ENGINEERED SYNTACTIC SYSTEMS

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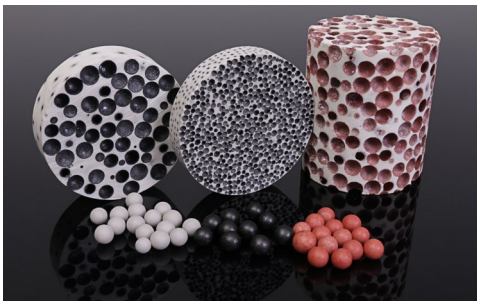
SF - 22
Macrosphere Syntactic Void Filler

Technical Data Sheet

Highlights

- **Operational Depth Range (Surface - 182 Meters)**
- **Lowest Density Available in the Entire Industry**
- **60% Increase in Buoyancy per ft³ of Void Space**
- **Cures at Room Temperature**



Proven Performance

SF - 22 is a four-part kit developed specifically to meet the needs of applications where density is critical. This system utilizes carbon fiber reinforce epoxy macrosphere in combination with the standard microspheres. The resultant low-density system will provide an average of 42 lbs of buoyance per ft³ of void space.

SF - 22 kits contain the following four components:

Part A: Base Epoxy Resin
A low viscosity epoxy resin provides ease in mixing and high compressive strength for performance in use.

Part B: Curing Agent
A low viscosity reactive polyamide curing agent that cures at low to moderate temperatures with a workable pot-life and exotherm.

Part C: Hollow Glass Spheres
Free-flowing hollow spheres that provide the low density and hydrostatic performance necessary for the foam system.

Part D: Carbon Fiber Reinforced Epoxy Macrospheres
Hollow spheres comprised of epoxy resin and carbon fibers, specially made to withstand the vessel's operating pressures.

Product Installation

The inject process for the SF - 22 kits required specific equipment and techniques. This process should only be performed by ESS technicians or trained and experienced personnel. During installation, cavities are pre-filled with the 0.625 inch diameter macrospheres which are formulated to withstand the operating hydrostatic pressure of the vessel. The liquid syntactic is then injected into the cavities around the macrospheres and allowed to cure at room temperature. Initial cure will occur within 24 hours, with final cure taking 7 - 10 days.

Product Storage

Store SF - 22 components in a dry area. Storage temperatures should be between 45°F - 100°F. Do not allow the resins to freeze or the glass filler to absorb moisture. Always close the containers after use.

Product Safety

Do not use or handle this product until the Material Safety Data Sheet has been read and understood.

Typical Properties

Properties provided below are typical for the cast form.

Color	Density	Compressive Strength	Compressive Modulus	Weight Gain	Hydrostatic Crush	Shelf Life
	lb/ft³ (g/cc)	psi (Mpa)	ksi (Gpa)	24 hrs @ depth	psi (Bar)	
White/ Tan	22 (.35)	1 600 (11.0)	65 (0.44)	2% Max	1 180 (81.4)	2 years