

11<sup>th</sup> International  
Trade Fair and  
Symposium for Thermo  
Process Technology

Düsseldorf  
16/06 – 20/06/15

**1****Industrial Furnaces, Industrial Heat Treatment Plants and thermal processes for****1.1****Precious Metals**

- 1.1.1 Melting
- 1.1.2 Heat treating
- 1.1.3 Heating
- 1.1.4 Other thermal processes

**1.2****Ores**

- 1.2.1 Calcinating
- 1.2.2 Reducing
- 1.2.3 Roasting
- 1.2.4 Sintering
- 1.2.5 Drying
- 1.2.6 Other thermal processes

**1.3****Ferrites**

- 1.3.1 Homogenizing annealing
- 1.3.2 Orientation annealing
- 1.3.3 Sintering
- 1.3.4 Presintering
- 1.3.5 Other thermal processes

**1.4****Glass, Enamel**

- 1.4.1 Cooling
- 1.4.2 Burning
- 1.4.3 Melting
- 1.4.4 Drying
- 1.4.5 Heat treating
- 1.4.6 Heating
- 1.4.7 Other thermal processes

**1.5****Hard Metals**

- 1.5.1 CIM (Chemical Injection Moulding)
- 1.5.2 Debinding
- 1.5.3 Dewaxing
- 1.5.4 High pressure sintering
- 1.5.5 Vacuum sintering
- 1.5.6 Sintering
- 1.5.7 MIM (Metall Injection Moulding)
- 1.5.8 Compressing
- 1.5.9 Brazing
- 1.5.10 Other thermal processes

**1.6****Ceramics**

- 1.6.1 Burning
- 1.6.2 Sintering
- 1.6.3 Drying
- 1.6.4 Brazing
- 1.6.5 Other thermal processes

**1.7****Non-ferrous metals**

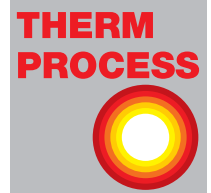
- 1.7.1 Coating
  - 1.7.1.1 Enameling
  - 1.7.1.2 Electroplating
  - 1.7.1.3 Polymer coating
  - 1.7.1.4 Varnish and lacquer drying
  - 1.7.1.5 Other Coating processes
- 1.7.2 CIM (Chemical Injection Moulding)
- 1.7.3 Casting
- 1.7.4 Brazing
- 1.7.5 MIM (Metall Injection Moulding)
- 1.7.6 Refining

**1.7.7****Reducing**

- 1.7.8 Purification
- 1.7.9 Melting
  - 1.7.9.1 Alloying
  - 1.7.9.2 Remelting
  - 1.7.9.3 Cleaning
  - 1.7.9.4 Other
- 1.7.10 Sintering
- 1.7.11 Spray Forming
- 1.7.12 Drying
- 1.7.13 Heat treating
  - 1.7.13.1 Precipitation hardening
  - 1.7.13.2 Stress-relieving annealing
  - 1.7.13.3 Homogenization annealing
  - 1.7.13.4 Solution annealing
  - 1.7.13.5 Artificial ageing
  - 1.7.13.6 Soft annealing
  - 1.7.13.7 Other annealing processes
- 1.7.14 Heating
  - 1.7.14.1 Heating, Preheating
  - 1.7.14.2 Holding at temperature (solid phase)
  - 1.7.14.3 Holding at temperature (liquid phase)
  - 1.7.14.4 Postheating
- 1.7.15 Other thermal processes

**1.8****Steel and Iron**

- 1.8.1 Prime metallurgy
  - 1.8.1.1 Primary melting
  - 1.8.1.2 Melting
  - 1.8.1.3 Alloying
  - 1.8.1.4 Remelting
  - 1.8.1.5 Holding at temperature (solid phase)
  - 1.8.1.6 Holding at temperature (liquid phase)
  - 1.8.1.7 Cleaning
  - 1.8.1.8 Burning off
  - 1.8.1.9 Postheating
  - 1.8.1.10 Other thermal processes
- 1.8.2 Primary shaping
  - 1.8.2.1 Casting
  - 1.8.2.2 Precision casting
  - 1.8.2.3 MIM (Metall Injection Moulding)
  - 1.8.2.4 Sintering
  - 1.8.2.5 Other thermal processes
- 1.8.3 Heat treating
  - 1.8.3.1 Heating
  - 1.8.3.2 Heating, Preheating
  - 1.8.3.3 Hardening and tempering
  - 1.8.3.4 Tempering
  - 1.8.3.5 Annealing
  - 1.8.3.6 Patenting
  - 1.8.3.7 Hardening
  - 1.8.3.8 Quenching
  - 1.8.3.9 Press quenching
  - 1.8.3.10 Tempering
  - 1.8.3.11 Case hardening
  - 1.8.3.12 Oxidizing
  - 1.8.3.13 Drying
  - 1.8.3.14 Other thermal processes
- 1.8.4 Diffusion processes
  - 1.8.4.1 Carburizing
  - 1.8.4.2 Salt bath carburizing
  - 1.8.4.3 Gas carburizing
  - 1.8.4.4 Low pressure carburizing (LPC)
  - 1.8.4.5 Plasma carburizing



