

| Symbol  | Typ                 | Titel   |
|---|---------------------|---|
| <b>C</b>  | <b>Sektion</b>      | <b>CHEMISTRY; METALLURGY</b>  |
| <b>C10</b>  | <b>Klasse</b>       | <b>PETROLEUM, GAS OR COKE INDUSTRIES; TECHNICAL GASES CONTAINING CARBON MONOXIDE; FUELS; LUBRICANTS; PEAT</b>   |
| <b>C10G</b>                                       | <b>Unterklasse</b>  | <b>CRACKING HYDROCARBON OILS; PRODUCTION OF LIQUID HYDROCARBON MIXTURES, e.g. BY DESTRUCTIVE HYDROGENATION, OLIGOMERISATION, POLYMERISATION (cracking to hydrogen or synthesis gas C01B; cracking or pyrolysis of hydrocarbon gases to individual hydrocarbons or mixtures thereof of definite or specified constitution C07C; cracking to cokes C10B); RECOVERY OF HYDROCARBON OILS FROM OIL-SHALE, OIL-SAND, OR GASES; REFINING MIXTURES MAINLY CONSISTING OF HYDROCARBONS; REFORMING OF NAPHTHA; MINERAL WAXES [6]</b> |
| <b>C10G 1/00</b>                                  | <b>Hauptgruppe</b>  | <b>Production of liquid hydrocarbon mixtures from oil shale, oil-sand, or non-melting solid carbonaceous or similar materials, e.g. wood, coal (mechanical winning of oil from oil-shales, oil-sand, or the like B03B) [1, 2006.01]</b>   |
| C10G 1/02   | 1-Punkt Untergruppe | . by distillation [1, 2006.01]  |
| C10G 1/04   | 1-Punkt Untergruppe | . by extraction [1, 2006.01]  |
| C10G 1/06   | 1-Punkt Untergruppe | . by destructive hydrogenation [1, 2006.01]   |
| C10G 1/08   | 2-Punkt Untergruppe | . . with moving catalysts [1, 2006.01]  |
| C10G 1/10   | 1-Punkt Untergruppe | . from rubber or rubber waste [1, 2006.01]  |
| <b>C10G 2/00</b>                                  | <b>Hauptgruppe</b>  | <b>Production of liquid hydrocarbon mixtures of undefined composition from oxides of carbon [5, 2006.01]</b>  |
| <b>C10G 3/00</b>                                  | <b>Hauptgruppe</b>  | <b>Production of liquid hydrocarbon mixtures from oxygen-containing organic materials, e.g. fatty oils, fatty acids (production from non-melting solid oxygen-containing carbonaceous materials C10G 1/00) [1, 2006.01]</b>   |
| <b>C10G 5/00</b>                                  | <b>Hauptgruppe</b>  | <b>Recovery of liquid hydrocarbon mixtures from gases, e.g. natural gas [1, 2006.01]</b>  |
| C10G 5/02   | 1-Punkt Untergruppe | . with solid adsorbents [1, 2006.01]  |
| C10G 5/04   | 1-Punkt Untergruppe | . with liquid absorbents [1, 2006.01]   |
| C10G 5/06   | 1-Punkt Untergruppe | . by cooling or compressing [1, 2006.01]  |
| <b>C10G 7/00</b>                                  | <b>Hauptgruppe</b>  | <b>Distillation of hydrocarbon oils [1, 2006.01]</b>  |
| C10G 7/02   | 1-Punkt Untergruppe | . Stabilising gasoline by removing gases by fractioning [1, 2006.01]  |
| C10G 7/04   | 1-Punkt Untergruppe | . De-watering [1, 2006.01]  |
| C10G 7/06   | 1-Punkt Untergruppe | . Vacuum distillation [3, 2006.01]  |
| C10G 7/08   | 1-Punkt Untergruppe | . Azeotropic or extractive distillation (refining of hydrocarbon oils, in the absence of hydrogen, by extraction with selective solvents C10G 21/00) [3, 2006.01]   |
| C10G 7/10   | 1-Punkt Untergruppe | . Inhibiting corrosion during distillation [3, 2006.01]   |
| C10G 7/12   | 1-Punkt Untergruppe | . Controlling or regulating [3, 2006.01]  |
| <b><u>Cracking in the absence of hydrogen</u></b> |                     |   |
| <b>C10G 9/00</b>                                  | <b>Hauptgruppe</b>  | <b>Thermal non-catalytic cracking, in the absence of hydrogen, of hydrocarbon oils [1, 2006.01]</b>   |
| C10G 9/02   | 1-Punkt Untergruppe | . in retorts [1, 2006.01]   |
| C10G 9/04   | 2-Punkt Untergruppe | . . Retorts [1, 2006.01]  |
| C10G 9/06   | 1-Punkt Untergruppe | . by pressure distillation [1, 2006.01]   |

| Symbol            | Typ                 | Titel  |
|-------------------|---------------------|--|
| C10G 9/08         | 2-Punkt Untergruppe | ... Apparatus therefor [1, 2006.01]  |
| C10G 9/12         | 3-Punkt Untergruppe | ... Removing incrustation [1, 2006.01]   |
| C10G 9/14         | 1-Punkt Untergruppe | . in pipes or coils with or without auxiliary means, e.g. digesters, soaking drums, expansion means [1, 2006.01]   |
| C10G 9/16         | 2-Punkt Untergruppe | ... Preventing or removing incrustation [1, 2006.01]   |
| C10G 9/18         | 2-Punkt Untergruppe | ... Apparatus [1, 2006.01]   |
| C10G 9/20         | 3-Punkt Untergruppe | ... Tube furnaces [1, 2006.01]   |
| C10G 9/24         | 1-Punkt Untergruppe | . by heating with electrical means [1, 2006.01]  |
| C10G 9/26         | 1-Punkt Untergruppe | . with discontinuously preheated non-moving solid material, e.g. blast and run [1, 2006.01]  |
| C10G 9/28         | 1-Punkt Untergruppe | . with preheated moving solid material [1, 2006.01]  |
| C10G 9/30         | 2-Punkt Untergruppe | ... according to the "moving bed" technique [1, 2006.01]   |
| C10G 9/32         | 2-Punkt Untergruppe | ... according to the "fluidised bed" technique [1, 2006.01]  |
