

# CPC COOPERATIVE PATENT CLASSIFICATION

## C CHEMISTRY; METALLURGY

(NOTES omitted)

### 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".

#### 2010/00 Metal present as such or in compounds

##### NOTE

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

- 2010/02 . Group 1
- 2010/04 . Group 2
- 2010/06 . Group 3
- 2010/08 . Group 4
- 2010/10 . Group 5
- 2010/12 . Group 6
- 2010/14 . Group 7
- 2010/16 . Group 8

#### 2020/00 Specified physical properties of component of lubricating compositions

- 2020/02 . Viscosity; Viscosity index
- 2020/04 . Molecular weight; Molecular weight distribution
- 2020/06 . Particles of special shape or size

#### 2030/00 Specified physical or chemical property which is improved by the additive characterising the lubricating composition, e.g. multifunctional additives

- 2030/02 . Pour-point; Viscosity index
- 2030/04 . Detergent or dispersant property
- 2030/06 . Oiliness; Film-strength; Anti-wear; Resistance to extreme pressure
- 2030/08 . Resistance to extreme temperature
- 2030/10 . Inhibition of oxidation, e.g. anti-oxidants
- 2030/12 . Inhibition of corrosion, e.g. anti-rust agents, anti-corrosives
- 2030/14 . Metal deactivation

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

#### 2040/00 Specified use or application for which the lubricating composition is intended

- 2040/02 . Bearings
- 2040/04 . Oil-bath; Gear-boxes; Automatic transmissions; Traction drives
- 2040/06 . Instruments or other precision apparatus, e.g. damping fluids
- 2040/08 . Hydraulic fluids, e.g. brake-fluids
- 2040/10 . Running-in oil
- 2040/12 . Gas-turbines
- 2040/13 . . Aircraft turbines
- 2040/14 . Electric or magnetic purposes
- 2040/16 . . dielectric; Insulating oil
- 2040/18 . . in connection with recordings on magnetic tape or disc
- 2040/20 . Metal working
- 2040/22 . . with essential removal of material {, e.g. cutting; Cooling oil}
- 2040/24 . . without essential removal of material {Oil for deformation operations, e.g. drawing, rolling}
- 2040/25 . Internal combustion engines
- 2040/26 . . Two-stroke
- 2040/28 . . Rotary
- 2040/30 . Refrigerator lubricant
- 2040/32 . Wire, rope or cable lubricants
- 2040/34 . Lubricating-sealants
- 2040/36 . Release agents

<b>2050/00</b>	<b>Form in which the lubricant is applied to the material being lubricated</b>
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

<b>2060/00</b>	<b>Chemical after-treatment of the constituents of the lubricating composition</b>
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. $P_xS_y$
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
2220/021	. . Molecular weight
2220/022	. . Viscosity
2220/023	. . Cloud point
2220/024	. . Iodine value
2220/025	. . Saturated compounds
2220/026	. . Unsaturated compounds
2220/027	. . Linear chain compounds
2220/028	. . Branched chain compounds
2220/029	. . Star-shaped polymers
2220/03	. . Dendrimers
2220/031	. . Distillation range
2220/032	. . Specific gravity or density
2220/033	. . Shear stability
2220/04	. . 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

2230/52	• Base number (TBN)	2240/56	• Flashing oils; Marking oils
2230/54	• Fuel economy	2240/58	• Mould release agents
2230/56	• Boundary lubrication or thin film lubrication	2240/60	• Supervacuum or supercritical use
2230/58	• Elastohydrodynamic lubrication, e.g. for high compressibility layers	2240/62	• Textile oils
2230/60	• Electro rheological properties	2240/64	• Slushing oils
2230/62	• Food grade properties	2240/66	• Medical uses
2230/64	• Environmental friendly compositions	<b>2250/00</b>	<b>Form or state of lubricant compositions in which they are used</b>
2230/66	• Hydrolytic stability	2250/02	• Emulsions; Colloids; Micelles
2230/68	• Shear stability	2250/021	• • Oil-in-water
2230/70	• Soluble oils	2250/022	• • Water-in-oil
2230/72	• Extended drain	2250/04	• Aerosols
2230/74	• Noack Volatility	2250/06	• Gaseous form
2230/76	• Reduction of noise, shudder or vibrations	2250/08	• Solids
2230/78	• Fuel contamination	2250/10	• Semi-solids or greases
<b>2240/00</b>	<b>Specified uses or applications of lubricating compositions</b>	2250/12	• Dispersions of solid lubricants
2240/02	• Bearings	2250/121	• • compositions providing a coating after evaporation of a medium, e.g. of solvent, water
2240/04	• Gear oil	2250/14	• Multi layer lubricant coatings
2240/042	• • for automatic transmissions	2250/141	• • in the form of films or sheets
2240/044	• • for manual transmissions	2250/16	• Microcapsules
2240/045	• • for Continuous Variable Transmission [CVT]	2250/18	• Composite materials, or sliding materials in which lubricants are integrally moulded
2240/046	• • for traction drives	<b>2260/00</b>	<b>Chemical after-treatment or modifications of compounds</b>
2240/06	• Precision machinery, instruments	2260/02	• Reduction
2240/08	• Hydraulic fluids, e.g. for brakes, clutches	2260/04	• Oxidation
2240/10	• Internal-combustion engines	2260/06	• Treatment with epoxides or oxyalkylation reactions
2240/101	• • Alcohol fuelled engines	2260/08	• Halogenation
2240/102	• • Diesel engines	2260/09	• Treatment with nitrogen containing compounds
2240/103	• • • Small diesel engines	2260/10	• Treatment with sulfur or sulfur-containing compounds
2240/104	• • Gasoline engines	2260/12	• Treatment with phosphorus or phosphorus-containing compounds
2240/105	• • • Two-cycle engines	2260/14	• Treatment with boron or boron-containing compounds
2240/106	• • • Rotary engines	<b>2270/00</b>	<b>Specific manufacturing methods for lubricant compositions or compounds not covered by groups <a href="#">C10N 2210/00</a> - <a href="#">C10N 2260/00</a></b>
2240/108	• • for running in; grinding	2270/02	• concentrating of additives
2240/12	• Gas turbines	<b>2280/00</b>	<b>Specific pretreatment of the surface to be lubricated, e.g. phosphatising</b>
2240/121	• • Aircraft turbines		
2240/14	• Steam engines or turbines		
2240/20	• Electrical or magnetic applications		
2240/201	• • Dielectrics or insulators		
2240/202	• • for electric contacts		
2240/203	• • Pantographs, i.e. printing devices		
2240/204	• • Magnetic recording mediums		
2240/205	• • Magnetic fluids		
2240/22	• Lubricating sealants		
2240/30	• Refrigerators; Compressors		
2240/40	• Metal working		
2240/401	• • with removal of material, e.g. cutting, grinding, drilling		
2240/402	• • without removal of material, e.g. forming, gorging, drawing, pressing, stamping, rolling, extruding		
2240/403	• • Manufacturing joint less pipes		
2240/404	• • Hot working		
2240/405	• • Cold working		
2240/406	• • of specific metals		
2240/407	• • • Soft metals, e.g. aluminium		
2240/408	• • • Iron or steel		
2240/409	• • • stainless steel		
2240/50	• Wires, ropes or cables		
2240/52	• Conveyors; Chain belts		
2240/54	• Generators or electric motors in oil or gas winning field		