

# CPC COOPERATIVE PATENT CLASSIFICATION

## C CHEMISTRY; METALLURGY

(NOTES omitted)

### CHEMISTRY

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

## C10K PURIFYING OR MODIFYING THE CHEMICAL COMPOSITION OF COMBUSTIBLE GASES CONTAINING CARBON MONOXIDE

### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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|-------------|---|-------|---|
| <b>1/00</b> | <b>Purifying combustible gases containing carbon monoxide</b> (isolation of hydrogen from mixtures containing hydrogen and carbon monoxide <a href="#">C01B 3/50</a> )                    | 1/106 | . . . . {containing Fe compounds}   |
|             |   | 1/107 | . . . . {containing As-, Sb-, Sn compounds}   |
|             |   | 1/108 | . . . . {containing Cu compounds}   |
| 1/001       | . {working-up the condensates (recovering of NH <sub>3</sub> and NH <sub>4</sub> salts <a href="#">C01C 1/00</a> ; working-up or purifying tars and tar-oils <a href="#">C10C 1/00</a> )} | 1/12  | . . . alkaline-reacting {including the revival of the used wash liquors}  |
| 1/002       | . {Removal of contaminants}   | 1/121 | . . . . {containing NH <sub>3</sub> only (possibly in combination with NH <sub>4</sub> salts)}  |
| 1/003       | . . {of acid contaminants, e.g. acid gas removal}   | 1/122 | . . . . {containing only carbonates, bicarbonates, hydroxides or oxides of alkali-metals (including Mg)}  |
| 1/004       | . . . {Sulfur containing contaminants, e.g. hydrogen sulfide}   | 1/123 | . . . . {containing alkali-, earth-alkali- or NH <sub>4</sub> salts of inorganic acids derived from sulfur}   |
| 1/005       | . . . {Carbon dioxide}  | 1/124 | . . . . {containing metal compounds other than alkali- or earth-alkali carbonates, hydroxides- or oxides- or salts of inorganic acids derived from sulfur}  |
| 1/006       | . . . {Hydrogen cyanide}  |       |   |
| 1/007       | . . {of metal compounds}  | 1/125 | . . . . . {containing Fe compounds}   |
| 1/008       | . . . {Alkali metal compounds}  | 1/126 | . . . . . {containing As-, Sb-, Sn compounds}   |
| 1/02        | . Dust removal  | 1/127 | . . . . . {containing Cu compounds}   |
| 1/022       | . . {by baffle plates}  | 1/128 | . . . . . {containing organic oxygen transferring compounds, e.g. sulfoxides}   |
| 1/024       | . . {by filtration}   | 1/14  | . . . . . organic   |
| 1/026       | . . {by centrifugal forces (cyclones <a href="#">B04C</a> )}  | 1/143 | . . . . . {containing amino groups}   |
| 1/028       | . . {by electrostatic precipitation (separating dispersed particles from gases or vapour by electrostatic effect in general <a href="#">B03C 3/00</a> )}                                  | 1/146 | . . . . . {alkali-, earth-alkali- or NH <sub>4</sub> salts}   |
| 1/04        | . by cooling to condense non-gaseous materials {( <a href="#">C10K 1/001</a> takes precedence)}   | 1/16  | . . with non-aqueous liquids  |
| 1/043       | . . {adding solvents as vapour to prevent naphthalene- or resin deposits}   | 1/165 | . . . {at temperatures below zero degrees Celsius}  |
| 1/046       | . . {Reducing the tar content}  | 1/18  | . . . hydrocarbon oils {( <a href="#">C10K 1/165</a> takes precedence)}   |
| 1/06        | . . combined with spraying with water {( <a href="#">C10K 1/001</a> takes precedence)}  | 1/20  | . by treating with solids; Regenerating spent purifying masses {(separation by adsorption <a href="#">B01D 53/02</a> ; separation by chemical reaction <a href="#">B01D 53/34</a> ; refining of hydrocarbon oils with acids <a href="#">C10G 17/02</a> , <a href="#">C10G 27/02</a> , <a href="#">C10G 29/12</a> )} |
| 1/08        | . by washing with liquids; Reviving the used wash liquors (gas washers <a href="#">B01D</a> )   | 1/205 | . . {Methods and apparatus for treating the purifying masses without their regeneration (recovering of sulfur <a href="#">C01B 17/00</a> ; recovering of cyanide compounds <a href="#">C01C 3/00</a> )}   |
| 1/085       | . . {two direct washing treatments, one with an aqueous liquid and one with a non-aqueous liquid}   |       |   |
| 1/10        | . . with aqueous liquids {(alkaline reacting aqueous liquids <a href="#">C10K 1/12</a> )}   | 1/22  | . . Apparatus, e.g. dry box purifiers   |
| 1/101       | . . . {with water only}   | 1/24  | . . . Supporting means for the purifying material   |
| 1/102       | . . . {containing free acid}  | 1/26  | . . Regeneration of the purifying material {contains also apparatus for the regeneration of the purifying material}   |
| 1/103       | . . . {alkali- or earth-alkali- or NH <sub>4</sub> salts or inorganic acids derived from sulfur}  |       |   |
| 1/105       | . . . {containing metal compounds other than alkali- or earth-alkali carbonates, -hydroxides, oxides, or salts of inorganic acids derived from sulfur}                                    | 1/28  | . . Controlling the gas flow through the purifiers  |

- 1/30 . . with moving purifying masses
- 1/32 . with selectively adsorptive solids, e.g. active carbon
- 1/34 . by catalytic conversion of impurities to more readily removable materials

**3/00 Modifying the chemical composition of combustible gases containing carbon monoxide to produce an improved fuel, e.g. one of different calorific value, which may be free from carbon monoxide**

- 3/001 . {by thermal treatment}
- 3/003 . . {Reducing the tar content}
- 3/005 . . . {by partial oxidation}
- 3/006 . . . {by steam reforming}
- 3/008 . . . {by cracking}
- 3/02 . by catalytic treatment
- 3/023 . . {Reducing the tar content}
- 3/026 . . {Increasing the carbon monoxide content, e.g. reverse water-gas shift [RWGS]}
- 3/04 . . reducing the carbon monoxide content {, e.g. water-gas shift [WGS]}
- 3/06 . by mixing with gases