| C10G 9/34         | 1-Punkt Untergruppe | . by direct contact with inert preheated fluids, e.g. with molten metals or salts [1, 2006.01]   |
| C10G 9/36         | 2-Punkt Untergruppe | ... with heated gases or vapours [1, 2006.01]  |
| C10G 9/38         | 3-Punkt Untergruppe | ... produced by partial combustion of the material to be cracked or by combustion of another hydrocarbon [1, 2, 2006.01]   |
| C10G 9/40         | 1-Punkt Untergruppe | . by indirect contact with preheated fluid other than hot combustion gases [1, 2006.01]  |
| C10G 9/42         | 1-Punkt Untergruppe | . by passing the material to be cracked in thin streams or as spray on or near continuously heated surfaces [1, 2006.01]   |
| <b>C10G 11/00</b> | <b>Hauptgruppe</b>  | <b>Catalytic cracking, in the absence of hydrogen, of hydrocarbon oils (cracking in direct contact with molten metals or salts C10G 9/34) [1, 2006.01]</b>                     |
| C10G 11/02        | 1-Punkt Untergruppe | . characterised by the catalyst used [1, 2006.01]  |
| C10G 11/04        | 2-Punkt Untergruppe | ... Oxides [1, 2006.01]  |
| C10G 11/05        | 3-Punkt Untergruppe | ... Crystalline alumino-silicates, e.g. molecular sieves [3, 2006.01]  |
| C10G 11/06        | 2-Punkt Untergruppe | ... Sulfides [1, 2006.01]  |
| C10G 11/08        | 2-Punkt Untergruppe | ... Halides [1, 2006.01]   |
| C10G 11/10        | 1-Punkt Untergruppe | . with stationary catalyst bed [1, 2006.01]  |
| C10G 11/12        | 1-Punkt Untergruppe | . with discontinuously preheated non-moving solid catalysts, e.g. blast and run [1, 2006.01]   |
| C10G 11/14        | 1-Punkt Untergruppe | . with preheated moving solid catalysts [1, 2006.01]   |
| C10G 11/16        | 2-Punkt Untergruppe | ... according to the "moving bed" technique [1, 2006.01]   |
| C10G 11/18        | 2-Punkt Untergruppe | ... according to the "fluidised bed" technique [1, 2006.01]  |
| C10G 11/20        | 1-Punkt Untergruppe | . by direct contact with inert heated gases or vapours [1, 2006.01]  |
| C10G 11/22        | 2-Punkt Untergruppe | ... produced by partial combustion of the material to be cracked [1, 2006.01]  |
| <b>C10G 15/00</b> | <b>Hauptgruppe</b>  | <b>Cracking of hydrocarbon oils by electric means, electromagnetic or mechanical vibrations, by particle radiation or with gases superheated in electric arcs [1, 2006.01]</b> |

| Symbol            | Typ                 | Titel  |
|-------------------|---------------------|--|
| C10G 15/08        | 1-Punkt Untergruppe | . by electric means or by electromagnetic or mechanical vibrations [3, 2006.01]  |
| C10G 15/10        | 1-Punkt Untergruppe | . by particle radiation [3, 2006.01]   |
| C10G 15/12        | 1-Punkt Untergruppe | . with gases superheated in an electric arc, e.g. plasma [3, 2006.01]  |
|                   |                     | <b><u>Refining in the absence of hydrogen</u></b>  |
| <b>C10G 17/00</b> | <b>Hauptgruppe</b>  | <b>Refining of hydrocarbon oils, in the absence of hydrogen, with acids, acid-forming compounds, or acid-containing liquids, e.g. acid sludge [1, 2006.01]</b> |
| C10G 17/02        | 1-Punkt Untergruppe | . with acids or acid-containing liquids, e.g. acid sludge [1, 2006.01]   |
| C10G 17/04        | 2-Punkt Untergruppe | .. Liquid-liquid treatment forming two immiscible phases [1, 2006.01]  |
| C10G 17/06        | 3-Punkt Untergruppe | ... using acids derived from sulfur or acid sludge thereof [1, 2006.01]  |
| C10G 17/07        | 3-Punkt Untergruppe | ... using halogen acids or oxyacids of halogen (acids generating halogen C10G 27/02) [3, 2006.01]  |
| C10G 17/08        | 1-Punkt Untergruppe | . with acid-forming oxides (refining with CO <sub>2</sub> or SO <sub>2</sub> as a selective solvent C10G 21/06) [1, 2006.01]                                   |
| C10G 17/085       | 2-Punkt Untergruppe | .. with oleum [3, 2006.01]   |
| C10G 17/09        | 1-Punkt Untergruppe | . with acid salts [3, 2006.01]   |
| C10G 17/095       | 1-Punkt Untergruppe | . with "solid acids", e.g. phosphoric acid deposited on a carrier [3, 2006.01]   |
| C10G 17/10        | 1-Punkt Untergruppe | . Recovery of used refining agent [1, 2006.01]   |
| <b>C10G 19/00</b> | <b>Hauptgruppe</b>  | <b>Refining hydrocarbon oils, in the absence of hydrogen, by alkaline treatment [1, 2006.01]</b>   |
| C10G 19/02        | 1-Punkt Untergruppe | . with aqueous alkaline solutions [1, 2006.01]   |
| C10G 19/04        | 2-Punkt Untergruppe | .. containing solubilisers, e.g. solutisers [1, 2006.01]   |
| C10G 19/06        | 2-Punkt Untergruppe | .. with plumbites or plumbates [1, 2006.01]  |
| C10G 19/067       | 1-Punkt Untergruppe | . with molten alkaline material [3, 2006.01]   |
| C10G 19/073       | 1-Punkt Untergruppe | . with solid alkaline material [3, 2006.01]  |
| C10G 19/08        | 1-Punkt Untergruppe | . Recovery of used refining agent [1, 2006.01]   |
