CPC  COOPERATIVE PATENT CLASSIFICATION

C  CHEMISTRY; METALLURGY
   (NOTES omitted)

CHEMISTRY

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 (lubricants for medical use A61); mould release, i.e. separating, agents for metals B22C 3/00, for plastics or substances in a plastic state, in general B29C 33/56, for glass C03B 40/02; use of particular substances in particular apparatus or conditions, see F16N or the relevant groups for the application, e.g. A21D 8/08, B21C 9/00, H01B 3/18; immersion oils for microscopy G02B 21/33)

NOTES
1. In this subclass, the following terms are used with the meanings indicated:
   • "lubricant" or "lubricating composition" includes cutting oils, hydraulic fluids, metal drawing compositions, flushing oils, slushing oils, or the like;
   • "aliphatic" includes "cycloaliphatic".
2. In respect of the classification of mixtures, attention is drawn to Note (4) (e) below.
3. In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place. Thus, a compound having an aromatic ring is classified as aromatic regardless of whether the substituent(s) of interest are on the ring or on an aliphatic part of the molecule.
4. In this subclass:
   a. metal or ammonium salts of a compound are classified as that compound;
   b. salts or adducts formed between two or more organic compounds are classified according to all compounds forming the salt or adduct, if of interest;
   c. a specified compound, e.g. phenols, acids, substituted by a macromolecular hydrocarbon radical is classified as that compound;
   d. base-materials or thickeners consisting of a mixture for which no specific main group is provided are classified in the most indented group covering all essential constituents of the mixture, for example,
      • a base-material mixture of ketone and amide - group C10M 105/00
      • a base-material mixture of ketone and ether - group C10M 105/08
      • an additive mixture of long and short chain esters - group C10M 129/00
      • an additive mixture of short chain aliphatic and aromatic carboxylic acids - group C10M 129/26;
   e. except for aqueous lubricating compositions containing more than 10% water, which are classified separately, classification is made according to the type of ingredient or mixture of types of ingredient (base-material, thickener or additive) which characterises the composition. Attention is drawn to the fact that a mixture of essential ingredients characterised by only one of its components, rather than by the mixture as a whole, is not classified as a mixture, e.g. a lubricating composition consisting of:
      • a known base-material and a new additive is classified only in the "additive" part of the classification scheme;
      • a known base-material with both a thickener and a further additive as essential ingredients, which may be individually classified as a mixture of thickener and additive;
      • known base-material with a combination of additives as essential ingredients, which may be individually known or not, is classified in the appropriate place for the additive mixture.
5. In this subclass, it is desirable to add the indexing codes of:
   • subclass C10M, relating to the chemical constitution of individual compounds of the lubricating compositions;
   • subclass C10N, relating to physico-chemical aspects of the lubricating compositions or of their compounding ingredients.
   For more information about the way of allocating these indexing codes, see the notes after the titles of the respective subclasses.
6. In this subclass, until May 2003, indexing codes were added, relating to:
   • each of the essential ingredients of a mixture. However, in the case of an aqueous lubricating composition covered by group C10M 173/00, the presence of water is not indicated;
   • each of the essential reactants of a reaction product covered by groups C10M 109/02, C10M 121/04 or C10M 159/12
   The indexing codes, which are chosen from groups C10M 101/00 - C10M 109/00, C10M 113/00 - C10M 121/00, C10M 124/00 - C10M 139/00, C10M 143/00 - C10M 155/00, C10M 159/00 or C10M 163/00 - C10M 167/00, were given using Combination Sets.
### IPC3 groups

<table>
<thead>
<tr>
<th>IPC3 groups</th>
<th>105/20</th>
<th>105/22</th>
<th>105/24</th>
<th>105/26</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/00 Liquid compositions essentially based on mineral lubricating oils or fatty oils; Their use as lubricants</td>
<td>Aldehydes; Ketones</td>
<td>Carboxylic acids or their salts</td>
<td>having only one carboxyl group bound to an acyclic carbon atom, cycloaliphatic carbon atom or hydrogen</td>
<td>having more than one carboxyl group bound to an acyclic carbon atom or cycloaliphatic carbon atom</td>
</tr>
<tr>
<td>1/08 (with additives)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/00 Liquid compositions essentially based on lubricating components other than mineral lubricating oils or fatty oils and their use as lubricants; Use as lubricants of single liquid substances (compositions in general essentially based on macromolecular compounds C08L)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/00 Solid or semi-solid compositions containing the essential lubricating ingredient mineral lubricating oils or fatty oils and their use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/00 Solid or semi-solid compositions essentially based on lubricating components other than mineral lubricating oils or fatty oils and their use as lubricants; Use as lubricants of single solid or semi-solid substances (compositions in general essentially based on macromolecular compounds C08L)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Base-Materials

