

The proven pre-melted calcium aluminates for ladle metallurgy

LDSF

Applications

- LDSF is a completely pre-melted material manufactured to meet the specific requirements of steel makers and metallurgists.
- Ladle metallurgy and ladle furnaces are a critical quality control step between the primary melting furnace and the continuous caster.
- A key feature for successful ladle metallurgy is slag control. LDSF is specifically designed to have the required chemical composition and physical properties that make it easy to store and handle.
- LDSF is not a by-product, but is a manufactured calcium aluminate of controlled composition. It is produced in high-capacity furnaces by the complete fusion of bauxite and limestone, which yields a homogeneous product of constant composition.
- LDSF is hard, stable, and nearly dust-free.
- LDSF melts readily at “steel-making” temperatures. The slag has good sulphur retention and performs effectively as a desulphurising slag.
- LDSF calcium aluminate contains no fluorine compounds, thus avoiding refractory attack and atmospheric pollution.
- LDSF is an excellent cover slag for the prevention of gaseous pick-up from the atmosphere and is an effective fluid sink that absorbs inclusions from steel.

General characteristics

1 Mineralogical composition

Principal mineralogical phase:
 $12 \text{ CaO} \cdot 7 \text{ Al}_2\text{O}_3$

2 Chemical composition

Main constituents (%)	
CaO	Al ₂ O ₃
49 – 54	41 – 45

Minor constituents (%)	
SiO ₂	Fe ₂ O ₃
< 3.7	< 1.8

3 Physical properties

- Low melting point <1385°C (2525°F)
- Bulk density 1.3 – 1.7 g/cm³ (81.2 – 106.1 lb/ft³) dependent on the sizing
- Specific gravity 3.0 g/cm³

LDSF advantage for steel-making processes

- Consistent chemistry
- Superior refractory protection
- Readily available
- Sized and packaged to customer specification
- Precisely manufactured product not “by-product”

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