TECHNICAL INFO

TCF TWIN CITY FAN

Powder Coatings Sheet TIPC/T-1.0222

Epoxy Powder

General Description

Epoxy Powders are designed for general purpose decorative and protective end applications. Epoxy chemistries will chalk and fade upon exposure to ultraviolet rays.

Epoxies can be formulated to provide superior chemical and solvent resistance, and scratch and mar resistance.

Typical Properties of the Powder

Physical performance results were measured using 24-gauge Bonderite® 1000, Parcolene® 60 steel panels with 1.5-2.0 mils of a high gloss formulation. Heavier ware require longer cure times or higher temperatures. Low gloss or textured finishes may require longer cure times. Physical properties typically decrease with decreasing gloss. Since results are formulation dependent, product specific testing is recommended.

Typical Film Thickness

1.0 – 6.0 mils

Cure Schedules

F-cure	L-cure
20 minutes at 350°F	20 minutes at 275°F
15 minutes at 375°F	15 minutes at 300°F
10 minutes at 400°F	10 minutes at 325°F
8 minutes at 425°F	8 minutes at 350°F

Operating Temperature Range

-100°F to + 300°F. Slight discoloration will occur above 200°F under continuous operating conditions.

Dielectric Properties

Typical values equal 800 - 1,200 volts per mil for films up to 10 mils.

Adhesion (ASTM D-3359, Method B)

Using pressure sensitive tape, no coatlng is lifted or removed between 1/8" cross-hatch scribes. (Rating = 5B).

Pencil Hardness (ASTM D-3363)

Using Eagle Turquoise pencil leads, surface hardness ranges from 2H to 6H.

Impact Resistance (Modified ASTM D-2794)

Using a falling weight impact tester, the film surface withstands up to 160 inch lbs. of direct and reverse impact.

Flexibility, Mandrel (Modified ASTM D-522)

The film surface withstands a 180° bend over a 1/8" diameter with no loss of adhesion or surface cracking.

Abrasion Resistance (Modified ASTM D-4060)

Coating weight loss after 1,000 cycles of Taber abraser equipped with CS-10 wheels loaded to 1 kg per wheel is approximately 25-45 mg.

Corrosion and Chemical Performance Properties

Salt Spray Resistance (ASTM B-117)

Scribed Bonderite® 1000 steel panels in a 5% salt fog at 95° F and 100% relative humidity, exhibit no undercutting of the film after 1,000 hours exposure.

Chemical and Solvent Resistance

After ambient temperature immersion in the listed solvent or reagent, the following results were reported for Epoxy Powder formulations. *Verification of resistance properties should be made for each chemical proposed for use with a specific coating, as results can vary greatly depending on formulation. Specific test results or additional testing can be acquired upon request.

SOLUTION	1 MONTH	3 MONTHS	6 MONTHS	12 MONTHS
0.1% Chlorine	No Effect	No Effect	No Effect	No Effect
Anti-Freeze (50% Ethylene Glycol)	No Effect	No Effect	No Effect	No Effect
87 Octane Unleaded Gasoline	No Effect	Dulls, Softens	Dulls, Softens	Dulls, Softens
15% Hydrochloric Acid	*No Effect, Oxidizes Metallics	Dulls, Softens, Oxidizes Metallics	Discolors, Dulls	Discolors, Dulls
40% Hydrochloric Acid	*No Effect, Oxidizes Metallics	*No Effect, Oxidizes Metallics	*No Effect, Oxidizes Metallics	Discolors, Dulls
15% Sulfuric Acid	No Effect	*No Effect, Oxidizes Metallics	*No Effect, Oxidizes Metallics	*No Effect, Oxidizes Metallics
40% Sulfuric Acid	*No Effect, Oxidizes Metallics	*No Effect, Oxidizes Metallics	*No Effect, Oxidizes Metallics	*No Effect, Oxidizes Metallics
Dow Oven Cleaner	Dulls	Dulls, Softens	Softens, Discolors	Softens, Discolors
Isopropyl Alcohol	No Effect	*No Effect, Dulls, Softens, Low Cure, Low Gloss	*No Effect, Dulls, Crazes, Low Cure, Low Gloss	*No Effect, Dulls, Softens, Low Cure, Low Gloss
Acetone	Dulls, Softens - 24 hours		Test Terminated - 7 days	
Methyl Ethyl Ketone	Dulls, Softens - 1 hour		Test Terminated - 1 to 30 days	
Brake Fluid (D.O.T. Type 3)	Dulls, Softens - 1 hour		Test Terminated - 1 to 6 weeks	

*Since formulations may contain ingredients that enhance or detract from chemical resistance, performance has been summarized for this chemistry. This chart is intended as a general guide for chemical resistance.

Disclaimer

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