<table>
<thead>
<tr>
<th>Base-Materials</th>
<th>105/44</th>
<th>105/46</th>
<th>105/48</th>
<th>105/50</th>
<th>105/52</th>
<th>105/54</th>
<th>105/56</th>
<th>105/58</th>
<th>105/60</th>
<th>105/62</th>
<th>105/64</th>
<th>105/66</th>
<th>105/68</th>
<th>105/70</th>
<th>105/72</th>
<th>105/74</th>
<th>105/76</th>
</tr>
</thead>
<tbody>
<tr>
<td>101/00 Lubricating compositions characterised by the base-material being a mineral or fatty oil (containing more than 10% water C10M 173/00)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101/02 Petroleum fractions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101/025 [waxes]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101/04 Fatty oil fractions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103/00 Lubricating compositions characterised by the base-material being an inorganic material (containing more than 10% water C10M 173/00)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103/02 Carbon; Graphite</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103/04 Metals; Alloys</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103/06 Metal compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/00 Lubricating compositions characterised by the base-material being a non-macromolecular organic compound</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/02 Well-defined hydrocarbons (petroleum fractions C10M 101/02)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/04 aliphatic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/06 aromatic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/08 containing oxygen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/10 having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/12 monohydroxy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/14 polyhydroxy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/16 having hydroxy groups bound to a carbon atom of a six-membered aromatic ring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/18 Ethers, e.g. epoxides</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/20 Carboxylic acids or their salts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/22 having only one carboxyl group bound to an acyclic carbon atom, cycloaliphatic carbon atom or hydrogen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/24 having more than one carboxyl group bound to an acyclic carbon atom or cycloaliphatic carbon atom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/26 having only one carboxyl group bound to a carbon atom of a six-membered aromatic ring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/28 having more than one carboxyl group bound to a carbon atom of a six-membered aromatic ring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/30 Complex esters, i.e. compounds containing at least three esterified carboxyl groups and derived from the combination of at least three different types of the following five types of compound: monohydroxy compounds, polyhydroxy compounds, monocarboxylic acids, polycarboxylic acids and hydroxy carboxylic acids</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/32 Esters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/34 of monocarboxylic acids</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/36 of polycarboxylic acids</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/38 of polyhydroxy compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/40 containing free hydroxy or carboxyl groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/42 containing free hydroxy or carboxyl groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/44 derived from the combination of monocarboxylic acids, dicarboxylic acids and dihydroxy compounds only and having no free hydroxy or carboxyl groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/46 derived from the combination of monohydroxy compounds, dihydroxy compounds and dicarboxylic acids only and having no free hydroxy or carboxyl groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/48 of carbonic acid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/50 containing halogen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/52 containing carbon, hydrogen and halogen only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/54 containing carbon, hydrogen, halogen and oxygen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/56 containing nitrogen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/58 Amines, e.g. polyalkylene polyamines, quaternary amines (polyalkylene polyamines with eleven or more monomer units C10M 107/44)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/60 having amino groups bound to an acyclic or cycloaliphatic carbon atom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/62 containing hydroxy groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/64 having amino groups bound to a carbon atom of a six-membered aromatic ring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/66 containing hydroxy groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/68 Amides; Imides</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/70 as ring hetero atom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/72 containing sulfur, selenium or tellurium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/74 containing phosphorus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105/76 containing silicon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lubricating compositions characterised by the base-material being a macromolecular compound

107/02 . Hydrocarbon polymers; Hydrocarbon polymers modified by oxidation
107/04 . Polyethene
107/06 . containing propene
107/08 . containing butene
107/10 . containing aliphatic monomer having more than 4 carbon atoms
107/12 . containing aromatic monomer, e.g. styrene
107/14 . containing conjugated diens
107/16 . containing non-conjugated diene
107/18 . Hydrocarbon polymers modified by oxidation
107/20 . containing oxygen (C10M 107/18 takes precedence)
107/22 . Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
107/24 . containing monomers having an unsaturated radical bound to an alcohol, aldehyde, ketonic, ether, ketal or acetal radical
107/26 . containing monomers having an unsaturated radical bound to an acyloxy radical of a saturated carboxylic or carboxonic acid
107/28 . containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate
107/30 . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
107/32 . Condensation polymers of aldehydes or ketones; Polysters; Polyethers
107/34 . . . Polyoxalkylenes
107/36 . Polysaccharides, e.g. cellulose
107/38 . containing halogen
107/40 . containing nitrogen
107/42 . Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
107/44 . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
107/46 . containing sulfur
107/48 . containing phosphorus
107/50 . containing silicon
107/52 . containing boron
107/54 . containing atoms of elements not provided for in groups C10M 107/02 - C10M 107/52, each of these compounds being essential

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

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

Thickeners

NOTE
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 are classified in groups C10M 103/00 - C10M 111/00.

