thickening agents
- C10M 2207/02 . Hydroxy compounds
- C10M 2207/0203 . . used as base material
- C10M 2207/0206 . . used as thickening agents
- C10M 2207/021 . . having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms
- C10M 2207/0215 . . . used as base material
- C10M 2207/022 . . . containing at least two hydroxy groups
- C10M 2207/0225 used as base material
- C10M 2207/023 . . having hydroxy groups bound to carbon atoms of six-membered aromatic rings
- C10M 2207/0235 . . . used as base material
- C10M 2207/024 . . . having at least two phenol groups but no condensed ring
- C10M 2207/025 . . . with condensed rings
- C10M 2207/026 . . . with tertiary alkyl groups
- C10M 2207/027 . . . Neutral salts thereof

| | |
|----------------|---|
| C10M 2207/028 | . . . Overbased salts thereof |
| C10M 2207/0285 | used as base material |
| C10M 2207/04 | . Ethers; Acetals; Ortho-esters; Ortho-carbonates |
| C10M 2207/0406 | . . used as base material |
| C10M 2207/0413 | . . used as thickening agent |
| C10M 2207/042 | . . Epoxides |
| C10M 2207/044 | . . Cyclic ethers having four or more ring atoms, e.g. furans, dioxolanes |
| C10M 2207/046 | . . Hydroxy ethers |
| C10M 2207/06 | . Peroxides; Ozonides |
| C10M 2207/08 | . Aldehydes; Ketones |
| C10M 2207/085 | . . used as base material |
| C10M 2207/09 | . Metal enolates, i.e. keto-enol metal complexes |
| C10M 2207/095 | . . used as thickening agent |
| C10M 2207/10 | . Carboxylic acids; Neutral salts thereof |
| C10M 2207/103 | . . used as base material |
| C10M 2207/106 | . . used as thickening agents |
| C10M 2207/12 | . . having carboxyl groups bound to acyclic or cycloaliphatic carbon atoms |
| C10M 2207/1203 | . . . used as base material |
| C10M 2207/1206 | . . . used as thickening agents |
| C10M 2207/121 | . . . having hydrocarbon chains of seven or less carbon atoms |
| C10M 2207/1213 | used as base material |
| C10M 2207/1216 | used as thickening agent |
| C10M 2207/122 | monocarboxylic |
| C10M 2207/1225 | used as thickening agent |
| C10M 2207/123 | polycarboxylic |
| C10M 2207/1233 | used as base material |
| C10M 2207/1236 | used as thickening agent |
| C10M 2207/124 | containing hydroxy groups; Ethers thereof |
| C10M 2207/1245 | used as thickening agent |
| C10M 2207/125 | . . . having hydrocarbon chains of eight up to twenty-nine carbon atoms, i.e. fatty acids |
| C10M 2207/1253 | used as base material |
| C10M 2207/1256 | used as thickening agent |
| C10M 2207/126 | monocarboxylic |
| C10M 2207/1265 | used as thickening agent |
| C10M 2207/127 | polycarboxylic |
| C10M 2207/1273 | used as base material |
| C10M 2207/1276 | used as thickening agent |
| C10M 2207/128 | containing hydroxy groups; Ethers thereof |
| C10M 2207/1285 | used as thickening agents |

