SECTION C — CHEMISTRY; METALLURGY

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

C10M LUBRICATING COMPOSITIONS (well drilling compositions C09K 8/02)**; USE OF CHEMICAL SUBSTANCES EITHER ALONE OR AS LUBRICATING INGREDIENTS IN A LUBRICATING COMPOSITION** (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; textile lubricating compositions D06M 11/00, D06M 13/00, D06M 15/00; immersion oils for microscopy G02B 21/33) **[4]**

Note(s) [4, 2006.01]

1. In this subclass, the following terms or expressions 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 this subclass, the last place priority rule is applied, i.e. at each hierarchical level, 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.
3. 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 known or not, is classified as a mixture of thickener and additive;
      - a 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.
4. Any part of a composition which is not identified by the classification according to Notes (2) or (3) above, and which itself is determined to be novel and non-obvious, must also be classified in the last appropriate place. The part can be either a single ingredient or a composition in itself.
5. Any part of a composition which is not identified by the classification according to Notes (2) to (4) above, and which is considered to represent information of interest for search, may also be classified in the last appropriate place. This can, for example, be the case when it is considered of interest to enable searching of compositions using a combination of classification symbols. Such non-obligatory classification should be given as "additional information".
6. In this subclass, it is desirable to add the indexing codes of subclass C10N.

Subclass index

BASE-MATERIALS
Mineral or fatty oils.....101/00
Inorganic materials.....103/00
Non-macromolecular organic compounds.....105/00
Macromolecular compounds.....107/00
Compounds of unknown or incompletely defined constitution.....109/00
Mixtures.....111/00, 169/00
THICKENERS
Inorganic materials.....113/00
Non-macromolecular organic compounds.....115/00, 117/00
Macromolecular compounds.....119/00

Compounds of unknown or incompletely defined constitution.....121/00
Mixtures.....123/00, 169/00
ADDITIVES
Inorganic materials.....125/00
Non-macromolecular organic compounds.....127/00-139/00
Macromolecular compounds.....143/00-155/00
Compounds of unknown or incompletely defined constitution.....159/00
Mixtures.....141/00, 157/00, 161/00-169/00
COMPOSITIONS CHARACTERISED BY PHYSICAL PROPERTIES.....171/00
AQUEOUS COMPOSITIONS.....173/00
WORKING-UP.....175/00
PREPARATION OR AFTER TREATMENT.....177/00

Base-materials [4]

101/00 Lubricating compositions characterised by the base-material being a mineral or fatty oil (containing more than 10% water C10M 173/00) **[4, 2006.01]**
101/02 • Petroleum fractions **[4, 2006.01]**
101/04 • Fatty oil fractions **[4, 2006.01]**

103/00 Lubricating compositions characterised by the base-material being an inorganic material (containing more than 10% water C10M 173/00) **[4, 2006.01]**
103/02 • Carbon; Graphite **[4, 2006.01]**
103/04 • Metals; Alloys **[4, 2006.01]**
103/06 • Metal compounds **[4, 2006.01]**

