

ECLA**EUROPEAN CLASSIFICATION****C10M**

LUBRICATING COMPOSITIONS (well drilling compositions [C09K8/02](#)); **USE OF CHEMICAL SUBSTANCES EITHER ALONE OR AS LUBRICATING INGREDIENTS IN A LUBRICATING COMPOSITION** ([N: lubricants for medical use [A61](#)]; mould release, i.e. separating, agents for metals [B22C3/00](#), for plastics or substances in a plastic state, in general [B29C33/56](#), for glass [C03B40/02](#); use of particular substances in particular apparatus or conditions, see F16N or the relevant groups for the application, e.g. [A21D8/08](#), [B21C9/00](#), [H01B3/18](#); immersion oils for microscopy [G02B21/33](#)) [[C0306](#)]

[N: WARNING

The following groups are no longer used for the classification of new documents from January, 1978:

- [C10M1/00](#) to [C10M7/00](#)

The backlog of these groups is continuously being reclassified in groups [C10M101/00](#) to [C10M177/00](#).
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Notes

[[C0306](#)]

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 or additives consisting of a mixture for which no specific main group is provided are classified in the most indented group covering all essential constituents of the mixture, for example,
 - a base-material mixture of ketone and amide - group [C10M105/00](#)
 - a base-material mixture of ketone and ether - group [C10M105/08](#)

- an additive mixture of long and short chain esters - group [C10M129/00](#)
- an additive mixture of short chain aliphatic and aromatic carboxylic acids
 - group [C10M129/26](#);

- 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.

[N: [Notes](#)

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Guide heading: **IPC3 groups**

C10M1/00	[N: IPC3] Liquid compositions essentially based on mineral lubricating oils or fatty oils; Their use as lubricants
C10M1/08	. [N: IPC3] with additives
C10M3/00	[N: IPC3] 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)
C10M5/00	[N: IPC3] Solid or semi-solid compositions containing as the essential lubricating ingredient mineral lubricating oils or fatty oils and their use
C10M7/00	[N: IPC3] 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)

Guide heading: **Base-Materials**

C10M101/00 Lubricating compositions characterised by the base-material being a mineral or fatty oil (containing more than 10% water [C10M173/00](#))

C10M101/02 . Petroleum fractions

C10M101/02B . . [N: waxes]

C10M101/04 . Fatty oil fractions

C10M103/00 Lubricating compositions characterised by the base-material being an inorganic material (containing more than 10% water [C10M173/00](#))

C10M103/02 . Carbon; Graphite

C10M103/04 . Metals; Alloys

C10M103/06 . Metal compounds

C10M105/00 Lubricating compositions characterised by the base-material being a non-macromolecular organic compound

C10M105/02 . Well-defined hydrocarbons (petroleum fractions [C10M101/02](#))

C10M105/04 . . aliphatic

C10M105/06 . . aromatic

C10M105/08 . containing oxygen

C10M105/10 . . having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms

C10M105/12 . . . monohydroxy

C10M105/14 . . . polyhydroxy

C10M105/16 . . having hydroxy groups bound to a carbon atom of a six-membered aromatic ring

C10M105/18 . . Ethers, e.g. epoxides

C10M105/20 . . Aldehydes; Ketones

C10M105/22 . . Carboxylic acids or their salts

C10M105/24 . . . having only one carboxyl group bound to an acyclic carbon atom, cycloaliphatic carbon atom or hydrogen

C10M105/26 . . . having more than one carboxyl group bound to an acyclic carbon atom or cycloaliphatic carbon atom

C10M105/28 . . . having only one carboxyl group bound to a carbon atom of a six-membered aromatic ring

C10M105/30 . . . having more than one carboxyl group bound to a carbon atom of a six-membered aromatic ring

