

**CPC****COOPERATIVE PATENT CLASSIFICATION****C10K****PURIFYING OR MODIFYING THE CHEMICAL COMPOSITION OF COMBUSTIBLE GASES CONTAINING CARBON MONOXIDE****C10K 1/00**

**Purifying combustible gases containing carbon monoxide** (isolation of hydrogen from mixtures containing hydrogen and carbon monoxide [C01B 3/50](#))

## C10K 1/001

- {working-up the condensates (recovering of  $\text{NH}_3$  and  $\text{NH}_4$  salts [C01C 1/00](#); working-up or purifying tars and tar-oils [C10C 1/00](#))}

## C10K 1/002

- {Removal of contaminants}

## C10K 1/003

- . {of acid contaminants, e.g. acid gas removal}

## C10K 1/004

- . . {Sulfur containing contaminants, e.g. hydrogen sulfide}

## C10K 1/005

- . . . {Carbon dioxide}

## C10K 1/006

- . . . {Hydrogen cyanide}

## C10K 1/007

- . . {of metal compounds}

## C10K 1/008

- . . . {Alkali metal compounds}

## C10K 1/02

- Dust removal

## C10K 1/022

- . {by baffle plates}

## C10K 1/024

- . {by filtration}

## C10K 1/026

- . {by centrifugal forces (cyclones [B04C](#))}

## C10K 1/028

- . {by electrostatic precipitation (separating dispersed particles from gases or vapour by electrostatic effect in general [B03C 3/00](#))}

## C10K 1/04

- by cooling to condense non-gaseous materials {([C10K 1/001](#) takes precedence)}

## C10K 1/043

- . {adding solvents as vapour to prevent naphthalene- or resin deposits}

## C10K 1/046

- . {Reducing the tar content}

## C10K 1/06

- . combined with spraying with water {([C10K 1/001](#) takes precedence)}

## C10K 1/08

- by washing with liquids; Reviving the used wash liquors (gas washers [B01D](#))

## C10K 1/085

- . {two direct washing treatments, one with an aqueous liquid and one with a non-aqueous liquid}

## C10K 1/10

- . with aqueous liquids {(alkaline reacting aqueous liquids [C10K 1/12](#))}

## C10K 1/101

- . . {with water only}

## C10K 1/102

- . . {containing free acid}

## C10K 1/103

- . . . {alkali- or earth-alkali- or  $\text{NH}_4$  salts or inorganic acids derived from sulfur}

## C10K 1/105

- . . . {containing metal compounds other than alkali- or earth-alkali carbonates, -hydroxides, oxides, or salts of inorganic acids derived from sulfur}

## C10K 1/106

- . . . . {containing Fe compounds}

## C10K 1/107

- . . . . {containing As-, Sb-, Sn compounds}

## C10K 1/108

- . . . . {containing Cu compounds}

## C10K 1/12

- . . . alkaline-reacting {including the revival of the used wash liquors}

## C10K 1/121

- . . . . {containing  $\text{NH}_3$  only (possibly in combination with  $\text{NH}_4$  salts)}

## C10K 1/122

- . . . . {containing only carbonates, bicarbonates, hydroxides or oxides of alkali-metals (including Mg)}

- C10K 1/123 . . . . {containing alkali-, earth-alkali- or  $\text{NH}_4$  salts of inorganic acids derived from sulfur}
- C10K 1/124 . . . . {containing metal compounds other than alkali- or earth-alkali carbonates, hydroxides- or oxides- or salts of inorganic acids derived from sulfur}
- C10K 1/125 . . . . . {containing Fe compounds}
- C10K 1/126 . . . . . {containing As-, Sb-, Sn compounds}
- C10K 1/127 . . . . . {containing Cu compounds}
- C10K 1/128 . . . . . {containing organic oxygen transferring compounds, e.g. sulfoxides}
- C10K 1/14 . . . . . organic
- C10K 1/143 . . . . . {containing amino groups}
- C10K 1/146 . . . . . {alkali-, earth-alkali- or  $\text{NH}_4$  salts}
- C10K 1/16 . . with non-aqueous liquids
- C10K 1/165 . . . {at temperatures below zero degrees Celsius}
- C10K 1/18 . . . hydrocarbon oils {(C10K 1/165 takes precedence)}
- C10K 1/20 . by treating with solids; Regenerating spent purifying masses {(separation by adsorption B01D 53/02; separation by chemical reaction B01D 53/34; refining of hydrocarbon oils with acids C10G 17/02, C10G 27/02, C10G 29/12)}
- C10K 1/205 . . {Methods and apparatus for treating the purifying masses without their regeneration (recovering of sulfur C01B 17/00; recovering of cyanide compounds C01C 3/00)}
- C10K 1/22 . . Apparatus, e.g. dry box purifiers
- C10K 1/24 . . . Supporting means for the purifying material
- C10K 1/26 . . Regeneration of the purifying material {contains also apparatus for the regeneration of the purifying material}
- C10K 1/28 . . Controlling the gas flow through the purifiers
- C10K 1/30 . . with moving purifying masses
- C10K 1/32 . with selectively adsorptive solids, e.g. active carbon
- C10K 1/34 . by catalytic conversion of impurities to more readily removable materials
- C10K 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**
- C10K 3/001 . {by thermal treatment}
- C10K 3/003 . . {Reducing the tar content}
- C10K 3/005 . . . {by partial oxidation}
- C10K 3/006 . . . {by steam reforming}
- C10K 3/008 . . . {by cracking}
- C10K 3/02 . by catalytic treatment
- C10K 3/023 . . {Reducing the tar content}
- C10K 3/026 . . {Increasing the carbon monoxide content, e.g. reverse water-gas shift [RWGS]}
- C10K 3/04 . . reducing the carbon monoxide content {e.g. water-gas shift [WGS]}
- C10K 3/06 . by mixing with gases