105/00 Lubricating compositions characterised by the base-material being a non-macromolecular organic compound [4, 2006.01]
105/02 • Well-defined hydrocarbons (petroleum fractions C10M 101/02) **[4, 2006.01]**
105/04 • • aliphatic **[4, 2006.01]**
105/06 • • aromatic **[4, 2006.01]**
105/08 • containing oxygen **[4, 2006.01]**
105/10 • • having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms **[4, 2006.01]**
105/12 • • • monohydroxy **[4, 2006.01]**
105/14 • • • polyhydroxy **[4, 2006.01]**
105/16 • • having hydroxy groups bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
105/18 • • Ethers, e.g. epoxides **[4, 2006.01]**
105/20 • • Aldehydes; Ketones **[4, 2006.01]**
105/22 • • Carboxylic acids or their salts **[4, 2006.01]**
105/24 • • • having only one carboxyl group bound to an acyclic carbon atom, cycloaliphatic carbon atom or hydrogen **[4, 2006.01]**
105/26 • • • having more than one carboxyl group bound to an acyclic carbon atom or cycloaliphatic carbon atom **[4, 2006.01]**
105/28 • • • having only one carboxyl group bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
105/30 • • • having more than one carboxyl group bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
105/32 • • Esters **[4, 2006.01]**
105/34 • • • of monocarboxylic acids **[4, 2006.01]**
105/36 • • • of polycarboxylic acids **[4, 2006.01]**
105/38 • • • of polyhydroxy compounds **[4, 2006.01]**
105/40 • • • containing free hydroxy or carboxyl groups **[4, 2006.01]**
105/42 • • • 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 **[4, 2006.01]**
105/44 • • • • derived from the combination of monocarboxylic acids, dicarboxylic acids and dihydroxy compounds only and having no free hydroxy or carboxyl groups **[4, 2006.01]**
105/46 • • • • derived from the combination of monohydroxy compounds, dihydroxy compounds and dicarboxylic acids only and having no free hydroxy or carboxyl groups **[4, 2006.01]**
105/48 • • • of carbonic acid **[4, 2006.01]**
105/50 • containing halogen **[4, 2006.01]**
105/52 • • containing carbon, hydrogen and halogen only **[4, 2006.01]**
105/54 • • containing carbon, hydrogen, halogen and oxygen **[4, 2006.01]**
105/56 • containing nitrogen **[4, 2006.01]**
105/58 • • Amines, e.g. polyalkylene polyamines, quaternary amines (polyalkylene polyamines with eleven or more monomer units C10M 107/44) **[4, 2006.01]**
105/60 • • • having amino groups bound to an acyclic or cycloaliphatic carbon atom **[4, 2006.01]**
105/62 • • • • containing hydroxy groups **[4, 2006.01]**
105/64 • • • having amino groups bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
105/66 • • • • containing hydroxy groups **[4, 2006.01]**
105/68 • • Amides; Imides **[4, 2006.01]**
105/70 • • as ring hetero atom **[4, 2006.01]**
105/72 • containing sulfur, selenium or tellurium **[4, 2006.01]**
105/74 • containing phosphorus **[4, 2006.01]**
105/76 • containing silicon **[4, 2006.01]**
105/78 • containing boron **[4, 2006.01]**
105/80 • containing atoms of elements not provided for in groups C10M 105/02-C10M 105/78 **[4, 2006.01]**

107/00 Lubricating compositions characterised by the base-material being a macromolecular compound [4, 2006.01]
107/02 • Hydrocarbon polymers; Hydrocarbon polymers modified by oxidation **[4, 2006.01]**
107/04 • • Polyethene **[4, 2006.01]**
107/06 • • containing propene **[4, 2006.01]**
107/08 • • containing butene **[4, 2006.01]**

107/10 • • containing aliphatic monomer having more than 4 carbon atoms **[4, 2006.01]**
107/12 • • containing aromatic monomer, e.g. styrene **[4, 2006.01]**
107/14 • • containing conjugated diene **[4, 2006.01]**
107/16 • • containing non-conjugated diene **[4, 2006.01]**
107/18 • • Hydrocarbon polymers modified by oxidation **[4, 2006.01]**
107/20 • containing oxygen (C10M 107/18 takes precedence) **[4, 2006.01]**
107/22 • • Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
107/24 • • • containing monomers having an unsaturated radical bound to an alcohol, aldehydo, ketonic, ether, ketal or acetal radical **[4, 2006.01]**
107/26 • • • containing monomers having an unsaturated radical bound to an acyloxy radical of a saturated carboxylic or carbonic acid **[4, 2006.01]**
107/28 • • • containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate **[4, 2006.01]**
107/30 • • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
107/32 • • • Condensation polymers of aldehydes or ketones; Polyesters; Polyethers **[4, 2006.01]**
107/34 • • • • Polyoxyalkylenes **[4, 2006.01]**
107/36 • • Polysaccharides, e.g. cellulose **[4, 2006.01]**
107/38 • containing halogen **[4, 2006.01]**
107/40 • containing nitrogen **[4, 2006.01]**
107/42 • • Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
107/44 • • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
107/46 • containing sulfur **[4, 2006.01]**
107/48 • containing phosphorus **[4, 2006.01]**
107/50 • containing silicon **[4, 2006.01]**
107/52 • containing boron **[4, 2006.01]**
107/54 • containing atoms of elements not provided for in groups C10M 107/02-C10M 107/52 **[4, 2006.01]**