C10M105/32 . . Esters

C10M105/34	. . . of monocarboxylic acids
C10M105/36	. . . of polycarboxylic acids
C10M105/38	. . . of polyhydroxy compounds
C10M105/40	. . . containing free hydroxy or carboxyl groups
C10M105/42	. . . Complex esters, i.e. compounds containing at least three esterified carboxyl groups and derived from the combination of at least three different types of the following five types of compound: Monohydroxy compounds, polyhydroxy compounds, monocarboxylic acids, polycarboxylic acids and hydroxy carboxylic acids
C10M105/44	. . . . derived from the combination of monocarboxylic acids, dicarboxylic acids and dihydroxy compounds only and having no free hydroxy or carboxyl groups
C10M105/46	. . . . derived from the combination of monohydroxy compounds, dihydroxy compounds and dicarboxylic acids only and having no free hydroxy or carboxyl groups
C10M105/48	. . . of carbonic acid
C10M105/50	. containing halogen
C10M105/52	. . containing carbon, hydrogen and halogen only
C10M105/52B	. . . [N: halogenated waxes]
C10M105/54	. . containing carbon, hydrogen, halogen and oxygen
C10M105/56	. containing nitrogen
C10M105/58	. . Amines, e.g. polyalkylene polyamines, quaternary amines (polyalkylene polyamines with eleven or more monomer units C10M107/44)
C10M105/60	. . . having amino groups bound to an acyclic or cycloaliphatic carbon atom
C10M105/62	. . . . containing hydroxy groups
C10M105/64	. . . having amino groups bound to a carbon atom of a six-membered aromatic ring
C10M105/66	. . . . containing hydroxy groups
C10M105/68	. . Amides; Imides
C10M105/70	. . as ring hetero atom
C10M105/72	. containing sulfur, selenium or tellurium
C10M105/74	. containing phosphorus
C10M105/76	. containing silicon
C10M105/78	. containing boron
C10M105/80	. containing atoms of elements not provided for in groups C10M105/02 to C10M105/78
C10M107/00	Lubricating compositions characterised by the base-material being a macromolecular compound
C10M107/02	. Hydrocarbon polymers; Hydrocarbon polymers modified by oxidation
C10M107/04	. . Polyethene
C10M107/06	. . containing propene

C10M107/08	. . containing butene
C10M107/10	. . containing aliphatic monomer having more than 4 carbon atoms
C10M107/12	. . containing aromatic monomer, e.g. styrene
C10M107/14	. . containing conjugated diens
C10M107/16	. . containing non-conjugated diene
C10M107/18	. . Hydrocarbon polymers modified by oxidation
C10M107/20	. containing oxygen (C10M107/18 takes precedence)
C10M107/22	. . Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
C10M107/24	. . . containing monomers having an unsaturated radical bound to an alcohol, aldehyde, ketonic, ether, ketal or acetal radical
C10M107/26	. . . containing monomers having an unsaturated radical bound to an acyloxy radical of a saturated carboxylic or carbonic acid
C10M107/28	. . . containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate
C10M107/30	. . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
C10M107/32	. . . Condensation polymers of aldehydes or ketones; Polyesters; Polyethers
C10M107/34	. . . . Polyoxyalkylenes
C10M107/36	. . Polysaccharides, e.g. cellulose
C10M107/38	. containing halogen
C10M107/40	. containing nitrogen
C10M107/42	. . Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
C10M107/44	. . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
C10M107/46	. containing sulfur
C10M107/48	. containing phosphorus
C10M107/50	. containing silicon
C10M107/52	. containing boron
C10M107/54	. containing atoms of elements not provided for in groups C10M107/02 to C10M107/52
C10M109/00	Lubricating compositions characterised by the base-material being a compound of unknown or incompletely defined constitution (C10M101/00 takes precedence)
C10M109/02	. Reaction products
C10M111/00	Lubrication compositions characterised by the base-material being a mixture of two or more compounds covered by more than one of the main groups C10M101/00 to C10M109/00, each of these compounds being essential

- C10M111/02 . at least one of them being a non-macromolecular organic compound
- C10M111/04 . at least one of them being a macromolecular organic compound
- C10M111/06 . at least one of them being a compound of the type covered by group 109/00

Guide heading: **Thickeners**

Note

A thickener is an agent which solidifies other liquid components to form a grease ([solid lubricants consisting of solid components C10M101/00 to C10M111/00](#)).

