



## **Ballast-Crete®**

### **A Total Ballasting Approach From BC Technical, Inc.**

**BC Technical, Inc.** has the exclusive right and license to make, market, use and sell **Ballast-Crete®** through an agreement with Lafarge Mid-Atlantic, LLC.

**Ballast-Crete®** has fast become the preferred choice in ballasting for shipyards, naval architects and engineers around the world. Its superior performance under demanding conditions coupled with the expertise of BCT's technical staff has allowed us to provide solutions to any fixed ballast requirements.

#### **What is Ballast-Crete® ?**

**Ballast-Crete®** is a pre-blended combination of water and inorganic, non-toxic, granular and ground fines that can be produced in density ranges of 130 lb. (S.G. 2.08) to 325 lb. (S.G. 5.21) per cubic foot, or higher. During installation, its flowability and water retentiveness compares to a ready-mix mortar although it does not contain portland cement. After installation, **Ballast-Crete®** firms to a semi-solid mass.

**Ballast-Crete®** is designed to meet U.S. Coast Guard, U.S. Navy, American Bureau of Shipping, Bureau Veritas and Det Norske Veritas specifications.

#### **The Ballast-Crete® Advantage**

Sea water, concrete ballast, mud and iron ore concentrates can't fulfill the special needs that **Ballast-Crete®** can.

It's an inert, inorganic composition free of bacteria. In fact, **Ballast-Crete®** inhibits bacteriological growth. Because it's flowable during placement, it fills all of the voids in the double bottom tank of a ship, so the problems normally associated with other ballasts are avoided.

Ambient temperature isn't a problem for **Ballast-Crete®** either. Successful placement can be performed in temperatures ranging from 0° to 120° F (-17.8 to 48.9° C).

Complex jobs are made simple with **Ballast-Crete®**. Density can be adjusted to fit your exact requirements and can even vary by sections of the ship to achieve optimum placement. We've even varied density during installation, achieving adjustments of plus or minus thirty pounds per cubic foot (480 kg/m<sup>3</sup>), to accommodate last minute specification adjustments.

Due to its thixotropic nature, **Ballast-Crete®** can be removed in discrete quantities for the repair or modification of your ship.

No job is too big or too small for **Ballast-Crete®**. Our placements have ranged from 6,000 long tons (6096 tonnes) on container ship conversions to 40 long tons (40.6 tonnes) on small dredges. And if you're worried about limited access to your ballast tanks, **Ballast-Crete's®** pumping process allows placement in even the most challenging of situations. Successful shipyard installations have been made through pumping systems of up to 1000 feet (305 +/- meters) in length.

### **Ballast-Crete® Technical Data**

#### **Normal Density Range**

130 pcf (S.G. 2.08) to 325 pcf (S.G. 5.21). The density can be modified during a single installation. Higher densities are available if required.

#### **Corrosivity**

A thin film of inorganic oxides form when **Ballast-Crete®** is placed against standard plate steel. This film and the alkaline nature of the product inhibit rust from forming.

#### **Microbial Growth**

**Ballast-Crete®** does not support the growth of micro-organisms, including bacteria and molds, even after being inoculated.

#### **Toxicity**

The **Ballast-Crete®** blend of ingredients are non-toxic. It does not generate toxic gases and poses little handling problems. Because the material is abrasive to the skin and alkaline in nature, the same precautions should be taken as when working with conventional ready-mixed concrete.

#### **Moisture Content**

The residual equilibrium moisture is typically less than 10% by weight after the material has consolidated to a semi-solid like mass.

#### **Settling or Shrinkage**

Through the migration of moisture to the surface, **Ballast-Crete®** will settle into a homogeneous mass, reaching a maximum subsidence of 1/8" (3.18mm) per foot (305mm) of depth.

#### **Flammability**

Non-Flammable, tested to 622°F (350°C). Does not contain or generate flammable gases.

#### **pH**

Typical values range between 11.5 and 12.4.

#### **Thermal Expansion and Contraction**

Does not expand or freeze within a temperature range of 24.8°F (-3.9°C) to 212°F (100°C). As such, the installation of expansion tanks is not required.

#### **Installation**

**Ballast-Crete®** is typically pumped into place through several tank top openings within a density range of 130 pcf (S.G. 2.08) to 325 pcf ((S.G. 5.21). Beyond 325 pcf, the material may be installed using other systems.

#### **Consistency**

**Ballast-Crete®** handles and behaves much like a thixotropic slurry, yielding an extremely pumpable material. Typical viscosity measurements yield values between 2500cps and 5000 cps (centipoisinoies).

#### **Removable/Structural Stability**

Can be removed in discrete quantities with high pressure water or vacuum systems. Its inorganic, non-toxic nature poses no environmental problems with conventional landfill

disposal. **Ballast-Crete®** is a stable mass and does not shift or move, adding impact resistance to the sections incorporating its use in the case of grounding or accident.

#### **Sound Damping**

In-place material within a density range of 160 pcf (S.G. 2.56) to 450 pcf (S.G. 7.21) provides equal or better damping performance compared to viscoelastic constrained layer damping treatments of steel up to a frequency of 20 kHz.

#### **Absence of Free Surface (Non-Shifting Characteristic)**

Although semi-solid in place, **Ballast-Crete®** will not shift or exhibit a free surface condition within a wide range of densities.

#### **Damaged Tank Condition**

Damaged tank testing indicates that only the material directly in way of the opening will wash, leaving the remaining material in place.

#### **Magnetic Susceptibility**

Special formulations may be available that exhibit very low or negative magnetic susceptibility.

### About BC Technical Inc

Formed by Bob Chester, BCT has the exclusive right and license to make, market, use and sell **Ballast Crete®** through an agreement with Lafarge. Mr. Chester developed the formal business starting in 1982 for the then Genstar Stone Products Co.. Prior to 1982 ballast was supplied for various projects but as a supplier only. Since 1982 the Ballast-Crete team under Mr. Chester's management has completed over 100 projects throughout the U.S., Europe and South Africa.

BC Technical, Inc can be considered as the premier fixed ballast supplier and classified as a specialized naval subcontractor.

#### For a proposal, please provide the following:

- Name and Type of Vessel
- Shipyard or port for fixed ballast installation
- Approximate timeframe for installation
- Fixed ballast tanks' identifications and capacities
- Required fixed ballast tonnage and density
- A drawing of the fixed ballast tank tops will allow us to identify fill and vent openings' locations for installations.

### **BC TECHNICAL, INC.**

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President

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