

SF - 22

Macrosphere Syntactic Void Filler



Subsea Void Filler • Four-Part Kit

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Overview

In applications where density is critical, the four part SF-22 kit is used. This system utilizes fiber reinforced epoxy macrospheres in combination with the standard microsphere syntactic to provide the lowest density possible in void filling, yielding a greater than 60% increase in buoyancy per cubic foot.

In this system, cavities are pre-filled with the ~ 0.625 inch diameter macrospheres, specially fabricated 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. The resultant low-density system will provide an average of 42 pounds of buoyancy per cubic foot of void space.

The injection process for the SF-22 kits requires specific processing equipment and techniques and should only be performed by ESS technicians or trained and experienced personnel.

Part A: Base Epoxy Resin

An epoxy resin modified to provide a low viscosity for ease in mixing and a 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 Bubbles

Free-flowing hollow spheres that are the key to the syntactic materials subsea performance. The bubbles provide the low density and hydrostatic performance necessary for the foam system.

Part D: Fiber Reinforced Epoxy Macrospheres

Hollow spheres specially made to withstand the operating pressures. The macrospheres are pre-packed into the cavities at nominal volumes of about 60%.



Properties

Properties provided below are typical for the cast foam:

Color	White/Tan
Density (lb/ft ³)	22 ± 2
Operating Depth (feet)	600
Compressive Strength (psi)	1,600 min
Compressive Modulus (ksi)	65 ksi min
Weight gain 24 hours @ 600 feet	3 % max
Hydrostatic Crush Strength	1,180 psi (2,680 feet)

Storage

Store the 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.

Safety

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

Mixing Instructions

Mixing by personnel other than trained ESS technicians is not recommended.