

SECTION C — SECTION C – CHEMISTRY; METALLURGY

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

C10B DESTRUCTIVE DISTILLATION OF CARBONACEOUS MATERIALS FOR PRODUCTION OF GAS, COKE, TAR, OR SIMILAR MATERIALS (cracking oils C10G; underground gasification of minerals E21B 43/295) [5]

Subclass indexes

RETORTS; COKE OVENS

Retorts	1/00
Coke ovens	3/00-15/00
Structural features of coke ovens	
doors, closures; other features	25/00; 27/00, 29/00
heating	17/00-23/00
charging devices	13/00, 31/00-35/00

safety devices; preventing or removing incrustations	41/00; 43/00
other details	45/00

CARBONISING OR COKING PROCESSES

By destructive distillation	47/00-53/00
Coking mineral oils or the like	55/00
Other processes	57/00

FEATURES OF DESTRUCTIVE

DISTILLATION PROCESSES IN GENERAL	7/00, 13/00, 37/00, 39/00, 57/00
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Retorts or coke ovens

1/00 Retorts

- 1/02 . Stationary retorts
- 1/04 . . Vertical retorts
- 1/06 . . Horizontal retorts
- 1/08 . . Inclined retorts
- 1/10 . Rotary retorts

3/00 Coke ovens with vertical chambers

- 3/02 . with heat-exchange devices

5/00 Coke ovens with horizontal chambers

- 5/02 . with vertical heating flues
- 5/04 . . with cross-over inter-connections
- 5/06 . with horizontal heating flues
- 5/08 . with horizontal and vertical heating flues
- 5/10 . with heat-exchange devices
- 5/12 . . with regenerators
- 5/14 . . . situated in the longitudinal direction of the chambers
- 5/16 with separated flues
- 5/18 . . . situated in the longitudinal direction of the oven battery
- 5/20 . . with recuperators

7/00 Coke ovens with mechanical conveying means for the raw material inside the oven

- 7/02 . with rotary scraping devices
- 7/04 . with shaking or vibrating devices
- 7/06 . with endless conveying devices
- 7/08 . . in vertical direction
- 7/10 . with conveyer-screws
- 7/12 . with tilting or rocking means
- 7/14 . with trucks, containers, or trays

9/00 Beehive ovens

11/00 Coke ovens with inclined chambers

13/00 Coke ovens with means for bringing and keeping the charge under mechanical pressure

15/00 Other coke ovens

- 15/02 . with floor heating

Heating of coke ovens

17/00 Preheating of coke ovens

19/00 Heating of coke ovens by electrical means

21/00 Heating of coke ovens with combustible gases

- 21/02 . with lean gas
- 21/04 . with rich gas
- 21/06 . in coke ovens suitable for the use of lean gas or rich gas
- 21/08 . by applying special heating gases
- 21/10 . Regulating or controlling the combustion
- 21/12 . . Burners
- 21/14 . . Devices for reversing the draught
- 21/16 . . by controlling or varying the openings between the heating flues and the regenerator flues
- 21/18 . . Recirculating the flue gases
- 21/20 . Methods of heating ovens of the chamber oven type
- 21/22 . . by introducing the heating gas and air at various levels
- 21/24 . . . at the top and the bottom of the vertical heating flues
- 21/26 . . by introducing the heating gas and air at the top of the vertical flues only

23/00 Other methods of heating coke ovens

25/00 Doors or closures for coke ovens

- 25/02 . Doors; Door frames
- 25/04 . . for ovens with vertical chambers
- 25/06 . . for ovens with horizontal chambers
- 25/08 . . Closing or opening the doors
- 25/10 . . . for ovens with vertical chambers
- 25/12 . . . for ovens with horizontal chambers
- 25/14 . . . Devices for lifting doors
- 25/16 . . Sealing; Means for sealing
- 25/18 . . Cooling
- 25/20 . Lids or closures for charging holes
- 25/22 . . for ovens with vertical chambers
- 25/24 . . for ovens with horizontal chambers

27/00 Arrangements for withdrawal of the distillation gases

- 27/02 . with outlets arranged at different levels in the chamber
- 27/04 . during the charging operation of the oven
- 27/06 . Conduit details, e.g. valves

29/00 Other details of coke ovens

- 29/02 . Brickwork, e.g. casings, linings, walls
- 29/04 . Controlling or preventing expansion or contraction
- 29/06 . Preventing or repairing leakages of the brickwork
- 29/08 . Bracing or foundation of the ovens

Devices for charging or discharging coke ovens; Mechanical treatments of coal charges**31/00 Charging devices**

- 31/02 . for charging vertically
- 31/04 . . coke ovens with horizontal chambers
- 31/06 . for charging horizontally
- 31/08 . . coke ovens with horizontal chambers
- 31/10 . . . with one compact charge
- 31/12 . for liquid materials

33/00 Discharging devices; Coke guides

- 33/02 . Extracting coke with built-in devices, e.g. gears, screws
- 33/04 . Pulling-out devices
- 33/06 . . for horizontal chambers
- 33/08 . Pushers, e.g. rams
- 33/10 . . for horizontal chambers
- 33/12 . Discharge valves
- 33/14 . Coke guides