109/00 Lubricating compositions characterised by the base-material being a compound of unknown or incompletely defined constitution (C10M 101/00 takes precedence) **[4, 2006.01]**
109/02 • Reaction products **[4, 2006.01]**

Note(s) [2006.01]

When classifying in this group, any reactant of a reaction product which is considered to represent information of interest for search, may also be classified in the last appropriate place in this subclass. This can, for example, be the case when it is considered of interest to enable searching of compositions using a combination of classification symbols. Such non-obligatory classification should be given as "additional information".

111/00 Lubricating 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-C10M 109/00, each of these compounds being essential [4, 2006.01]
111/02 • at least one of them being a non-macromolecular organic compound **[4, 2006.01]**
111/04 • at least one of them being a macromolecular organic compound **[4, 2006.01]**
111/06 • at least one of them being a compound of the type covered by group C10M 109/00 **[4, 2006.01]**

Thickeners [4]

Note(s) [4]

In groups C10M 113/00-C10M 123/00, the following term is used with the meaning indicated:

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

113/00 Lubricating compositions characterised by the thickener being an inorganic material [4, 2006.01]
113/02 • Carbon; Graphite **[4, 2006.01]**
113/04 • Sulfur **[4, 2006.01]**
113/06 • Metals; Alloys **[4, 2006.01]**
113/08 • Metal compounds **[4, 2006.01]**
113/10 • Clays; Micas **[4, 2006.01]**
113/12 • Silica **[4, 2006.01]**
113/14 • Glass **[4, 2006.01]**
113/16 • Inorganic material treated with organic compounds, e.g. coated **[4, 2006.01]**

115/00 Lubricating compositions characterised by the thickener being a non-macromolecular organic compound other than a carboxylic acid or salt thereof [4, 2006.01]
115/02 • Hydrocarbons (petroleum fractions C10M 121/02) **[4, 2006.01]**
115/04 • containing oxygen **[4, 2006.01]**
115/06 • containing halogen **[4, 2006.01]**
115/08 • containing nitrogen **[4, 2006.01]**
115/10 • containing sulfur **[4, 2006.01]**
115/12 • containing phosphorus **[4, 2006.01]**

117/00 Lubricating compositions characterised by the thickener being a non-macromolecular carboxylic acid or salt thereof [4, 2006.01]
117/02 • having only one carboxyl group bound to an acyclic carbon atom, cycloaliphatic carbon atom or hydrogen **[4, 2006.01]**
117/04 • • containing hydroxy groups **[4, 2006.01]**
117/06 • having more than one carboxyl group bound to an acyclic carbon atom or cycloaliphatic carbon atom **[4, 2006.01]**
117/08 • having only one carboxyl group bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
117/10 • having more than one carboxyl group bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**

119/00 Lubricating compositions characterised by the thickener being a macromolecular compound [4, 2006.01]
119/02 • Hydrocarbons polymers; Hydrocarbon polymers modified by oxidation **[4, 2006.01]**
119/04 • containing oxygen (hydrocarbon polymers modified by oxidation C10M 119/02) **[4, 2006.01]**
119/06 • • Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**

119/08 • • • containing monomers having an unsaturated radical bound to an alcohol, aldehydo, ketonic, ether, ketal or acetal radical **[4, 2006.01]**
119/10 • • • containing monomers having an unsaturated radical bound to an acyloxy radical of a saturated carboxylic or carbonic acid **[4, 2006.01]**
119/12 • • • containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate **[4, 2006.01]**
119/14 • • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
119/16 • • • Condensation polymers of aldehydes or ketones; Polyesters; Polyethers **[4, 2006.01]**
119/18 • • • • Polyoxyalkylenes **[4, 2006.01]**
119/20 • • Polysaccharides, e.g. cellulose **[4, 2006.01]**
119/22 • containing halogen **[4, 2006.01]**
119/24 • containing nitrogen **[4, 2006.01]**
119/26 • containing sulfur **[4, 2006.01]**
119/28 • containing phosphorus **[4, 2006.01]**
119/30 • containing atoms of elements not provided for in groups C10M 119/02-C10M 119/28 **[4, 2006.01]**