11<sup>th</sup> International  
Trade Fair and  
Symposium for Thermo  
Process Technology

Düsseldorf  
16/06 – 20/06/15

- 1.8.4.6 Carbo nitriding
- 1.8.4.7 Other carburizing processes
- 1.8.4.8 Nitriding
- 1.8.4.9 Nitrocarburizing
- 1.8.4.10 Saltbath nitriding
- 1.8.4.11 Gas nitriding
- 1.8.4.12 Plasma nitriding
- 1.8.4.13 Other nitriding processes
- 1.8.4.10 Implantation
- 1.8.4.11 Other thermal processes
- 1.8.5 Surface hardening
- 1.8.5.1 Flame hardening
- 1.8.5.2 Induction hardening
- 1.8.5.3 Laser hardening
- 1.8.5.4 Other thermal processes
- 1.8.6 Surface treatment
- 1.8.6.1 Coating
- 1.8.6.2 Inorganic coating
- 1.8.6.3 Enamelling
- 1.8.6.4 Electroplating
- 1.8.6.5 Plastic-coating (evtl. wäre Polymer coating besser)
- 1.8.6.6 Varnish and lacquer drying
- 1.8.6.7 Plasma spraying
- 1.8.6.8 Galvanizing
- 1.8.6.9 Tin-coating
- 1.8.6.10 CVD
- 1.8.6.11 PVD
- 1.8.6.12 Other coating processes
- 1.8.7 Joining technologies
- 1.8.7.1 Welding
- 1.8.7.2 Brazing
- 1.8.7.3 Other joining technologies

- 1.9** Harmful substances
- 1.9.1 Adsorption
- 1.9.2 Catalytic combustion
- 1.9.3 Wet separation
- 1.9.4 Thermal combustion
- 1.9.5 Thermal Recycling, Pyrolysis
- 1.9.6 Other processes

## **2** Equipment for special use

- 2.1** Cooling
- 2.1.1 Cooling equipment
- 2.1.2 Recooling equipment
- 2.2** Laboratory equipment
- 2.2.1 Laboratory-type annealing furnaces
- 2.2.2 Laboratory-type melting furnaces
- 2.2.3 Laboratory-type drying cabinet
- 2.2.4 Other laboratory-type furnaces
- 2.3** Purification
- 2.3.1 Degreasing equipment
- 2.3.2 Pickling equipment
- 2.3.3 Mechanical cleaning plants
- 2.3.4 Spray scrubber
- 2.3.5 Dipping scrubber
- 2.3.6 Other cleaning and purification plants
- 2.4** Quenching equipment

- 2.5** Heat-transfer plants

- 2.6** Chimney technology

## **3** Componentes, equipment and other supplies

- 3.1** Fittings for

- 3.1.1 Gas
- 3.1.2 Liquids
- 3.1.3 Solid

- 3.2** Heating

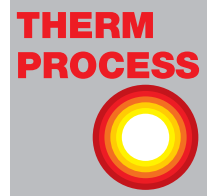
- 3.2.1 Electric heating devices
- 3.2.1.1 Inductive heating devices
- 3.2.1.2 Conductive heating devices
- 3.2.1.3 Resistance heating devices
- 3.2.1.4 Microwave heating devices
- 3.2.1.5 Plasma heating devices
- 3.2.1.6 Arc heating devices
- 3.2.1.7 Transformers
- 3.2.1.8 Other electric heating devices
- 3.2.2 Firing equipment for solid
- 3.2.3 Gas firing equipment
- 3.2.3.1 Burner
- 3.2.3.2 Recuperator burner
- 3.2.3.3 Safety devices
- 3.2.4 Oil firing equipment
- 3.2.4.1 Burner
- 3.2.4.2 Recuperator burner
- 3.2.4.3 Safety devices
- 3.2.5 Multicomponent firing equipment
- 3.2.6 Ladle firing
- 3.2.7 Regenerators
- 3.2.8 Recuperators
- 3.2.9 Radiant tubes
- 3.2.10 Burner controls
- 3.2.11 Flame detectors
- 3.2.12 Heating conductor, rods, wire
- 3.2.13 Graphite and carbon shapes