C10M113/00 Lubricating compositions characterised by the thickening agent being an inorganic material

- C10M113/02 . Carbon; Graphite
- C10M113/04 . Sulfur
- C10M113/06 . Metals; Alloys
- C10M113/08 . Metal compounds
- C10M113/10 . Clays; Micas
- C10M113/12 . Silica
- C10M113/14 . Glass
- C10M113/16 . Inorganic material treated with organic compounds, e.g. coated

C10M115/00 Lubricating compositions characterised by the thickener being a non-macromolecular organic compound other than a carboxylic acid or salt thereof

- C10M115/02 . Hydrocarbons ([petroleum fractions C10M121/02](#))
- C10M115/04 . containing oxygen
- C10M115/06 . containing halogen
- C10M115/08 . containing nitrogen
- C10M115/10 . containing sulfur
- C10M115/12 . containing phosphorus

C10M117/00 Lubricating compositions characterised by the thickener being a non-macromolecular carboxylic acid or salt thereof

- C10M117/02 . having only one carboxyl group bound to an acyclic carbon atom, cycloaliphatic

	carbon atom or hydrogen
C10M117/04	. . containing hydroxy groups
C10M117/06	. having more than one carboxyl group bound to an acyclic carbon atom or cycloaliphatic carbon atom
C10M117/08	. having only one carboxyl group bound to a carbon atom of a six-membered aromatic ring
C10M117/10	. having more than one carboxyl group bound to a carbon atom of a six-membered aromatic ring
C10M119/00	Lubricating compositions characterised by the thickener being a macromolecular compound
C10M119/02	. Hydrocarbon polymers; Hydrocarbon polymers modified by oxidation
C10M119/04	. containing oxygen (hydrocarbon polymers modified by oxidation C10M119/02)
C10M119/06	. . Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
C10M119/08	. . . containing monomers having an unsaturated radical bound to an alcohol, aldehyde, ketonic, ether, ketal or acetal radical
C10M119/10	. . . containing monomers having an unsaturated radical bound to an acyloxy radical of a saturated carboxylic or carbonic acid
C10M119/12	. . . containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate
C10M119/14	. . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
C10M119/16	. . . Condensation polymers of aldehydes or ketones; Polyesters; Polyethers
C10M119/18	. . . . Polyoxyalkylenes
C10M119/20	. . Polysaccharides, e.g. cellulose
C10M119/22	. containing halogen
C10M119/24	. containing nitrogen
C10M119/26	. containing sulfur
C10M119/28	. containing phosphorus
C10M119/30	. containing atoms of elements not provided for in groups C10M119/02 to C10M119/28
C10M121/00	Lubricating compositions characterised by the thickener being a compound of unknown or incompletely defined constitution
C10M121/02	. Petroleum fractions, e.g. tars
C10M121/04	. Reaction products
C10M123/00	Lubricating compositions characterised by the thickener being a mixture of two or

more compounds covered by more than one of the main groups [C10M113/00](#) to [C10M121/00](#), each of these compounds being essential (inorganic materials coated with organic compounds [C10M113/16](#))

- [C10M123/02](#) . at least one of them being a non-macromolecular compound
- [C10M123/04](#) . at least one of them being a macromolecular compound
- [C10M123/06](#) . at least one of them being a compound of the type covered by group [C10M121/00](#)

Guide heading: **Additives**

C10M125/00 **Lubricating compositions characterised by the additive being an inorganic material**

- [C10M125/02](#) . Carbon; Graphite
- [C10M125/04](#) . Metals; Alloys
- [C10M125/06](#) . Sulfur
- [C10M125/08](#) . Metal carbides or hydrides
- [C10M125/10](#) . Metal oxides, hydroxides, carbonates or bicarbonates
- [C10M125/12](#) . Metal carbonyls
- [C10M125/14](#) . Water (aqueous lubricating compositions containing more than 10% water [C10M173/00](#))
- [C10M125/16](#) . Hydrogen peroxide; Oxygenated water
- [C10M125/18](#) . Compounds containing halogen
- [C10M125/20](#) . Compounds containing nitrogen
- [C10M125/22](#) . Compounds containing sulfur, selenium or tellurium
- [C10M125/24](#) . Compounds containing phosphorus, arsenic or antimony
- [C10M125/26](#) . Compounds containing silicon or boron, e.g. silica, sand
- [C10M125/28](#) . . Glass
- [C10M125/30](#) . . Clay