| <b>C10G 21/00</b> | <b>Hauptgruppe</b>  | <b>Refining of hydrocarbon oils, in the absence of hydrogen, by extraction with selective solvents (C10G 17/00, C10G 19/00 take precedence) [1, 2006.01]</b>   |
| C10G 21/02        | 1-Punkt Untergruppe | . with two or more solvents, which are introduced or withdrawn separately [1, 2006.01]   |
| C10G 21/04        | 2-Punkt Untergruppe | .. by introducing simultaneously at least two immiscible solvents counter-current to each other [1, 2006.01]   |
| C10G 21/06        | 1-Punkt Untergruppe | . characterised by the solvent used [1, 2006.01]   |
| C10G 21/08        | 2-Punkt Untergruppe | .. Inorganic compounds only [1, 2006.01]   |
| C10G 21/10        | 3-Punkt Untergruppe | ... Sulfur dioxide [1, 2006.01]  |
| C10G 21/12        | 2-Punkt Untergruppe | ... Organic compounds only [1, 2006.01]  |
| C10G 21/14        | 3-Punkt Untergruppe | ... Hydrocarbons [1, 2006.01]  |
| C10G 21/16        | 3-Punkt Untergruppe | ... Oxygen-containing compounds [1, 2006.01]   |
| C10G 21/18        | 3-Punkt Untergruppe | ... Halogen-containing compounds [1, 2006.01]  |
| C10G 21/20        | 3-Punkt Untergruppe | ... Nitrogen-containing compounds [1, 2006.01]   |

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|-------------------|---------------------|---|
| C10G 21/22        | 3-Punkt Untergruppe | ... Compounds containing sulfur, selenium, or tellurium [1, 2006.01]  |
| C10G 21/24        | 3-Punkt Untergruppe | ... Phosphorus-containing compounds [1, 2006.01]  |
| C10G 21/26        | 3-Punkt Untergruppe | ... Silicon-containing compounds [1, 2006.01]   |
| C10G 21/27        | 3-Punkt Untergruppe | ... Organic compounds not provided for in a single one of groups C10G 21/14-C10G 21/26 [3, 2006.01]                               |
| C10G 21/28        | 1-Punkt Untergruppe | . Recovery of used solvent [1, 2006.01]   |
| C10G 21/30        | 1-Punkt Untergruppe | . Controlling or regulating [3, 2006.01]  |
| <b>C10G 25/00</b> | <b>Hauptgruppe</b>  | <b>Refining of hydrocarbon oils, in the absence of hydrogen, with solid sorbents [1, 2006.01]</b>                                 |
| C10G 25/02        | 1-Punkt Untergruppe | . with ion-exchange material [1, 2006.01]   |
| C10G 25/03        | 2-Punkt Untergruppe | .. with crystalline alumino-silicates, e.g. molecular sieves [3, 2006.01]   |
| C10G 25/05        | 3-Punkt Untergruppe | ... Removal of non-hydrocarbon compounds, e.g. sulfur compounds [3, 2006.01]  |
| C10G 25/06        | 1-Punkt Untergruppe | . with moving sorbents or sorbents dispersed in the oil [1, 2006.01]  |
| C10G 25/08        | 2-Punkt Untergruppe | .. according to the "moving bed" technique [1, 2006.01]   |
| C10G 25/09        | 2-Punkt Untergruppe | .. according to the "fluidised bed" technique [3, 2006.01]  |
| C10G 25/11        | 2-Punkt Untergruppe | .. Distillation in the presence of moving sorbents [3, 2006.01]   |
| C10G 25/12        | 1-Punkt Untergruppe | . Recovery of used adsorbent [1, 2006.01]   |
| <b>C10G 27/00</b> | <b>Hauptgruppe</b>  | <b>Refining of hydrocarbon oils, in the absence of hydrogen, by oxidation [1, 2006.01]</b>  |
| C10G 27/02        | 1-Punkt Untergruppe | . with halogen or compounds generating halogen; Hypochlorous acid or salts thereof [1, 2006.01]                                   |
| C10G 27/04        | 1-Punkt Untergruppe | . with oxygen or compounds generating oxygen [1, 2006.01]   |
| C10G 27/06        | 2-Punkt Untergruppe | .. in the presence of alkaline solutions [1, 2006.01]   |
| C10G 27/08        | 2-Punkt Untergruppe | .. in the presence of copper chloride [1, 2006.01]  |
| C10G 27/10        | 2-Punkt Untergruppe | .. in the presence of metal-containing organic complexes, e.g. chelates, or cationic ion-exchange resins [3, 2006.01]             |
| C10G 27/12        | 2-Punkt Untergruppe | .. with oxygen-generating compounds, e.g. per-compounds, chromic acid, chromates (plumbites or plumbates C10G 19/06) [3, 2006.01] |
| C10G 27/14        | 2-Punkt Untergruppe | .. with ozone-containing gases [3, 2006.01]   |
| <b>C10G 29/00</b> | <b>Hauptgruppe</b>  | <b>Refining of hydrocarbon oils, in the absence of hydrogen, with other chemicals [1, 2006.01]</b>                                |
| C10G 29/02        | 1-Punkt Untergruppe | . Non-metals [1, 2006.01]   |
| C10G 29/04        | 1-Punkt Untergruppe | . Metals, or metals deposited on a carrier [1, 2006.01]   |
| C10G 29/06        | 1-Punkt Untergruppe | . Metal salts, or metal salts deposited on a carrier [1, 2006.01]   |
| C10G 29/08        | 2-Punkt Untergruppe | .. containing the metal in the lower valency [1, 2006.01]   |
| C10G 29/10        | 2-Punkt Untergruppe | .. Sulfides [1, 2006.01]  |
| C10G 29/12        | 2-Punkt Untergruppe | .. Halides [1, 3, 2006.01]  |
| C10G 29/16        | 1-Punkt Untergruppe | . Metal oxides [1, 2006.01]   |