- 3.3** Handling and transmission technology

- 3.3.1 Conveyors
- 3.3.2 Belt conveyors
- 3.3.3 Conveyor chains
- 3.3.4 Other Handling and transmission equipment

- 3.4** Gas generation (inert and reaction gas, regeneration included)

- 3.4.1 Absorber
- 3.4.2 Pressure alternating equipment
- 3.4.3 Gas-air mixing equipment
- 3.4.4 Gas generators for
- 3.4.4.1 Inert endothermic gas
- 3.4.4.2 Inert exothermic gas
- 3.4.4.3 Inert gas
- 3.4.4.4 Nitrogen
- 3.4.4.5 Hydrogenated inert gas
- 3.4.5 Closed circuit plants for gas
- 3.4.6 Hot-gas generator
- 3.4.7 Mixing chamber



11<sup>th</sup> International  
Trade Fair and  
Symposium for Thermo  
Process Technology

Düsseldorf  
16/06 – 20/06/15

<b>3.5</b>	Furnace engineering materials
3.5.1	Metallic furnace engineering materials
3.5.2	Ceramic furnace engineering materials
3.5.3	Other furnace engineering materials
<b>3.6</b>	Measuring instruments and components
3.6.1	Cooling rate
3.6.2	Atmospheric measurement
3.6.3	Atmospheric control device
3.6.4	Pressure measurement
3.6.5	Pressure controlling plant
3.6.6	Moisture content measuring
3.6.7	Gas analyser
3.6.8	Temperature measurement
3.6.9	Temperature control device
3.6.10	Water warning device
3.6.11	Other measuring equipment
<b>3.7</b>	Controlling and automatisation
3.7.1	Electrical equipment
3.7.2	Engineering and technical consulting
3.7.3	Process control technology
3.7.4	Automatisation
3.7.5	Process control equipment
3.7.6	Process simulation and software
3.7.7	Process optimization
3.7.8	Maintenance and diagnosis systems
3.7.9	Other control equipment
<b>3.8</b>	Process-Material
3.8.1	Hardening salt
3.8.2	Hardening oil
3.8.3	Gas
3.8.4	Oil
3.8.5	Heat-transfer agents
3.8.6	Detergent reactants
<b>3.9</b>	Test technology
3.9.1	Analysis technology and lab equipment
3.9.2	Measuring instruments
3.9.3	Quality test
3.9.4	Material test
<b>3.10</b>	Pumps, Blowers and Fans
3.10.1	Hot-gas recirculators
3.10.2	Cooling pumps and systems
3.10.3	Vacuum pumps and systems
3.10.4	Lubricating pumps and systems
3.10.5	Other Pumps
3.10.6	Blowers
3.10.7	Fans
3.10.8	Compressors
<b>3.11</b>	Molten metal processing equipment
3.11.1	Electromagnetic conveying channels
3.11.2	Inoculation equipment
3.11.3	Inductive stirring equipment
3.11.4	Crucibles
<b>3.12</b>	Heat-insulating and refractory
3.12.1	Material
3.12.1.1	Refractory bricks, tiles, profiles
3.12.1.2	Refractory materials
3.12.1.3	Acid-resistant bricks

3.12.1.4	Insulating bricks, tiles, profiles
3.12.1.5	Insulating materials
3.12.1.6	High temperature insulation wool
3.12.2	Machinery and plants
3.12.2.1	Gunning equipments
3.12.2.2	Compressors
3.12.2.3	Other machinery and plants
<b>4</b>	<b>Workers safety and ergonomic</b>
<b>5</b>	<b>Consulting, design, service and engineering</b>
<b>6</b>	<b>Trade associations, specialised publisher and magazines</b>
<b>7</b>	<b>Training and education</b>