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

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

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

119/00 Lubricating compositions characterised by the thickener being a macromolecular compound
119/02 . Hydrocarbon polymers; Hydrocarbon polymers modified by oxidation
119/04 . containing oxygen (hydrocarbon polymers modified by oxidation C10M 119/02)
119/06 . Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
119/08 . containing monomers having an unsaturated radical bound to an alcohol, aldehyde, ketonic, ether, ketal or acetal radical
Thickeners

C10M

127/02 . well-defined aliphatic
127/04 . well-defined aromatic
127/06 . Alkylated aromatic hydrocarbons

129/00 Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing oxygen
129/02 . having a carbon chain of less than 30 atoms
129/04 . Hydroxy compounds
129/06 . having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms
129/08 . containing at least 2 hydroxy groups
129/10 . having hydroxy groups bound to a carbon atom of a six-membered aromatic ring
129/12 . with condensed rings
129/14 . containing at least 2 hydroxy groups
129/16 . Ethers
129/18 . Epoxides
129/20 . Cyclic ethers having 4 or more ring atoms, e.g. furans, dioxolanes
129/22 . Peroxides; Oxonides
129/24 . Aldehydes; Ketones
129/26 . Carboxylic acids; Salts thereof
129/28 . having carboxyl groups bound to acyclic or cycloaliphatic carbon atoms
129/30 . having 7 or less carbon atoms
129/32 . monocarboxylic
129/34 . polycarboxylic
129/36 . containing hydroxy groups
129/38 . having 8 or more carbon atoms
129/40 . monocarboxylic
129/42 . polycarboxylic
129/44 . containing hydroxy groups
129/46 . cycloaliphatic
129/48 . having carboxyl groups bound to a carbon atom of a six-membered aromatic ring
129/50 . monocarboxylic
129/52 . polycarboxylic
129/54 . containing hydroxy groups
129/56 . Acids of unknown or incompletely defined constitution
129/58 . Naphthenic acids
129/60 . Tall oil acids
129/62 . Rosin acids
129/64 . Acids obtained from polymerised unsaturated acids
129/66 . Epoxidised acids or esters
129/68 . Esters (epoxidised C10M 129/66)
129/70 . of monocarboxylic acids
129/72 . of polycarboxylic acids
129/74 . of polyhydroxy compounds
129/76 . containing free hydroxy or carboxyl groups
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

Additives

C10M

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

127/00 Lubricating compositions characterised by the additive being a non- macromolecular hydrocarbon (petroleum fractions C10M 159/04)
Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing halogen

**131/00**

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

131/02 . containing carbon, hydrogen and halogen only
131/04 . aliphatic
131/06 . aromatic
131/08 . containing carbon, hydrogen, halogen and oxygen
131/10 . Alcohols; Ethers; Aldehydes; Ketones
131/12 . Acids; Salts or esters thereof
131/14 . Halogenated waxes

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

133/02 . having a carbon chain of less than 30 atoms
133/04 . Amines, e.g. polyalkylene polyamines; Quaternary amines (polyalkylene polyanines with eleven or more monomer units)
133/06 . having amino groups bound to acyclic or cycloaliphatic carbon atoms
133/08 . containing hydroxy groups
133/10 . cycloaliphatic
133/12 . having amino groups bound to a carbon atom of a six-membered aromatic ring
133/14 . containing hydroxy groups
133/16 . Amines; Imides
133/18 . of carbonic or haloformic acids
133/20 . Ureas; Semicarbazides; Allophanates
133/22 . containing a carbon-to-nitrogen double bond, e.g. guanidines, hydrazones, semicarbazones
133/24 . Nitriles
133/26 . containing a nitrogen-to-nitrogen double bond
133/28 . Azo compounds
133/30 . containing a nitrogen-to-oxygen bond
133/32 . containing a nitro group
133/34 . containing a nitroso group
133/36 . Hydroxylamines
133/38 . Heterocyclic nitrogen compounds
133/40 . Six-membered ring containing nitrogen and carbon only
133/42 . Triazines

133/44 . Five-membered ring containing nitrogen and carbon only
133/46 . Imidazoles
133/48 . the ring containing both nitrogen and oxygen
133/50 . Morpholines
133/52 . having a carbon chain of 30 or more atoms
133/54 . Amines
133/56 . Amides; Imides
133/58 . Heterocyclic compounds

135/00 Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing sulfur, selenium or tellurium

135/02 . Sulphurised compounds
135/04 . Hydrocarbons
135/06 . Esters, e.g. fats
135/08 . containing a sulfur-to-oxygen bond
135/10 . Sulfonic acids or derivatives thereof
135/12 . Thio-acids; Thiocyanates; Derivatives thereof
135/14 . having a carbon-to-sulfur double bond
135/16 . thiourea type, i.e. containing the group

135/18 . thioacarbamimic type, e.g. containing the groups

135/20 . Thiols; Sulfides; Polysulfides
135/22 . containing sulfur atoms bound to acyclic or cycloaliphatic carbon atoms
135/24 . containing hydroxy groups; Derivatives thereof
135/26 . containing carboxyl groups; Derivatives thereof
135/28 . containing sulfur atoms bound to a carbon atom of a six-membered aromatic ring
135/30 . containing hydroxy groups; Derivatives thereof
135/32 . Heterocyclic sulfur, selenium or tellurium compounds
135/34 . the ring containing sulfur and carbon only
135/36 . the ring containing sulfur and carbon with nitrogen or oxygen