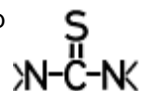
C10M127/00 **Lubricating compositions characterised by the additive being a non-macromolecular hydrocarbon (petroleum fractions [C10M159/04](#))**

- [C10M127/02](#) . well-defined aliphatic
- [C10M127/04](#) . well-defined aromatic

C10M127/06	. Alkylated aromatic hydrocarbons
C10M129/00	Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing oxygen
C10M129/02	. having a carbon chain of less than 30 atoms
C10M129/04	. . Hydroxy compounds
C10M129/06	. . . having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms
C10M129/08	. . . . containing at least 2 hydroxy groups
C10M129/10	. . . having hydroxy groups bound to a carbon atom of a six-membered aromatic ring
C10M129/12	. . . . with condensed rings
C10M129/14	. . . . containing at least 2 hydroxy groups
C10M129/16	. . Ethers
C10M129/18	. . . Epoxides
C10M129/20	. . . Cyclic ethers having 4 or more ring atoms, e.g. furans, dioxolanes
C10M129/22	. . Peroxides; Ozonides
C10M129/24	. . Aldehydes; Ketones
C10M129/26	. . Carboxylic acids; Salts thereof
C10M129/28	. . . having carboxyl groups bound to acyclic or cycloaliphatic carbon atoms
C10M129/30	. . . . having 7 or less carbon atoms
C10M129/32	. . . . . monocarboxylic
C10M129/34	. . . . . polycarboxylic
C10M129/36	. . . . . containing hydroxy groups
C10M129/38	. . . . . having 8 or more carbon atoms
C10M129/40	. . . . . monocarboxylic
C10M129/42	. . . . . polycarboxylic
C10M129/44	. . . . . containing hydroxy groups
C10M129/46	. . . . . cycloaliphatic
C10M129/48	. . . having carboxyl groups bound to a carbon atom of a six-membered aromatic ring
C10M129/50	. . . . monocarboxylic
C10M129/52	. . . . polycarboxylic
C10M129/54	. . . . containing hydroxy groups
C10M129/56	. . . Acids of unknown or incompletely defined constitution
C10M129/58	. . . . Naphthenic acids
C10M129/60	. . . . Tall oil acids
C10M129/62	. . . . Rosin acids
C10M129/64	. . . Acids obtained from polymerised unsaturated acids
C10M129/66	. . Epoxidised acids or esters
C10M129/68	. . Esters (epoxidised C10M129/66)
C10M129/70	. . . of monocarboxylic acids

C10M129/72	. . . of polycarboxylic acids
C10M129/74	. . . of polyhydroxy compounds
C10M129/76	. . . containing free hydroxy or carboxyl groups
C10M129/78	. . . 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
C10M129/80	. . . . derived from the combination of monocarboxylic acids, dicarboxylic acids and dihydroxy compounds only and having no free hydroxy or carboxyl groups
C10M129/82	. . . . derived from the combination of monohydroxy compounds, dihydroxy compounds and dicarboxylic acids only and having no free hydroxy or carboxyl groups
C10M129/84	. . . of carbonic acid
C10M129/86	. having a carbon chain of 30 or more atoms
C10M129/88	. . Hydroxy compounds
C10M129/90	. . . having hydroxy groups bound to acyclic or cycloaliphatic carbon atoms
C10M129/91	. . . having hydroxy groups bound to a carbon atom of a six-membered aromatic ring
C10M129/92	. . Carboxylic acids
C10M129/93	. . . having carboxyl groups bound to acyclic or cycloaliphatic carbon atoms
C10M129/94	. . . having carboxyl groups bound to a carbon atom of a six-membered aromatic ring
C10M129/95	. . Esters
C10M131/00	Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing halogen
C10M131/02	. containing carbon, hydrogen and halogen only
C10M131/04	. . aliphatic
C10M131/06	. . aromatic
C10M131/08	. containing carbon, hydrogen, halogen and oxygen
C10M131/10	. . Alcohols; Ethers; Aldehydes; Ketones
C10M131/12	. . Acids; Salts or esters thereof
C10M131/14	. Halogenated waxes
C10M133/00	Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing nitrogen
C10M133/02	. having a carbon chain of less than 30 atoms
C10M133/04	. . Amines, e.g. polyalkylene polyamines; Quaternary amines (polyalkylene polyamines with eleven or more monomer units C10M149/22)
C10M133/06	. . . having amino groups bound to acyclic or cycloaliphatic carbon atoms

