

## ECLA EUROPEAN CLASSIFICATION

### C10B DESTRUCTIVE DISTILLATION OF CARBONAGEOUS MATERIALS FOR PRODUCTION OF GAS, COKE, TAR, OR SIMILAR MATERIALS

(cracking oils [C10G](#); underground gasification of minerals [E21B43/295](#))

**Guide heading:** **Retort and coke ovens**

#### **C10B1/00 Retorts**

- C10B1/02 . Stationary retorts
- C10B1/04 . . Vertical retorts
- C10B1/06 . . Horizontal retorts
- C10B1/08 . . Inclined retorts
- C10B1/10 . Rotary retorts

#### **C10B3/00 Coke ovens with vertical chambers**

- C10B3/02 . with heat-exchange devices

#### **C10B5/00 Coke ovens with horizontal chambers**

- C10B5/02 . with vertical heating flues
- C10B5/04 . . with cross-over inter-connections
- C10B5/06 . with horizontal heating flues
- C10B5/08 . with horizontal and vertical heating flues
- C10B5/10 . with heat-exchange devices
- C10B5/12 . . with regenerators
- C10B5/14 . . . situated in the longitudinal direction of the chambers
- C10B5/16 . . . . with separated flues
- C10B5/18 . . . situated in the longitudinal direction of the oven battery
- C10B5/20 . . with recuperators

#### **C10B7/00 Coke ovens with mechanical conveying means for the raw material inside the oven**

- C10B7/02 . with rotary scraping devices
- C10B7/04 . with shaking or vibrating devices
- C10B7/06 . with endless conveying devices

- C10B7/08 . . . in vertical direction
- C10B7/10 . with conveyer-screws
- C10B7/12 . with tilting or rocking means
- C10B7/14 . with trucks, containers, or trays
- C10B9/00      Beehive ovens**
- C10B11/00      Coke ovens with inclined chambers**
- C10B13/00      Coke ovens with means for bringing and keeping the charge under mechanical pressure**
- C10B15/00      Other coke ovens**
- C10B15/02 . with floor heating
- Guide heading:      Heating of coke ovens**
- C10B17/00      Preheating of coke ovens**
- C10B19/00      Heating of coke ovens by electrical means**
- C10B21/00      Heating of coke ovens with combustible gases**
- C10B21/02 . with lean gas
- C10B21/04 . with rich gas
- C10B21/06 . in coke ovens suitable for the use of lean gas or rich gas
- C10B21/08 . by applying special heating gases
- C10B21/10 . Regulating and controlling the combustion
- C10B21/12 . . Burners
- C10B21/14 . . Devices for reversing the draught
- C10B21/16 . . by controlling or varying the openings between the heating flues and the regenerator flues
- C10B21/18 . . Recirculating the flue gases
- C10B21/20 . Methods of heating ovens of the chamber oven type
- C10B21/22 . . by introducing the heating gas and air at various levels
- C10B21/24 . . . at the top and the bottom of the vertical heating flues

C10B21/26 . . . by introducing the heating gas and air at the top of the vertical flues only

**C10B23/00 Other methods of heating coke ovens**

**C10B25/00 Doors or closures for coke ovens**

- C10B25/02 . Doors; Door frames
- C10B25/04 . . for ovens with vertical chambers
- C10B25/06 . . for ovens with horizontal chambers
- C10B25/08 . . Closing and opening the doors
- C10B25/10 . . . for ovens with vertical chambers
- C10B25/12 . . . for ovens with horizontal chambers
- C10B25/14 . . . Devices for lifting doors
- C10B25/16 . . Sealing; Means for sealing
- C10B25/18 . . Cooling
- C10B25/20 . Lids or closures for charging holes
- C10B25/22 . . for ovens with vertical chambers
- C10B25/24 . . for ovens with horizontal chambers