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|--------------------------------|---|
| C10M 2207/129 | . . . having hydrocarbon chains of thirty or more carbon atoms |
| C10M 2207/1293 | used as base material |
| C10M 2207/1296 | used as thickening agents |
| C10M 2207/14 | . . having carboxyl groups bound to carbon atoms of six-membered aromatic rings |
| C10M 2207/1403 | . . . used as base material |
| C10M 2207/1406 | . . . used as thickening agents |
| C10M 2207/141 | . . . monocarboxylic |
| C10M 2207/1415 | used as thickening agent |
| C10M 2207/142 | . . . polycarboxylic |
| C10M 2207/1423 | used as base material |
| C10M 2207/1426 | used as thickening agent |
| C10M 2207/144 | . . . containing hydroxy groups |
| C10M 2207/1443 | used as base material |
| C10M 2207/1446 | used as thickening agent |
| C10M 2207/146 | . . . having carboxyl groups bound to carbon atoms of six-membered aromatic rings having a hydrocarbon substituent of thirty or more carbon atoms |
| C10M 2207/1465 | used as base material |
| C10M 2207/16 | . . Naphthenic acids |
| C10M 2207/163 | . . . used as base material |
| C10M 2207/166 | . . . used as thickening agents |
| C10M 2207/18 | . . Tall oil acids |
| C10M 2207/183 | . . . used as base material |
| C10M 2207/186 | . . . used as thickening agents |
| C10M 2207/20 | . . Rosin acids |
| C10M 2207/203 | . . . used as base material |
| C10M 2207/206 | . . . used as thickening agents |
| C10M 2207/22 | . . Acids obtained from polymerised unsaturated acids |
| C10M 2207/223 | . . . used as base material |
| C10M 2207/226 | . . . used as thickening agents |
| C10M 2207/24 | . . Epoxidised acids; Ester derivatives thereof |
| C10M 2207/243 | . . . used as base material |
| C10M 2207/246 | . . . used as thickening agents |
| C10M 2207/26 | . Overbaed carboxylic acid salts |
| C10M 2207/2606 | . . used as base material |
| C10M 2207/2613 | . . used as thickening agents |
| C10M 2207/262 | . . derived from hydroxy substituted aromatic acids, e.g. salicylates |
| C10M 2207/2623 | . . . used as base material |
| C10M 2207/2626 | . . . used as thickening agents |
| C10M 2207/28 | . Esters (epoxidised esters C10M 2207/24) |

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| C10M 2207/2805 | . . . | used as base material |
| C10M 2207/281 | . . . | of (cyclo)aliphatic monocarboxylic acids |
| C10M 2207/2815 | . . . | used as base material |
| C10M 2207/282 | . . . | of (cyclo)aliphatic oolcarboxylic acids |
| C10M 2207/2825 | . . . | used as base material |
| C10M 2207/283 | . . . | of polyhydroxy compounds |
| C10M 2207/2835 | . . . | used as base material |
| C10M 2207/284 | . . . | of aromatic monocarboxylic acids |
| C10M 2207/2845 | . . . | used as base material |
| C10M 2207/285 | . . . | of aromatic polycarboxylic acids |
| C10M 2207/2855 | . . . | used as base material |
| C10M 2207/286 | . . . | of polymerised unsaturated acids |
| C10M 2207/2865 | . . . | used as base material |
| C10M 2207/287 | . . . | Partial esters |
| C10M 2207/2875 | . . . | used as base material |
| C10M 2207/288 | . . . | containing free carboxyl groups |
| C10M 2207/2885 | | used as base material |
| C10M 2207/289 | . . . | containing free hydroxy groups |
| C10M 2207/2895 | | used as base material |
| C10M 2207/30 | . . . | Complex esters, i.e. compounds containing at least three esterified carboxyl groups and derived from the combination of at least three different types of the following five types of compounds: monohydroxyl compounds, polyhydroxy compounds, monocarboxylic acids, polycarboxylic acids or hydroxy carboxylic acids |
| C10M 2207/301 | . . . | used as base material |
| C10M 2207/302 | . . . | derived from the combination of monocarboxylic acids, dicarboxylic acids and dihydroxy compounds only and having no free hydroxy or carboxyl groups |
| C10M 2207/3025 | | used as base material |
| C10M 2207/304 | . . . | derived from the combination of monohydroxy compounds, dihydroxy compounds and dicarboxylic acids only and having no free hydroxy or carboxyl groups |
| C10M 2207/3045 | | used as base material |
| C10M 2207/32 | . . . | of carbonic acid |
| C10M 2207/325 | . . . | used as base material |
| C10M 2207/34 | . . . | Esters having a hydrocarbon substituent of thirty or more carbon atoms, e.g. substituted succinic acid derivatives |
| C10M 2207/345 | . . . | used as base material |
| C10M 2207/40 | . . . | Fatty vegetable or animal oils |
| C10M 2207/401 | . . . | used as base material |
| C10M 2207/402 | . . . | Castor oils |
| C10M 2207/404 | . . . | obtained from genetically modified species |

