

CPC**COOPERATIVE PATENT CLASSIFICATION****C21C****PROCESSING OF PIG-IRON, e.g. REFINING, MANUFACTURE OF WROUGHT-IRON OR STEEL; TREATMENT IN MOLTEN STATE OF FERROUS ALLOYS** ([refining metals in general C22B 9/00](#))**C21C 1/00****Refining of pig-iron; Cast iron**

C21C 1/02

- Dephosphorising or desulfurising

C21C 1/025

- . {[Agents used for dephosphorising or desulfurising](#)}

C21C 1/04

- Removing impurities other than carbon, phosphorus or sulfur

C21C 1/06

- Constructional features of mixers for pig-iron

C21C 1/08

- Manufacture of cast-iron

C21C 1/10

- Making spheroidal graphite cast-iron

C21C 1/105

- . {[Nodularising additive agents](#)}

C21C 3/00**Manufacture of wrought-iron or wrought-steel****C21C 5/00****Manufacture of carbon-steel, e.g. plain mild steel, medium carbon steel or cast steel** {[or stainless steel](#)}

C21C 5/005

- {[Manufacture of stainless steel](#)}

C21C 5/02

- Crucible furnace process {(C21C 5/005 takes precedence)}

C21C 5/04

- Manufacture of hearth-furnace steel, e.g. Siemens-Martin steel {(C21C 5/005 takes precedence)}

C21C 5/06

- . Processes yielding slags of special composition

C21C 5/28

- Manufacture of steel in the converter {(C21C 5/005 takes precedence)}

C21C 5/285

- . {[Plants therefor](#)}

C21C 5/30

- . Regulating or controlling the blowing

C21C 5/305

- . . {[Afterburning](#)}

C21C 5/32

- . . Blowing from above (C21C 5/35 takes precedence)

C21C 5/34

- . . Blowing through the bath (C21C 5/35 takes precedence)

C21C 5/35

- . . Blowing from above and through the bath

C21C 5/36

- . Processes yielding slags of special composition

C21C 2005/363

- . . {[Slag cements](#)}

C21C 2005/366

- . . {[Foam slags](#)}

C21C 5/38

- . Removal of waste gases or dust

C21C 5/40

- . . Offtakes or separating apparatus for converter waste gases or dust

C21C 5/42

- . Constructional features of converters

C21C 5/44

- . Refractory linings

C21C 5/441

- . . . {[Equipment used for making or repairing linings](#)}

C21C 5/443

- {[Hot fettling; Flame gunning](#)}

C21C 5/445

- {[Lining or repairing the taphole](#)}

C21C 2005/446

- {[Dry linings](#)}

C21C 2005/448	. . . . {Lining wear indicators}
C21C 5/46	. . . Details or accessories
C21C 5/4606	. . . . {Lances or injectors}
C21C 5/4613	. . . . . {Refractory coated lances; Immersion lances}
C21C 5/462	. . . . . {Means for handling, e.g. adjusting, changing, coupling}
C21C 2005/4626	. . . . . {Means for cooling, e.g. by gases, fluids or liquids}
C21C 5/4633	. . . . {Supporting means}
C21C 5/464	. . . . . {Trunnion bearings}
C21C 5/4646	. . . . {Cooling arrangements}
C21C 5/4653	. . . . {Tapholes; Opening or plugging thereof}
C21C 5/466	. . . . {Charging device for converters}
C21C 2005/4666	. . . . . {for charging with organic contaminated scrap}
C21C 5/4673	. . . . {Measuring and sampling devices}
C21C 2005/468	. . . . . {Means for determining the weight of the converter}
C21C 5/4686	. . . . {Vehicles for supporting and transporting a converter vessel}
C21C 5/4693	. . . . {Skull removal; Cleaning of the converter mouth}
C21C 5/48	. . . . Bottoms or tuyères of converters
C21C 5/50	. . . . Tilting mechanisms for converters
C21C 5/52	. Manufacture of steel in electric furnaces (C21C 5/005 takes precedence; electric heating per se H05B)
C21C 5/5205	. . {in a plasma heated furnace}
C21C 5/5211	. . {in an alternating current [AC] electric arc furnace}
C21C 5/5217	. . . {equipped with burners or devices for injecting gas, i.e. oxygen, or pulverulent materials into the furnace}
C21C 2005/5223	. . . {with post-combustion}
C21C 5/5229	. . {in a direct current [DC] electric arc furnace}
C21C 2005/5235	. . . {with bottom electrodes}
C21C 5/5241	. . {in an inductively heated furnace}
C21C 5/5247	. . . {processing a moving metal stream while exposed to an electromagnetic field, e.g. in an electromagnetic counter current channel}
C21C 5/5252	. . {in an electrically heated multi-chamber furnace, a combination of electric furnaces or an electric furnace arranged for associated working with a non electric furnace}
C21C 2005/5258	. . {with crater formed by down-melting of scrap or charge through electrode or lance}
C21C 5/5264	. . {Manufacture of alloyed steels including ferro-alloys}
C21C 5/527	. . {Charging of the electric furnace}
C21C 2005/5276	. . . {with liquid or solid rest, e.g. pool, "sumpf"}
C21C 2005/5282	. . . {with organic contaminated scrap}
C21C 2005/5288	. . {Measuring or sampling devices}
C21C 5/5294	. . {General arrangement or layout of the electric melt shop}
C21C 5/54	. . Processes yielding slags of special composition