| C10G 29/20        | 1-Punkt Untergruppe | . Organic compounds not containing metal atoms [1, 2006.01]   |

| Symbol            | Typ                 | Titel  |
|-------------------|---------------------|--|
| C10G 29/22        | 2-Punkt Untergruppe | ... containing oxygen as the only hetero atom [1, 2006.01]   |
| C10G 29/24        | 3-Punkt Untergruppe | ... Aldehydes or ketones [1, 2006.01]  |
| C10G 29/26        | 2-Punkt Untergruppe | ... Halogenated hydrocarbons [1, 2006.01]  |
| C10G 29/28        | 2-Punkt Untergruppe | ... containing sulfur as the only hetero atom, e.g. mercaptans, or sulfur and oxygen as the only hetero atoms [1, 2006.01]                         |
| <b>C10G 31/00</b> | <b>Hauptgruppe</b>  | <b>Refining of hydrocarbon oils, in the absence of hydrogen, by methods not otherwise provided for (by distillation C10G 7/00) [1, 2, 2006.01]</b> |
| C10G 31/06        | 1-Punkt Untergruppe | . by heating, cooling, or pressure treatment [1, 2006.01]  |
| C10G 31/08        | 1-Punkt Untergruppe | . by treating with water [1, 2006.01]  |
| C10G 31/09        | 1-Punkt Untergruppe | . by filtration [3, 2006.01]   |
| C10G 31/10        | 1-Punkt Untergruppe | . with the aid of centrifugal force [1, 2006.01]   |
| C10G 31/11        | 1-Punkt Untergruppe | . by dialysis [3, 2006.01]   |
| <b>C10G 32/00</b> | <b>Hauptgruppe</b>  | <b>Refining of hydrocarbon oils by electric or magnetic means, by irradiation, or by using microorganisms [3, 2006.01]</b>                         |
| C10G 32/02        | 1-Punkt Untergruppe | . by electric or magnetic means [3, 2006.01]   |
| C10G 32/04        | 1-Punkt Untergruppe | . by particle radiation [3, 2006.01]   |
| <b>C10G 33/00</b> | <b>Hauptgruppe</b>  | <b>De-watering or demulsification of hydrocarbon oils (by distillation C10G 7/04) [1, 2006.01]</b>   |
| C10G 33/02        | 1-Punkt Untergruppe | . with electrical or magnetic means [1, 2006.01]   |
| C10G 33/04        | 1-Punkt Untergruppe | . with chemical means [1, 2006.01]   |
| C10G 33/06        | 1-Punkt Untergruppe | . with mechanical means, e.g. by filtration [1, 2006.01]   |
| C10G 33/08        | 1-Punkt Untergruppe | . Controlling or regulating [3, 2006.01]   |
| <b>C10G 35/00</b> | <b>Hauptgruppe</b>  | <b>Reforming naphtha [1, 2006.01]</b>  |
| C10G 35/02        | 1-Punkt Untergruppe | . Thermal reforming [1, 2006.01]   |
| C10G 35/04        | 1-Punkt Untergruppe | . Catalytic reforming [1, 2006.01]   |
| C10G 35/06        | 2-Punkt Untergruppe | ... characterised by the catalyst used [1, 2006.01]  |
| C10G 35/085       | 3-Punkt Untergruppe | ... containing platinum group metals or compounds thereof [3, 2006.01]   |
| C10G 35/09        | 4-Punkt Untergruppe | .... Bimetallic catalysts in which at least one of the metals is a platinum-group metal [3, 2006.01]   |
| C10G 35/095       | 3-Punkt Untergruppe | ... containing crystalline alumino-silicates, e.g. molecular sieves [3, 2006.01]   |
| C10G 35/10        | 2-Punkt Untergruppe | ... with moving catalysts [1, 2006.01]   |
| C10G 35/12        | 3-Punkt Untergruppe | ... according to the "moving bed" technique [1, 2006.01]   |
| C10G 35/14        | 3-Punkt Untergruppe | ... according to the "fluidised bed" technique [1, 2006.01]  |
| C10G 35/16        | 1-Punkt Untergruppe | . with electric, electromagnetic, or mechanical vibrations; by particle radiation [1, 2006.01]   |
| C10G 35/22        | 1-Punkt Untergruppe | . Starting-up reforming operations [3, 2006.01]  |
| C10G 35/24        | 1-Punkt Untergruppe | . Controlling or regulating of reforming operations [3, 2006.01]   |

**Hydrotreatment processes**

| Symbol            | Typ                 | Titel   |
|-------------------|---------------------|---|
| <b>C10G 45/00</b> | <b>Hauptgruppe</b>  | <b>Refining of hydrocarbon oils using hydrogen or hydrogen-generating compounds [3, 2006.01]</b>  |
| C10G 45/02        | 1-Punkt Untergruppe | . to eliminate hetero atoms without changing the skeleton of the hydrocarbon involved and without cracking into lower boiling hydrocarbons; Hydrofinishing [3, 2006.01]   |
| C10G 45/04        | 2-Punkt Untergruppe | ... characterised by the catalyst used [3, 2006.01]   |
| C10G 45/06        | 3-Punkt Untergruppe | ... containing nickel or cobalt metal, or compounds thereof [3, 2006.01]  |
| C10G 45/08        | 4-Punkt Untergruppe | .... in combination with chromium, molybdenum, or tungsten metals, or compounds thereof [3, 2006.01]  |
| C10G 45/10        | 3-Punkt Untergruppe | ... containing platinum group metals or compounds thereof [3, 2006.01]  |
| C10G 45/12        | 3-Punkt Untergruppe | ... containing crystalline alumino-silicates, e.g. molecular sieves [3, 2006.01]  |
| C10G 45/14        | 2-Punkt Untergruppe | ... with moving solid particles [3, 2006.01]  |
| C10G 45/16        | 3-Punkt Untergruppe | ... suspended in the oil, e.g. slurries [3, 2006.01]  |