| | |
|---------------------|--|
| C10M 2207/4045 | . . . used as base material |
| C10M 2209/00 | Organic <u>macromolecular</u> compounds containing oxygen as ingredients in lubricant compositions (oxidised hydrocarbons C10M 2205/12) |
| C10M 2209/003 | . used as base material |
| C10M 2209/006 | . used as thickening agents |
| C10M 2209/02 | . Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds |
| C10M 2209/023 | . . used as base material |
| C10M 2209/026 | . . used as thickening agents |
| C10M 2209/04 | . . containing monomers having an unsaturated radical bound to an alcohol or ester thereof; bound to an aldehyde, ketonic, ether, ketal or acetal radical |
| C10M 2209/043 | . . . used as base material |
| C10M 2209/046 | . . . used as thickening agents |
| C10M 2209/06 | . . containing monomers having an unsaturated radical bound to an acyloxy radical of saturated carboxylic or carbonic acid |
| C10M 2209/0606 | . . . used as base material |
| C10M 2209/0613 | . . . used as thickening agents |
| C10M 2209/062 | . . . Vinyl esters of saturated carboxylic or carbonic acids, e.g. vinyl acetate |
| C10M 2209/0625 | used as base material |
| C10M 2209/08 | . . containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate type |
| C10M 2209/0806 | . . . used as base material |
| C10M 2209/0813 | . . . used as thickening agents |
| C10M 2209/082 | . . . monocarboxylic |
| C10M 2209/084 | . . . Acrylate; Methacrylate |
| C10M 2209/0845 | used as base material |
| C10M 2209/086 | . . . polycarboxylic, e.g. maleic acid |
| C10M 2209/0863 | used as base material |
| C10M 2209/0866 | used as thickening agents |
| C10M 2209/10 | . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds |
| C10M 2209/1003 | . . used as base material |
| C10M 2209/1006 | . . used as thickening agents |
| C10M 2209/101 | . . Condensation polymers of aldehydes or ketones and phenols, e.g. Also polyoxyalkylene ether derivatives thereof |
| C10M 2209/1013 | . . . used as base material |
| C10M 2209/1016 | . . . used as thickening agents |
| C10M 2209/102 | . . Polyesters |
| C10M 2209/1023 | . . . used as base material |
| C10M 2209/1026 | . . . use as thickening agent |
| C10M 2209/103 | . . Polyethers, i.e. containing di- or higher polyoxyalkylene groups |

| | | |
|----------------|---------|---|
| C10M 2209/1033 | . . . | used as base material |
| C10M 2209/1036 | . . . | used as thickening agents |
| C10M 2209/104 | . . . | of alkylene oxides containing two carbon atoms only |
| C10M 2209/1045 | | used as base material |
| C10M 2209/105 | . . . | of alkylene oxides containing three carbon atoms only |
| C10M 2209/1055 | | used as base material |
| C10M 2209/106 | . . . | of alkylene oxides containing four carbon atoms only |
| C10M 2209/1065 | | used as base material |
| C10M 2209/107 | . . . | of two or more specified different alkylene oxides covered by groups C10M 2209/104 to C10M 2209/106 |
| C10M 2209/1075 | | used as base material |
| C10M 2209/108 | . . . | etherified |

NOTE

When applying indexing code [C10M 2209/108](#), it should be linked to the appropriate code for identifying the alkylene oxide involved, chosen from groups [C10M 2209/104](#) to [C10M 2209/107](#) and by using alpha-numerical order in the combination.

