



Green Sand additives (Bentonite, Carbobond, Carsins, Premix 46)

Opta Minerals your source for Foundry Products:

Chromite
Foundry Sands
Cerabeads
Green Sand Additives
(Bentonite, Carbobond & Carsins)
Olivine Sand
Resin Coated Sands and
Chemically Bonded Sands
Riser Sleeves, FLux and
Metal Filters
Zircon

Contact Us

Our sales team is ready to help you to determine the right product for your job.
For more information please call us:
Toll-free: 888-689-6661
Tel: 519-720-9694
E-mail: info@optaminerals.com
Visit: www.optaminerals.com

BENTONITE

Bentonite is referred to as the "The Clay of 1000 uses"

Foundries use Bentonite when pouring metal cast molds. The clay withstands higher temperatures and the excessive heat will not cause the clay to lose its chemical structure.

Iron ore manufacturers add Bentonite to crushed taconite to form pellets, which can then be transported to steel mills.

We stock the Western Sodium type and Southern Bentonite Calcium Types

"WESTERN" Bentonite qualities (sodium type):

This type of Bentonite is a **sodium based Bentonite** - it swells approximately 15 times their un-wetted volume. **Western Bentonite** in molding sand blends aids in deep pocket molding to maintain its dimensional accuracy.

Primary use is in the **production of ferrous and non-ferrous castings**. Western Bentonite results in a greater dry/hot strength than southern Bentonite

'SOUTHERN" Bentonite qualities (calcium type):

This type of Bentonite is a **calcium based Bentonite** - it swells only 2 times their un-wetted volume. Southern Bentonite provides **greater green compression strength and permeability** than Western. Bentonite and has **lower hot retaining strength**. The lower strength **aids in shakeout** and **reduces stress** related defects. Blends of Southern Bentonite molding sand often reduce mechanical penetration, which results in **uniformly dense molds**.

Primary use is in the production of non-ferrous castings.

CARBO BOND 20

Carbo Bond 20 is a new generation of green sand additives formulated for production of non ferrous castings. It is a unique blend of Carbons, Cellulose, Starches and a Sand Conditioner. A small addition of Carbo Bond 20 improves:

- Sand flow-ability – more uniform sand density
- Sand cohesivity – sharper mold edges after stripping and resistance to sand erosion
- Sand peel – minimum sand adherence to casting
- Casting finish – smoother and cleaner casting surfaces, therefore less cleaning required
- Bentonite durability – extended working life
- Product Description: Free flowing powder. Brown color

CARSIN

From time to time foundries experience a rough finish on surface of castings. Most likely it is caused by penetration of molding sand by molten metal. Depending on magnitude of severity, these defects are commonly referred to as "Burn On" or "Burn In".

Addition of Carsin in the sand and properly balanced molding sand properties is a "must" for successful and continuous production of castings with good clean finish. It reduces the timely and laborious work in cleaning room and improves casting machinability.

Carsin is a blend of various carbonaceous materials with remarkable potency for developing a high level of lustrous carbon. As the molten metal enters the mold cavity the heat causes Carsin to undergo a pyrolytic degradation. The evolved volatile matters "condense" on the mold-metal interface depositing a thin layer of micro-crystalline lustrous carbon. The function of this protective layer is to prevent the formation of fayalite, caused by reaction between acid silica sand and basic metal oxides.

Advantages of Carsin over seacoal:

- Low content of sulfur (important for ductile iron)
- Less ash retained in the sand
- Better sand flow-ability, subsequently more uniform mold hardness and density obtained
- Less smoke and odor in the workplace
- Good peel, eliminates or reduces metal penetration
- Faster release of volatile matters

PREMIX 46

Mixing of new sand with PREMIX 46-B

Preparation of new sand

Recommended additions of PREMIX 46B for new sand is 7.0% to 9.0% based on the weight of the sand. The higher level additions are for fines sands of AFS grain fineness number greater than 80 and production of heavier castings.

Water Requirements

2.5% - 3.5% based on the weight of the total sand. The variation in water requirements relates to the fineness of the base sand and percentage of bond used.

Bond replenishment (in system sand)

Is the required amount of material which is burned out during the casting process. The typical additions are 0.1% to 1.0% based on the weight of the system sand. Such additions are determined by the type of metal, metal poured temperature, metal to sand ratio, new sand additions and the residue from collapsed cores.

In aluminum foundries the additions are low. Higher additions are required in systems pouring copper based metals and even higher in iron casting production.