C10M133/08	. . . . containing hydroxy groups
C10M133/10	. . . . cycloaliphatic
C10M133/12	. . . having amino groups bound to a carbon atom of a six-membered aromatic ring
C10M133/14	. . . . containing hydroxy groups
C10M133/16	. . Amides; Imides
C10M133/18	. . . of carbonic or haloformic acids
C10M133/20	. . . . Ureas; Semicarbazides; Allophanates
C10M133/22	. . containing a carbon-to-nitrogen double bond, e.g. guanidines, hydrazones, semicarbazones
C10M133/24	. . Nitriles
C10M133/26	. . containing a nitrogen-to-nitrogen double bond
C10M133/28	. . . Azo compounds
C10M133/30	. . containing a nitrogen-to-oxygen bond
C10M133/32	. . . containing a nitro group
C10M133/34	. . . containing a nitroso group
C10M133/36	. . . Hydroxylamines
C10M133/38	. . Heterocyclic nitrogen compounds
C10M133/40	. . . Six-membered ring containing nitrogen and carbon only
C10M133/42	. . . . Triazines
C10M133/44	. . . Five-membered ring containing nitrogen and carbon only
C10M133/46	. . . . Imidazoles
C10M133/48	. . . the ring containing both nitrogen and oxygen
C10M133/50	. . . . Morpholines
C10M133/52	. having a carbon chain of 30 or more atoms
C10M133/54	. . Amines
C10M133/56	. . Amides; Imides
C10M133/58	. . Heterocyclic compounds
C10M135/00	Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing sulfur, selenium or tellurium
C10M135/02	. Sulfurised compounds
C10M135/04	. . Hydrocarbons
C10M135/06	. . Esters, e.g. fats
C10M135/08	. containing a sulfur-to-oxygen bond
C10M135/10	. . Sulfonic acids or derivatives thereof
C10M135/12	. Thio-acids; Thiocyanates; Derivatives thereof
C10M135/14	. . having a carbon-to-sulfur double bond
C10M135/16	. . . thiourea type, i.e. containing the group



- C10M135/18 . . . thiocarbamic type, e.g. containing the groups $\text{>N}-\overset{\text{S}}{\underset{\parallel}{\text{C}}}-\text{S}-$ or $\text{>N}-\overset{\text{S}}{\underset{\parallel}{\text{C}}}-\text{O}-$
- C10M135/20 . Thiols; Sulfides; Polysulfides
- C10M135/22 . . containing sulfur atoms bound to acyclic or cycloaliphatic carbon atoms
- C10M135/24 . . . containing hydroxy groups; Derivatives thereof
- C10M135/26 . . . containing carboxyl groups; Derivatives thereof
- C10M135/28 . . containing sulfur atoms bound to a carbon atom of a six-membered aromatic ring
- C10M135/30 . . . containing hydroxy groups; Derivatives thereof
- C10M135/32 . Heterocyclic sulfur, selenium or tellurium compounds
- C10M135/34 . . the ring containing sulfur and carbon only
- C10M135/36 . . the ring containing sulfur and carbon with nitrogen or oxygen
- C10M137/00** **Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing phosphorus**
- C10M137/02 . having no phosphorus-to-carbon bond
- C10M137/04 . . Phosphate esters
- C10M137/06 . . . Metal salts
- C10M137/08 . . . Ammonium or amine salts
- C10M137/10 . . . Thio derivatives
- C10M137/10B [N: not containing metal] [N9707]
- C10M137/12 . having a phosphorus-to-carbon bond
- C10M137/14 . . containing sulfur
- C10M137/16 . having a phosphorus-to-nitrogen bond
- C10M139/00** **Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing atoms of elements not provided for in groups [C10M127/00](#) to [C10M137/00](#)**
- C10M139/02 . Esters of silicon acids
- C10M139/04 . having a silicon-to-carbon bond, e.g. silanes
- C10M139/06 . having a metal-to-carbon bond (metal complexes of unknown constitution [C10M159/18](#))
- C10M141/00** **Lubricating compositions characterised by the additive being a mixture of two or more compounds covered by more than one of the main groups [C10M125/00](#) to [C10M139/00](#), each of these compounds being essential**
- C10M141/02 . at least one of them being an organic oxygen-containing compound
- C10M141/04 . at least one of them being an organic halogen-containing compound

