

TECH LINE Coatings

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DiamonDyze™

DiamonDyze™ is Mil 8625 compliant.

DiamonDyze™ is a break through in colored *and* hard anodizing. Using unique Nano technology, the advanced ceramic formulation provides the applicator with the ability to color anodize parts AND impart extreme wear, thermal, chemical and corrosion resistance in one simple step. Compatible with both *Type II* and *Type III* processes.

DiamonDyze™ can be used on any aluminum that can normally be anodized.

DiamonDyze™ Type II Colored anodizing (including Clear Type II anodizing) has several advantages compared to hard anodizing. It uses less energy and provides a smoother, less porous surface with good chemical and corrosion resistance. However until now the only way to have extreme wear resistance was to turn to hard anodizing. Hard anodizing does create a very hard and durable surface but at the expense of the qualities that make Type II colored anodizing so popular. NOW *DiamonDyze™* *combines the best features of both.*

DiamonDyze™ may also be used with *Type III* Hard Anodizing (Hard Coat) and will enhance the properties of *Type III*.

DiamonDyze™ is simply added as a separate step after Anodizing and rinse, and before the color tanks (For Clear simply immerse in the DiamonDyze tank, rinse and go to the seal tank). *Type III* requires the addition of a DiamonDyze tank, a rinse tank (color and rinse tanks next if desired) and a seal tank.

DiamonDyze™ Is compatible with most dyes (a test to verify compatibility will be run at no charge) and may be added as a light colored liquid to the dye tank (*Type II* and *Type III*), including shades made by mixing the colors (*Type II only*). *DiamonDyze™* then increases the chemical and corrosion protection AND adds extreme wear resistance.

DiamonDyze™ Type II has proven to be so durable that it has worn the teeth off files. In addition the surface roughness numbers (Ra) improve significantly. *Type III* has shown improved hardness numbers as well.

DiamonDyze™ can be applied to most any aluminum part that normally can be anodized.

DiamonDyze™ *New and Advanced Technology.*



TECH LINE *Coatings*

DiamonDyze Test	Results
SAFETY	Non Hazardous and contains no hazardous materials such as Sulfuric acid or Chromic Acid. A colored dye has been added to distinguish DiamonDyze from <i>water</i> .
Salt Spray ASTM B 117	2000 plus hours <i>with no change</i> and still in test. 6/5/2011
Drop Impact (ASTM D 2794 2 lb. Weight)	2 lb weight dropped 16" with no damage . The non treated part showed a 0.1490 indentation and the DiamonDyze showed a 0.1475 indentation. Both treated and untreated showed no damage but the untreated showed stretch marks in the aluminum near the outer circumference, indicating a softer surface VS the Treated Plate.
Gloss:	This will vary depending on surface finish. DiamonDyze does not change the appearance of the part. Clear DiamonDyze is water clear and does not change the appearance of the part, after anodizing.
Conductivity:	Non Conductive.
*Chemical	A 24 hour soak in both an Alcohol/MEK blend and Aircraft Stripper (Contains Methylene chloride) shows no effect .
*Oven Off:	12 hours no effect .
Thermal Resistance:	DiamonDyze is showing @ a 10% reduction in the rate of thermal transfer (insulator).
Surface Roughness Ra:	Prior to Type II DiamonDyze the test panel had a Ra of 2.791 (6061 aluminum non polished) after DiamonDyze the same panel had an Ra of 1.782 .
Ford APGE Accelerated Corrosion test	40 Cycles pass . Test continuing and at 80 cycles no change
Gravelometer (GM)	5A
Resistance to Grit Blast:	"I had Fireball try to etch the DiamonDyze coating with 120 grit aluminum oxide <i>at 120 psi</i> . Very little of the coating was removed. The technician commented that grit blasting DiamonDyze was similar to etching hard chrome plating . The grit particles were starting to glow red." (NM Engineered Solutions 965 Bruce Dale Ave, E. Hamilton, Ontario L8T 1M3 Canada)
**Accelerated Salt Spray	Over 2900 hours with no change as of 6/1/2011
**Humidity	Over 5500 hours with no change as of 6/1/2011

* DiamonDyze will not change the resistance of a treated piece in certain tests such as Nitric Acid testing. These tests are directly impacted by other treatments such as the seal used. DiamonDyze will not negatively impact a part as to chemical, corrosion or UV

* *Constant direct spray of a 5% salt solution for 9 hours followed by 15 hours in the sealed test chamber with no spray, followed by 9 hours of direct spray. Repeated for 1 week, then the chamber is kept sealed through the weekend, experiencing normal temperature variations and spray is resumed at the beginning of the next week. This procedure has shown a significant acceleration of oxidation formation compared to normal ASTM 117B conditions, as it more closely mimics real world exposure and allows for salt accumulation on a part while no spraying is occurring..

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