CPC COOPERATIVE PATENT CLASSIFICATION

C CHEMISTRY; METALLURGY
(NOTES omitted)

CHEMISTRY

C10 PETROLEUM, GAS OR COKE INDUSTRIES; TECHNICAL GASES CONTAINING CARBON MONOXIDE; FUELS; LUBRICANTS; PEAT

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.}

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00 Liquid carbonaceous fuels

NOTES

1. In groups C10L 1/12 - C10L 1/14, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, a compound is classified in the last appropriate place.

   {This Note corresponds to IPC Note (1) relating to C10L 1/12 - C10L 1/14.}
2. If an additive is a mixture of compounds, classification is made for each compound of interest. {This Note corresponds to IPC Note (2) relating to C10L 1/12 - C10L 1/14.}
3. 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.

   {This Note corresponds to IPC Note (3) relating to C10L 1/12 - C10L 1/14.}
4. {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.}
5. {Mixtures of additives are classified in the corresponding main group. Individual additives can be classified using Combination Sets according to the Note above.}
6. {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.}
7. {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.}

1/003 . {Marking, e.g. coloration by addition of pigments}
1/006 . {Making uninflammable 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}
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. NH_3)}
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- polygylcols and derivatives; ethers - esters}

1/1986 . . . . . {complex polyesters}

1/1988 . . . . . {epoxy resins and derivatives; natural resins, e.g. colophony}

1/20 . . . containing halogen

1/201 . . . . {aliphatic bond}

1/202 . . . . {aromatic bond}

1/203 . . . . {hydroxyl compounds; ethers, acetals, ketals}

1/204 . . . . {aldehydes and ketones}

1/205 . . . . {carboxylic radical containing compounds or derivatives, e.g. salts, esters}

1/206 . . . . {macromolecular compounds}

1/207 . . . . . {containing halogen with or without hydrogen}

1/208 . . . . . {containing halogen, oxygen, with or without hydrogen}

1/209 . . . . . {halogenated waxes or paraffines}

1/22 . . . containing nitrogen

1/221 . . . . {compounds of uncertain formula; reaction products where mixtures of compounds are obtained}

1/222 . . . . containing at least one carbon-to-nitrogen single bond {(C10L 1/221 takes precedence)}

1/2222 . . . . . {(cyclo)aliphatic amines; polyamines (no macromolecular substituent 30C); quaternair ammonium compounds; carbamates (C10L 1/221 takes precedence)}

1/2225 . . . . . {hydroxy containing (C10L 1/221 takes precedence)}

1/2227 . . . . . {urea; derivatives thereof; urethane (C10L 1/221 takes precedence)}

1/223 . . . . . having at least one amino group bound to an aromatic carbon atom {(C10L 1/221, C10L 1/2227 take precedence)}

1/2235 . . . . . {hydroxy containing (C10L 1/221, C10L 1/2227 take precedence)}

1/224 . . . . . Amides; Imides {carboxylic acid amides, imides (C10L 1/221, C10L 1/2227 take precedence)}

1/226 . . . . containing at least one nitrogen-to-nitrogen bond, e.g. azo compounds, azides, hydrazines {(C10L 1/221 takes precedence)}

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)}

1/2283 . . . . . {containing one or more carbon to nitrogen double bonds, e.g. guanidine, hydrazone, semi-carbazone, azomethine (C10L 1/221, C10L 1/226 take precedence)}

1/2286 . . . . . {containing one or more carbon to nitrogen triple bonds, e.g. nitriles (C10L 1/221, C10L 1/226 take precedence)}

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)}

1/233 . . . . . containing nitrogen and oxygen in the ring, e.g. oxazoles {(C10L 1/221 takes precedence)}

1/2335 . . . . . {morpholino, and derivatives thereof (C10L 1/221 takes precedence)}

1/234 . . . . Macromolecular compounds {(C10L 1/221 takes precedence)}

1/236 . . . . . obtained by reactions involving only carbon-to-carbon unsaturated bonds {derivatives thereof (C10L 1/221 takes precedence)}

1/2362 . . . . . {homo- or copolymers derived from unsaturated compounds containing nitrile groups (C10L 1/221 takes precedence)}

1/2364 . . . . . {homo- or copolymers derived from unsaturated compounds containing amide and/or imide groups (C10L 1/221 takes precedence)}

1/2366 . . . . . {homo- or copolymers derived from unsaturated compounds containing amine groups (C10L 1/221 takes precedence)}

1/2368 . . . . . {homo- or copolymers derived from unsaturated compounds containing heterocyclic compounds containing nitrogen in the ring (C10L 1/221 takes precedence)}