- C10M141/06 . at least one of them being an organic nitrogen-containing compound
- C10M141/08 . at least one of them being an organic sulfur-, selenium- or tellurium-containing compound
- C10M141/10 . at least one of them being an organic phosphorus-containing compound
- C10M141/12 . at least one of them being an organic compound containing atoms of elements not provided for in groups [C10M141/02](#) to [C10M141/10](#)

- C10M143/00** **Lubricating compositions characterised by the additive being a macromolecular hydrocarbon or such hydrocarbon modified by oxidation**
- C10M143/02 . Polyethene
- C10M143/04 . containing propene
- C10M143/06 . containing butene
- C10M143/08 . containing aliphatic monomer having more than 4 carbon atoms
- C10M143/10 . containing aromatic monomer, e.g. styrene
- C10M143/12 . containing conjugated diene
- C10M143/14 . containing non-conjugated diene
- C10M143/16 . containing cycloaliphatic monomer
- C10M143/18 . Oxidised hydrocarbons, i.e. oxidised subsequent to macromolecular formation

- C10M145/00** **Lubricating compositions characterised by the additive being a macromolecular compound containing oxygen (oxidised hydrocarbons [C10M143/18](#))**
- C10M145/02 . Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
- C10M145/04 . . containing monomers having an unsaturated radical bound to an alcohol, aldehyde, ketonic, ether, ketal or acetal radical
- C10M145/06 . . containing monomers having an unsaturated radical bound to an acyloxy radical of a saturated carboxylic or carbonic acid
- C10M145/08 . . . Vinyl esters of a saturated carboxylic or carbonic acid
- C10M145/10 . . containing monomers having an unsaturated radical bound to a carboxyl radical, e.g. acrylate
- C10M145/12 . . . monocarboxylic
- C10M145/14 Acrylate; Methacrylate
- C10M145/16 . . . polycarboxylic
- C10M145/18 . Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds

C10M145/20	. . Condensation polymers of aldehydes or ketones
C10M145/22	. . Polyesters
C10M145/24	. . Polyethers
C10M145/26	. . . Polyoxyalkylenes
C10M145/28	. . . . of alkylene oxides containing 2 carbon atoms only
C10M145/30	. . . . of alkylene oxides containing 3 carbon atoms only
C10M145/32	. . . . of alkylene oxides containing 4 or more carbon atoms
C10M145/34	. . . . of two or more specified different types
C10M145/36	. . . . etherified
C10M145/38	. . . . esterified
C10M145/40	. Polysaccharides, e.g. cellulose
C10M147/00	Lubricating compositions characterised by the additive being a macromolecular compound containing halogen
C10M147/02	. Monomer containing carbon, hydrogen and halogen only
C10M147/04	. Monomer containing carbon, hydrogen, halogen and oxygen
C10M149/00	Lubricating compositions characterised by the additive being a macromolecular compound containing nitrogen
C10M149/02	. Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
C10M149/04	. . containing monomers having an unsaturated radical bound to an amino group
C10M149/06	. . containing monomers having an unsaturated radical bound to an amido or imido group
C10M149/08	. . containing monomers having an unsaturated radical bound to a nitrile group
C10M149/10	. . containing monomers having an unsaturated radical bound to a nitrogen-containing hetero ring
C10M149/12	. Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
C10M149/14	. . a condensation reaction being involved
C10M149/16	. . . between the nitrogen-containing monomer and an aldehyde or ketone
C10M149/18	. . . Polyamides
C10M149/20	. . . Polyureas
C10M149/22	. . . Polyamines
C10M151/00	Lubricating compositions characterised by the additive being a macromolecular compound containing sulfur, selenium or tellurium
C10M151/02	. Macromolecular compounds obtained by reactions involving only carbon-to-carbon unsaturated bonds
C10M151/04	. Macromolecular compounds obtained otherwise than by reactions only involving