137/00 Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing phosphorus

137/02 . having no phosphorus-to-carbon bond
137/04 . Phosphate esters
137/06 . Metal salts
137/08 . Ammonium or amine salts
137/10 . Thio derivatives
137/105 . [not containing metal]
137/12 . having a phosphorus-to-carbon bond
137/14 . containing sulfur
137/16 . having a phosphorus-to-nitrogen bond

139/00 Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing atoms of elements not provided for in groups

139/02 . Esters of silicon acids
139/04 . having a silicon-to-carbon bond, e.g. silanes
139/06 . having a metal-to-carbon bond (metal complexes of unknown constitution)
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

- at least one of them being an organic oxygen-containing compound
- at least one of them being an organic halogen-containing compound
- at least one of them being an organic nitrogen-containing compound
- at least one of them being an organic sulfur-, selenium- or tellurium-containing compound
- at least one of them being an organic phosphorus-containing compound
- at least one of them being an organic compound containing atoms of elements not provided for in groups C10M 141/02 - C10M 141/10

Lubricating compositions characterised by the additive being a macromolecular hydrocarbon or such hydrocarbon modified by oxidation

- Polyethylene
- containing propene
- containing butene
- containing aliphatic monomer having more than 4 carbon atoms
- containing aromatic monomer, e.g. styrene
- containing conjugated diene
- containing non-conjugated diene
- containing cycloaliphatic monomer
- Oxidised hydrocarbons, i.e. oxidised subsequent to macromolecular formation

Lubricating compositions characterised by the additive being a macromolecular compound containing oxygen (oxidised hydrocarbons C10M 143/18)

- Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
- containing monomers having an unsaturated radical bound to an alcohol, aldehyde, ketonic, ether, ketal or acetal radical
- containing monomers having an unsaturated radical bound to an acyloxyl radical of a saturated carboxylic or carboxonic acid
- Vinyl esters of a saturated carboxylic or carboxonic acid
- containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate
- monocarboxylic
- Acrylate; Methacrylate
- polycarboxylic
- Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
- Condensation polymers of aldehydes or ketones
- Polyessters
- Polyethers
- Polyoxalkylenes
- of alkylene oxides containing 2 carbon atoms only
- of alkylene oxides containing 3 carbon atoms only

Lubricating compositions characterised by the additive being a macromolecular compound containing halogen

- Monomer containing carbon, hydrogen and halogen only

Lubricating compositions characterised by the additive being a macromolecular compound containing nitrogen

- Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
- containing monomers having an unsaturated radical bound to an amino group
- containing monomers having an unsaturated radical bound to an amido or imido group
- containing monomers having an unsaturated radical bound to a nitrile group
- containing monomers having an unsaturated radical bound to a nitrogen-containing hetero ring
- Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
- a condensation reaction being involved
- between the nitrogen-containing monomer and an aldehyde or ketone
- Polymides
- Polyureas
- Polyamines

Lubricating compositions characterised by the additive being a macromolecular compound containing sulfur, selenium or tellurium

- Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
- Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds

Lubricating compositions characterised by the additive being a macromolecular compound containing phosphorus

- Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds

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

- Monomer containing silicon
- Monomer containing boron
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

- at least one of them being a halogen-containing compound
- at least one of them being a nitrogen-containing compound
- at least one of them being a sulfur-, selenium- or tellurium-containing compound
- at least one of them being a phosphorus-containing compound
- at least one of them being a compound containing atoms of elements not provided for in groups C10M 157/02 - C10M 157/08

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)

- Macromolecular compounds, e.g. macromolecular compounds composed of alternatively specified monomers not provided for by the same main group
- Natural products
- Petroleum fractions, e.g. tars, solvents
- Waxes, e.g. ozocerite, ceresine, petrolatum, slack-wax
- Fatty oils
- Rubber
- Reaction products
- Obtained by phosphorus or phosphorus-containing compounds, e.g. P x S x with organic compounds
- With hydrocarbon polymers
- Obtained by Friedel-Crafts condensation
- Obtained by Mannich reactions
- Complexes with metals
- Reaction mixtures having an excess of neutralising base, e.g. so-called overbasic or highly basic products
- Containing phenol radicals
- Containing sulfonic radicals

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

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

NOTE

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

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

NOTE

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

Mixtures of base-materials, thickeners and additives

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

- Mixtures of base-materials and thickeners
- Mixtures of base-materials and additives
- Mixtures of base-materials, thickeners and additives, the additives being macromolecular compounds only
- Mixtures of base-materials, thickeners and additives, the additives being compounds of unknown or incompletely defined constitution only
- Mixtures of base-materials, thickeners and additives, the additives being a mixture of non-macromolecular and macromolecular compounds
- Mixtures of base-materials, thickeners and additives, the additives being a mixture of compounds of unknown or incompletely defined constitution and non-macromolecular compounds
- Mixtures of base-materials, thickeners and additives, the additives being a mixture of compounds of unknown or incompletely defined constitution and macromolecular compounds
- Mixtures of base-materials, thickeners and additives, the additives being a mixture of compounds of unknown or incompletely defined constitution, non-macromolecular and macromolecular compounds
- Mixtures of thickeners and additives

NOTE

(Compositions containing compounds covered by C10M 159/005, as compounds of unknown or incompletely defined constitution are classified in C10M 161/00)
Compositions characterised by physical properties

