



INTERNATIONAL
Syalons

Syalon Advanced Ceramics for Non-Ferrous Molten Metal Handling

User Guide



Certificate No. 930359

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INTERNATIONAL
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**ADVANCED SILICON NITRIDE &
SIALON CERAMICS**

Syalon for Non-Ferrous Molten Metal Handling

The exceptional heat and corrosion resistant properties of **Syalon 101** and **Syalon 050** have been utilised in a range of products for **non-ferrous molten metal handling**. These include **thermocouple protection sheaths, heater tubes, riser tubes, ladles** and other foundry products.

Benefits of Syalon

Syalon components for non-ferrous molten metal handling offer the following benefits over conventional materials such as chill cast iron, silicon carbide or aluminium titanate:

- **Outstanding thermal shock resistance.**
- **Higher density and strength than conventional ceramics.**
- **Excellent corrosion resistance to non-ferrous metals such as aluminium and zinc.**
- **Non-wetting behaviour results in resistance to build up of dross.**
- **Prolonged service life makes Syalon cost effective.**

Handling Precautions

The following precautions should be taken when using your Syalon component:

1. Avoid mechanical impact

Syalon, although extremely strong and tough, is still a ceramic and so care must be taken when handling. Do not try to remove adhered slag from the component by hammering. (See point 4 below).

2. Preheating the component

Although Syalon has excellent thermal shock resistance, this depends greatly on the size and shape of the component. Therefore, to avoid damage to your component it is recommended to pre-heat it prior to submersion in the molten metal. This can be done quickly for example using a flame, an oven or in the case of heater tubes by turning the heater on. Typically, reduce the temperature difference between the component and the metal to less than 400°C.

3. Rapid cooling

Syalon components can be removed from non-ferrous metal without damage. However, avoid rapid cooling with water or air.

4. Removal of adhered slag

Although Syalon is non-wetted by non-ferrous metals such as aluminium, a build up of slag can occur. To remove molten slag, use a spatula to scrap it off. To remove solidified slag, dissolve with hydrochloric acid after cooling.

Technical Support

The successful integration of ceramics into industrial and engineering systems requires close collaboration between you, the end-user, and us, the material suppliers. Our Technical Specialists are available to discuss your requirements in detail and assist in exploiting the significant advantages which **Syalons** can offer. Should you feel Syalon may be of benefit to your molten metal handling applications, or you need further handling advice, please contact us.



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