carbon-to-carbon unsaturated bonds

C10M153/00	Lubricating compositions characterised by the additive being a macromolecular compound containing phosphorus
C10M153/02	<ul style="list-style-type: none"> Macromolecular compounds obtained by reactions involving only carbon-to-carbon unsaturated bonds
C10M153/04	<ul style="list-style-type: none"> Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
C10M155/00	Lubricating compositions characterised by the additive being a macromolecular compound containing atoms of elements not provided for in groups C10M143/00 to C10M153/00
C10M155/02	<ul style="list-style-type: none"> Monomer containing silicon
C10M155/04	<ul style="list-style-type: none"> Monomer containing boron
C10M157/00	Lubricating compositions characterised by the additive being a mixture of two or more macromolecular compounds covered by more than one of the main groups C10M143/00 to C10M155/00, each of these compounds being essential
C10M157/02	<ul style="list-style-type: none"> at least one of them being a halogen-containing compound
C10M157/04	<ul style="list-style-type: none"> at least one of them being a nitrogen-containing compound
C10M157/06	<ul style="list-style-type: none"> at least one of them being a sulfur-, selenium- or tellurium-containing compound
C10M157/08	<ul style="list-style-type: none"> at least one of them being a phosphorus-containing compound
C10M157/10	<ul style="list-style-type: none"> at least one of them being a compound containing atoms of elements not provided for in groups C10M157/02 to C10M157/08
C10M159/00	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 C10M129/56)
C10M159/00P	<ul style="list-style-type: none"> [N: Macromolecular compounds, e.g. macromolecular compounds composed of alternatively specified monomers not covered by the same main group]
C10M159/02	<ul style="list-style-type: none"> Natural products
C10M159/04	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Petroleum fractions, e.g. tars, solvents
C10M159/06	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Waxes, e.g. ozocerite, ceresine, petrolatum, slack-wax
C10M159/08	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Fatty oils
C10M159/10	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Rubber
C10M159/12	<ul style="list-style-type: none"> Reaction products

C10M159/12B	<ul style="list-style-type: none"> [N: obtained by phosphorus or phosphorus-containing compounds, e.g. P x S x with organic compounds]
C10M159/12B5	<ul style="list-style-type: none"> [N: with hydrocarbon polymers]
C10M159/14	<ul style="list-style-type: none"> obtained by Friedel-Crafts condensation
C10M159/16	<ul style="list-style-type: none"> obtained by Mannich reactions
C10M159/18	<ul style="list-style-type: none"> Complexes with metals
C10M159/20	<ul style="list-style-type: none"> Reaction mixtures having an excess of neutralising base, e.g. so-called overbasic or highly basic products
C10M159/22	<ul style="list-style-type: none"> containing phenol radicals
C10M159/24	<ul style="list-style-type: none"> containing sulfonic radicals
C10M161/00	Lubricating compositions characterised by the additive being a mixture of a macromolecular compound and a non-macromolecular compound, each of these compounds being essential
C10M163/00	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 [N: Note: Compositions containing compounds covered by C10M159/00P as compounds of unknown or incompletely defined constitution are classified in C10M161/00]
C10M165/00	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 [N: Note: Compositions containing compounds covered by C10M159/00P , as compounds of unknown or incompletely defined constitution are classified in C10M157/00]
C10M167/00	Lubricating compositions characterised by the additive being a mixture of a macromolecular compound, a non-macromolecular compound and a compound of unknown or incompletely defined constitution, each of these compounds being essential [N: Note: Compositions containing compounds covered by C10M159/00P , as compounds of unknown or incompletely defined constitution are classified in C10M161/00]
Guide heading:	<u>Mixtures of base-materials, thickeners and additives</u>
C10M169/00	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
C10M169/00B	<ul style="list-style-type: none"> [N: Particular lubricating compositions] [N0302] <p>[N: WARNING This group is no longer used for the classification of new documents]</p>
C10M169/02	<ul style="list-style-type: none"> Mixtures of base-materials and thickeners
C10M169/04	<ul style="list-style-type: none"> Mixtures of base-materials and additives

