COOPERATIVE PATENT CLASSIFICATION

CHEMISTRY; METALLURGY

CHEMISTRY

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

INDEXING SCHEME ASSOCIATED WITH SUBCLASS C10M RELATING TO LUBRICATING COMPOSITIONS

NOTES
1. This subclass constitutes an indexing scheme associated with subclass C10M, relating to:
   - metals and the metal of a compound in group C10N 2010/00;
   - the properties of the lubricant composition or constituents thereof in groups C10N 2020/00, C10N 2030/00;
   - the use or application of the lubricant composition in group C10N 2040/00;
   - the form in which the lubricant composition is applied in group C10N 2050/00;
   - chemical modification by after-treatment of lubricant constituents in group C10N 2060/00;
   - special methods of preparation in group C10N 2070/00;
   - special pretreatment of the material to be lubricated in group C10N 2080/00.
2. 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".

<table>
<thead>
<tr>
<th>2010/00</th>
<th>Metal present as such or in compounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010/02</td>
<td>. Group 1</td>
</tr>
<tr>
<td>2010/04</td>
<td>. Group 2</td>
</tr>
<tr>
<td>2010/06</td>
<td>. Group 3</td>
</tr>
<tr>
<td>2010/08</td>
<td>. Group 4</td>
</tr>
<tr>
<td>2010/10</td>
<td>. Group 5</td>
</tr>
<tr>
<td>2010/12</td>
<td>. Group 6</td>
</tr>
<tr>
<td>2010/14</td>
<td>. Group 7</td>
</tr>
<tr>
<td>2010/16</td>
<td>. Group 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2010/00</th>
<th>Specified use or application for which the lubricating composition is intended</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010/02</td>
<td>. Bearings</td>
</tr>
<tr>
<td>2010/04</td>
<td>. Oil-bath; Gear-boxes; Automatic transmissions; Traction drives</td>
</tr>
<tr>
<td>2010/06</td>
<td>. Instruments or other precision apparatus, e.g. damping fluids</td>
</tr>
<tr>
<td>2010/08</td>
<td>. Hydraulic fluids, e.g. brake-fluids</td>
</tr>
<tr>
<td>2010/10</td>
<td>. Running-in oil</td>
</tr>
<tr>
<td>2010/12</td>
<td>. Gas-turbines</td>
</tr>
<tr>
<td>2010/13</td>
<td>. Aircraft turbines</td>
</tr>
<tr>
<td>2010/14</td>
<td>. Electric or magnetic purposes</td>
</tr>
<tr>
<td>2010/16</td>
<td>. dielectric; Insulating oil</td>
</tr>
<tr>
<td>2010/18</td>
<td>. in connection with recordings on magnetic tape or disc</td>
</tr>
<tr>
<td>2010/20</td>
<td>. Metal working</td>
</tr>
<tr>
<td>2010/22</td>
<td>. with essential removal of material [e.g. cutting; Cooling oil]</td>
</tr>
<tr>
<td>2010/24</td>
<td>. without essential removal of material [Oil for deformation operations, e.g. drawing, rolling]</td>
</tr>
<tr>
<td>2010/25</td>
<td>. Internal combustion engines</td>
</tr>
<tr>
<td>2010/26</td>
<td>. Two-stroke</td>
</tr>
<tr>
<td>2010/28</td>
<td>. Rotary</td>
</tr>
<tr>
<td>2010/30</td>
<td>. Refrigerator lubricant</td>
</tr>
<tr>
<td>2010/32</td>
<td>. Wire, rope or cable lubricants</td>
</tr>
<tr>
<td>2010/34</td>
<td>. Lubricating-sealants</td>
</tr>
<tr>
<td>2010/36</td>
<td>. Release agents</td>
</tr>
</tbody>
</table>

NOTE: In this group, metals should be indexed according to their group of the Periodic Table.

<table>
<thead>
<tr>
<th>2020/00</th>
<th>Specified physical properties of component of lubricating compositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020/02</td>
<td>. Viscosity; Viscosity index</td>
</tr>
<tr>
<td>2020/04</td>
<td>. Molecular weight; Molecular weight distribution</td>
</tr>
<tr>
<td>2020/06</td>
<td>. Particles of special shape or size</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2030/00</th>
<th>Specified physical or chemical property which is improved by the additive characterising the lubricating composition, e.g. multifunctional additives</th>
</tr>
</thead>
<tbody>
<tr>
<td>2030/02</td>
<td>. Pour-point; Viscosity index</td>
</tr>
<tr>
<td>2030/04</td>
<td>. Detergent or dispersant property</td>
</tr>
<tr>
<td>2030/06</td>
<td>. Oiliness; Film-strength; Anti-wear; Resistance to extreme pressure</td>
</tr>
<tr>
<td>2030/08</td>
<td>. Resistance to extreme temperature</td>
</tr>
<tr>
<td>2030/10</td>
<td>. Inhibition of oxidation, e.g. anti-oxidants</td>
</tr>
<tr>
<td>2030/12</td>
<td>. Inhibition of corrosion, e.g. anti-rust agents, anti-corrosives</td>
</tr>
<tr>
<td>2030/14</td>
<td>. Metal deactivation</td>
</tr>
</tbody>
</table>

| 2030/16 | . Antiseptic; Biocidal                                                                                                              |
| 2030/18 | . Anti-foaming property                                                                                                             |
| 2030/20 | . Colour, e.g. dyes                                                                                                                 |