1/238 . . . . . obtained otherwise than by reactions involving only carbon-to-carbon unsaturated bonds {(C10L 1/221 takes precedence)}
1/2381 . . . . . {polyamides; polyamide-esters; polyurethane, polyureas (C10L 1/221 takes precedence)}
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)}
1/2387 . . . . . Polyoxyalkyleneamines {(poly)oxyalkylene amines and derivatives thereof (substituted by a macromolecular group containing 30C) (C10L 1/221 takes precedence)}
1/24 . . . containing sulfur, selenium and/or tellurium
1/2406 . . . . {mercaptans; hydrocarbon sulfides}
1/2412 . . . . . {sulfur bond to an aromatic radical}
1/2418 . . . . . {containing a carboxylic substituted; derivatives thereof, e.g. esters}
1/2425 . . . . {Thiocarbonic acids and derivatives thereof, e.g. xanthates; Thiocarbamic acids or derivatives thereof, e.g. dithio-carbamates; Thiurams}
1/2431 . . . . {sulfur bond to oxygen, e.g. sulfones, sulfoxides}
1/2437 . . . . . {Sulfonic acids; Derivatives thereof, e.g. sulfonamides, sulfosuccinic acid esters}
1/2443 . . . . {heterocyclic compounds}
1/245 . . . . . {only sulfur as hetero atom}
1/2456 . . . . . {sulfur with oxygen and/or nitrogen in the ring, e.g. thiazoles}
1/2462 . . . . {macromolecular compounds}
1/2468 . . . . . {obtained by reactions involving only carbon to carbon unsaturated bonds; derivatives thereof}
1/2475 . . . . . {obtained otherwise than by reactions only involving unsaturated carbon to carbon bonds}
1/2481 . . . . . {polysulfides (3 carbon to sulfur bonds)}
1/2487 . . . . . {polyoxyalkylene thioethers (O + S 3=)}
1/2493 . . . . {compounds of uncertain formula; reactions of organic compounds (hydrocarbons, acids, esters) with sulfur or sulfur containing compounds}
1/26 . . . containing phosphorus
1/2608 . . . . {containing a phosphorus-carbon bond}
1/2616 . . . . . {sulfur containing}
1/2625 . . . . . {amine salts}
1/2633 . . . . {phosphorus bond to oxygen (no P. C. bond)}
1/2641 . . . . . {oxygen bonds only}
1/265 . . . . . {oxygen and/or sulfur bonds}
1/2658 . . . . . {amine salts}
1/2666 . . . . {macromolecular compounds}
1/2675 . . . . . {obtained by reactions involving only carbon to carbon unsaturated bonds; derivatives thereof}
1/2683 . . . . . {obtained otherwise than by reactions only involving unsaturated carbon to carbon bonds}
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}
1/28 . . . containing silicon
1/285 . . . . {macromolecular compounds}
1/30 . . . compounds not mentioned before (complexes)
1/301 . . . . {derived from metals}
1/303 . . . . . {boron compounds}
1/305 . . . . {organo-metallic compounds (containing a metal to carbon bond)}
1/306 . . . . . {organo Pb compounds}
1/308 . . . . . {organo tin compounds}
1/32 . consisting of coal-oil suspensions or aqueous emulsions {or oil emulsions}
1/322 . . {Coal-oil suspensions}
1/324 . . {Dispersions containing coal, oil and water}
1/326 . . {Coal-water suspensions}
1/328 . . {Oil emulsions containing water or any other hydrophilic phase}

3/00 **Gaseous fuels; Natural gas; Synthetic natural gas obtained by processes not covered by subclass C10G, C10K; Liquefied petroleum gas**
3/003 . {Additives for gaseous fuels}
3/006 . . {detectable by the senses}
3/02 . Compositions containing acetylene
3/04 . . Absorbing compositions, e.g. solvents
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)}
3/08 . . Production of synthetic natural gas
3/10 . . Working-up natural gas or synthetic natural gas
3/101 . . . {Removal of contaminants}
3/102 . . . . {of acid contaminants}
3/103 . . . . . {Sulfur containing contaminants}
3/104 . . . . . {Carbon dioxide}
3/105 . . . . {of nitrogen}
3/106 . . . . {of water}
3/107 . . . {Limiting or prohibiting hydrate formation}
3/108 . . . {Production of gas hydrates}
3/12 . Liquefied petroleum gas {(liquefying by pressure and cold treatment F25J)}

5/00 **Solid fuels** (produced by solidifying fluid fuels C10L 7/00)
5/02 . {Solid fuels such as} briquettes consisting mainly of carbonaceous materials of mineral {or non-mineral} origin (peat briquettes C10F)
5/04 . . Raw material {of mineral origin} to be used; Pretreatment thereof {(pretreatment of fuels of non-mineral origin C10L 5/40)}
5/06 . . Methods of {shaping, e.g. pelletizing or} briquetting (mechanical part of pressing briquettes B30B 11/00)
5/08 . . . without the aid of extraneous binders (briquetting peat C10F)
5/10 . . . with the aid of binders, e.g. pretreated binders
5/105 . . . . {with a mixture of organic and inorganic binders}