Example: [C10M 2209/107](#) +
[C10M 2209/108](#)

| | | |
|----------------|---------|-----------------------|
| C10M 2209/1085 | | used as base material |
| C10M 2209/109 | . . . | esterified |

NOTE

When applying indexing code [C10M 2209/109](#), it should be linked to the appropriate code for identifying the alkylene oxide involved, chosen from groups [C10M 2209/104](#) to [C10M 2209/107](#) and by using alpha-numerical order in the combination.

Example: [C10M 2209/107](#) +
[C10M 2209/109](#)

| | | |
|----------------|---------|--|
| C10M 2209/1095 | | used as base material |
| C10M 2209/11 | . . | Complex polyesters |
| C10M 2209/1105 | . . . | used as base material |
| C10M 2209/111 | . . . | having dicarboxylic acid centres |
| C10M 2209/1115 | | used as base material |
| C10M 2209/112 | . . . | having dihydric acid centres |
| C10M 2209/1125 | | used as base material |
| C10M 2209/12 | . . | Polysaccharides, e.g. cellulose, biopolymers |
| C10M 2209/123 | . . | used as base material |
| C10M 2209/126 | . . | used as thickening agents |

C10M 2211/00 **Organic non-macromolecular compounds containing halogen as ingredients in lubricant compositions**

| | | |
|---------------|-----|-----------------------|
| C10M 2211/003 | . . | used as base material |
|---------------|-----|-----------------------|

- C10M 2211/006 . used as thickening agents
- C10M 2211/02 . containing carbon, hydrogen and halogen only
- C10M 2211/0206 . . used as base material
- C10M 2211/0213 . . used as thickening agents
- C10M 2211/022 . . aliphatic
- C10M 2211/0225 . . . used as base material
- C10M 2211/024 . . aromatic
- C10M 2211/0245 . . . used as base material
- C10M 2211/04 . containing carbon, hydrogen, halogen, and oxygen
- C10M 2211/0406 . . used as base material
- C10M 2211/0413 . . used as thickening agents
- C10M 2211/042 . . Alcohols; Ethers; Aldehydes; Ketones
- C10M 2211/0425 . . . used as base material
- C10M 2211/044 . . Acids; Salts or esters thereof
- C10M 2211/0445 . . . used as base material
- C10M 2211/06 . Perfluorinated compounds
- C10M 2211/063 . . used as base material
- C10M 2211/066 . . used as thickening agents
- C10M 2211/08 . Halogenated waxes
- C10M 2211/083 . . used as base material
- C10M 2211/086 . . used as thickening agents

C10M 2213/00 Organic macromolecular compounds containing halogen as ingredients in lubricant compositions

- C10M 2213/003 . used as base material
- C10M 2213/006 . used as thickening agents
- C10M 2213/02 . obtained from monomers containing carbon, hydrogen and halogen only
- C10M 2213/023 . . used as base material
- C10M 2213/026 . . used as thickening agents
- C10M 2213/04 . obtained from monomers containing carbon, hydrogen, halogen and oxygen
- C10M 2213/043 . . used as base material
- C10M 2213/046 . . used as thickening agents
- C10M 2213/06 . Perfluoro polymers
- C10M 2213/0606 . . used as base material
- C10M 2213/0613 . . used as thickening agents
- C10M 2213/062 . . Polytetrafluoroethylene [PTFE]
- C10M 2213/0623 . . . used as base material
- C10M 2213/0626 . . . used as thickening agents

C10M 2215/00 Organic non-macromolecular compounds containing nitrogen as ingredients in lubricant compositions