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<th>Specified use or application for which the lubricating composition is intended</th>
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<td>2040/25</td>
<td>. Internal combustion engines</td>
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<td>. Lubricating-sealants</td>
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<tr>
<td>2040/36</td>
<td>. Release agents</td>
</tr>
</tbody>
</table>
### 2050/00 Form in which the lubricant is applied to the material being lubricated

- 2050/02 . dissolved or suspended in a carrier which subsequently evaporates to leave a lubricant coating
- 2050/04 . Aerosol
- 2050/06 . Gaseous phase, at least during working conditions
- 2050/08 . solid
- 2050/10 . semi-solids; greasy

### 2060/00 Chemical after-treatment of the constituents of the lubricating composition

- 2060/003 . [by organic hydroxy group containing compounds]
- 2060/006 . [by nitrogen containing compounds]
- 2060/02 . Reduction, e.g. hydrogenation
- 2060/04 . Oxidation, e.g. ozonisation
- 2060/06 . by epoxides
- 2060/08 . Halogenation
- 2060/10 . by sulfur or a compound containing sulfur
- 2060/12 . by phosphorus or a compound containing phosphorus, e.g. P_{2}S_{5}
- 2060/14 . by boron or a compound containing boron

### 2070/00 Special methods of preparation

### 2080/00 Special pretreatment of the material to be lubricated, e.g. phosphatising or chromatising of a metal

### 2210/00 Nature of the metal present as such or in compounds, i.e. in salts

**NOTE:**

Indexing codes C10N 2210/01 - C10N 2210/08 are only to be used as linked codes in combination with codes chosen from subclass C10M identifying the chemical nature of the compounds concerned:

Example: C10M 2201/084 + C10N 2210/02

- 2210/01 . Group I, e.g. Li, Na, K, Cs, Cu, Ag, Au
- 2210/02 . Group II, e.g. Mg, Ca, Ba, Zn, Cd, Hg
- 2210/03 . Group III, e.g. Al, In, La
- 2210/04 . Group IV, e.g. Sn, Pb, Ti, Zr
- 2210/05 . Group V, e.g. V, As, Sb, Bi
- 2210/06 . Group VI, e.g. Cr, Mo, W
- 2210/07 . Group VII or VIII
- 2210/08 . Mn, Fe, Co, Ni

### 2220/00 Specified physical or chemical properties or characteristics, i.e. function, of single compounds in lubricating compositions

- 2220/02 . Physico-chemical properties
- 2220/04 . Molecular weight
- 2220/06 . Viscosity
- 2220/08 . Iodine value
- 2220/10 . Saturated compounds
- 2220/12 . Unsaturated compounds
- 2220/14 . Linear chain compounds
- 2220/16 . Branched chain compounds
- 2220/18 . Star-shaped polymers
- 2220/20 . Dendrimers
- 2220/22 . Distillation range
- 2220/24 . Specific gravity or density
- 2220/26 . Shear stability
- 2220/28 . Ionic liquids

**NOTE:**

Indexing codes C10N 2220/031 - C10N 2220/306 are only used in association with group C10M 171/008 to provide information about the specific refrigerant.

- 2220/301 . Chlorofluorocarbons
- 2220/302 . Hydrofluorocarbons
- 2220/303 . Hydrocarbons
- 2220/304 . Nitrogen
- 2220/305 . Ammonia
- 2220/306 . Carbon dioxide