C21C 5/56	<ul style="list-style-type: none"> • Manufacture of steel by other methods (making liquid steel by direct processes C21B 13/00 {; C21C 5/005 takes precedence})
C21C 5/562	<ul style="list-style-type: none"> • . {starting from scrap}
C21C 5/565	<ul style="list-style-type: none"> • . . {Preheating of scrap (apparatus for preheating scrap in general F27D 13/002)}
C21C 5/567	<ul style="list-style-type: none"> • . . {operating in a continuous way}
C21C 7/00	Treating molten ferrous alloys, e.g. steel, not covered by groups C21C 1/00 to C21C 5/00 (treating molten metals during moulding B22D 1/00, B22D 27/00; remelting ferrous metals C22B)
C21C 7/0006	<ul style="list-style-type: none"> • {Adding metallic additives}
C21C 2007/0012	<ul style="list-style-type: none"> • . {Lead}
C21C 2007/0018	<ul style="list-style-type: none"> • . {Boron}
C21C 7/0025	<ul style="list-style-type: none"> • {Adding carbon material}
C21C 2007/0031	<ul style="list-style-type: none"> • . {being plastics, organic compounds, polymers}
C21C 7/0037	<ul style="list-style-type: none"> • {by injecting powdered material}
C21C 7/0043	<ul style="list-style-type: none"> • . {into the falling stream of molten metal}
C21C 7/005	<ul style="list-style-type: none"> • {using exothermic reaction compositions}
C21C 7/0056	<ul style="list-style-type: none"> • {using cored wires}
C21C 2007/0062	<ul style="list-style-type: none"> • . {with introduction of alloying or treating agents under a compacted form different from a wire, e.g. briquette, pellet}
C21C 7/0068	<ul style="list-style-type: none"> • {by introducing material into a current of streaming metal}
C21C 7/0075	<ul style="list-style-type: none"> • {Treating in a ladle furnace, e.g. up-/reheating of molten steel within the ladle}
C21C 7/0081	<ul style="list-style-type: none"> • {Treating and handling under pressure}
C21C 7/0087	<ul style="list-style-type: none"> • {Treatment of slags covering the steel bath, e.g. for separating slag from the molten metal}
C21C 2007/0093	<ul style="list-style-type: none"> • {Duplex process; Two stage processes}
C21C 7/04	<ul style="list-style-type: none"> • Removing impurities by adding a treating agent
C21C 7/06	<ul style="list-style-type: none"> • . Deoxidising, e.g. killing
C21C 7/064	<ul style="list-style-type: none"> • . Dephosphorising; Desulfurising
C21C 7/0645	<ul style="list-style-type: none"> • . . {Agents used for dephosphorising or desulfurising}
C21C 7/068	<ul style="list-style-type: none"> • . Decarburising
C21C 7/0685	<ul style="list-style-type: none"> • . . {of stainless steel}
C21C 7/072	<ul style="list-style-type: none"> • . Treatment with gases (C21C 7/06, C21C 7/064, C21C 7/068 take precedence)
C21C 7/076	<ul style="list-style-type: none"> • . Use of slags or fluxes as treating agents (C21C 7/06, C21C 7/064, C21C 7/068 take precedence)
C21C 7/10	<ul style="list-style-type: none"> • Handling in a vacuum
C21C 2100/00	Exhaust gas
C21C 2100/02	<ul style="list-style-type: none"> • Treatment of the exhaust gas
C21C 2100/04	<ul style="list-style-type: none"> • Recirculation of the exhaust gas
C21C 2100/06	<ul style="list-style-type: none"> • Energy from waste gas used in other processes

C21C 2200/00 **Recycling of waste material****C21C 2250/00** **Specific additives; Means for adding material different from burners or lances**

- C21C 2250/02 . Hot oxygen
- C21C 2250/04 . Liquid gas
- C21C 2250/042 . . Liquid oxygen
- C21C 2250/06 . Hollow electrode
- C21C 2250/08 . Porous plug

C21C 2300/00 **Process aspects**

- C21C 2300/02 . Foam creation
- C21C 2300/04 . Avoiding foam formation
- C21C 2300/06 . Modeling of the process , e.g. for control purposes; CII
- C21C 2300/08 . Particular sequence of the process steps