- C10M 2215/003 . used as base material
- C10M 2215/006 . used as thickening agents
- C10M 2215/02 . Amines, e.g. polyalkylene polyamines; Quaternary amines ([polyalkylene polyamines with eleven or more monomer units C10M 2217/046](#))
- C10M 2215/023 . . used as base material
- C10M 2215/026 . . used as thickening agents
- C10M 2215/04 . . having amino groups bound to acyclic or cycloaliphatic carbon atoms
- C10M 2215/041 . . . used as base material
- C10M 2215/042 . . . containing hydroxy groups; Alkoxylated derivatives thereof
- C10M 2215/0425 used as base material
- C10M 2215/044 . . . having cycloaliphatic groups
- C10M 2215/06 . . having amino groups bound to carbon atoms of six-membered aromatic rings
- C10M 2215/061 . . . used as base material
- C10M 2215/062 . . . containing hydroxy groups bound to the aromatic ring
- C10M 2215/064 . . . Di- and triaryl amines
- C10M 2215/065 Phenyl-Naphthyl amines
- C10M 2215/066 . . . Arylene diamines
- C10M 2215/067 . . . Polyaryl amine alkanes
- C10M 2215/068 . . . having amino groups bound to polycyclic aromatic ring systems, i.e. systems with three or more condensed rings
- C10M 2215/08 . Amides
- C10M 2215/0806 . . used as base material
- C10M 2215/0813 . . used as thickening agents
- C10M 2215/082 . . containing hydroxyl groups; Alkoxylated derivatives
- C10M 2215/086 . Imides
- C10M 2215/0865 . . used as base material
- C10M 2215/10 . Amides of carbonic or haloformic acids
- C10M 2215/1006 . . used as base material
- C10M 2215/1013 . . used as thickening agents
- C10M 2215/102 . . Ureas; Semicarbazides; Allophanates
- C10M 2215/1023 . . . used as base material
- C10M 2215/1026 . . . used as thickening material
- C10M 2215/12 . Partial amides of polycarboxylic acids
- C10M 2215/121 . . used as thickening agents
- C10M 2215/122 . . Phtalamic acid
- C10M 2215/14 . Containing carbon-to-nitrogen double bounds, e.g. guanidines, hydrazones, semicarbazones
- C10M 2215/16 . Nitriles
- C10M 2215/18 . Containing nitrogen-to-nitrogen bonds, e.g. hydrazine
- C10M 2215/182 . . Azo compounds

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| C10M 2215/20 | . Containing nitrogen-to-oxygen bonds |
| C10M 2215/202 | . . containing nitro groups |
| C10M 2215/204 | . . containing nitroso groups |
| C10M 2215/206 | . . hydroxylamines |
| C10M 2215/22 | . Heterocyclic nitrogen compounds |
| C10M 2215/2203 | . . used as base material |
| C10M 2215/2206 | . . used as thickening agents |
| C10M 2215/221 | . . Six-membered rings containing nitrogen and carbon only |
| C10M 2215/222 | . . . Triazines |
| C10M 2215/2225 | used as base material |
| C10M 2215/223 | . . Five-membered rings containing nitrogen and carbon only |
| C10M 2215/224 | . . . Imidazoles |
| C10M 2215/2245 | used as base material |
| C10M 2215/225 | . . the rings containing both nitrogen and oxygen |
| C10M 2215/226 | . . . Morpholines |
| C10M 2215/2265 | used as base material |
| C10M 2215/227 | . . . Phthalocyanines |
| C10M 2215/2275 | used as thickening agents |
| C10M 2215/24 | . having hydrocarbon substituents containing <u>thirty or more carbon atoms</u> , e.g. nitrogen derivatives of substituted succinic acid |
| C10M 2215/245 | . . used as base material |
| C10M 2215/26 | . Amines |
| C10M 2215/265 | . . used as base material |
| C10M 2215/28 | . Amides; Imides |
| C10M 2215/285 | . . used as base material |
| C10M 2215/30 | . Heterocyclic compounds |
| C10M 2215/305 | . . used as base material |
| C10M 2217/00 | Organic macromolecular compounds containing nitrogen as ingredients in lubricant compositions |
| C10M 2217/003 | . used as base material |
| C10M 2217/006 | . used as thickening agents |
| C10M 2217/02 | . Macromolecular compounds obtained from nitrogen containing monomers by reactions only involving carbon-to-carbon unsaturated bonds |
| C10M 2217/0206 | . . used as base material |
| C10M 2217/0213 | . . used as thickening agents |
| C10M 2217/022 | . . containing monomers having an unsaturated radical bound to an amino group |
| C10M 2217/0225 | . . . used as base material |
| C10M 2217/023 | . . . the amino group containing an ester bond |
| C10M 2217/0235 | used as base material |

