

Melt Extracted Steel Fibres

Description

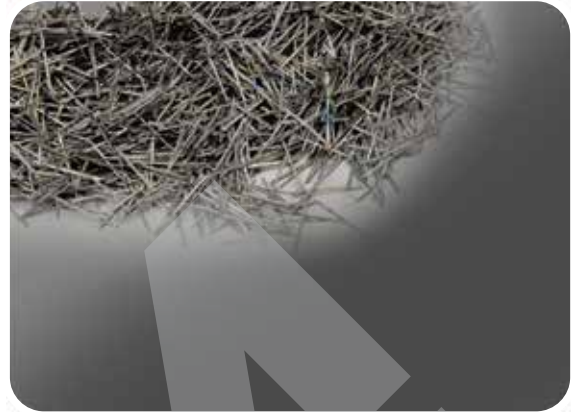
Melt extracted steel fibres are used to enhance the strength of the refractory concretes. They are added to the structure in order to prevent the development of the crack, thus convert the refractory into a tough and strong composite.

Features

- High tensile, resilience and compression strengths.
- Enhanced strength against damages that may arise from impact, vibration and thermal shocks.
- Superior resistance to cracking.
- Keeps any developed cracks tightly to increase load bearing capability of the refractory.
- High performance under corrosive conditions.
- Extended service life of the refractory concretes reinforced with steel fibre.

Method of Use

Adding melt extracted steel fibre to the dry refractory at rate of 3-6%, by weight, (3-6 kg. per 100 kg. refractory concrete) is recommended. For prevention of lumping, the product is added in certain intervals during the first mixing stage to make the refractory ready for application.



Applications

- Iron-steel industry: For applications including injection lances, arches, hearths, doors, roofs and additionally for nozzles, slide gate systems, furnace firebox stands, crucibles and tundish refractory applications.
- Nonferrous industry: Melting furnace roofs.
- Petrochemical industry: Fluid catalytic crushing units, ducts, runners and chimneys.
- Ceramic industry: Kiln cars.
- Cement industry: Flame pipes and nose zones of the furnaces.
- Energy plants: Steam boiler systems.

Technical Specifications and Performance of Melt Extracted Fibres

Alloy Type (AISI)	304	310	446	430
Melting Temperature, °C	1400-1425	1400-1450	1425-1510	1425-1510
Density, g/cm ³	8.0	8.0	8.0	7.8
Thermal Conductivity, W/m.K (500 °C)	21.5	18.7	24.4	26.3
Elastic Modulus, 10 ⁴ MPa (870 °C)	12.66	12.66	9.84	8.44
Tensile Strength, MPa (870 °C)	1270	1550	540	480
Critical Oxidation Temperature, °C	1040	1100	1200	1150
Corrosion rate in natural gas atmosphere, mm/year (815 °C)	-	3	4	12
Corrosion rate in methylene atmosphere, mm/year (454 °C)	4.8	2.3	8.7	21.9
Residue on carbonisation 24 h after keeping at 982 °C in carbon atmosphere, %	1.40	0.02	0.07	1.03
Corrosion rate in the coke gas atmosphere, mm/year (982 °C)	225	25	14	236
Nitration speed in the pure ammonia atmosphere, mm/year (525 °C)	80	55	175	-
Corrosion rate in the hydrogen sulphur atmosphere, mm/year	200	100	100	200
Recommended max. operating temperature in the sulfurous atmosphere, °C	800	1050	1025	800
Chemical Composition, %				
C	≤0.15	≤0.2	≤0.2	≤0.2
Si	≤1.5	≤1.5	≤1.5	≤1.5
Mn	≤1.5	≤1.5	≤1.5	≤1.5
Ni	8-12	19-22	≤0.7	≤0.7
Cr	17-20	24-27	24-27	17-19

The products are generally offered in 0.5 mm diameter and 25 mm and 35 mm length. Special dimensions can be produced optionally.

The values given herein are typical average values obtained in accordance with standard test methods and subject to normal manufacturing variations. They are supplied as technical data and may change without notice. Contact our company to obtain detailed information.