

CPC COOPERATIVE PATENT CLASSIFICATION

C10L FUELS NOT OTHERWISE PROVIDED FOR (fuels for generating pressure gas, e.g. for rockets C06D 5/00; candles C11C; nuclear fuel G21C 3/00); NATURAL GAS; SYNTHETIC NATURAL GAS OBTAINED BY PROCESSES NOT COVERED BY SUBCLASSES C10G, C10K; LIQUEFIED PETROLEUM GAS; ADDING MATERIALS TO FUELS OR FIRES TO REDUCE SMOKE OR UNDESIRABLE DEPOSITS OR TO FACILITATE SOOT REMOVAL; FIRELIGHTERS

NOTE

In subclass [C10L](#) it is desirable to give indexing codes for information about components of solid, liquid and gaseous fuels or firelighters, their additives and constituents and their preparation and use. The indexing codes are taken from [C10L 2200/00](#) - [C10L 2290/60](#)

1/00 Liquid carbonaceous fuels

- 1/003 . {Marking, e.g. coloration by addition of pigments}
- 1/006 . {Making unflammable or hardly inflammable}
- 1/02 . essentially based on components consisting of carbon, hydrogen, and oxygen only
- 1/023 . . {for spark ignition}
- 1/026 . . {for compression ignition}
- 1/04 . essentially based on blends of hydrocarbons
- 1/06 . . for spark ignition
- 1/08 . . for compression ignition
- 1/10 . containing additives
- 1/103 . . {stabilisation of anti-knock agents}
- 1/106 . . {mixtures of inorganic compounds with organic macromolecular compounds}

NOTES

1. In groups [C10L 1/12](#) - [C10L 1/30](#){[C10L 1/308](#)} , in the absence of an indication to the contrary, a compound is always classified in the last appropriate place.
2. A metal salt or an ammonium salt of a compound is classified as that compound, e.g. a chromium sulfonate is classified as a sulfonate in group [C10L 1/24](#) and not in group [C10L 1/30](#).
3. When classifying in this group, it is desirable to classify the individual additional components using Combination Sets with symbols chosen from groups [C10L 1/12](#) - [C10L 1/308](#)
4. Mixtures of additives are classified in the corresponding main group. Individual additives can be classified using Combination Sets according to the Note above
5. When several alternatives for the same individual additive are mentioned, e.g. as a Markush-formula, classification may be done in the corresponding main group only, the alternatives being classified using Combination Sets, according to the Note above.
6. Documents classified until April 2003, have been classified with Combination Sets as explained in the Notes above,

however using symbols chosen from groups [C10L 1/10](#) - [C10L 1/308](#).

- 1/12 . . inorganic compounds
- 1/1208 . . . {elements}
- 1/1216 . . . {metal compounds, e.g. hydrides, carbides}
- 1/1225 . . . {halogen containing compounds}
- 1/1233 . . . {oxygen containing compounds, e.g. oxides, hydroxides, acids and salts thereof}
- 1/1241 {metal carbonyls}
- 1/125 {water}
- 1/1258 {hydrogen peroxide, oxygenated water}
- 1/1266 . . . {nitrogen containing compounds, (e.g. NH₃)}
- 1/1275 . . . {sulfur, tellurium, selenium containing compounds}
- 1/1283 . . . {phosphorus, arsenicum, antimonium containing compounds}
- 1/1291 . . . {Silicon and boron containing compounds}
- 1/14 . . Organic compounds
- 1/143 . . . {mixtures of organic macromolecular compounds with organic non-macromolecular compounds}
- 1/146 . . . {Macromolecular compounds according to different macromolecular groups, mixtures thereof}
- 1/16 . . . hydrocarbons
- 1/1608 {Well defined compounds, e.g. hexane, benzene}
- 1/1616 {fractions, e.g. lubricants, solvents, naphta, bitumen, tars, terpentine}
- 1/1625 {macromolecular compounds}
- 1/1633 {homo- or copolymers obtained by reactions only involving carbon-to carbon unsaturated bonds}
- 1/1641 {from compounds containing aliphatic monomers}
- 1/165 {from compounds containing aromatic monomers}
- 1/1658 {from compounds containing conjugated dienes}
- 1/1666 {from compounds containing non-conjugated dienes}
- 1/1675 {natural rubbers}
- 1/1683 {obtained otherwise than by reactions only involving carbon to carbon unsaturated bonds}