| C10G 45/18        | 3-Punkt Untergruppe | ... according to the "moving bed" technique [3, 2006.01]  |
| C10G 45/20        | 3-Punkt Untergruppe | ... according to the "fluidised bed" technique [3, 2006.01]   |
| C10G 45/22        | 2-Punkt Untergruppe | ... with hydrogen dissolved or suspended in the oil [3, 2006.01]  |
| C10G 45/24        | 2-Punkt Untergruppe | ... with hydrogen-generating compounds [3, 2006.01]   |
| C10G 45/26        | 3-Punkt Untergruppe | ... Steam or water [3, 2006.01]   |
| C10G 45/28        | 3-Punkt Untergruppe | ... Organic compounds; Autofining [3, 2006.01]  |
| C10G 45/30        | 4-Punkt Untergruppe | .... characterised by the catalyst used [3, 2006.01]  |
| C10G 45/32        | 1-Punkt Untergruppe | . Selective hydrogenation of the diolefin or acetylene compounds [3, 2006.01]   |
| C10G 45/34        | 2-Punkt Untergruppe | ... characterised by the catalyst used [3, 2006.01]   |
| C10G 45/36        | 3-Punkt Untergruppe | ... containing nickel or cobalt metal, or compounds thereof [3, 2006.01]  |
| C10G 45/38        | 4-Punkt Untergruppe | .... in combination with chromium, molybdenum or tungsten metals, or compounds thereof [3, 2006.01]   |
| C10G 45/40        | 3-Punkt Untergruppe | ... containing platinum group metals or compounds thereof [3, 2006.01]  |
| C10G 45/42        | 2-Punkt Untergruppe | ... with moving solid particles [3, 2006.01]  |
| C10G 45/44        | 1-Punkt Untergruppe | . Hydrogenation of the aromatic hydrocarbons [3, 2006.01]   |
| C10G 45/46        | 2-Punkt Untergruppe | ... characterised by the catalyst used [3, 2006.01]   |
| C10G 45/48        | 3-Punkt Untergruppe | ... containing nickel or cobalt metal, or compounds thereof [3, 2006.01]  |
| C10G 45/50        | 4-Punkt Untergruppe | .... in combination with chromium, molybdenum or tungsten metal, or compounds thereof [3, 2006.01]  |
| C10G 45/52        | 3-Punkt Untergruppe | ... containing platinum group metals or compounds thereof [3, 2006.01]  |
| C10G 45/54        | 3-Punkt Untergruppe | ... containing crystalline alumino-silicates, e.g. molecular sieves [3, 2006.01]  |
| C10G 45/56        | 2-Punkt Untergruppe | ... with moving solid particles [3, 2006.01]  |
| C10G 45/58        | 1-Punkt Untergruppe | . to change the structural skeleton of some of the hydrocarbon content without cracking the other hydrocarbons present, e.g. lowering pour point; Selective hydrocracking of normal paraffins (C10G 32/00 takes precedence; improving or increasing the octane number or aromatic content of naphtha C10G 35/00) [3, 2006.01] |

| Symbol            | Typ                 | Titel   |
|-------------------|---------------------|---|
| C10G 45/60        | 2-Punkt Untergruppe | ... characterised by the catalyst used [3, 2006.01]   |
| C10G 45/62        | 3-Punkt Untergruppe | ... containing platinum group metals or compounds thereof [3, 2006.01]  |
| C10G 45/64        | 3-Punkt Untergruppe | ... containing crystalline alumino-silicates, e.g. molecular sieves [3, 2006.01]  |
| C10G 45/66        | 2-Punkt Untergruppe | ... with moving solid particles [3, 2006.01]  |
| C10G 45/68        | 2-Punkt Untergruppe | ... Aromatisation of hydrocarbon oil fractions [3, 2006.01]   |
| C10G 45/70        | 3-Punkt Untergruppe | ... with catalysts containing platinum group metals or compounds thereof [3, 2006.01]   |
| C10G 45/72        | 1-Punkt Untergruppe | . Controlling or regulating [3, 2006.01]  |
| <b>C10G 47/00</b> | <b>Hauptgruppe</b>  | <b>Cracking of hydrocarbon oils, in the presence of hydrogen or hydrogen-generating compounds, to obtain lower boiling fractions (C10G 15/00 takes precedence; destructive hydrogenation of non-melting solid carbonaceous or similar materials C10G 1/06) [3, 2006.01]</b> |
| C10G 47/02        | 1-Punkt Untergruppe | . characterised by the catalyst used [3, 2006.01]   |
| C10G 47/04        | 2-Punkt Untergruppe | ... Oxides [3, 2006.01]   |
| C10G 47/06        | 2-Punkt Untergruppe | ... Sulfides [3, 2006.01]   |
| C10G 47/08        | 2-Punkt Untergruppe | ... Halides [3, 2006.01]  |
| C10G 47/10        | 2-Punkt Untergruppe | ... with catalysts deposited on a carrier [3, 2006.01]  |
| C10G 47/12        | 3-Punkt Untergruppe | ... Inorganic carriers [3, 2006.01]   |
| C10G 47/14        | 4-Punkt Untergruppe | .... the catalyst containing platinum group metals or compounds thereof [3, 2006.01]  |
| C10G 47/16        | 4-Punkt Untergruppe | .... Crystalline alumino-silicate carriers [3, 2006.01]   |
| C10G 47/18        | 5-Punkt Untergruppe | ..... the catalyst containing platinum group metals or compounds thereof [3, 2006.01]   |
| C10G 47/20        | 5-Punkt Untergruppe | ..... the catalyst containing other metals or compounds thereof [3, 2006.01]  |
| C10G 47/22        | 1-Punkt Untergruppe | . Non-catalytic cracking in the presence of hydrogen [3, 2006.01]   |
| C10G 47/24        | 1-Punkt Untergruppe | . with moving solid particles [3, 2006.01]  |