### 2230/00 Specified physical or chemical properties of lubricating compositions

- 2230/02 . Viscosity or viscosity index
- 2230/04 . Detergent properties, e.g. for cleaning, inhibition or removing varnish; Dispersion properties, e.g. for dispersing solids, carbon residues, sludge
- 2230/041 . Soot induced viscosity control
- 2230/06 . Resistance to extreme pressure; Oiliness; Abrasion resistance: Friction; Anti-wear
- 2230/08 . Resistance to extreme heat; Resistance to extreme temperature
- 2230/10 . Anti-oxidation characteristics
- 2230/12 . Resistance to rust or corrosion
- 2230/14 . Metal deactivation, i.e. passivation
- 2230/16 . Bactericidal or (micro)biocidal
- 2230/18 . Defoaming properties
- 2230/20 . Colour
- 2230/22 . Degreasing properties
- 2230/24 . Emulsion properties
- 2230/26 . Waterproofing or water-resistance
- 2230/28 . Anti-static
- 2230/30 . Anti-misting
- 2230/32 . Light or X-ray resistance
- 2230/34 . Fragrance or deodorising properties
- 2230/36 . Seal compatibility, e.g. with rubber
- 2230/38 . Catalyst protection, e.g. in exhaust gas converters
- 2230/40 . Low content or no content compositions
- 2230/41 . Chlorine free or low chlorine content compositions
- 2230/42 . Phosphor free or low phosphor content compositions
- 2230/43 . Sulfur free or low sulfur content compositions
- 2230/44 . Boron free or low content boron compositions
- 2230/45 . Ashless or low ash content
- 2230/50 . Emission or smoke controlling properties
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2230/52 . Base number (TBN)
2230/54 . Fuel economy
2230/56 . Boundary lubrication or thin film lubrication
2230/58 . Elastohydrodynamic lubrication, e.g. for high compressibility layers
2230/60 . Electro rheological properties
2230/62 . Food grade properties
2230/64 . Environmental friendly compositions
2230/66 . Hydrolytic stability
2230/68 . Shear stability
2230/70 . Soluble oils
2230/72 . Extended drain
2230/74 . Noack Volatility
2230/76 . Reduction of noise, shudder or vibrations
2230/78 . Fuel contamination

2240/00 **Specified uses or applications of lubricating compositions**

2240/02 . Bearings
2240/04 . Gear oil
2240/06 . for automatic transmissions
2240/08 . for manual transmissions
2240/10 . for Continuous Variable Transmission [CVT]
2240/12 . for traction drives
2240/14 . Precision machinery, instruments
2240/16 . Hydraulic fluids, e.g. for brakes, clutches
2240/18 . Internal-combustion engines
2240/20 . Alcohol fuelled engines
2240/22 . Diesel engines
2240/24 . Small diesel engines
2240/26 . Gasoline engines
2240/28 . Two-cycle engines
2240/30 . Rotary engines
2240/32 . for running in; grinding
2240/34 . Gas turbines
2240/36 . Aircraft turbines
2240/38 . Steam engines or turbines
2240/40 . Electrical or magnetic applications
2240/42 . Dielectrics or insulators
2240/44 . for electric contacts
2240/46 . Pantographs, i.e. printing devices
2240/48 . Magnetic recording mediums
2240/50 . Magnetic fluids
2240/52 . Lubricating sealants
2240/54 . Refrigerators; Compressors
2240/56 . Metal working
2240/58 . with removal of material, e.g. cutting, grinding, drilling
2240/60 . without removal of material, e.g. forming, gorging, drawing, pressing, stamping, rolling, extruding
2240/62 . Manufacturing joint less pipes
2240/64 . Hot working
2240/66 . Cold working
2240/68 . of specific metals
2240/70 . Soft metals, e.g. aluminium
2240/72 . Iron or steel
2240/74 . stainless steel
2240/76 . Wires, ropes or cables
2240/78 . Conveyors; Chain belts
2240/80 . Generators or electric motors in oil or gas winning field

2240/82 . Flashing oils; Marking oils
2240/84 . Mould release agents
2240/86 . Supervacuum or supercritical use
2240/88 . Textile oils
2240/90 . Slushing oils
2240/92 . Medical uses

2250/00 **Form or state of lubricant compositions in which they are used**

2250/02 . Emulsions; Colloids; Micelles
2250/04 . Oil-in-water
2250/06 . Water-in-oil
2250/08 . Aerosols
2250/10 . Gaseous form
2250/12 . Solids
2250/14 . Semi-solids or greases
2250/16 . Dispersions of solid lubricants
2250/18 . compositions providing a coating after evaporation of a medium, e.g. of solvent, water
2250/20 . Multi layer lubricant coatings
2250/22 . in the form of films or sheets
2250/24 . Microcapsules
2250/26 . Composite materials, or sliding materials in which lubricants are integrally moulded

2260/00 **Chemical after-treatment or modifications of compounds**

2260/02 . Reduction
2260/04 . Oxidation
2260/06 . Treatment with epoxides or oxyalkylation reactions
2260/08 . Halogenation
2260/10 . Treatment with nitrogen containing compounds
2260/12 . Treatment with sulfur or sulfur-containing compounds
2260/14 . Treatment with phosphorus or phosphorus-containing compounds
2260/16 . Treatment with boron or boron-containing compounds

2270/00 **Specific manufacturing methods for lubricant compositions or compounds not covered by groups C10N 2210/00 - C10N 2260/00**

2270/02 . concentrating of additives

2280/00 **Specific pretreatment of the surface to be lubricated, e.g. phosphatising**