121/00 Lubricating compositions characterised by the thickener being a compound of unknown or incompletely defined constitution [4, 2006.01]
121/02 • Petroleum fractions, e.g. tars **[4, 2006.01]**
121/04 • Reaction products **[4, 2006.01]**

Note(s) [2006.01]

When classifying in this group, any reactant of a reaction product which is considered to represent information of interest for search, may also be classified in the last appropriate place in this subclass. This can, for example, be the case when it is considered of interest to enable searching of compositions using a combination of classification symbols. Such non-obligatory classification should be given as "additional information".

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-C10M 121/00, each of these compounds being essential (inorganic materials coated with organic compounds C10M 113/16) **[4, 2006.01]**
123/02 • at least one of them being a non-macromolecular compound **[4, 2006.01]**
123/04 • at least one of them being a macromolecular compound **[4, 2006.01]**
123/06 • at least one of them being a compound of the type covered by group C10M 121/00 **[4, 2006.01]**

Additives [4]

125/00 Lubricating compositions characterised by the additive being an inorganic material [4, 2006.01]
125/02 • Carbon; Graphite **[4, 2006.01]**
125/04 • Metals; Alloys **[4, 2006.01]**
125/06 • Sulfur **[4, 2006.01]**
125/08 • Metal carbides or hydrides **[4, 2006.01]**
125/10 • Metal oxides, hydroxides, carbonates or bicarbonates **[4, 2006.01]**
125/12 • Metal carbonyls **[4, 2006.01]**
125/14 • Water (aqueous lubricating compositions containing more than 10% water C10M 173/00) **[4, 2006.01]**
125/16 • Hydrogen peroxide; Oxygenated water **[4, 2006.01]**
125/18 • Compounds containing halogen **[4, 2006.01]**
125/20 • Compounds containing nitrogen **[4, 2006.01]**
125/22 • Compounds containing sulfur, selenium or tellurium **[4, 2006.01]**
125/24 • Compounds containing phosphorus, arsenic or antimony **[4, 2006.01]**
125/26 • Compounds containing silicon or boron, e.g. silica, sand **[4, 2006.01]**
125/28 • • Glass **[4, 2006.01]**
125/30 • • Clay **[4, 2006.01]**

127/00 Lubricating compositions characterised by the additive being a non-macromolecular hydrocarbon (petroleum fractions C10M 159/04) **[4, 2006.01]**
127/02 • well-defined aliphatic **[4, 2006.01]**
127/04 • well-defined aromatic **[4, 2006.01]**
127/06 • Alkylated aromatic hydrocarbons **[4, 2006.01]**

129/00 Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing oxygen [4, 2006.01]
129/02 • having a carbon chain of less than 30 atoms **[4, 2006.01]**
129/04 • • Hydroxy compounds **[4, 2006.01]**
129/06 • • • having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms **[4, 2006.01]**
129/08 • • • • containing at least 2 hydroxy groups **[4, 2006.01]**
129/10 • • • having hydroxy groups bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
129/12 • • • • with condensed rings **[4, 2006.01]**
129/14 • • • • containing at least 2 hydroxy groups **[4, 2006.01]**
129/16 • • Ethers **[4, 2006.01]**
129/18 • • • Epoxides **[4, 2006.01]**
129/20 • • • Cyclic ethers having 4 or more ring atoms, e.g. furans, dioxolanes **[4, 2006.01]**
129/22 • • Peroxides; Ozonides **[4, 2006.01]**
129/24 • • Aldehydes; Ketones **[4, 2006.01]**
129/26 • • Carboxylic acids; Salts thereof **[4, 2006.01]**
129/28 • • • having carboxyl groups bound to acyclic or cycloaliphatic carbon atoms **[4, 2006.01]**
129/30 • • • • having 7 or less carbon atoms **[4, 2006.01]**
129/32 • • • • • monocarboxylic **[4, 2006.01]**
129/34 • • • • • polycarboxylic **[4, 2006.01]**
129/36 • • • • • containing hydroxy groups **[4, 2006.01]**
129/38 • • • • having 8 or more carbon atoms **[4, 2006.01]**
129/40 • • • • • monocarboxylic **[4, 2006.01]**
129/42 • • • • • polycarboxylic **[4, 2006.01]**
129/44 • • • • • containing hydroxy groups **[4, 2006.01]**
129/46 • • • • cycloaliphatic **[4, 2006.01]**
129/48 • • • having carboxyl groups bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
129/50 • • • • monocarboxylic **[4, 2006.01]**
129/52 • • • • polycarboxylic **[4, 2006.01]**
129/54 • • • • containing hydroxy groups **[4, 2006.01]**
129/56 • • • Acids of unknown or incompletely defined constitution **[4, 2006.01]**
129/58 • • • • Naphthenic acids **[4, 2006.01]**
129/60 • • • • Tall oil acids **[4, 2006.01]**
129/62 • • • • Rosin acids **[4, 2006.01]**
129/64 • • • Acids obtained from polymerised unsaturated acids **[4, 2006.01]**
129/66 • • Epoxidised acids or esters **[4, 2006.01]**