- 1/1691 {petroleum waxes, mineral waxes; paraffines; alkylation products; Friedel-Crafts condensation products; petroleum resins; modified waxes (oxidised)}
- 1/18 Containing oxygen
- 1/1802 {natural products, e.g waxes, extracts, fatty oils}
- 1/1805 {oxidised hydrocarbon fractions}
- 1/1808 {oxidised mineral waxes}
- 1/1811 {peroxides; ozonides}
- 1/1814 {Chelates}
- 1/1817 {Compounds of uncertain formula; reaction products where mixtures of compounds are obtained}
- 1/182 containing hydroxy groups; Salts thereof {(C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817 take precedence)}
- 1/1822 {hydroxy group directly attached to (cyclo)aliphatic carbon atoms}
- 1/1824 {mono-hydroxy}
- 1/1826 {poly-hydroxy}
- 1/1828 {Salts thereof}
- 1/183 at least one hydroxy group bound to an aromatic carbon atom {(C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817, C10L 1/1828 take precedence)}
- 1/1832 {mono-hydroxy (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817, C10L 1/1828 take precedence)}
- 1/1835 {having at least two hydroxy substituted non condensed benzene rings (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817, C10L 1/1828 take precedence)}
- 1/1837 {hydroxy attached to a condensed aromatic ring system (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817, C10L 1/1828 take precedence)}
- 1/185 Ethers; Acetals; Ketals; Aldehydes; Ketones {(C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817 take precedence)}
- 1/1852 {Ethers; Acetals; Ketals; Orthoesters}
- 1/1855 {Cyclic ethers, e.g. epoxides, lactides, lactones}
- 1/1857 {Aldehydes; Ketones}
- 1/188 Carboxylic acids; {metal} salts thereof {(C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817 take precedence)}
- 1/1881 {carboxylic group attached to an aliphatic carbon atom}
- 1/1883 {polycarboxylic acid}
- 1/1885 {resin acid}
- 1/1886 {naphthenic acid}
- 1/1888 {tall oil}
- 1/189 having at least one carboxyl group bound to an aromatic carbon atom {(C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817, C10L 1/1885, C10L 1/1886, C10L 1/1888 take precedence)}
- 1/1895 {polycarboxylic acid (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817, C10L 1/1885, C10L 1/1886, C10L 1/1888 take precedence)}
- 1/19 Esters {ester radical containing compounds; ester ethers; carbonic acid esters (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817 take precedence)}
- 1/1905 {of di- or polycarboxylic acids}
- 1/191 {of di- or polyhydroxyalcohols}
- 1/1915 {complex esters (at least 3 ester bonds)}
- 1/192 Macromolecular compounds {(C10L 1/1814, C10L 1/1817 take precedence)}
- 1/195 obtained by reactions involving only carbon-to-carbon unsaturated bonds
- 1/1955 {homo- or copolymers of compounds having one or more unsaturated aliphatic radicals each having one carbon bond to carbon double bond, and at least one being terminated by an alcohol, ether, aldehyde, ketonic, ketal, acetal radical}
- 1/196 derived from monomers containing a carbon-to-carbon unsaturated bond and a carboxyl group or salts, anhydrides or esters thereof {homo- or copolymers of compounds having one or more unsaturated aliphatic radicals each having one carbon bond to carbon double bond, and at least one being terminated by a carboxyl radical or of salts, anhydrides or esters thereof}
- 1/1963 {mono-carboxylic}
- 1/1966 {poly-carboxylic}
- 1/197 derived from monomers containing a carbon-to-carbon unsaturated bond and an acyloxy group of a saturated carboxylic or carbonic acid
- 1/1973 {mono-carboxylic}
- 1/1976 {poly-carboxylic}
- 1/198 obtained otherwise than by reactions involving only carbon-to-carbon unsaturated bonds {homo- 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 an acyloxy radical of a saturated carboxylic acid, of carbonic acid}
- 1/1981 {Condensation polymers of aldehydes or ketones}
- 1/1983 {polyesters}
- 1/1985 {polyethers, e.g. di- polyglycols and derivatives; ethers - esters}
- 1/1986 {complex polyesters}
- 1/1988 {epoxy resins and derivatives; natural resins, e.g. colophony}

