

## SECTION C — CHEMISTRY; METALLURGY

### C21 METALLURGY OF IRON

**C21B MANUFACTURE OF IRON OR STEEL** (preliminary treatment of ferrous ores or scrap C22B 1/00; electric heating H05B)

#### Note(s)

1. This subclass covers:
  - the production of iron or steel from source materials, e.g. the production of pig-iron;
  - apparatus specially adapted therefor, e.g. blast furnaces, air heaters (furnaces in general F27).
2. Processes using enzymes or micro-organisms in order to:
  - i. liberate, separate or purify a pre-existing compound or composition, or to
  - ii. treat textiles or clean solid surfaces of materials
 are further classified in subclass C12S.

#### Subclass index

##### MAKING PIG-IRON

In blast furnaces.....5/00, 7/00, 9/00  
 Other processes.....11/00  
 General features.....3/00

MAKING IRON.....13/00, 15/00

MAKING LIQUID STEEL BY DIRECT PROCESSES.....13/00

#### **3/00 General features in the manufacture of pig-iron** (mixers for pig-iron C21C 1/06)

- 3/02 • by applying additives, e.g. fluxing agents
- 3/04 • Recovery of by-products, e.g. slag
- 3/06 • • Treatment of liquid slag (slag wool C03B; slag stones C04B)
- 3/08 • • • Cooling slag
- 3/10 • • • Slag pots; Slag cars

#### **5/00 Making pig-iron in the blast furnace**

- 5/02 • Making special pig-iron, e.g. by applying additives, e.g. oxides of other metals
- 5/04 • Making slag of special composition
- 5/06 • using top gas in the blast furnace process (in coke ovens C10B)

#### **7/00 Blast furnaces** (lifts associated with blast furnaces B66B 9/06)

- 7/02 • Internal forms
- 7/04 • with special refractories (refractory materials C04B)
- 7/06 • • Linings for furnaces
- 7/08 • Top armourings
- 7/10 • Cooling; Devices therefor
- 7/12 • Opening or sealing the tap holes
- 7/14 • Discharging devices, e.g. for slag
- 7/16 • Tuyères
- 7/18 • Bell-and-hopper arrangements
- 7/20 • • with appliances for distributing the burden
- 7/22 • Dust arresters
- 7/24 • Test rods or other checking devices

#### **9/00 Stoves for heating the blast in blast furnaces**

- 9/02 • Brick hot-blast stoves
- 9/04 • • with combustion shaft
- 9/06 • • Linings
- 9/08 • Iron hot-blast stoves
- 9/10 • Other details, e.g. blast mains
- 9/12 • • Hot-blast valves or slides for blast furnaces (valves in general F16K)
- 9/14 • Preheating the combustion air
- 9/16 • Cooling or drying the hot-blast

#### **11/00 Making pig-iron other than in blast furnaces**

- 11/02 • in low shaft furnaces
- 11/06 • in rotary kilns
- 11/08 • in hearth-type furnaces
- 11/10 • in electric furnaces

#### **13/00 Making spongy iron or liquid steel, by direct processes**

- 13/02 • in shaft furnaces
- 13/04 • in retorts
- 13/06 • in multi-storied furnaces
- 13/08 • in rotary furnaces
- 13/10 • in hearth-type furnaces
- 13/12 • in electric furnaces
- 13/14 • Multi-stage processes

#### **15/00 Other processes for the manufacture of iron from iron compounds** (general methods of reducing to metal C22B 5/00; by electrolysis C25C 1/06)

- 15/02 • Metallothermic processes, e.g. thermit reduction
- 15/04 • from iron carbonyl