129/68 • • Esters (epoxidised C10M 129/66) **[4, 2006.01]**
129/70 • • • of monocarboxylic acids **[4, 2006.01]**
129/72 • • • of polycarboxylic acids **[4, 2006.01]**
129/74 • • • of polyhydroxy compounds **[4, 2006.01]**
129/76 • • • containing free hydroxy or carboxyl groups **[4, 2006.01]**
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 **[4, 2006.01]**
129/80 • • • • derived from the combination of monocarboxylic acids, dicarboxylic acids and dihydroxy compounds only and having no free hydroxy or carboxyl groups **[4, 2006.01]**
129/82 • • • • derived from the combination of monohydroxy compounds, dihydroxy compounds and dicarboxylic acids only and having no free hydroxy or carboxyl groups **[4, 2006.01]**
129/84 • • • of carbonic acid **[4, 2006.01]**
129/86 • having a carbon chain of 30 or more atoms **[4, 2006.01]**
129/88 • • Hydroxy compounds **[4, 2006.01]**
129/90 • • • having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms **[4, 2006.01]**
129/91 • • • having hydroxy groups bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
129/92 • • Carboxylic acids **[4, 2006.01]**
129/93 • • • having carboxyl groups bound to acyclic or cycloaliphatic carbon atoms **[4, 2006.01]**
129/94 • • • having carboxyl groups bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
129/95 • • Esters **[4, 2006.01]**

131/00 Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing halogen [4, 2006.01]
131/02 • containing carbon, hydrogen and halogen only **[4, 2006.01]**
131/04 • • aliphatic **[4, 2006.01]**
131/06 • • aromatic **[4, 2006.01]**
131/08 • containing carbon, hydrogen, halogen and oxygen **[4, 2006.01]**
131/10 • • Alcohols; Ethers; Aldehydes; Ketones **[4, 2006.01]**
131/12 • • Acids; Salts or esters thereof **[4, 2006.01]**
131/14 • Halogenated waxes **[4, 2006.01]**