35/00 Combined charging and discharging devices**37/00 Mechanical treatments of coal charges in the oven**

- 37/02 . Levelling charges, e.g. with bars
- 37/04 . Compressing charges (during coking C10B 47/12)
- 37/06 . Forming holes in charges

39/00 Cooling or quenching coke

- 39/02 . Dry cooling outside the oven
- 39/04 . Wet quenching
- 39/06 . . in the oven
- 39/08 . . Coke-quenching towers
- 39/10 . combined with agitating means, e.g. rotating tables or drums
- 39/12 . combined with conveying means
- 39/14 . Cars
- 39/16 . combined with sorting

- 39/18 . Coke ramps

41/00 Safety devices, e.g. signalling or controlling devices for use in the discharge of coke

- 41/02 . for discharging coke
- 41/04 . . by electrical means
- 41/06 . . by pneumatic or hydraulic means
- 41/08 . for the withdrawal of the distillation gases

43/00 Preventing or removing incrustations

- 43/02 . Removing incrustations
- 43/04 . . by mechanical means
- 43/06 . . . from conduits, valves or the like
- 43/08 . . with liquids
- 43/10 . . by burning out
- 43/12 . . . Burners
- 43/14 . Preventing incrustations

45/00 Other details

- 45/02 . Devices for producing compact unified coal charges outside the oven (briquetting presses B30B)

Carbonising or coking processes**47/00 Destructive distillation of solid carbonaceous materials with indirect heating, e.g. by external combustion**

- 47/02 . with stationary charge
- 47/04 . . in shaft furnaces
- 47/06 . . in retorts
- 47/08 . . in beehive ovens
- 47/10 . . in coke ovens of the chamber type
- 47/12 . . in which the charge is subjected to mechanical pressure during coking
- 47/14 . . with the aid of hot liquids, e.g. molten salts
- 47/16 . . with indirect heating means both inside and outside the retorts
- 47/18 . with moving charge
- 47/20 . . according to the "moving bed" technique (C10B 47/26 takes precedence)
- 47/22 . . in dispersed form (C10B 47/26 takes precedence)
- 47/24 . . . according to the "fluidised bed" technique
- 47/26 . . with the aid of hot liquids, e.g. molten salts
- 47/28 . Other processes
- 47/30 . . in rotary ovens or retorts
- 47/32 . . in ovens with mechanical conveying means
- 47/34 . . . with rotary scraping devices
- 47/36 in multi-stage ovens
- 47/38 . . . with shaking or vibrating devices
- 47/40 . . . with endless conveying devices
- 47/42 in vertical direction
- 47/44 . . . with conveyer-screws
- 47/46 . . . with trucks, containers, or trays
- 47/48 . . . with tilting or rocking means

49/00 Destructive distillation of solid carbonaceous materials by direct heating with heat-carrying agents including the partial combustion of the solid material to be treated

- 49/02 . with hot gases or vapours, e.g. hot gases obtained by partial combustion of the charge
- 49/04 . . while moving the solid material to be treated
- 49/06 . . . according to the "moving bed" technique
- 49/08 . . . in dispersed form
- 49/10 according to the "fluidised bed" technique

- 49/12 by mixing tangentially, e.g. in vortex chambers
- 49/14 . with hot liquids, e.g. molten metals
- 49/16 . with moving solid heat-carriers in divided form
- 49/18 . . according to the "moving bed" technique
- 49/20 . . in dispersed form
- 49/22 . . . according to the "fluidised bed" technique

51/00 Destructive distillation of solid carbonaceous materials by combined direct and indirect heating

53/00 Destructive distillation, specially adapted for particular solid raw materials or solid raw materials in special form (wet carbonising of peat C10F)

- 53/02 . of cellulose-containing material (production of pyroligneous acid C10C 5/00)
- 53/04 . of powdered coal
- 53/06 . of oil shale or bituminous rocks
- 53/07 . of synthetic polymeric materials, e.g. tyres (recovery or working-up of waste materials of organic macromolecular compounds or compositions based thereon by dry-heat treatment for obtaining partially depolymerised materials C08J 11/10; production of liquid hydrocarbon mixtures from rubber or rubber waste C10G 1/10) **[2006.01]**
- 53/08 . in the form of briquettes, lumps or the like

55/00 Coking mineral oils, bitumen, tar or the like, or mixtures thereof, with solid carbonaceous materials (cracking oils C10G)

- 55/02 . with solid materials
- 55/04 . . with moving solid materials
- 55/06 . . . according to the "moving bed" technique
- 55/08 . . . in dispersed form
- 55/10 according to the "fluidised bed" technique

57/00 Other processes not covered above; Features of destructive distillation processes in general

- 57/02 . Multi-step carbonising or coking processes
- 57/04 . using charges of special composition
- 57/06 . . containing additives
- 57/08 . Non-mechanical pretreatment of the charge (C10L 9/00 takes precedence)
- 57/10 . . Drying
- 57/12 . Applying additives during coking
- 57/14 . Features of low-temperature carbonising processes
- 57/16 . Features of high-temperature carbonising processes
- 57/18 . Modifying the properties of the distillation gases in the oven (outside the oven C10K)