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

**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)

171/001 . (Electrorheological fluids; smart fluids)
171/002 . (Traction fluids)
171/004 . (Foam inhibited lubricant compositions)
171/005 . (Volatile oil compositions; Vaporous lubricants)
171/007 . (Coloured or dyes-containing lubricant compositions)
171/008 . (Lubricant compositions compatible with refrigerants)
171/02 . Specified values of viscosity or viscosity index
171/04 . Specified molecular weight or molecular weight distribution
171/06 . Particles of special shape or size

**Aqueous lubricating compositions**

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

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

**Working-up**

**175/00** Working-up used lubricants to recover useful products ([destructive distillation C10B; extraction and elimination of PCBs C10G 7/006, C10G 21/006, C10G 25/006; combustion processes F23G; filtration, filters in general B01D; Cleaning (in a mechanical way B08B; integrated processes C23; solid waste B09B)]

175/0008 . (with the use of adsorbentia)
175/0016 . (with the use of chemical agents)
175/0025 . (by thermal processes)
175/0033 . (using distillation processes; devices therefor)
175/0041 . (by hydrogenation processes)
175/005 . (by extraction processes; apparatus therefor)
175/0058 . (by filtration and centrifugation processes; apparatus therefor)
175/0066 . (Use of electrical and magnetic means)
175/0075 . (synthetic oil based)
175/0083 . (Lubricating greases)
175/0091 . (Treatment of oils in a continuous lubricating circuit (e.g. motor oil system))
175/02 . mineral-oil based
175/04 . aqueous emulsion based
175/06 . by ultrafiltration or osmosis

**Preparation or after-treatment**

**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

**2201/00** Inorganic compounds or elements as ingredients in lubricant compositions
2201/003 . used as base material
2201/006 . used as thickening agents
2201/002 . Water
2201/0022 . Hydrogen peroxide; Oxygenated water
2201/004 . Elements
2201/00403 . used as base material
2201/00406 . used as thickening agents
2201/0041 . Carbon; Graphite; Carbon black
2201/00413 . used as base material
2201/00416 . used as thickening agents
2201/0042 . halogenated, i.e. graphite fluoride
2201/00423 . used as base material
2201/00426 . used as thickening agents
2201/0043 . Sulfur; Selenium; Tellurium
2201/00433 . used as base material
2201/00436 . used as thickening agents
2201/005 . Metals; Alloys
2201/0053 . used as base material
2201/0056 . used as thickening agents
2201/006 . Metal compounds (of chromium C10M 2201/086)
2201/00603 . used as base material
2201/00606 . used as thickening agents
2201/0061 . Carbides; Hydrides; Nitrides
2201/00613 . used as base material
2201/00616 . used as thickening agents
2201/0062 . Oxides; Hydroxides; Carbonates or bicarbonates
2201/00623 . used as base material
2201/00626 . used as thickening agents
2201/0063 . Peroxides
2201/0064 . Carboxyls
2201/0065 . Sulfides; Seleniums; Tellurides
2201/00653 . used as base material
2201/00656 . used as thickening agents
2201/0066 . Molybdenum sulfide
2201/00663 . used as base material
2201/00666 . used as thickening agents
2201/008 . Inorganic acids or salts thereof (of phosphorus C10M 2201/085, of chromium C10M 2201/086, of boron C10M 2201/087; metal carbonates or bicarbonates C10M 2201/062)
2201/00803 . used as base material
2201/00806 . used as thickening agent
2201/0081 . containing halogen
2201/0082 . containing nitrogen (nitrides C10M 2201/061)
2201/0083 . nitriles
2201/0084 . containing sulfur, selenium or tellurium (sulfides, tellurides, selenides C10M 2201/065)
2201/0085 . Phosphorus oxides, acids or salts
2201/00853 . used as base material
2201/00856 . used as thickening agent
2201/0086 . Chromium oxides, acids or salts
<table>
<thead>
<tr>
<th>CPC Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2205/000</td>
<td>Organic non-macromolecular hydrocarbon compounds and hydrocarbon fractions as ingredients in lubricant compositions</td>
</tr>
<tr>
<td>2205/003</td>
<td>Used as base material</td>
</tr>
<tr>
<td>2205/006</td>
<td>Used as thickening agents</td>
</tr>
<tr>
<td>2205/009</td>
<td>Glass</td>
</tr>
<tr>
<td>2205/012</td>
<td>Used as thickening agents</td>
</tr>
<tr>
<td>2205/024</td>
<td>Used as base material</td>
</tr>
<tr>
<td>2205/026</td>
<td>Natural rubber; Natural resins</td>
</tr>
<tr>
<td>2205/028</td>
<td>Resinatic waxes, e.g. rosin, pbleu, fats, soaps,</td>
</tr>
<tr>
<td>2205/029</td>
<td>Paraffin waxes; Petrolatum, e.g. slack wax</td>
</tr>
<tr>
<td>2205/031</td>
<td>Fisher Tropsch reaction products</td>
</tr>
<tr>
<td>2205/033</td>
<td>Used as base material</td>
</tr>
<tr>
<td>2205/035</td>
<td>Used as thickening agent</td>
</tr>
<tr>
<td>2207/000</td>
<td>Organic non-macromolecular hydrocarbon compounds containing hydrogen, carbon and oxygen as ingredients in lubricant compositions</td>
</tr>
</tbody>
</table>