| C10G 47/26        | 2-Punkt Untergruppe | ... suspended in the oil, e.g. slurries [3, 2006.01]  |
| C10G 47/28        | 2-Punkt Untergruppe | ... according to the "moving bed" technique [3, 2006.01]  |
| C10G 47/30        | 2-Punkt Untergruppe | ... according to the "fluidised bed" technique [3, 2006.01]   |
| C10G 47/32        | 1-Punkt Untergruppe | . in the presence of hydrogen-generating compounds [3, 2006.01]   |
| C10G 47/34        | 2-Punkt Untergruppe | ... Organic compounds, e.g. hydrogenated hydrocarbons [3, 2006.01]  |
| C10G 47/36        | 1-Punkt Untergruppe | . Controlling or regulating [3, 2006.01]  |
| <b>C10G 49/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of hydrocarbon oils, in the presence of hydrogen or hydrogen-generating compounds, not provided for in a single one of groups C10G 45/02, C10G 45/32, C10G 45/44, C10G 45/58, or C10G 47/00 [3, 2006.01]</b>   |
| C10G 49/02        | 1-Punkt Untergruppe | . characterised by the catalyst used [3, 2006.01]   |
| C10G 49/04        | 2-Punkt Untergruppe | ... containing nickel, cobalt, chromium, molybdenum, or tungsten metals, or compounds thereof [3, 2006.01]  |
| C10G 49/06        | 2-Punkt Untergruppe | ... containing platinum group metals or compounds thereof [3, 2006.01]  |
| C10G 49/08        | 2-Punkt Untergruppe | ... containing crystalline alumino-silicates, e.g. molecular sieves [3, 2006.01]  |

| Symbol            | Typ                 | Titel   |
|-------------------|---------------------|---|
| C10G 49/10        | 1-Punkt Untergruppe | . with moving solid particles [3, 2006.01]  |
| C10G 49/12        | 2-Punkt Untergruppe | ... suspended in the oil, e.g. slurries [3, 2006.01]  |
| C10G 49/14        | 2-Punkt Untergruppe | ... according to the "moving bed" technique [3, 2006.01]  |
| C10G 49/16        | 2-Punkt Untergruppe | ... according to the "fluidised bed" technique [3, 2006.01]   |
| C10G 49/18        | 1-Punkt Untergruppe | . in the presence of hydrogen-generating compounds, e.g. ammonia, water, hydrogen sulfide [3, 2006.01]  |
| C10G 49/20        | 2-Punkt Untergruppe | ... Organic compounds [3, 2006.01]  |
| C10G 49/22        | 1-Punkt Untergruppe | . Separation of effluents [3, 2006.01]  |
| C10G 49/24        | 1-Punkt Untergruppe | . Starting-up hydrotreatment operations [3, 2006.01]  |
| C10G 49/26        | 1-Punkt Untergruppe | . Controlling or regulating [3, 2006.01]  |
| <b>C10G 50/00</b> | <b>Hauptgruppe</b>  | <b>Production of liquid hydrocarbon mixtures from lower carbon number hydrocarbons, e.g. by oligomerisation [6, 2006.01]</b>  |
| C10G 50/02        | 1-Punkt Untergruppe | . of hydrocarbon oils for lubricating purposes [6, 2006.01]   |
|                   |                     | <b><u>Multi-step processes</u></b>  |
| <b>C10G 51/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of hydrocarbon oils, in the absence of hydrogen, by two or more cracking processes only [3, 2006.01]</b>   |
| C10G 51/02        | 1-Punkt Untergruppe | . plural serial stages only [3, 2006.01]  |
| C10G 51/04        | 2-Punkt Untergruppe | ... including only thermal and catalytic cracking steps [3, 2006.01]  |
| C10G 51/06        | 1-Punkt Untergruppe | . plural parallel stages only [3, 2006.01]  |
| <b>C10G 53/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of hydrocarbon oils, in the absence of hydrogen, by two or more refining processes [3, 2006.01]</b>  |
| C10G 53/02        | 1-Punkt Untergruppe | . plural serial stages only [3, 2006.01]  |
| C10G 53/04        | 2-Punkt Untergruppe | ... including at least one extraction step [3, 2006.01]   |
| C10G 53/06        | 3-Punkt Untergruppe | ... including only extraction steps, e.g. deasphalting by solvent treatment followed by extraction of aromatics [3, 2006.01]  |
| C10G 53/08        | 2-Punkt Untergruppe | ... including at least one sorption step [3, 2006.01]   |
| C10G 53/10        | 2-Punkt Untergruppe | ... including at least one acid-treatment step [3, 2006.01]   |
| C10G 53/12        | 2-Punkt Untergruppe | ... including at least one alkaline-treatment step [3, 2006.01]   |
| C10G 53/14        | 2-Punkt Untergruppe | ... including at least one oxidation step [3, 2006.01]  |
| C10G 53/16        | 1-Punkt Untergruppe | . plural parallel stages only [3, 2006.01]  |
| <b>C10G 55/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of hydrocarbon oils, in the absence of hydrogen, by at least one refining process and at least one cracking process [3, 2006.01]</b>                             |
| C10G 55/02        | 1-Punkt Untergruppe | . plural serial stages only [3, 2006.01]  |
| C10G 55/04        | 2-Punkt Untergruppe | ... including at least one thermal cracking step [3, 2006.01]   |
| C10G 55/06        | 2-Punkt Untergruppe | ... including at least one catalytic cracking step [3, 2006.01]   |
| C10G 55/08        | 1-Punkt Untergruppe | . plural parallel stages only [3, 2006.01]  |
