



COMMERCIAL GRADE RUBBER VS. SPECIALTY RUBBER: MAKING THE RIGHT CHOICE

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Gaskets made of commercial grade rubber provide sealing and insulation for a variety of applications. Compounds such as commercial grade EPDM, silicone, and neoprene also cost less than specialty elastomers that meet standards, approvals, or regulatory requirements from organizations such as ASTM International, Underwriters Laboratories (UL), or the U.S. Food and Drug Administration (FDA).

Engineers want to make sure that the gaskets they design meet application requirements, but over-specifying a material can incur unnecessary costs. In addition to paying more per unit, buyers may have to purchase greater minimum order quantities (MOQs) for gasket fabrication.

In this article, we'll consider what fabricators may need to explain to customers about commercial grade rubber and specialty elastomers. To do so, we'll examine some real-world examples.

Example 1: ASTM Rubber

Sometimes, engineers ask for "ASTM rubber" or an elastomer that "meets ASTM". There are several challenges here. First, there isn't a single ASTM test standard for rubber materials. In fact, there are many different and specific testing standards.

Does the rubber need to meet the thermal conductivity requirements of ASTM F433-02(2014)e1? Maybe the material needs to meet the minimum liquid leakage requirements of ASTM F 37-06(2013) instead. If the engineer doesn't need to meet a specific ASTM standard, a commercial grade compound may suffice.

Buyers may think that asking for "ASTM D 2000 rubber" instead of "ASTM rubber" is more specific, but it's not. ASTM D 2000 covers thousands of rubbers and uses a combination of letters and numbers to "call out" material properties. When talking to customers then, a food-related analogy may help.

Simply asking for "ASTM D 2000" rubber is like ordering a

sandwich without specifying the bread, fillers, or condiments. Unless you're incredibly lucky, the sandwich you receive probably won't be the one you thought you'd ordered.

Example 2: UL 50 Gaskets

UL 50 applies to enclosures for electrical equipment that will be installed and used in non-hazardous locations in accordance with national electrical codes in Canada, the United States, and Mexico. This standard applies to the entire enclosure, however, and not to individual components such as gaskets.

In fact, UL 50 states that if an individual product has requirements that are at variance with UL 50, then the requirements for the individual product takes precedence. Then there are engineers who ask for "UL 50 gaskets" when a UL 50 approved material isn't even required. What should you tell them?

First, a well-designed enclosure may be able to meet UL 50's requirements without the use of more expensive UL-approved gasket materials. Second, there is a separate UL standard (UL 50E) for the environmental construction of qualifying environmental enclosures.

Ultimately, customers may need to account for an entirely different standard. If the electrical enclosure is for an appliance, then UL 94 may apply to the gasket design instead. Compound selection can be complicated, but fabricators can help customers to make the right decision.