Underground Fiberglass Box Specifications

Fiberglass box pads are widely used products that many utility companies mistakenly regard as generic. Because price-driven markets force many manufacturers to reduce costs wherever possible, it is common for some to produce only marginally acceptable box pads, resulting in costly "forced" replacement of these inferior products after only a few years of service.

These manufacturers cut costs by using male molds, fillers and simplistic mold designs. Gel coats are eliminated, or the cheapest ingredients are used. Gel-coated products have *10 times the abrasion resistance* of non-gel-coated parts. Some companies use straight resin with UV inhibitors to cut costs, but these are much less abrasion-resistant to garden tools, etc. Highly filled resin and low glass reinforcement are the industry norm.

Certain fillers can dramatically affect the life of fiberglass products. Merchandise produced using so-called "chopper-guns" are highly susceptible to inconsistent laminate thickness, due to operator error. More expensive woven "roving fabric" is seldom used by many companies, resulting in poor glass reinforcement. Similarly, encapsulated wood used for support by some box manufacturers often hastens degradation of the vault and resultant failure.

ProGlass products, by contrast, are made with the finest materials and are the most durable boxes available in the industry. Our boxes are built using *highly sophisticated mold designs with built-in intricate ribbing* that extends into a wide supporting flange. We begin with an ISO-NPG gel coat formulated with UV additives in Munsel Green. An isothalic DCPD resin, filled with 43% aluminum tri-hydrate, is utilized to produce a Class 2 flame rating. Aluminum tri-hydrate is the *finest and most expensive filler* that can be used in underground products. It features *minimal water absorption* and *maintains flame retarding ability to more than 400 degrees!*

Calcium sulfate often is used as filler by low-end manufacturers, however the water molecules begin dissipating at only 190 degrees. In many climates, this causes the fiberglass box pads to lose their flame-retarding ability. Still other companies extensively use the least expensive filler—calcium carbonate, which is nothing more than fine sand. This filler adds nothing to the flame retarding ability of the resin and results in faster degradation of the composite. All these "budget" fillers reduce the design life of fiberglass because of their increased water absorption (see Item 1 chart attached). This creates a gradual softening and loss of hardness, again resulting in premature structural decomposition and vulnerability.

There are two basic types of glass reinforcement—chopped strand mat and woven products. ProGlass uses an initial layer of chopped fiberglass strands and filled resin in a gel-coated female mold. Continuous strand roving combined with catalyzed resin are fed through a chopper gun and sprayed onto the mold surface. The surface then is rolled to remove air bubbles to create a *smooth and attractive exterior finish* in which the *porosity* of the exterior gel coat is greatly reduced and *abrasion resistance is increased*. Additional materials are applied for the second, third, and final layers.

ProGlass carefully applies the second and fourth layers of woven roving continuous glass fiber strands, bonding them together to form a heavy laminate. Our woven roving weighs 24 ounces per square yard and is of unparalleled quality.

Alternating layers of woven roving and chopped strand mat are used in the structural portion of laminates. This woven roving adds integrity and strength to the finished laminate. Glass content percentage is dramatically increased and consistent laminate thickness is assured. Certain stress areas are reinforced with woven material, and in some cases, structural foam beams are added. The result is a superior product designed with value-added engineering using the highest quality raw materials and constructed to endure extreme conditions. Certified laminate thickness and glass reinforcement content result in a finished product with a long design life and maximum durability.

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