133/00 Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing nitrogen [4, 2006.01]
133/02 • having a carbon chain of less than 30 atoms **[4, 2006.01]**
133/04 • • Amines, e.g. polyalkylene polyamines; Quaternary amines (polyalkylene polyamines with eleven or more monomer units C10M 149/22) **[4, 2006.01]**
133/06 • • • having amino groups bound to acyclic or cycloaliphatic carbon atoms **[4, 2006.01]**
133/08 • • • • containing hydroxy groups **[4, 2006.01]**
133/10 • • • • cycloaliphatic **[4, 2006.01]**
133/12 • • • having amino groups bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
133/14 • • • • containing hydroxy groups **[4, 2006.01]**
133/16 • • Amides; Imides **[4, 2006.01]**
133/18 • • • of carbonic or haloformic acids **[4, 2006.01]**
133/20 • • • • Ureas; Semicarbazides; Allophanates **[4, 2006.01]**
133/22 • • containing a carbon-to-nitrogen double bond, e.g. guanidines, hydrazones, semicarbazones **[4, 2006.01]**
133/24 • • Nitriles **[4, 2006.01]**
133/26 • • containing a nitrogen-to-nitrogen double bond **[4, 2006.01]**
133/28 • • • Azo compounds **[4, 2006.01]**
133/30 • • containing a nitrogen-to-oxygen bond **[4, 2006.01]**
133/32 • • • containing a nitro group **[4, 2006.01]**
133/34 • • • containing a nitroso group **[4, 2006.01]**
133/36 • • • Hydroxylamines **[4, 2006.01]**
133/38 • • Heterocyclic nitrogen compounds **[4, 2006.01]**
133/40 • • • Six-membered ring containing nitrogen and carbon only **[4, 2006.01]**
133/42 • • • • Triazines **[4, 2006.01]**
133/44 • • • Five-membered ring containing nitrogen and carbon only **[4, 2006.01]**
133/46 • • • • Imidazoles **[4, 2006.01]**
133/48 • • • the ring containing both nitrogen and oxygen **[4, 2006.01]**
133/50 • • • • Morpholines **[4, 2006.01]**
133/52 • having a carbon chain of 30 or more atoms **[4, 2006.01]**
133/54 • • Amines **[4, 2006.01]**
133/56 • • Amides; Imides **[4, 2006.01]**
133/58 • • Heterocyclic compounds **[4, 2006.01]**

135/00 Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing sulfur, selenium or tellurium [4, 2006.01]
135/02 • Sulfurised compounds **[4, 2006.01]**
135/04 • • Hydrocarbons **[4, 2006.01]**
135/06 • • Esters, e.g. fats **[4, 2006.01]**
135/08 • containing a sulfur-to-oxygen bond **[4, 2006.01]**
135/10 • • Sulfonic acids or derivatives thereof **[4, 2006.01]**
135/12 • Thio-acids; Thiocyanates; Derivatives thereof **[4, 2006.01]**
135/14 • • having a carbon-to-sulfur double bond **[4, 2006.01]**
135/16 • • • thiourea type, i.e. containing the group

[4, 2006.01]
135/18 • • • thiocarbamic type, e.g. containing the groups

[4, 2006.01]
135/20 • Thiols; Sulfides; Polysulfides **[4, 2006.01]**
135/22 • • containing sulfur atoms bound to acyclic or cycloaliphatic carbon atoms **[4, 2006.01]**
135/24 • • • containing hydroxy groups; Derivatives thereof **[4, 2006.01]**
135/26 • • • containing carboxyl groups; Derivatives thereof **[4, 2006.01]**
135/28 • • containing sulfur atoms bound to a carbon atom of a six-membered aromatic ring **[4, 2006.01]**
135/30 • • • containing hydroxy groups; Derivatives thereof **[4, 2006.01]**
135/32 • Heterocyclic sulfur, selenium or tellurium compounds **[4, 2006.01]**
135/34 • • the ring containing sulfur and carbon only **[4, 2006.01]**

135/36 • • the ring containing sulfur and carbon with nitrogen or oxygen **[4, 2006.01]**

137/00 Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing phosphorus [4, 2006.01]

137/02 • having no phosphorus-to-carbon bond **[4, 2006.01]**
137/04 • • Phosphate esters **[4, 2006.01]**
137/06 • • • Metal salts **[4, 2006.01]**
137/08 • • • Ammonium or amine salts **[4, 2006.01]**
137/10 • • • Thio derivatives **[4, 2006.01]**
137/12 • having a phosphorus-to-carbon bond **[4, 2006.01]**
137/14 • • containing sulfur **[4, 2006.01]**
137/16 • having a phosphorus-to-nitrogen bond **[4, 2006.01]**

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-C10M 137/00 [4, 2006.01]

139/02 • Esters of silicon acids **[4, 2006.01]**
139/04 • having a silicon-to-carbon bond, e.g. silanes **[4, 2006.01]**
139/06 • having a metal-to-carbon bond (metal complexes of unknown constitution C10M 159/18) **[4, 2006.01]**

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-C10M 139/00, each of these compounds being essential [4, 2006.01]

