

Deep Water Foam (Mesopalegic Zone)

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Overview

Syntactic foams are a unique combination of hollow spheres, a resin matrix, and other additives. When combined and processed properly, the constituents form a lightweight homogeneous material having high compressive and hydrostatic strengths. This yields a product able to withstand the high hydrostatic pressures experienced by today's manned and unmanned subsea vehicles.



The MZ Grade of syntactic safely operates in the oceans Mesopalegic Zone, down to depths of 1,000 meters. (3280 feet). This group of syntactics is produced using the same technology as the Navy's submarine void filling materials. This workhorse foam system has been thoroughly tested both during development and during its long history in service. It has been found to be a safe, reliable, cost effective buoyancy source for the relatively shallow requirements for a syntactic.

Each block is cast as a single unit, but may be cut to fit the application requirement. Blocks or trimmed parts may also be bonded together to form a larger structure. Standard block size is 6 inch x 12 inch x 12 inch or 6 inch x 12 inch x 24 inch, but custom sizes and shapes, including round stock, may be available.

Properties

Properties provided below are typical for the cast block:

Product	Density lb/ft ³ (g/cc)	Service Pressure psi (Bar)	Service Depth feet (meters)	Compressive Strength psi (Mpa)	Compressive Modulus ksi (Gpa)	Hydrostatic Crush psi (Bar)	Weight gain 24 hours @ depth
MZ - 24	24 ± 2 (0.38 ± .03)	1,443 (99)	3,280 (1000)	3,200 (22.1)	145 (1.0)	3,800 (25)	3 % Max
MZ - 34	34 ± 2 (0.55 ± .03)	1,350 (93)	3,065 (935)	2,450 (16.9)	160 (1.10)	3,300 (22)	3 % Max
MZ - 38	38 ± 2 (0.61 ± .03)	1,450 (100)	3,295 (1,000)	4,320 (29.8)	195 (1.34)	6,000 (414)	3 % Max