- C10M169/04B . . [N: the additives being macromolecular compounds only]
- C10M169/04D . . [N: the additives being compounds of unknown or incompletely defined constitution only]
- C10M169/04F . . [N: the additives being a mixture of non-macromolecular and macromolecular compounds]
- C10M169/04H . . [N: the additives being a mixture of compounds of unknown or incompletely defined constitution and non-macromolecular compounds]
- C10M169/04J . . [N: the additives being a mixture of compounds of unknown or incompletely defined constitution and macromolecular compounds]
- C10M169/04L . . [N: the additives being a mixture of compounds of unknown or incompletely defined constitution, non-macromolecular and macromolecular compounds]
- C10M169/06 . Mixtures of thickeners and additives

Guide heading: **Compositions characterised by physical properties**

Note

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

C10M171/00 **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 C10M101/00 to C10M169/00](#); [petroleum fractions C10M101/02, C10M121/02, C10M159/04](#))

- C10M171/00B . [N: Electrorheological fluids; smart fluids]
- C10M171/00C . [N: Traction fluids]
- C10M171/00D . [N: Foam inhibited lubricant compositions]
- C10M171/00E . [N: Volatile oil compositions; Vaporous lubricants]
- C10M171/00I . [N: Coloured or dyes-containing lubricant compositions]
- C10M171/00R . [N: Lubricant compositions compatible with refrigerants]
- C10M171/02 . Specified values of viscosity or viscosity index
- C10M171/04 . Specified molecular weight or molecular weight distribution
- C10M171/06 . Particles of special shape or size

Guide heading: **Aqueous lubricating compositions**

Note

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

C10M173/00 **Lubricating compositions containing more than 10% water**

- C10M173/02 . not containing mineral or fatty oils
- C10M173/02B . . [N: for lubricating conveyor belts] [N0004]

Guide heading: **Working-up**

C10M175/00 **Working-up used lubricants to recover useful products** [N: (destructive distillation C10B; extraction and elimination of PCBs [C10G7/00P](#), [C10G21/00P](#), [C10G25/00P](#); combustion processes F23G; Filtration, filters in general B01D); Cleaning (in a mechanical way B08B; integrated processes C23; solid waste B09B)] [C0409]

- C10M175/00B . [N: with the use of adsorbentia]
- C10M175/00C . [N: with the use of chemical agents]
- C10M175/00D . [N: by thermal processes]
- C10M175/00D1 . . [N: using distillation processes; devices therefor]
- C10M175/00D2 . . [N: by hydrogenation processes]
- C10M175/00E . [N: using extraction processes; apparatus therefor]
- C10M175/00F . [N: by filtration and centrifugation processes; apparatus therefor]
- C10M175/00H . [N: Use of electrical and magnetical means]
- C10M175/00M . [N: synthetic oil based]
- C10M175/00N . [N: Lubricating greases]
- C10M175/00Z . [N: Treatment of oils in a continuous lubricating circuit (e.g. motor oil system)]
- C10M175/02 . mineral-oil based
- C10M175/04 . aqueous emulsion based
- C10M175/06 . by ultra-filtration or osmosis

Guide heading: **Preparation or after-treatment**

C10M177/00 **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**