**C10B27/00 Arrangements for withdrawal of the distillation gases**

- C10B27/02 . with outlets arranged at different levels in the chamber
- C10B27/04 . during the charging operation of the oven
- C10B27/06 . Conduit details, e.g. valves

**C10B29/00 Other details of coke ovens**

- C10B29/02 . Brickwork, e.g. casings, linings, walls
- C10B29/04 . Controlling or preventing expansion or contraction
- C10B29/06 . Preventing or repairing leakages of the brickwork
- C10B29/08 . Bracing or foundation of the ovens

**Guide heading:** **Devices for charging and discharging coke ovens; Mechanical treatments of coal charges**

**C10B31/00 Charging devices**

- C10B31/02 . for charging vertically
- C10B31/04 . . coke ovens with horizontal chambers

- C10B31/06 . for charging horizontally
- C10B31/08 . . coke ovens with horizontal chambers
- C10B31/10 . . . with one compact charge
- C10B31/12 . for liquid materials
- C10B33/00 Discharging devices; Coke guides**
- C10B33/00B . [N: Arrangements for pollution-free discharge]
- C10B33/00C . [N: Decoking tools, e.g. hydraulic coke removing tools with boring or cutting nozzles]  
[N1112]
- C10B33/02 . Extracting coke with built-in devices, e.g. gears, screws
- C10B33/04 . Pulling-out devices
- C10B33/06 . . for horizontal chambers
- C10B33/08 . Pushers, e.g. rams
- C10B33/10 . . for horizontal chambers
- C10B33/12 . Discharge valves
- C10B33/14 . Coke guides
- C10B35/00 Combined charging and discharging devices**
- C10B37/00 Mechanical treatments of coal charges in the oven**
- C10B37/02 . Levelling charges, e.g. with bars
- C10B37/04 . Compressing charges (during coking [C10B47/12](#))
- C10B37/06 . Forming holes in charges
- C10B39/00 Cooling or quenching coke**
- C10B39/02 . Dry cooling outside the oven
- C10B39/04 . Wet quenching
- C10B39/06 . . in the oven
- C10B39/08 . . Coke-quenching towers
- C10B39/10 . combined with agitating means, e.g. rotating tables or drums
- C10B39/12 . combined with conveying means
- C10B39/14 . Cars

C10B39/16 . combined with sorting

C10B39/18 . Coke ramps

**C10B41/00 Safety devices, e.g. signalling or controlling devices for use in the discharge of coke**

C10B41/00C . [N: for charging coal] [N1112]

C10B41/02 . for discharging coke

C10B41/04 . . by electrical means

C10B41/06 . . by pneumatic or hydraulic means

C10B41/08 . for the withdrawal of the distillation gases

**C10B43/00 Preventing or removing incrustations**

C10B43/02 . Removing incrustations

C10B43/04 . . by mechanical means

C10B43/06 . . . from conduits, valves or the like

C10B43/08 . . with liquids

C10B43/10 . . by burning out

C10B43/12 . . . Burners

C10B43/14 . Preventing incrustations

**C10B45/00 Other details**

C10B45/00D . [N: Devices for recovering spilled coke, e.g. recovering the coke falling out the oven when opening doors or withdrawing the leveler bar] [N1112]

C10B45/02 . Devices for producing compact unified coal charges outside the oven ([briquetting presses B30B](#))

**Guide heading: Carbonising or coking processes**

**C10B47/00 Destructive distillation of solid carbonaceous material with indirect heating, e.g. by external combustion**

C10B47/02 . with stationary charge

C10B47/04 . . in shaft furnaces

C10B47/06 . . in retorts

C10B47/08 . . in beehive ovens

C10B47/10 . . in coke ovens of the chamber type

C10B47/12 . . in which the charge is subjected to mechanical pressures during coking