**NOTE:**

Copolymers are indexed with the symbol for the main monomer always being present, (e.g. C10M 2205/026, C10M 2205/022) according to the last place rule, followed by the symbol of the other monomers, (e.g. C10M 2205/022, C10M 2205/000).
2207/003 . used as base material 2207/006 . used as thickening agents 2207/02 . Hydroxy compounds 2207/0203 . used as base material 2207/0206 . used as thickening agents 2207/021 . having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms 2207/0215 . used as base material 2207/022 . containing at least two hydroxy groups 2207/0225 . used as base material 2207/023 . having hydroxy groups bound to carbon atoms of six-membered aromatic rings 2207/0235 . used as base material 2207/024 . having at least two phenol groups but no condensed ring 2207/025 . with condensed rings 2207/026 . with tertiary alkyl groups 2207/027 . Neutral salts thereof 2207/028 . Overbased salts thereof 2207/0285 . used as base material 2207/04 . Ethers; Acetals; Ortho-esters; Ortho-carbonates 2207/0406 . used as base material 2207/0413 . used as thickening agent 2207/042 . Epoxides 2207/044 . Cyclic ethers having four or more ring atoms, e.g. furans, dioxolanes 2207/046 . Hydroxy ethers 2207/06 . Peroxides; Ozonides 2207/08 . Aldehydes; Ketones 2207/085 . used as base material 2207/09 . Metal enolates, i.e. keto-enol metal complexes 2207/095 . used as thickening agent 2207/10 . Carboxylic acids; Neutral salts thereof 2207/103 . used as base material 2207/106 . used as thickening agents 2207/12 . having carboxyl groups bound to acyclic or cycloaliphatic carbon atoms 2207/1203 . used as base material 2207/1206 . used as thickening agents 2207/121 . having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms 2207/1213 . used as base material 2207/1216 . used as thickening agent 2207/122 . monocarboxylic 2207/1225 . used as thickening agent 2207/123 . polycarboxylic 2207/1233 . used as base material 2207/1236 . used as thickening agent 2207/124 . containing hydroxy groups; Ethers thereof 2207/1245 . used as thickening agent 2207/125 . having hydrocarbon chains of eight up to twenty-nine carbon atoms, i.e. fatty acids 2207/1253 . used as base material 2207/1256 . used as thickening agent 2207/126 . monocarboxylic 2207/1265 . used as thickening agent 2207/127 . polycarboxylic 2207/1273 . used as base material 2207/1276 . used as thickening agent 2207/128 . containing hydroxy groups; Ethers thereof 2207/1285 . used as thickening agents 2207/129 . having hydrocarbon chains of thirty or more carbon atoms 2207/1293 . used as base material 2207/1296 . used as thickening agents 2207/14 . having carboxyl groups bound to carbon atoms of six-membered aromatic rings 2207/1403 . used as base material 2207/1406 . used as thickening agents 2207/141 . monocarboxylic 2207/1415 . used as thickening agent 2207/142 . polycarboxylic 2207/1423 . used as base material 2207/1426 . used as thickening agent 2207/144 . containing hydroxy groups 2207/1443 . used as base material 2207/1446 . used as thickening agent 2207/146 . having carboxyl groups bound to carbon atoms of six-membered aromatic rings having a hydrocarbon substituent of thirty or more carbon atoms 2207/1465 . used as base material 2207/16 . Naphthenic acids 2207/163 . used as base material 2207/166 . used as thickening agents 2207/18 . Tall oil acids 2207/183 . used as base material 2207/186 . used as thickening agents 2207/20 . Rosin acids 2207/203 . used as base material 2207/206 . used as thickening agents 2207/22 . Acids obtained from polymerised unsaturated acids 2207/223 . used as base material 2207/226 . used as thickening agents 2207/229 . Epoxidised acids; Ester derivatives thereof 2207/243 . used as base material 2207/246 . used as thickening agents 2207/26 . Overbased carboxylic acid salts 2207/2606 . used as base material 2207/2613 . used as thickening agents 2207/262 . derived from hydroxy substituted aromatic acids, e.g. salicylates 2207/2623 . used as base material 2207/2626 . used as thickening agents 2207/28 . Esters (epoxidised esters C10M 2207/24) 2207/2805 . used as base material 2207/281 . of (cyclo)aliphatic monocarboxylic acids 2207/2815 . used as base material 2207/282 . of (cyclo)aliphatic olycarboxylic acids 2207/2825 . used as base material 2207/283 . of polyhydroxy compounds 2207/2835 . used as base material 2207/284 . of aromatic monocarboxylic acids 2207/2845 . used as base material 2207/285 . of aromatic polycarboxylic acids 2207/2855 . used as base material 2207/286 . of polymerised unsaturated acids 2207/2865 . used as base material 2207/287 . Partial esters 2207/2875 . used as base material 2207/288 . containing free carboxyl groups 2207/2885 . used as base material
Organic macromolecular compounds containing oxygen as ingredients in lubricant compositions (oxidised hydrocarbons C10M 2205/12)