1/20	. . . containing halogen	1/233	. . . . . containing nitrogen and oxygen in the ring, e.g. oxazoles {(C10L 1/221 takes precedence)}
1/201	. . . . {aliphatic bond}	1/2335	. . . . . {morpholino, and derivatives thereof (C10L 1/221 takes precedence)}
1/202	. . . . {aromatic bond}	1/234	. . . . Macromolecular compounds {(C10L 1/221 takes precedence)}
1/203	. . . . {hydroxyl compounds; ethers, acetals, ketals}	1/236	. . . . . obtained by reactions involving only carbon-to-carbon unsaturated bonds {derivatives thereof (C10L 1/221 takes precedence)}
1/204	. . . . {aldehydes and ketones}	1/2362	. . . . . {homo- or copolymers derived from unsaturated compounds containing nitrile groups (C10L 1/221 takes precedence)}
1/205	. . . . {carboxylic radical containing compounds or derivatives, e.g. salts, esters}	1/2364	. . . . . {homo- or copolymers derived from unsaturated compounds containing amide and/or imide groups (C10L 1/221 takes precedence)}
1/206	. . . . {macromolecular compounds}	1/2366	. . . . . {homo- or copolymers derived from unsaturated compounds containing amine groups (C10L 1/221 takes precedence)}
1/207	. . . . . {containing halogen with or without hydrogen}	1/2368	. . . . . {homo- or copolymers derived from unsaturated compounds containing heterocyclic compounds containing nitrogen in the ring (C10L 1/221 takes precedence)}
1/208	. . . . . {containing halogen, oxygen, with or without hydrogen}	1/238	. . . . . obtained otherwise than by reactions involving only carbon-to-carbon unsaturated bonds {(C10L 1/221 takes precedence)}
1/209	. . . . . {halogenated waxes or paraffines}	1/2381	. . . . . {polyamides; polyamide-esters; polyurethane, polyureas (C10L 1/221 takes precedence)}
1/22	. . . containing nitrogen	1/2383	. . . . . Polyamines or polyimines, or derivatives thereof {(poly)amines and imines; derivatives thereof (substituted by a macromolecular group containing 30C) (C10L 1/221 takes precedence)}
1/221	. . . . {compounds of uncertain formula; reaction products where mixtures of compounds are obtained}	1/2387	. . . . . Polyoxyalkyleneamines {(poly)oxyalkylene amines and derivatives thereof (substituted by a macromolecular group containing 30C) (C10L 1/221 takes precedence)}
1/222	. . . . containing at least one carbon-to-nitrogen single bond {(C10L 1/221 takes precedence)}	1/24	. . . containing sulfur, selenium and/or tellurium
1/2222	. . . . . {(cyclo)aliphatic amines; polyamines (no macromolecular substituent 30C); quaternair ammonium compounds; carbamates (C10L 1/221 takes precedence)}	1/2406	. . . . {mercaptans; hydrocarbon sulfides}
1/2225	. . . . . {hydroxy containing (C10L 1/221 takes precedence)}	1/2412	. . . . . {sulfur bond to an aromatic radical}
1/2227	. . . . . {urea; derivatives thereof; urethane (C10L 1/221 takes precedence)}	1/2418	. . . . . {containing a carboxylic substituted; derivatives thereof, e.g. esters}
1/223	. . . . . having at least one amino group bound to an aromatic carbon atom {(C10L 1/221, C10L 1/2227 take precedence)}	1/2425	. . . . {Thiocarbonic acids and derivatives thereof, e.g. xanthates; Thiocarbamic acids or derivatives thereof, e.g. dithio-carbamates; Thiurams}
1/2235	. . . . . {hydroxy containing (C10L 1/221, C10L 1/2227 take precedence)}	1/2431	. . . . {sulfur bond to oxygen, e.g. sulfones, sulfoxides}
1/224	. . . . . Amides; Imides {carboxylic acid amides, imides (C10L 1/221, C10L 1/2227 take precedence)}	1/2437	. . . . . {Sulfonic acids; Derivatives thereof, e.g. sulfonamides, sulfosuccinic acid esters}
1/226	. . . . containing at least one nitrogen-to-nitrogen bond, e.g. azo compounds, azides, hydrazines {(C10L 1/221 takes precedence)}	1/2443	. . . . {heterocyclic compounds}
1/228	. . . . containing at least one carbon-to-nitrogen double bond, e.g. guanidines, hydrazones, semicarbazones, imines; containing at least one carbon-to-nitrogen triple bond, e.g. nitriles {(C10L 1/221, C10L 1/226 take precedence)}	1/245	. . . . . {only sulfur as hetero atom}
1/2283	. . . . . {containing one or more carbon to nitrogen double bonds, e.g. guanidine, hydrazone, semi-carbazone, azomethine (C10L 1/221, C10L 1/226 take precedence)}	1/2456	. . . . . {sulfur with oxygen and/or nitrogen in the ring, e.g. thiazoles}
1/2286	. . . . . {containing one or more carbon to nitrogen triple bonds, e.g. nitriles (C10L 1/221, C10L 1/226 take precedence)}	1/2462	. . . . {macromolecular compounds}
1/23	. . . . containing at least one nitrogen-to-oxygen bond, e.g. nitro-compounds, nitrates, nitrites {(C10L 1/221 takes precedence)}		
1/231	. . . . . {nitro compounds; nitrates; nitrites (C10L 1/221 takes precedence)}		
1/232	. . . . containing nitrogen in a heterocyclic ring {(C10L 1/221 takes precedence)}		

