CPC COOPERATIVE PATENT CLASSIFICATION

C CHEMISTRY; METALLURGY

CHEMISTRY

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

C10N 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>

**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 |

<table>
<thead>
<tr>
<th>2040/00</th>
<th>Specified use or application for which the lubricating composition is intended</th>
</tr>
</thead>
<tbody>
<tr>
<td>2040/02</td>
<td>. Bearings</td>
</tr>
<tr>
<td>2040/04</td>
<td>. Oil-bath; Gear-boxes; Automatic transmissions; Traction drives</td>
</tr>
<tr>
<td>2040/06</td>
<td>. Instruments or other precision apparatus, e.g. damping fluids</td>
</tr>
<tr>
<td>2040/08</td>
<td>. Hydraulic fluids, e.g. brake-fluids</td>
</tr>
<tr>
<td>2040/10</td>
<td>. Running-in oil</td>
</tr>
<tr>
<td>2040/12</td>
<td>. Gas-turbines</td>
</tr>
<tr>
<td>2040/13</td>
<td>. Aircraft turbines</td>
</tr>
<tr>
<td>2040/14</td>
<td>. Electric or magnetic purposes</td>
</tr>
<tr>
<td>2040/16</td>
<td>. dielectric; Insulating oil</td>
</tr>
<tr>
<td>2040/18</td>
<td>. in connection with recordings on magnetic tape or disc</td>
</tr>
<tr>
<td>2040/20</td>
<td>. Metal working</td>
</tr>
<tr>
<td>2040/22</td>
<td>. with essential removal of material [e.g. cutting; Cooling oil]</td>
</tr>
<tr>
<td>2040/24</td>
<td>. without essential removal of material [Oil for deformation operations, e.g. drawing, rolling]</td>
</tr>
<tr>
<td>2040/25</td>
<td>. Internal combustion engines</td>
</tr>
<tr>
<td>2040/26</td>
<td>. Two-stroke</td>
</tr>
<tr>
<td>2040/28</td>
<td>. Rotary</td>
</tr>
<tr>
<td>2040/30</td>
<td>. Refrigerator lubricant</td>
</tr>
<tr>
<td>2040/32</td>
<td>. Wire, rope or cable lubricants</td>
</tr>
<tr>
<td>2040/34</td>
<td>. Lubricating-sealants</td>
</tr>
<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. P₅S₅
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 2210/001 - C10N 2210/008 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 Cloud point
2220/10 Iodine value
2220/12 Saturated compounds
2220/14 Unsaturated compounds
2220/16 Linear chain compounds
2220/18 Branched chain compounds
2220/20 Star-shaped polymers
2220/22 Dendrimers
2220/24 Distillation range
2220/26 Specific gravity or density
2220/28 Shear stability
2220/30 Ionic liquids

2220/06 Liquid crystals
2220/08 Particles related characteristics
2220/082 Particle size or shape
2220/084 Coated particles
2220/086 Fibrous forms
2220/10 Biodegradable compounds
2220/12 Volatile compounds
2220/13 Non-volatile compounds
2220/14 Characteristics associated with water
2220/142 Water solubility
2220/144 Onsolubility in water
2220/146 Crystal water containing compounds
2220/30 Refrigerants

NOTE
Indexing codes C10N 2220/301 - 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 contentn boron compositions
2230/45 Ashless or low ash content
2230/50 Emission or smoke controlling properties
2240/00 Specified uses or applications of lubricating compositions

- 2240/02 . Bearings
- 2240/04 . Gear oil
- 2240/06 . Precision machinery, instruments
- 2240/08 . Hydraulic fluids, e.g. for brakes, clutches
- 2240/10 . Internal-combustion engines
- 2240/11 . Alcohol fuelled engines
- 2240/12 . Diesel engines
- 2240/13 . Small diesel engines
- 2240/14 . Gasoline engines
- 2240/15 . Two-cycle engines
- 2240/16 . Rotary engines
- 2240/18 . for running in; grinding
- 2240/20 . Gas turbines
- 2240/21 . Aircraft turbines
- 2240/22 . Steam engines or turbines
- 2240/23 . Electrical or magnetic applications
- 2240/24 . Dielectrics or insulators
- 2240/25 . for electric contacts
- 2240/26 . Pantographs, i.e. printing devices
- 2240/27 . Magnetic recording mediums
- 2240/28 . Magnetic fluids
- 2240/29 . Lubricating sealants
- 2240/30 . Refrigerators; Compressors
- 2240/31 . Metal working
- 2240/32 . with removal of material, e.g. cutting, grinding, drilling
- 2240/33 . without removal of material, e.g. forming, gorging, drawing, pressing, stamping, rolling, extruding
- 2240/34 . Manufacturing joint less pipes
- 2240/35 . Hot working
- 2240/36 . Cold working
- 2240/37 . of specific metals
- 2240/38 . Soft metals, e.g. aluminium
- 2240/39 . Iron or steel
- 2240/40 . stainless steel
- 2240/41 . Wires, ropes or cables
- 2240/42 . Conveyors; Chain belts
- 2240/43 . Generators or electric motors in oil or gas winning field

2240/56 . Flashing oils; Marking oils
2240/58 . Mould release agents
2240/60 . Supervacuum or supercritical use
2240/62 . Textile oils
2240/64 . Slushing oils
2240/66 . 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 oxalkylation reactions
- 2260/08 . Halogenation
- 2260/10 . Treatment with nitrogen containing compounds
- 2260/12 . Treatment with phosphorus or phosphorus-containing compounds
- 2260/14 . 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