5/12 . . . . with inorganic binders
5/14 . . . . with organic binders
5/143 . . . . . {with lignin-containing products}
5/146 . . . . . {with wax, e.g. paraffin wax}
5/16 . . . . . with bituminous binders, e.g. tar, pitch
5/18 . . . . . with naphthalene
5/20 . . . . . with sulfite lye
5/22 . . . . Methods of applying the binder to the other compounding ingredients; Apparatus therefor
5/24 . . Combating dust during {shaping or} briquetting; Safety devices against explosion
5/26 . . After-treatment of the {shaped fuels, e.g.} briquettes
5/28 . . . Heating the {shaped fuels, e.g.} briquettes; Coking the binders
5/30 . . . Cooling the {shaped fuels, e.g.} briquettes
5/32 . . . Coating
5/34 . . Other details of the {shaped fuels, e.g.} briquettes
5/36 . . . Shape
5/361 . . . . {Briquettes}
5/363 . . . . {Pellets or granulates}
5/365 . . . . {Logs}
5/366 . . . . {Powders}
5/368 . . . . {Shaped fuels bundled or contained in a bag or other container}
5/38 . . . . Briquettes consisting of different layers
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)
10/02 . for reducing smoke development
10/04 . for minimising corrosion or incrustation
10/06 . for facilitating soot removal
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, To, 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
2230/081 . . Anti-oxidants
2230/082 . . for anti-foaming
2230/083 . . Disinfectants, biocides, anti-microbials
2230/085 . . Metal deactivators
2230/086 . . Demulsifiers
2230/087 . . for inhibiting misting
2230/088 . . for inhibiting or avoiding odor
2230/10 . for adding an odor to the fuel or combustion products
2230/12 . for producing sound, e.g. during burning an artificial fire log to mimic sound of real wood
2230/14 . for improving storage or transport of the fuel
2230/16 . Tracers which serve to track or identify the fuel component or fuel composition
2230/18 . for rendering the fuel or flame visible or for adding or altering its color
2230/20 . for improving conductivity
2230/22 . for improving fuel economy or fuel efficiency

2250/00 Structural features of fuel components or fuel compositions, either in solid, liquid or gaseous state

2250/02 . Microbial additives
2250/04 . Additive or component is a polymer
2250/06 . Particle, bubble or droplet size
2250/08 . Emulsion details
2250/082 . . Oil in water (o/w) emulsion
2250/084 . . Water in oil (w/o) emulsion
2250/086 . . Microemulsion or nanoemulsion
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

2270/00 Specifically adapted fuels

2270/02 . for internal combustion engines
2270/023 . . for gasoline engines
2270/026 . . for diesel engines, e.g. automobiles, stationary, marine
2270/04 . for turbines, planes, power generation
2270/06 . for fuel cells
2270/08 . for small applications, such as tools, lamp oil, welding
2270/10 . for transport, e.g. in pipelines as a gas hydrate slurry

2290/00 Fuel preparation or upgrading, processes or apparatus therefore, comprising specific process steps or apparatus units

2290/02 . Combustion or pyrolysis
2290/04 . Gasification
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
2290/18 . Spraying or sprinkling
2290/20 . Coating of a fuel as a whole or of a fuel component
2290/22 . Impregnation or immersion of a fuel component or a fuel as a whole
2290/24 . Mixing, stirring of fuel components
2290/26 . Composting, fermenting or anaerobic digestion fuel components or materials from which fuels are prepared
2290/28 . Cutting, disintegrating, shredding or grinding
2290/30 . Pressing, compressing or compacting
2290/32 . Molding or moulds
2290/34 . Applying ultrasonic energy
2290/36 . Applying radiation such as microwave, IR, UV
2290/38 . Applying an electric field or inclusion of electrodes in the apparatus
2290/40 . Applying a magnetic field or inclusion of magnets in the apparatus
2290/42 . Fischer-Tropsch steps
2290/44 . Deacidification step, e.g. in coal enhancing
2290/46 . Compressors or pumps
2290/48 . Expanders, e.g. throttles or flash tanks
2290/50 . Screws or pistons for moving along solids
2290/52 . Hoppers
2290/54 . Specific separation steps for separating fractions, components or impurities during preparation or upgrading of a fuel
2290/541 . . Absorption of impurities during preparation or upgrading of a fuel
2290/542 . . Adsorption of impurities during preparation or upgrading of a fuel
2290/543 . . Distillation, fractionation or rectification for separating fractions, components or impurities during preparation or upgrading of a fuel
2290/544 . . Extraction for separating fractions, components or impurities during preparation or upgrading of a fuel
2290/545 . . Washing, scrubbing, stripping, scavenging for separating fractions, components or impurities during preparation or upgrading of a fuel

2290/546 . . Sieving for separating fractions, components or impurities during preparation or upgrading of a fuel
2290/547 . . Filtration for separating fractions, components or impurities during preparation or upgrading of a fuel
2290/548 . . Membrane- or permeation-treatment for separating fractions, components or impurities during preparation or upgrading of a fuel
2290/56 . Specific details of the apparatus for preparation or upgrading of a fuel
2290/562 . . Modular or modular elements containing apparatus
2290/565 . . Apparatus size
2290/567 . . Mobile or displaceable apparatus
2290/58 . Control or regulation of the fuel preparation of upgrading process
2290/60 . Measuring or analysing fractions, components or impurities or process conditions during preparation or upgrading of a fuel

2300/00 **Mixture of two or more additives covered by the same group of C10L 1/00 - C10L 1/308**

NOTE

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