- containing free hydroxy groups
- used as base material

- Complex esters, i.e. compounds containing at least three esterified carboxyl groups and derived from the combination of at least three different types of the following five types of compounds: mono-, di- and trihydroxyl compounds, monocarboxylic acids, polycarboxylic acids or hydroxy carboxylic acids
- used as base material

- derived from the combination of monocarboxylic acids, dicarboxylic acids and dihydroxy compounds only and having no free hydroxy or carboxyl groups
- used as base material

- derived from the combination of monohydroxy compounds, dihydroxy compounds and dicarboxylic acids only and having no free hydroxy or carboxyl groups
- used as base material

- used as base material

- of carbonic acid
- used as base material

- Fatty vegetable or animal oils
- used as base material

- Castor oils
- used as base material

- obtained from genetically modified species
- used as base material

- used as base material

- Organic macromolecular compounds containing oxygen as ingredients in lubricant compositions

NOTE

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

Example:

- C10M 2209/107 + C10M 2209/108

NOTE

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

Example:

- C10M 2209/107 + C10M 2209/109
Organic non-macromolecular compounds containing halogen as ingredients in lubricant compositions

Organic macromolecular compounds containing halogen as ingredients in lubricant compositions

Organic non-macromolecular compounds containing nitrogen as ingredients in lubricant compositions

... having dihydric acid centres
... used as base material
... used as thickening agents
... containing carbon, hydrogen and halogen only
... used as base material
... used as thickening agents
... aliphatic
... used as base material
... aromatic
... used as base material
... containing carbon, hydrogen, halogen, and oxygen
... used as base material
... used as thickening agents
... Alcohols; Ethers; Aldehydes; Ketones
... used as base material
... Acids; Salts or esters thereof
... used as base material
... Perfluorinated compounds
... used as base material
... used as thickening agents
... Halogenated waxes
... used as base material
... used as thickening agents
... used as base material
... used as base material
... Omitted for brevity
... used as base material
... obtained from monomers containing carbon, hydrogen and halogen only
... used as base material
... obtained from monomers containing carbon, hydrogen, halogen and oxygen
... used as base material
... Perfluoro polymers
... used as base material
... used as thickening agents
... Polytetrafluoroethylene [PTFE]
... used as base material
... used as thickening agents
... having dihydric acid centres
... used as base material
... used as thickening agents
... Amines, e.g. polyalkylene polyamines; Quaternary amines (polyalkylene polyamines with eleven or more monomer units C10M 2217/046)
... used as base material
... used as thickening agents
... having amino groups bound to acyclic or cycloaliphatic carbon atoms
... used as base material
...Containing carbon-to-nitrogen double bonds, e.g. guanidines, hydrazones, semicarbazones
... Nitrides
... Azo compounds
... Containing nitrogen-to-oxygen bonds
... containing nitro groups
... containing nitroso groups
... hydroxylamines
... Heterocyclic nitrogen compounds
... Six-membered rings containing nitrogen and carbon only
... Triazines
... Five-membered rings containing nitrogen and carbon only
... Imidazoles
... used as base material
... the rings containing both nitrogen and oxygen
... Morpholines
... Pthalocyanines
... used as thickening agents
... having hydrocarbon substituents containing thirty or more carbon atoms, e.g. nitrogen derivatives of substituted succinic acid
... used as base material
... containing hydroxy groups; Alkoxylated derivatives thereof
... used as base material
... having cycloaliphatic groups
... having amino groups bound to carbon atoms of six-membered aromatic rings
... used as base material
... containing hydroxy groups bound to the aromatic ring
... Di- and triaryl amines
... Phenyl-Naphthyl amines
... Arylene diamines
... Polaryl amine alkanes
... having amino groups bound to polycyclic aromatic ring systems, i.e. systems with three or more condensed rings
... Amides
... used as base material
... used as thickening agents
... containing hydroxyl groups; Alkoxylated derivatives
... Imides
... used as base material
... Amides of carbonic or haloformic acids
... used as base material
... used as thickening agents
... Ureas; Semicarbazides; Allophanates
... used as base material
... used as thickening material
... Partial amides of polycarboxylic acids
... used as thickening agents
... Pthalamic acid
... Containing carbon-to-nitrogen double bonds, e.g. guanidines, hydrazones, semicarbazones
... Nitrides
... Azo compounds
... Containing nitrogen-to-oxygen bonds
... containing nitro groups
... containing nitroso groups
... hydroxylamines
... Heterocyclic nitrogen compounds
... Six-membered rings containing nitrogen and carbon only
Organic macromolecular compounds containing nitrogen as ingredients in lubricant compositions

- Amines
- Amides; Imdes
- Heterocyclic compounds

Macromolecular compounds obtained from nitrogen containing monomers by reactions only involving carbon-to-carbon unsaturated bonds