| <b>C10G 57/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of hydrocarbon oils, in the absence of hydrogen, by at least one cracking process or refining process and at least one other conversion process [3, 2006.01]</b> |

| Symbol            | Typ                 | Titel   |
|-------------------|---------------------|---|
| C10G 57/02        | 1-Punkt Untergruppe | . with polymerisation [3, 2006.01]  |
| <b>C10G 59/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of naphtha by two or more reforming processes only or by at least one reforming process and at least one process which does not substantially change the boiling range of the naphtha [3, 2006.01]</b> |
| C10G 59/02        | 1-Punkt Untergruppe | . plural serial stages only [3, 2006.01]  |
| C10G 59/04        | 2-Punkt Untergruppe | .. including at least one catalytic and at least one non-catalytic reforming step [3, 2006.01]  |
| C10G 59/06        | 1-Punkt Untergruppe | . plural parallel stages only [3, 2006.01]  |
| <b>C10G 61/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of naphtha by at least one reforming process and at least one process of refining in the absence of hydrogen [3, 2006.01]</b>  |
| C10G 61/02        | 1-Punkt Untergruppe | . plural serial stages only [3, 2006.01]  |
| C10G 61/04        | 2-Punkt Untergruppe | .. the refining step being an extraction [3, 2006.01]   |
| C10G 61/06        | 2-Punkt Untergruppe | .. the refining step being a sorption process [3, 2006.01]  |
| C10G 61/08        | 1-Punkt Untergruppe | . plural parallel stages only [3, 2006.01]  |
| C10G 61/10        | 1-Punkt Untergruppe | . processes also including other conversion steps [3, 2006.01]  |
| <b>C10G 63/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of naphtha by at least one reforming process and at least one other conversion process (C10G 59/00, C10G 61/00 take precedence) [3, 2006.01]</b>   |
| C10G 63/02        | 1-Punkt Untergruppe | . plural serial stages only [3, 2006.01]  |
| C10G 63/04        | 2-Punkt Untergruppe | .. including at least one cracking step [3, 2006.01]  |
| C10G 63/06        | 1-Punkt Untergruppe | . plural parallel stages only [3, 2006.01]  |
| C10G 63/08        | 2-Punkt Untergruppe | .. including at least one cracking step [3, 2006.01]  |
| <b>C10G 65/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of hydrocarbon oils by two or more hydrotreatment processes only [3, 2006.01]</b>  |
| C10G 65/02        | 1-Punkt Untergruppe | . plural serial stages only [3, 2006.01]  |
| C10G 65/04        | 2-Punkt Untergruppe | .. including only refining steps [3, 2006.01]   |
| C10G 65/06        | 3-Punkt Untergruppe | ... at least one step being a selective hydrogenation of the diolefins [3, 2006.01]   |
| C10G 65/08        | 3-Punkt Untergruppe | ... at least one step being a hydrogenation of the aromatic hydrocarbons [3, 2006.01]   |
| C10G 65/10        | 2-Punkt Untergruppe | .. including only cracking steps [3, 2006.01]   |
| C10G 65/12        | 2-Punkt Untergruppe | .. including cracking steps and other hydrotreatment steps [3, 2006.01]   |
| C10G 65/14        | 1-Punkt Untergruppe | . plural parallel stages only [3, 2006.01]  |
| C10G 65/16        | 2-Punkt Untergruppe | .. including only refining steps [3, 2006.01]   |
| C10G 65/18        | 2-Punkt Untergruppe | .. including only cracking steps [3, 2006.01]   |
| <b>C10G 67/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of hydrocarbon oils by at least one hydrotreatment process and at least one process for refining in the absence of hydrogen only [3, 2006.01]</b>  |
| C10G 67/02        | 1-Punkt Untergruppe | . plural serial stages only [3, 2006.01]  |
| C10G 67/04        | 2-Punkt Untergruppe | .. including solvent extraction as the refining step in the absence of hydrogen [3, 2006.01]  |
| C10G 67/06        | 2-Punkt Untergruppe | .. including a sorption process as the refining step in the absence of hydrogen [3, 2006.01]  |
| C10G 67/08        | 2-Punkt Untergruppe | .. including acid treatment as the refining step in the absence of hydrogen [3, 2006.01]  |

| Symbol            | Typ                 | Titel  |
|-------------------|---------------------|--|
| C10G 67/10        | 2-Punkt Untergruppe | ... including alkaline treatment as the refining step in the absence of hydrogen [3, 2006.01]  |
| C10G 67/12        | 2-Punkt Untergruppe | ... including oxidation as the refining step in the absence of hydrogen [3, 2006.01]   |
| C10G 67/14        | 2-Punkt Untergruppe | ... including at least two different refining steps in the absence of hydrogen [3, 2006.01]  |
| C10G 67/16        | 1-Punkt Untergruppe | . plural parallel stages only [3, 2006.01]   |
| <b>C10G 69/00</b> | <b>Hauptgruppe</b>  | <b>Treatment of hydrocarbon oils by at least one hydrotreatment process and at least one other conversion process (C10G 67/00 takes precedence) [3, 2006.01]</b>     |
