SUPREX Crucibles

DESCRIPTION

Morganite Crucible SUPREX crucibles (Red/Brown/Parrot Green) are high quality resin-bonded silicon carbide crucibles manufactured using the latest roller-forming techniques and are designed to cater for a range of non-ferrous melting applications.

APPLICATIONS

SUPREX (RED): Mainly recommended for AL/Zn/ZnO/Gas/F.O. fired furnace
SUPREX (BROWN): Mainly recommended for Brass/CU/GM/SI/in all type of furnaces.
SUPREX EL (Parrot Green): Mainly recommended for AL Holding/Gas/Electric resistance furnaces.

TYPICAL METAL CASTING TEMPERATURE

SUPREX (RED): 800—1450°C (1472—2642°F)
SUPREX (BROWN): 1000—1400°C (1830—2552°F)
SUPREX EL (Parrot Green): 750 - 950°C (1382 —1742°F)

PERFORMANCE CHARACTERISTICS

• Fast melting speed, through high consistent thermal conductivity.
• Excellent thermal shock resistance.
• High resistance to oxidation.
• Good erosion resistance.
• Good resistance to corrosive attack by chemical treatment agents.

IDENTIFICATION

SUPREX crucibles are colored Red and Brown and utilize the code e.g. ACS10.
SUPREX EL, crucibles are colored in Parrot Green and utilize the code EL e.g. BC401EL.

PATTERN RANGE

SUPREX crucibles are available in a comprehensive range of shapes and sizes to suit most end user requirements. Custom sizes can be supplied by special request. Heavy wall (HW) versions can be supplied for increased life in arduous applications and a selection of fixed pouring spouts with optimized profiles is offered where required.

SUPREX crucibles can be supplied with Morganite’s unique PD coating system, which can assist with metal cleanliness and the prevention of dross adhesion.

QUALITY

SUPREX crucibles are manufactured from premium grade raw materials under an ISO 9001:2008 quality management system.

PREHEATING / FIRST USE

FUEL-FIRED FURNACES: Crucibles should be pre-heated empty until they reach a uniform bright red color (circa 900°C) in order to pre-condition the glaze. The pre-heating time will depend on the size of the crucible.

In the case of large capacity crucibles and furnaces with high output burners the rate of temperature rise should be controlled in the initial stages to minimize thermal stress. The typical time taken from ambient to red heat is up to 1 hour. Avoid direct flame impingement on the crucible surface.

INDUCTION FURNACES: The heat-up procedure is dependent on furnace frequency, coil dimensions, and the resistivity of the metal being melted. It is recommended where possible to preheat the crucible empty. The power input rate should initially be limited until the crucible becomes bright red over its entire surface. The time taken to pre-heat will depend on the size of the crucible, but is usually in the range 20 – 40 minutes. Once one third of the crucible is full of molten metal the power can be increased to a higher level. Silicon carbide crucibles absorb proportionally high levels of power from the induction field. Care should be taken not to overheat the crucible. The actual maximum power setting should be assessed from experience and will be dependent on the capacity of the crucible. The appearance of the inside wall of the crucible should be monitored for signs of over-heating and the power reduced once the full charge is molten.

CHARGING

As soon as the crucible has been pre-heated as specified, charge and melt immediately. Charge light scrap and returns first in order to form a cushion for heavier material. Use tongs to charge ingots and place large pieces and ingots vertically allowing space for expansion. Only add flux once the metal is molten and use the minimum quantity required to obtain good metal quality.
CLEANING OUT

Crucibles should be cleaned out carefully between melts while red hot in order to remove any build-up of corrosive slag.

Proper safety clothing must be worn at all times. Ensure that no moisture is introduced into the melt. Provision should be made underneath the furnace to catch metal that may be discharged.

SAFETY

CRUCIBLE CARE

- Store crucibles in a dry, warm area.
- Do not stack inside another.
- Do not roll crucibles.
- Check for cracks or transport damage before use.
- Base block must be flat, larger than crucible bottom and centered.
- Use a ceramic fiber blanket to seal.
- Allow space between top and sides of furnace.
- Use locating bricks in lifting funnels, to allow for expansion.
- Tangential fire around crucible.
- Do not drop charge—slowly lower in with tongs.
- First charge with returns, then ingots on top.
- Only add flux after metal is molten.
- Avoid premature crucible failure by ensuring drain hole is sealed.
- For lift-out, tongs must be placed on lower third of crucible. Fit tongs evenly on both sides.
- Empty crucible before removing from furnace. Do not let metal solidify in crucible.
- Clean carefully every day while still hot.

For additional information on MMS’ products & services or to find a location nearest to you, please visit: www.morganmms.com

All dimensions are subject to normal manufacturing tolerances. Molten Metal Systems reserves the right to change specifications at any time.