141/02 • at least one of them being an organic oxygen-containing compound **[4, 2006.01]**
141/04 • at least one of them being an organic halogen-containing compound **[4, 2006.01]**
141/06 • at least one of them being an organic nitrogen-containing compound **[4, 2006.01]**
141/08 • at least one of them being an organic sulfur-, selenium- or tellurium-containing compound **[4, 2006.01]**
141/10 • at least one of them being an organic phosphorus-containing compound **[4, 2006.01]**
141/12 • at least one of them being an organic compound containing atoms of elements not provided for in groups C10M 141/02-C10M 141/10 **[4, 2006.01]**

143/00 Lubricating composition characterised by the additive being a macromolecular hydrocarbon or such hydrocarbon modified by oxidation [4, 2006.01]

143/02 • Polyethene **[4, 2006.01]**
143/04 • containing propene **[4, 2006.01]**
143/06 • containing butene **[4, 2006.01]**
143/08 • containing aliphatic monomer having more than 4 carbon atoms **[4, 2006.01]**
143/10 • containing aromatic monomer, e.g. styrene **[4, 2006.01]**
143/12 • containing conjugated diene **[4, 2006.01]**
143/14 • containing non-conjugated diene **[4, 2006.01]**
143/16 • containing cycloaliphatic monomer **[4, 2006.01]**
143/18 • Oxidised hydrocarbons, i.e. oxidised subsequent to macromolecular formation **[4, 2006.01]**

145/00 Lubricating compositions characterised by the additive being a macromolecular compound containing oxygen (oxidised hydrocarbons C10M 143/18) **[4, 2006.01]**

145/02 • Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
145/04 • • containing monomers having an unsaturated radical bound to an alcohol, aldehydo, ketonic, ether, ketal or acetal radical **[4, 2006.01]**
145/06 • • containing monomers having an unsaturated radical bound to an acyloxy radical of a saturated carboxylic or carbonic acid **[4, 2006.01]**
145/08 • • • Vinyl esters of a saturated carboxylic or carbonic acid **[4, 2006.01]**
145/10 • • containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate **[4, 2006.01]**
145/12 • • • monocarboxylic **[4, 2006.01]**
145/14 • • • • Acrylate; Methacrylate **[4, 2006.01]**
145/16 • • • polycarboxylic **[4, 2006.01]**
145/18 • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
145/20 • • Condensation polymers of aldehydes or ketones **[4, 2006.01]**
145/22 • • Polyesters **[4, 2006.01]**
145/24 • • Polyethers **[4, 2006.01]**
145/26 • • • Polyoxyalkylenes **[4, 2006.01]**
145/28 • • • • of alkylene oxides containing 2 carbon atoms only **[4, 2006.01]**
145/30 • • • • of alkylene oxides containing 3 carbon atoms only **[4, 2006.01]**
145/32 • • • • of alkylene oxides containing 4 or more carbon atoms **[4, 2006.01]**
145/34 • • • • of two or more specified different types **[4, 2006.01]**
145/36 • • • • etherified **[4, 2006.01]**
145/38 • • • • esterified **[4, 2006.01]**
145/40 • Polysaccharides, e.g. cellulose **[4, 2006.01]**

147/00 Lubricating compositions characterised by the additive being a macromolecular compound containing halogen [4, 2006.01]

147/02 • Monomer containing carbon, hydrogen and halogen only **[4, 2006.01]**
147/04 • Monomer containing carbon, hydrogen, halogen and oxygen **[4, 2006.01]**

149/00 Lubricating compositions characterised by the additive being a macromolecular compound containing nitrogen [4, 2006.01]

149/02 • Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
149/04 • • containing monomers having an unsaturated radical bound to an amino group **[4, 2006.01]**
149/06 • • containing monomers having an unsaturated radical bound to an amido or imido group **[4, 2006.01]**
149/08 • • containing monomers having an unsaturated radical bound to a nitrile group **[4, 2006.01]**
149/10 • • containing monomers having an unsaturated radical bound to a nitrogen-containing hetero ring **[4, 2006.01]**
149/12 • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
149/14 • • a condensation reaction being involved **[4, 2006.01]**

149/16 • • • between the nitrogen-containing monomer and an aldehyde or ketone **[4, 2006.01]**
149/18 • • • Polyamides **[4, 2006.01]**
149/20 • • • Polyureas **[4, 2006.01]**
149/22 • • • Polyamines **[4, 2006.01]**