- C10M 2217/024
 - . . containing monomers having an unsaturated radical bound to an amido or imido group
- C10M 2217/0245
 - . . . used as base material
- C10M 2217/026
 - . . containing monomers having an unsaturated radical bound to a nitrile group
- C10M 2217/0265
 - . . . used as base material
- C10M 2217/028
 - . . containing monomers having an unsaturated radical bound to a nitrogen-containing hetero ring
- C10M 2217/0285
 - . . . used as base material
- C10M 2217/04
 - . Macromolecular compounds from nitrogen-containing monomers obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
- C10M 2217/0403
 - . . used as base material
- C10M 2217/0406
 - . . used as thickening agents
- C10M 2217/041
 - . . involving a condensation reaction
- C10M 2217/0415
 - . . . used as base material
- C10M 2217/042
 - . . between the nitrogen-containing monomer and an aldehyde or ketone
- C10M 2217/0425
 - . . . used as base material
- C10M 2217/043
 - . . Mannich bases
- C10M 2217/0435
 - . . . used as base material
- C10M 2217/044
 - . . Polyamides
- C10M 2217/0443
 - . . . used as base material
- C10M 2217/0446
 - . . . used as thickening agents
- C10M 2217/045
 - . . Polyureas; Polyurethanes
- C10M 2217/0453
 - . . . used as base material
- C10M 2217/0456
 - . . . used as thickening agents
- C10M 2217/046
 - . . Polyamines, i.e. macromolecules obtained by condensation of more than eleven amine monomers
- C10M 2217/0465
 - . . . used as base material
- C10M 2217/06
 - . Macromolecular compounds obtained by functionalisation of polymers with a nitrogen containing compound
- C10M 2217/065
 - . . used as base material

C10M 2219/00 Organic non-macromolecular compounds containing sulfur, selenium or tellurium as ingredients in lubricant compositions

- C10M 2219/003
 - . used as base material
- C10M 2219/006
 - . used as thickening agents
- C10M 2219/02
 - . Sulfur-containing compounds obtained by sulfurisation with sulfur or sulfur-containing compounds
- C10M 2219/021
 - . . used as base material
- C10M 2219/022
 - . . of hydrocarbons, e.g. sulfurised olefines and polyolefins
- C10M 2219/024
 - . . of esters, e.g. fats
- C10M 2219/04
 - . containing sulfur-to-oxygen bonds, i.e. sulfones, sulfoxides
- C10M 2219/0406
 - . . used as base material