1/2468	. . . . . {obtained by reactions involving only carbon to carbon unsaturated bonds; derivatives thereof}	3/101	. . . . {Removal of contaminants}
1/2475	. . . . . {obtained otherwise than by reactions only involving unsaturated carbon to carbon bonds}	3/102	. . . . . {of acid contaminants}
1/2481	. . . . . {polysulfides (3 carbon to sulfur bonds)}	3/103	. . . . . {Sulfur containing contaminants}
1/2487	. . . . . {polyoxyalkylene thioethers (O + S 3=)}	3/104	. . . . . {Carbon dioxide}
1/2493	. . . . . {compounds of uncertain formula; reactions of organic compounds (hydrocarbons, acids, esters) with sulfur or sulfur containing compounds}	3/105	. . . . . {of nitrogen}
1/26	. . . containing phosphorus	3/106	. . . . . {of water}
1/2608	. . . . . {containing a phosphorus-carbon bond}	3/107	. . . {Limiting or prohibiting hydrate formation}
1/2616	. . . . . {sulfur containing}	3/108	. . . {Production of gas hydrates}
1/2625	. . . . . {amine salts}	3/12	. Liquefied petroleum gas {(liquefying by pressure and cold treatment F25J)}
1/2633	. . . . . {phosphorus bond to oxygen (no P. C. bond)}	5/00	Solid fuels (produced by solidifying fluid fuels C10L 7/00)
1/2641	. . . . . {oxygen bonds only}	5/02	. {Solid fuels such as} briquettes consisting mainly of carbonaceous materials of mineral {or non-mineral} origin (peat briquettes C10F)
1/265	. . . . . {oxygen and/or sulfur bonds}	5/04	. . Raw material {of mineral origin} to be used; Pretreatment thereof {(pretreatment of fuels of non-mineral origin C10L 5/40)}
1/2658	. . . . . {amine salts}	5/06	. . Methods of {shaping, e.g. pelletizing or} briquetting (mechanical part of pressing briquettes B30B 11/00)
1/2666	. . . . . {macromolecular compounds}	5/08	. . . without the aid of extraneous binders (briquetting peat C10F)
1/2675	. . . . . {obtained by reactions involving only carbon to carbon unsaturated bonds; derivatives thereof}	5/10	. . . with the aid of binders, e.g. pretreated binders
1/2683	. . . . . {obtained otherwise than by reactions only involving unsaturated carbon to carbon bonds}	5/105	. . . . {with a mixture of organic and inorganic binders}
1/2691	. . . . . {Compounds of uncertain formula; reaction of organic compounds (hydrocarbons acids, esters) with Px Sy, Px Sy Halz or sulfur and phosphorus containing compounds}	5/12	. . . . . with inorganic binders
1/28	. . . containing silicon	5/14	. . . . . with organic binders
1/285	. . . . . {macromolecular compounds}	5/143	. . . . . {with lignin-containing products}
1/30	. . . compounds not mentioned before (complexes)	5/146	. . . . . {with wax, e.g. paraffin wax}
1/301	. . . . . {derived from metals}	5/16	. . . . . with bituminous binders, e.g. tar, pitch
1/303	. . . . . {boron compounds}	5/18	. . . . . with naphthalene
1/305	. . . . . {organo-metallic compounds (containing a metal to carbon bond)}	5/20	. . . . . with sulfite lye
1/306	. . . . . {organo Pb compounds}	5/22	. . . . . Methods of applying the binder to the other compounding ingredients; Apparatus therefor
1/308	. . . . . {organo tin compounds}	5/24	. . Combating dust during {shaping or} briquetting; Safety devices against explosion
1/32	. consisting of coal-oil suspensions or aqueous emulsions {or oil emulsions}	5/26	. . After-treatment of the {shaped fuels, e.g.} briquettes
1/322	. . {Coal-oil suspensions}	5/28	. . . Heating the {shaped fuels, e.g.} briquettes; Coking the binders
1/324	. . {Dispersions containing coal, oil and water}	5/30	. . . Cooling the {shaped fuels, e.g.} briquettes
1/326	. . {Coal-water suspensions}	5/32	. . . Coating
1/328	. . {Oil emulsions containing water or any other hydrophilic phase}	5/34	. . Other details of the {shaped fuels, e.g.} briquettes
3/00	Gaseous fuels; Natural gas; Synthetic natural gas obtained by processes not covered by subclass C10G, C10K; Liquefied petroleum gas	5/36	. . . Shape
3/003	. {Additives for gaseous fuels}	5/361	. . . . {Briquettes}
3/006	. . {detectable by the senses}	5/363	. . . . {Pellets or granulates}
3/02	. Compositions containing acetylene	5/365	. . . . {Logs}
3/04	. . Absorbing composition, e.g. solvents	5/366	. . . . {Powders}
3/06	. Natural gas; Synthetic natural gas obtained by processes not covered by C10G, C10K 3/02 or C10K 3/04 {(liquefying by pressure and cold treatment F25J)}	5/368	. . . . {Shaped fuels bundled or contained in a bag or other container}
3/08	. . Production of synthetic natural gas	5/38	. . . . Briquettes consisting of different layers
3/10	. . Working-up natural gas or synthetic natural gas	5/40	. essentially based on materials of non-mineral origin
		5/403	. . {on paper and paper waste}
		5/406	. . {on plastic}
		5/42	. . on animal substances or products obtained therefrom, {e.g. manure}
		5/44	. . on vegetable substances
		5/442	. . . {Wood or forestry waste}
		5/445	. . . {Agricultural waste, e.g. corn crops, grass clippings, nut shells or oil pressing residues}

