

**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](#))

**Guidance heading:****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 . Manufacture of steel by other methods (making liquid steel by direct processes [C21B 13/00](#)) { ([C21C 5/005](#) takes precedence) }
- C21C 5/562 . . {starting from scrap }
- C21C 5/565 . . . {Preheating of scrap (apparatus for preheating scrap in general [F27D 13/002](#)) }
- C21C 5/567 . . {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 . {Adding metallic additives }
- C21C 2007/0012 . . Lead
- C21C 2007/0018 . . Boron
  
- C21C 7/0025 . {Adding carbon material }
- C21C 2007/0031 . . being plastics, organic compounds, polymers
  
- C21C 7/0037 . {by injecting powdered material }
- C21C 7/0043 . . {into the falling stream of molten metal }
  
- C21C 7/005 . {using exothermic reaction compositions }
  
- C21C 7/0056 . {using cored wires }
- C21C 2007/0062 . . with introduction of alloying or treating agents under a compacted form different from a wire, e.g. briquette, pellet
  
- C21C 7/0068 . {by introducing material into a current of streaming metal }
  
- C21C 7/0075 . {Treating in a ladle furnace, e.g. up-/reheating of molten steel within the ladle }
  
- C21C 7/0081 . {Treating and handling under pressure }
  
- C21C 7/0087 . {Treatment of slags covering the steel bath, e.g. for separating slag from the molten metal }
  
- C21C 2007/0093 . Duplex process; Two stage processes
  
- C21C 7/04 . Removing impurities by adding a treating agent
- C21C 7/06 . . Deoxidising, e.g. killing
- C21C 7/064 . . Dephosphorising; Desulfurising
- C21C 7/0645 . . . {Agents used for dephosphorising or desulfurising }

- C21C 7/068 . . Decarburising
- C21C 7/0685 . . . {of stainless steel }
- C21C 7/072 . . Treatment with gases ([C21C 7/06](#), [C21C 7/064](#), [C21C 7/068](#) take precedence)
- C21C 7/076 . . Use of slags or fluxes as treating agents ([C21C 7/06](#), [C21C 7/064](#), [C21C 7/068](#) take precedence)
  
- C21C 7/10 . Handling in a vacuum

**Guidance heading:**

**C21C 2100/00 Exhaust gas**

- C21C 2100/02 . Treatment of the exhaust gas
- C21C 2100/04 . Recirculation of the exhaust gas
- C21C 2100/06 . Energy from waste gas used in other processes

**Guidance heading:**

**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