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| C10M 2219/0413 | . . use as thickening agent |
| C10M 2219/042 | . . Sulfate esters |
| C10M 2219/044 | . . Sulfonic acids, Derivatives thereof, e.g. neutral salts |
| C10M 2219/0445 | . . . used as thickening agents |
| C10M 2219/046 | . . <u>Overbased</u> sulfonic acid salts |
| C10M 2219/0463 | . . . used as base material |
| C10M 2219/0466 | . . . used as thickening agents |
| C10M 2219/06 | . Thio-acids; Thiocyanates; Derivatives thereof |
| C10M 2219/061 | . . used as base material |
| C10M 2219/062 | . . having carbon-to-sulfur double bonds |
| C10M 2219/064 | . . . Thiourea type compounds |
| C10M 2219/066 | . . . Thiocarbamic type compounds |
| C10M 2219/068 | Thiocarbamate metal salts |
| C10M 2219/08 | . Thiols; Sulfides; Polysulfides; Mercaptals |
| C10M 2219/081 | . . used as base material |
| C10M 2219/082 | . . containing sulfur atoms bound to acyclic or cycloaliphatic carbon atoms |
| C10M 2219/083 | . . . Dibenzyl sulfide |
| C10M 2219/084 | . . . containing hydroxy groups; Derivatives thereof |
| C10M 2219/085 | . . . containing carboxyl groups; Derivatives thereof |
| C10M 2219/086 | . . . containing sulfur atoms bound to carbon atoms of six-membered aromatic rings |
| C10M 2219/087 | . . . containing hydroxy groups; Derivatives thereof, e.g. sulfurised phenols |
| C10M 2219/088 | Neutral salts |
| C10M 2219/089 | Overbased salts |
| C10M 2219/09 | . Heterocyclic compounds containing no sulfur, selenium or tellurium compounds in the ring |
| C10M 2219/10 | . Heterocyclic compounds containing sulfur, selenium or tellurium compounds in the ring |
| C10M 2219/101 | . . used as base material |
| C10M 2219/102 | . . containing sulfur and carbon only in the ring |
| C10M 2219/104 | . . containing sulfur and carbon with nitrogen or oxygen in the ring |
| C10M 2219/106 | . . . Thiadiazoles |
| C10M 2219/108 | . . . Phenothiazine |
| C10M 2221/00 | Organic <u>macromolecular</u> compounds containing sulfur, selenium or tellurium as ingredients in lubricant compositions |
| C10M 2221/003 | . used as base material |
| C10M 2221/006 | . used as thickening agents |
| C10M 2221/02 | . Macromolecular compounds obtained by reactions of monomers involving only carbon-to-carbon unsaturated bonds (sulfurised polyolefins C10M 2219/022) |
| C10M 2221/025 | . . used as base material |

- C10M 2221/04 . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
- C10M 2221/0405 . . used as base material
- C10M 2221/041 . . involving sulfurisation of macromolecular compounds
- C10M 2221/043 . . Polyoxyalkylene ethers with a thioether group

C10M 2223/00 Organic non-macromolecular compounds containing phosphorus as ingredients in lubricant compositions

- C10M 2223/003 . used as base material
- C10M 2223/006 . used as thickening agents
- C10M 2223/02 . having no phosphorus-to-carbon bonds
- C10M 2223/023 . . used as base material
- C10M 2223/026 . . used as thickening agents
- C10M 2223/04 . . Phosphate esters
- C10M 2223/0405 . . . used as base material
- C10M 2223/041 . . . Triaryl phosphates
- C10M 2223/0415 used as base material
- C10M 2223/042 . . . Metal salts thereof
- C10M 2223/043 . . . Ammonium or amine salts thereof
- C10M 2223/045 . . . Metal containing thio derivatives
- C10M 2223/047 . . . Thioderivatives not containing metallic elements
- C10M 2223/049 . . Phosphite
- C10M 2223/0495 . . . used as base material
- C10M 2223/06 . having phosphorus-to-carbon bonds
- C10M 2223/0603 . . used as base material
- C10M 2223/0606 . . used as thickening agents
- C10M 2223/061 . . Metal salts
- C10M 2223/063 . . Ammonium or amine salts
- C10M 2223/065 . . containing sulfur
- C10M 2223/0655 . . . used as thickening agents
- C10M 2223/08 . having phosphorus-to-nitrogen bonds
- C10M 2223/083 . . used as base material
- C10M 2223/086 . . used as thickening agents
- C10M 2223/10 . Phosphatides, e.g. lecithin, cephalin
- C10M 2223/103 . . used as base material
- C10M 2223/106 . . used as thickening agents
- C10M 2223/12 . obtained by phosphorisation of organic compounds, e.g. with PxSy, PxSyHal or PxOy
- C10M 2223/121 . . of alcohols or phenols

C10M 2225/00 Organic macromolecular compounds containing phosphorus as ingredients in lubricant compositions

- C10M 2225/003 . used as base material
- C10M 2225/006 . used as thickening agents
- C10M 2225/02 . Macromolecular compounds from phosphorus-containing monomers, obtained by reactions involving only carbon-to-carbon unsaturated bonds
- C10M 2225/025 . . used as base material
- C10M 2225/04 . obtained by phosphorisation of macromolecular compounds not containing phosphorus in the monomers
- C10M 2225/0405 . . used as base material
- C10M 2225/041 . . Hydrocarbon polymers

