



ABRASION RESISTANCE STUDY

Polyamide 11 coatings show superior abrasion resistance compared to other coatings used in the mining industry

Fisher Company of North Salt Lake, Utah developed a unique abrasion test for the mining industry to more accurately determine expected performance of coated metal objects in harsh environments.

Fisher Company, an Approved Coating Applicator for Rilsan® fine powders, devised and performed a special test for comparing the abrasion resistance of different coatings. As seen in the image to the right, a container was filled with an aggressive slurry (50:50 water and red garnet blast media). Coated impellers were then spun in the mixture until the underlying metal was exposed. The failure time was precisely captured by a timer connected to an apparatus that sent a current through the water. When the metal substrate was exposed, the electrical circuit was closed, triggering a switch to stop the timer. Several types of thermoplastic and thermoset coatings were evaluated using this method.

Conclusions from the test

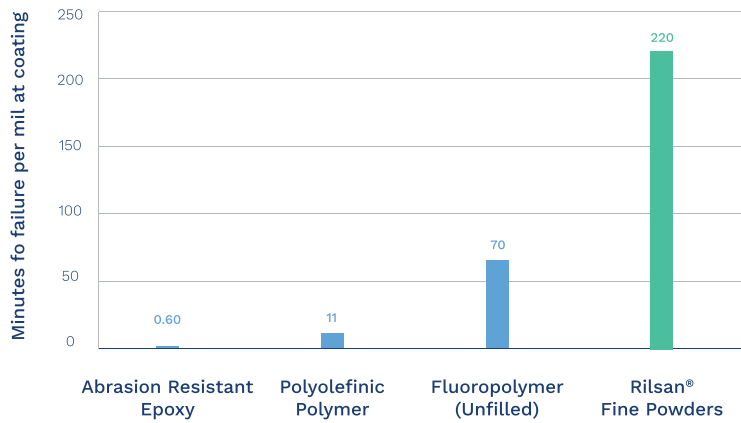
After testing three samples for each type of coating, the average minutes to failure per mil of coating was calculated. In this test, Rilsan® polyamide 11 coatings were shown to have better abrasion resistance than competitive coating solutions. The study continues as Fisher carries out tests on more polymeric coatings.



Test apparatus



(left) worn epoxy coated impeller (right) Rilsan® PA11 coated impeller



Rilsan® Polyamide 11 Fine Powders for mining

A highly abrasion resistant coating extends the service life of metal equipment used in the mining industry, such as centrifugal pumps, rollers, weirs, and pipes. The superior abrasion resistance of Rilsan® polyamide 11 coatings can lead to much less maintenance, recoating, and downtime. This study conducted by Fisher Company, showed that the epoxy coating provided less protection per mil of coating applied. Meanwhile, the Rilsan® powder coating provided over 200 times more protection per mil of applied coating.

Powerful by nature

Polyamide 11 is a biobased polymer derived from castor oil, making this product a green solution. Long-chain polyamides are generally more chemical resistant and flexible, while having lower density and moisture absorption compared to shortchain polyamides like PA6 and PA66. This PA11 backbone give Rilsan® fine powder coatings their strong mechanical properties and chemical resistance, is the right choice for mining equipment.

Versatile application processes

Because Rilsan® polyamide coatings are a thermoplastic resin, it allows for an easy application process in a variety of scenarios. Rilsan® fine powders can be electrostatically sprayed, hot flocked, fluid bed dipped, flame sprayed, and minicoated (for very small parts). Depending on the type of metal being coated and the dimensions of the part, at least one of these processes will be suitable for applying the polyamide 11 coating.

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