- used as base material
- used as thickening agents

Macromolecular compounds obtained from nitrogen containing monomers having an unsaturated radical bound to an amino group

- used as base material
- the amino group containing an ester bond
- containing monomers having an unsaturated radical bound to an amido or imido group

Macromolecular compounds obtained from nitrogen containing monomers having an unsaturated radical bound to a nitrogen-containing hetero ring

- used as base material
- Macromolecular compounds from nitrogen-containing monomers obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds

- used as base material
- used as thickening agents

- involving a condensation reaction
- between the nitrogen-containing monomer and an aldehyde or ketone

- used as base material
- Mannich bases
- Polyamides
- Polyureas; Polyurethanes
- used as base material

- used as thickening agents
- used as base material

- Polyamines, i.e. macromolecules obtained by condensation of more than eleven amine monomers

Macromolecular compounds obtained by functionalisation of polymers with a nitrogen containing compound

- used as base material

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

- used as base material
- used as thickening agents

Sulfur-containing compounds obtained by sulphurisation with sulfur or sulfur-containing compounds

- used as base material

- of hydrocarbons, e.g. olefins

- of esters, e.g. fats

- containing sulfur-to-oxygen bonds, i.e. sulfoxides

- used as base material
- used as thickening agent
- Sulfate esters
- Sulfonic acids, Derivatives thereof, e.g. neutral salts

- used as thickening agents
- Overbased sulfonic acid salts
- used as base material
- used as thickening agents
- Thio-acids; Thiocyanates; Derivatives thereof
- used as base material
- having carbon-to-sulfur double bonds
- Thiourea type compounds
- Thio-carbamate type compounds
- Thioles; Sulfides; Polysulfides; Mercaptals
- used as base material
- containing sulfur atoms bound to acyclic or cycloliphatic carbon atoms

- Dibenzy1 sulfide
- containing hydroxy groups; Derivatives thereof
- containing carboxyl groups; Derivatives thereof
- containing sulfur atoms bound to carbon atoms of six-membered aromatic rings

- containing hydroxy groups; Derivatives thereof, e.g. sulfurised phenols
- Neutral salts
- Overbased salts

Heterocyclic compounds containing no sulfur, selenium or tellurium compounds in the ring

- used as base material
- containing sulfur and carbon only in the ring
- containing sulfur and carbon with nitrogen or oxygen in the ring

- Thiadiazoles
- Phenothiazine

Organic macromolecular compounds containing sulfur, selenium or tellurium as ingredients in lubricant compositions

- used as base material
- used as thickening agents

Macromolecular compounds obtained by reactions of monomers involving only carbon-to-carbon unsaturated bonds

- used as base material
- Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
- used as base material
Organic non-macromolecular compounds containing phosphorus as ingredients in lubricant compositions

- 2223/00

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

Organic macromolecular compounds containing phosphorus as ingredients in lubricant compositions

- 2225/00

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

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

- 2227/00

- 2227/002 . used as base material
- 2227/006 . used as thickening agents
- 2227/02 . Esters of silicic acids

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

Organic macromolecular compounds containing atoms of elements not provided for in groups C10M 2205/00, C10M 2209/00, C10M 2213/00, C10M 2217/00, C10M 2221/00 or C10M 2225/00 as ingredients in lubricant compositions

- 2229/00

- 2229/003 . used as base material
- 2229/006 . used as thickening agents
- 2229/02 . Unspecified siloxanes; Silicones
- 2229/025 . used as base material
- 2229/04 . Siloxanes with specific structure
- 2229/0405 . used as base material
- 2229/041 . containing aliphatic substituents
- 2229/0415 . used as base material
- 2229/042 . containing aromatic substituents
- 2229/0425 . used as base material
- 2229/043 . containing carbon-to-carbon double bonds
- 2229/0435 . used as base material
- 2229/044 . containing silicon-to-carbon bonds
- 2229/0445 . used as base material
- 2229/045 . containing silicon-to-hydroxyl bonds
- 2229/0455 . used as base material
- 2229/046 . containing silicon-oxygen-carbon bonds
- 2229/0465 . used as base material
- 2229/047 . containing alkylene oxide groups
- 2229/0475 . used as base material
- 2229/048 . containing carboxyl groups
- 2229/0485 . used as base material
- 2229/05 . containing atoms other than silicon, hydrogen, oxygen or carbon
- 2229/0505 . used as base material
- 2229/051 . containing halogen
- 2229/0515 . used as base material
- 2229/052 . containing nitrogen
- 2229/0525 . used as base material
- 2229/053 . containing sulfur
- 2229/0535 . used as base material
- 2229/054 . containing phosphorus
- 2229/0545 . used as base material

Mixtures of base materials or thickeners or additives (not used, see subgroups)

- 2290/00

- 2290/02 . Mineral base oils; Mixtures of fractions
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2290/026</td>
<td>Fuels</td>
</tr>
<tr>
<td>2290/04</td>
<td>Synthetic base oils</td>
</tr>
<tr>
<td>2290/10</td>
<td>Thickener</td>
</tr>
</tbody>
</table>