- 5/447 . . . {Carbonized vegetable substances, e.g. charcoal, or produced by hydrothermal carbonization of biomass}
- 5/46 . . on sewage, house, or town refuse {(C10L 5/403, C10L 5/406 take precedence)}
- 5/48 . . on industrial residues and waste materials {(C10L 5/403, C10L 5/406 take precedence)}
- 7/00 Fuels produced by solidifying fluid fuels**
- 7/02 . liquid fuels (lubricating compositions C10M)
- 7/04 . . alcohol
- 8/00 Fuels not provided for in other groups of this subclass**
- 9/00 Treating solid fuels to improve their combustion**
- 9/02 . by chemical means
- 9/04 . . by hydrogenating
- 9/06 . . by oxidation
- 9/08 . by heat treatments, e.g. calcining
- 9/083 . . {Torrefaction}
- 9/086 . . {Hydrothermal carbonization}
- 9/10 . by using additives
- 9/12 . . oxidation means, e.g. oxygen-generating compounds
- 10/00 Use of additives to fuels or fires for particular purposes** (additives for liquid carbonaceous fuels characterised by their chemical nature C10L 1/10; using binders for briquetting solid fuels C10L 5/10; using additives to improve the combustion of solid fuels C10L 9/10)
- WARNING**
- IPC8 subgroups C10L 10/00, introduced in the CPC scheme in June 2006, might be temporarily incomplete as a number of documents presently classified under the main group needs reclassification to these IPC subgroups
- 10/02 . for reducing smoke development
- 10/04 . for minimising corrosion or incrustation
- 10/06 . for facilitating soot removal
- WARNING**
- Groups C10L 10/08 - C10L 10/18 were introduced in May 2006. These groups might be incomplete as documents, presently classified in C10L 10/00 and C10L 10/04 are in the process of being reclassified to these groups
- 10/08 . for improving lubricity; for reducing wear
- 10/10 . for improving the octane number
- 10/12 . for improving the cetane number
- 10/14 . for improving low temperature properties
- 10/16 . . Pour-point depressants
- 10/18 . use of detergents or dispersants for purposes not provided for in groups C10L 10/02 - C10L 10/16
- 11/00 Manufacture of firelighters**
- 11/02 . based on refractory porous bodies
- 11/04 . consisting of combustible material (matches C06F)
- 11/06 . of a special shape
- 11/08 . Apparatus therefor

2200/00 Components of fuel compositions**NOTE**

Additives in liquid fuels present in concentrations lower than 5% get a class taken from C10L 1/10 -C10L 1/308 and corresponding C10L 1/10 -C10L 1/308. In groups C10L 1/32 - C10L 11/08 is such distinction between the terms additive and component not made.