| C10G 69/02        | 1-Punkt Untergruppe | . plural serial stages only [3, 2006.01]   |
| C10G 69/04        | 2-Punkt Untergruppe | ... including at least one step of catalytic cracking in the absence of hydrogen [3, 2006.01]  |
| C10G 69/06        | 2-Punkt Untergruppe | ... including at least one step of thermal cracking in the absence of hydrogen [3, 2006.01]  |
| C10G 69/08        | 2-Punkt Untergruppe | ... including at least one step of reforming naphtha [3, 2006.01]  |
| C10G 69/10        | 3-Punkt Untergruppe | ... hydrocracking of higher boiling fractions into naphtha and reforming the naphtha obtained [3, 2006.01]   |
| C10G 69/12        | 2-Punkt Untergruppe | ... including at least one polymerisation or alkylation step [3, 2006.01]  |
| C10G 69/14        | 1-Punkt Untergruppe | . plural parallel stages only [3, 2006.01]   |
| <b>C10G 70/00</b> | <b>Hauptgruppe</b>  | <b>Working-up undefined normally gaseous mixtures obtained by processes covered by groups C10G 9/00, C10G 11/00, C10G 15/00, C10G 47/00, C10G 51/00 [5, 2006.01]</b> |
| C10G 70/02        | 1-Punkt Untergruppe | . by hydrogenation [5, 2006.01]  |
| C10G 70/04        | 1-Punkt Untergruppe | . by physical processes [5, 2006.01]   |
| C10G 70/06        | 2-Punkt Untergruppe | ... by gas-liquid contact [5, 2006.01]   |
| <b>C10G 71/00</b> | <b>Hauptgruppe</b>  | <b>Treatment by methods not otherwise provided for of hydrocarbon oils or fatty oils for lubricating purposes [3, 2006.01]</b>                                       |
| C10G 71/02        | 1-Punkt Untergruppe | . Thickening by voltolising (chemical modification of drying-oils by voltolising C09F 7/04) [3, 2006.01]   |
| <b>C10G 73/00</b> | <b>Hauptgruppe</b>  | <b>Recovery or refining of mineral waxes, e.g. montan wax (compositions essentially based on waxes C08L 91/00) [3, 2006.01]</b>                                      |
| C10G 73/02        | 1-Punkt Untergruppe | . Recovery of petroleum waxes from hydrocarbon oils; De-waxing of hydrocarbon oils [3, 2006.01]  |
| C10G 73/04        | 2-Punkt Untergruppe | ... with the use of filter aids [3, 2006.01]   |
| C10G 73/06        | 2-Punkt Untergruppe | ... with the use of solvents [3, 2006.01]  |
| C10G 73/08        | 3-Punkt Untergruppe | ... Organic compounds [3, 2006.01]   |
| C10G 73/10        | 4-Punkt Untergruppe | .... Hydrocarbons [3, 2006.01]   |
| C10G 73/12        | 4-Punkt Untergruppe | .... Oxygen-containing compounds [3, 2006.01]  |
| C10G 73/14        | 4-Punkt Untergruppe | .... Halogen-containing compounds [3, 2006.01]   |
| C10G 73/16        | 4-Punkt Untergruppe | .... Nitrogen-containing compounds [3, 2006.01]  |
| C10G 73/18        | 4-Punkt Untergruppe | .... containing sulfur, selenium or tellurium [3, 2006.01]   |
| C10G 73/20        | 4-Punkt Untergruppe | .... containing phosphorus [3, 2006.01]  |
| C10G 73/22        | 4-Punkt Untergruppe | .... Mixtures of organic compounds [3, 2006.01]  |
| C10G 73/23        | 3-Punkt Untergruppe | ... Recovery of used solvents [6, 2006.01]   |

| Symbol            | Typ                 | Titel   |
|-------------------|---------------------|---|
| C10G 73/24        | 2-Punkt Untergruppe | ... by formation of adducts [3, 2006.01]  |
| C10G 73/26        | 2-Punkt Untergruppe | ... by flotation [3, 2006.01]   |
| C10G 73/28        | 2-Punkt Untergruppe | ... by centrifugal force [3, 2006.01]   |
| C10G 73/30        | 2-Punkt Untergruppe | ... with electric means [3, 2006.01]  |
| C10G 73/32        | 2-Punkt Untergruppe | ... Methods of cooling during de-waxing [3, 2006.01]  |
| C10G 73/34        | 2-Punkt Untergruppe | ... Controlling or regulating [3, 2006.01]  |
| C10G 73/36        | 1-Punkt Untergruppe | . Recovery of petroleum waxes from other compositions containing oil in minor proportions, from concentrates or from residues; De-oiling, sweating [3, 2006.01]     |
| C10G 73/38        | 1-Punkt Untergruppe | . Chemical modification of petroleum waxes [3, 2006.01]   |
| C10G 73/40        | 1-Punkt Untergruppe | . Physical treatment of waxes or modified waxes, e.g. granulation, dispersion, emulsion, irradiation [3, 2006.01]   |
| C10G 73/42        | 1-Punkt Untergruppe | . Refining of petroleum waxes [3, 2006.01]  |
| C10G 73/44        | 2-Punkt Untergruppe | ... in the presence of hydrogen or hydrogen-generating compounds [3, 2006.01]   |
| <b>C10G 75/00</b> | <b>Hauptgruppe</b>  | <b>Inhibiting corrosion or fouling in apparatus for treatment or conversion of hydrocarbon oils, in general (C10G 7/10, C10G 9/16 take precedence) [6, 2006.01]</b> |
| C10G 75/02        | 1-Punkt Untergruppe | . by addition of corrosion inhibitors [6, 2006.01]  |
| C10G 75/04        | 1-Punkt Untergruppe | . by addition of antifouling agents [6, 2006.01]  |
| <b>C10G 99/00</b> | <b>Hauptgruppe</b>  | <b>Subject matter not provided for in other groups of this subclass [2006.01]</b>   |