

Globe's High-Strength Gaskets



Situation

Missile tube muzzle hatch gaskets increasingly were becoming frayed or damaged along the edges due to extrusion. This damage was of major concern to the nuclear submarine fleet, since failure would cause millions of dollars' worth of damage from leaking or flooding inside the missile tubes. These gaskets were manufactured using Mil-G-15624F Type III Buna-N rubber material. Unfortunately, this material can degrade over time, losing its standard for meeting the physical specifications and dimensional requirements for this application.

Globe's Solution

We formulated a liquid castable, high-strength material durable yet flexible enough to conform to the hatch shape and assure a tight-fitting seal at various operating depths. Initially, Globe identified more than twenty material candidates meeting the physical requirements (e.g. shear, tensile, etc.). Through required customer testing under a variety of operating conditions, the ideal material was selected. After which, Globe produced and presented several prototype parts to the customer for final acceptance testing.

Benefits & Results

With Globe's help by providing high-strength, conforming durable seals, the customer avoided costly damage to critical military systems.

Development Time

Due to the critical nature of this component, to successfully meet all of the performance criteria, extensive testing and reformulation were required over a period of 24 months.

Potential Applications

Since **Brandonite®1200-60A** is liquid-castable, it's highly versatile. It can produce large parts with significantly lower tooling costs compared to traditional compression-molded, rubber products. Globe's unique way of processing this material significantly reduces the presence of voids, while increasing the material's uniformity. Our **Brandonite®1200-60A** liquid-castable material creates one-piece gaskets or seals, allowing for a part of virtually any size without compromising strength due to knit-lines or compression zones. **Brandonite®1200-60A** can be modified to increase or decrease certain physical properties such as tensile strength, rebound, durometer or elongation. It is mold and fungi resistant, making it ideal for marine, agricultural, tropical, and water/sewage treatment applications. It is available in FDA and non-FDA approved grades. Possible applications include:

- Diaphragms, Gaskets and Seals
- Pump Gaskets and Seals
- Deep-sea Gaskets and Seals
- Water/Sewage Gaskets and Seals
- Medical Equipment Gaskets and Seals
- Bladders