- C10B47/14 . . with the aid of hot liquids, e.g. molten salts
- C10B47/16 . . with indirect heating means both inside and outside the retorts
- C10B47/18 . with moving charge
- C10B47/20 . . according to the moving bed type ([C10B47/26](#) takes precedence)
- C10B47/22 . . in dispersed form ([C10B47/26](#) takes precedence)
- C10B47/24 . . . according to the "fluidised bed" technique
- C10B47/26 . . with the aid of hot liquids, e.g. molten salts
- C10B47/28 . Other processes
- C10B47/30 . . in rotary ovens or retorts
- C10B47/32 . . in ovens with mechanical conveying means
- C10B47/34 . . . with rotary scraping devices
- C10B47/36 . . . . in multi-stage ovens
- C10B47/38 . . . with shaking or vibrating devices
- C10B47/40 . . . with endless conveying devices
- C10B47/42 . . . . in vertical direction
- C10B47/44 . . . with conveyer-screws
- C10B47/46 . . . with trucks, containers, or trays
- C10B47/48 . . . with tilting or rocking means
- C10B49/00** **Destructive distillation of solid carbonaceous materials by direct heating with heat-carrying agents including the partial combustion of the solid material to be treated**
- C10B49/02 . with hot gases or vapours, e.g. hot gases obtained by partial combustion of the charge
- C10B49/04 . . while moving the solid material to be treated
- C10B49/06 . . . according to the moving bed type
- C10B49/08 . . . in dispersed form
- C10B49/10 . . . . according to the "fluidised bed" technique
- C10B49/12 . . . . by mixing tangentially, e.g. in vortex chambers
- C10B49/14 . with hot liquids, e.g. molten metals
- C10B49/16 . with moving solid heat-carriers in divided form
- C10B49/18 . . according to the "moving bed" type
- C10B49/20 . . in dispersed form
- C10B49/22 . . . according to the "fluidised bed" technique
- C10B51/00** **Destructive distillation of solid carbonaceous materials by combined direct and indirect heating**
- C10B53/00** **Destructive distillation, specially adapted for particular solid raw materials or solid raw materials in special form ([wet carbonising of peat C10E](#))**

- C10B53/02 . of cellulose-containing material ([production of pyroligneous acid C10C5/00](#))
- C10B53/04 . of powdered coal
- C10B53/06 . of oil shale and/or or bituminous rocks
- C10B53/07 . **[N: of solid raw materials consisting]** of synthetic polymeric materials, e.g. tyres **[N: (waste in general, e.g. household waste C10B53/00)]** (recovery or working-up of waste materials of organic macromolecular compounds or compositions based thereon by dry-heat treatment for obtaining partially depolymerised materials [C08J11/10](#); production of liquid hydrocarbon mixtures from rubber or rubber waste [C10G1/10](#)) **[N0507]**
- C10B53/08 . in the form of briquettes, lumps and the like
- C10B55/00 Coking mineral oils, bitumen, tar, and the like or mixtures thereof with solid carbonaceous material ([cracking oils C10G](#))**
- C10B55/02 . with solid materials
- C10B55/04 . . with moving solid materials
- C10B55/06 . . . according to the "moving bed" type
- C10B55/08 . . . in dispersed form
- C10B55/10 . . . . according to the "fluidised bed" technique
- C10B57/00 Other processes not covered before; Features of destructive distillation processes in general**
- C10B57/00B . **[N: After-treatment of coke, e.g. calcination desulfurization]**
- C10B57/02 . Multi-step carbonising or coking processes
- C10B57/04 . Using charges of special composition
- C10B57/04B . . **[N: containing mineral oils, bitumen, tar or the like or mixtures thereof] [N1204]**
- C10B57/06 . . containing additives
- C10B57/08 . Non-mechanical pre-treatment of the charge ([C10L9/00 takes precedence](#)), **[N: e.g. desulfurization]**
- C10B57/10 . . Drying
- C10B57/12 . Applying additives during coking
- C10B57/14 . Features of low-temperature carbonising processes
- C10B57/16 . Features of high-temperature carbonising processes
- C10B57/18 . Modifying the properties of the distillation gases in the oven ([outside the oven C10K](#))