C10M 2227/00 **Organic non-macromolecular compounds containing atoms of elements not provided for in groups [C10M 2203/00](#), [C10M 2207/00](#), [C10M 2211/00](#), [C10M 2215/00](#), [C10M 2219/00](#) or [C10M 2223/00](#) as ingredients in lubricant compositions**

- C10M 2227/003 . used as base material
- C10M 2227/006 . used as thickening agents
- C10M 2227/02 . Esters of silicic acids
- C10M 2227/025 . . used as base material
- C10M 2227/04 . having a silicon-to-carbon bond, e.g. organo-silanes
- C10M 2227/045 . . used as base material
- C10M 2227/06 . Organic compounds derived from inorganic acids or metal salts
- C10M 2227/0605 . . used as base material
- C10M 2227/061 . . Esters derived from boron
- C10M 2227/0615 . . . used as base material
- C10M 2227/062 . . . Cyclic esters
- C10M 2227/0625 used as base material
- C10M 2227/063 . . Complexes of boron halides
- C10M 2227/065 . . derived from Ti or Zr
- C10M 2227/066 . . derived from Mo or W
- C10M 2227/08 . having metal-to-carbon bonds ([metal complexes of unknown constitution C10M 2227/09](#))
- C10M 2227/081 . . with a metal carbon bond belonging to a ring, e.g. ferrocene
- C10M 2227/082 . . Pb compounds
- C10M 2227/083 . . Sn compounds
- C10M 2227/09 . Complexes with metals

C10M 2229/00 **Organic macromolecular compounds containing atoms of elements not provided for in groups [C10M 2205/00](#), [C10M 2209/00](#), [C10M 2213/00](#), [C10M 2217/00](#), [C10M 2221/00](#) or [C10M 2225/00](#) as ingredients in lubricant compositions**

- C10M 2229/003 . used as base material
- C10M 2229/006 . used as thickening agents
- C10M 2229/02 . Unspecified siloxanes; Silicones

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|---------------------|--|
| C10M 2229/025 | . . . used as base material |
| C10M 2229/04 | . Siloxanes with specific structure |
| C10M 2229/0405 | . . . used as base material |
| C10M 2229/041 | . . . containing aliphatic substituents |
| C10M 2229/0415 | used as base material |
| C10M 2229/042 | . . . containing alromatic substituents |
| C10M 2229/0425 | used as base material |
| C10M 2229/043 | . . . containing carbon-to-carbon double bonds |
| C10M 2229/0435 | used as base material |
| C10M 2229/044 | . . . containing silicon-to-hydrogen bonds |
| C10M 2229/0445 | used as base material |
| C10M 2229/045 | . . . containing silicon-to-hydroxyl bonds |
| C10M 2229/0455 | used as base material |
| C10M 2229/046 | . . . containing silicon-oxygen-carbon bonds |
| C10M 2229/0465 | used as base material |
| C10M 2229/047 | . . . containing alkylene oxide groups |
| C10M 2229/0475 | used as base material |
| C10M 2229/048 | . . . containing carboxyl groups |
| C10M 2229/0485 | used as base material |
| C10M 2229/05 | . . . containing atoms other than silicon, hydrogen, oxygen or carbon |
| C10M 2229/0505 | used as base material |
| C10M 2229/051 | containing halogen |
| C10M 2229/0515 | used as base material |
| C10M 2229/052 | containing nitrogen |
| C10M 2229/0525 | used as base material |
| C10M 2229/053 | containing sulfur |
| C10M 2229/0535 | used as base material |
| C10M 2229/054 | containing phosphorus |
| C10M 2229/0545 | used as base material |
| C10M 2290/00 | Mixtures of base materials or thickeners or additives (not used, see subgroups) |
| C10M 2290/02 | . Mineral base oils; Mixtures of fractions |
| C10M 2290/026 | . Fuels |
| C10M 2290/04 | . Synthetic base oils |
| C10M 2290/10 | . Thickener |