- 2200/02 . Inorganic or organic compounds containing atoms other than C, H or O, e.g. organic compounds containing heteroatoms or metal organic complexes
- 2200/0204 . . Metals or alloys
- 2200/0209 . . . Group I metals: Li, Na, K, Rb, Cs, Fr, Cu, Ag, Au
- 2200/0213 . . . Group II metals: Be, Mg, Ca, Sr, Ba, Ra, Zn, Cd, Hg
- 2200/0218 . . . Group III metals: Sc, Y, Al, Ga, In, Tl
- 2200/0222 . . . Group IV metals: Ti, Zr, Hf, Ge, Sn, Pb
- 2200/0227 . . . Group V metals: V, Nb, Ta, As, Sb, Bi
- 2200/0231 . . . Group VI metals: Cr, Mo, W, Po
- 2200/0236 . . . Group VII metals: Mn, Tc, Re
- 2200/024 . . . Group VIII metals: Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt
- 2200/0245 . . . Lanthanide group metals: La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu
- 2200/025 . . Halogen containing compounds
- 2200/0254 . . Oxygen containing compounds
- 2200/0259 . . Nitrogen containing compounds
- 2200/0263 . . Sulphur containing compounds
- 2200/0268 . . Phosphor containing compounds
- 2200/0272 . . Silicon containing compounds
- 2200/0277 . . Hydrogen
- 2200/0281 . . Carbon monoxide
- 2200/0286 . . Carbon dioxide
- 2200/029 . . Salts, such as carbonates, oxides, hydroxides, percompounds, e.g. peroxides, perborates, nitrates, nitrites, sulfates, and silicates
- 2200/0295 . . Water
- 2200/04 . Organic compounds
- 2200/0407 . . Specifically defined hydrocarbon fractions as obtained from, e.g. a distillation column
- 2200/0415 . . . Light distillates, e.g. LPG, naphtha
- 2200/0423 Gasoline
- 2200/043 . . . Kerosene, jet fuel
- 2200/0438 . . . Middle or heavy distillates, heating oil, gasoil, marine fuels, residua
- 2200/0446 Diesel
- 2200/0453 . . . Petroleum or natural waxes, e.g. paraffin waxes, asphaltenes
- 2200/0461 . . Fractions defined by their origin
- 2200/0469 . . . Renewables or materials of biological origin
- 2200/0476 Biodiesel, i.e. defined lower alkyl esters of fatty acids first generation biodiesel
- 2200/0484 Vegetable or animal oils
- 2200/0492 Fischer-Tropsch products
- 2230/00 Function and purpose of a components of a fuel or the composition as a whole**
- 2230/02 . Absorbents, e.g. in the absence of an actual absorbent column or scavenger
- 2230/04 . Catalyst added to fuel stream to improve a reaction
- 2230/06 . Firelighters or wicks, as additive to a solid fuel