151/00 Lubricating compositions characterised by the additive being a macromolecular compound containing sulfur, selenium or tellurium [4, 2006.01]
151/02 • Macromolecular compounds obtained by reactions involving only carbon-to-carbon unsaturated bonds **[4, 2006.01]**
151/04 • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**

153/00 Lubricating compositions characterised by the additive being a macromolecular compound containing phosphorus [4, 2006.01]
153/02 • Macromolecular compounds obtained by reactions involving only carbon-to-carbon unsaturated bonds **[4, 2006.01]**
153/04 • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**

155/00 Lubricating compositions characterised by the additive being a macromolecular compound containing atoms of elements not provided for in groups C10M 143/00-C10M 153/00 [4, 2006.01]
155/02 • Monomer containing silicon **[4, 2006.01]**
155/04 • Monomer containing boron **[4, 2006.01]**

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-C10M 155/00, each of these compounds being essential [4, 2006.01]
157/02 • at least one of them being a halogen-containing compound **[4, 2006.01]**
157/04 • at least one of them being a nitrogen-containing compound **[4, 2006.01]**
157/06 • at least one of them being a sulfur-, selenium- or tellurium-containing compound **[4, 2006.01]**
157/08 • at least one of them being a phosphorus-containing compound **[4, 2006.01]**
157/10 • at least one of them being a compound containing atoms of elements not provided for in groups C10M 157/02-C10M 157/08 **[4, 2006.01]**

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) **[4, 2006.01]**
159/02 • Natural products **[4, 2006.01]**
159/04 • • Petroleum fractions, e.g. tars, solvents **[4, 2006.01]**
159/06 • • Waxes, e.g. ozocerite, ceresine, petrolatum, slack-wax **[4, 2006.01]**
159/08 • • Fatty oils **[4, 2006.01]**
159/10 • • Rubber **[4, 2006.01]**
159/12 • Reaction products **[4, 2006.01]**

Note(s) [2006.01]

When classifying in this group, any reactant of a reaction product which is considered to represent information of interest for search, may also be classified in the last appropriate place in this subclass. This can, for example, be the case when it is considered of interest to enable searching of compositions using a combination of classification symbols. Such non-obligatory classification should be given as "additional information".

159/14 • • obtained by Friedel-Crafts condensation **[4, 2006.01]**
159/16 • • obtained by Mannich reactions **[4, 2006.01]**
159/18 • • Complexes with metals **[4, 2006.01]**
159/20 • • Reaction mixtures having an excess of neutralising base, e.g. so-called overbasic or highly basic products **[4, 2006.01]**
159/22 • • • containing phenol radicals **[4, 2006.01]**
159/24 • • • containing sulfonic radicals **[4, 2006.01]**

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 [4, 2006.01]

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 [4, 2006.01]

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 [4, 2006.01]

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 [4, 2006.01]

Mixtures of base-materials, thickeners and additives [4]

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 [4, 2006.01]

169/02 • Mixtures of base-materials and thickeners **[4, 2006.01]**
169/04 • Mixtures of base-materials and additives **[4, 2006.01]**
169/06 • Mixtures of thickeners and additives **[4, 2006.01]**

Compositions characterised by physical properties [4]

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-C10M 169/00; petroleum fractions C10M 101/02, C10M 121/02, C10M 159/04) **[4, 2006.01]**

171/02 • Specified values of viscosity or viscosity index **[4, 2006.01]**

171/04 • Specified molecular weight or molecular weight distribution **[4, 2006.01]**

171/06 • Particles of special shape or size **[4, 2006.01]**

Aqueous lubricating compositions [4]

173/00 Lubricating compositions containing more than 10% water [4, 2006.01]

173/02 • not containing mineral or fatty oils **[4, 2006.01]**

Working-up [4]

175/00 Working-up used lubricants to recover useful products [4, 2006.01]

175/02 • mineral-oil based **[4, 2006.01]**

175/04 • aqueous emulsion based **[4, 2006.01]**

175/06 • by ultrafiltration or osmosis **[4, 2006.01]**

Preparation or after-treatment [4]

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 [4, 2006.01]