2230/08	. Inhibitors	2290/18	. Spraying or sprinkling
2230/081	. . Anti-oxidants	2290/20	. Coating of a fuel as a whole or of a fuel component
2230/082	. . for anti-foaming	2290/22	. Impregnation or immersion of a fuel component or a fuel as a whole
2230/083	. . Disinfectants, biocides, anti-microbials	2290/24	. Mixing, stirring of fuel components
2230/085	. . Metal deactivators	2290/26	. Composting, fermenting or anaerobic digestion fuel components or materials from which fuels are prepared
2230/086	. . Demulsifiers	2290/28	. Cutting, disintegrating, shredding or grinding
2230/087	. . for inhibiting misting	2290/30	. Pressing, compressing or compacting
2230/088	. . for inhibiting or avoiding odor	2290/32	. Molding or moulds
2230/10	. for adding an odor to the fuel or combustion products	2290/34	. Applying ultrasonic energy
2230/12	. for producing sound, e.g. during burning an artificial fire log to mimic sound of real wood	2290/36	. Applying radiation such as microwave, IR, UV
2230/14	. for improving storage or transport of the fuel	2290/38	. Applying an electric field or inclusion of electrodes in the apparatus
2230/16	. Tracers which serve to track or identify the fuel component or fuel composition	2290/40	. Applying a magnetic field or inclusion of magnets in the apparatus
2230/18	. for rendering the fuel or flame visible or for adding or altering its color	2290/42	. Fischer-Tropsch steps
2230/20	. for improving conductivity	2290/44	. Deacidification step, e.g. in coal enhancing
2230/22	. for improving fuel economy or fuel efficiency	2290/46	. Compressors or pumps
2250/00	Structural features of fuel components or fuel compositions, either in solid, liquid or gaseous state	2290/48	. Expanders, e.g. throttles or flash tanks
2250/02	. Microbial additives	2290/50	. Screws or pistons for moving along solids
2250/04	. Additive or component is a polymer	2290/52	. Hoppers
2250/06	. Particle, bubble or droplet size	2290/54	. Specific separation steps for separating fractions, components or impurities during preparation or upgrading of a fuel
2250/08	. Emulsion details	2290/541	. . Absorption of impurities during preparation or upgrading of a fuel
2250/082	. . Oil in water (o/w) emulsion	2290/542	. . Adsorption of impurities during preparation or upgrading of a fuel
2250/084	. . Water in oil (w/o) emulsion	2290/543	. . Distillation, fractionation or rectification for separating fractions, components or impurities during preparation or upgrading of a fuel
2250/086	. . Microemulsion or nanoemulsion	2290/544	. . Extraction for separating fractions, components or impurities during preparation or upgrading of a fuel
2250/088	. . Complex emulsions, e.g. water in oil in water (w/o/w) or oil in water in oil (o/w/o), bicontinuous emulsion, e.g. wherein both phases are continuous or multiple emulsions	2290/545	. . Washing, scrubbing, stripping, scavenging for separating fractions, components or impurities during preparation or upgrading of a fuel
2270/00	Specifically adapted fuels	2290/546	. . Sieving for separating fractions, components or impurities during preparation or upgrading of a fuel
2270/02	. for internal combustion engines	2290/547	. . Filtration for separating fractions, components or impurities during preparation or upgrading of a fuel
2270/023	. . for gasoline engines	2290/548	. . Membrane- or permeation-treatment for separating fractions, components or impurities during preparation or upgrading of a fuel
2270/026	. . for diesel engines, e.g. automobiles, stationary, marine	2290/56	. Specific details of the apparatus for preparation or upgrading of a fuel
2270/04	. for turbines, planes, power generation	2290/562	. . Modular or modular elements containing apparatus
2270/06	. for fuel cells	2290/565	. . Apparatus size
2270/08	. for small applications, such as tools, lamp oil, welding	2290/567	. . Mobile or displaceable apparatus
2270/10	. for transport, e.g. in pipelines as a gas hydrate slurry	2290/58	. Control or regulation of the fuel preparation or upgrading process
2290/00	Fuel preparation or upgrading, processes or apparatus therefore, comprising specific process steps or apparatus units	2290/60	. Measuring or analysing fractions, components or impurities or process conditions during preparation or upgrading of a fuel
2290/02	. Combustion or pyrolysis	2300/00	Mixture of two or more additives covered by the same group of C10L 1/00 - C10L 1/308
2290/04	. Gasification		NOTE
2290/06	. Heat exchange, direct or indirect		
2290/08	. Drying or removing water		
2290/10	. Recycling of a stream within the process or apparatus to reuse elsewhere therein		
2290/12	. Regeneration of a solvent, catalyst, adsorbent or any other component used to treat or prepare a fuel		
2290/14	. Injection, e.g. in a reactor or a fuel stream during fuel production		
2290/141	. . of additive or catalyst		
2290/143	. . of fuel		
2290/145	. . of air		
2290/146	. . of water		
2290/148	. . of steam		

C10L 2300/00

(continued)

After the code and separated therefrom by a + sign, the codes [C10L 2300/20](#) - [C10L 2300/40](#) are added according to the number of components in the mixture. Example: **C10L1/16A** + [C10L 2300/20](#) corresponds to a mixture of two well defined hydrocarbons, e.g. mixture of hexane and benzene

- [2300/20](#) . Mixture of two components
- [2300/30](#) . Mixture of three components
- [2300/40](#) . Mixture of four or more components