



Technical Data Sheet

Pedigree

Harbour Distict Zhuhai, Guangdong, China ,519050 Tel: (756) 7710413 Fax: (756) 7710416 www.altanazhuhai.cn

PED 923 EPOXY HERMETIC INSULATING VARNISH

PED 923 has long been the choice by the refrigeration compressor industry. Along with its excellent freon resistance, it is impervious to most harsh chemical environments. 923 is available in 25%, 35% and 50% solids (by weight) for our customer's convenience.

APPLICATION

- Refrigeration motor compressors, or motors, coils, etc. that require protection from harsh chemical environments.

RELATIVE ADVANTAGES

- Excellent tank stability and tank life
- Excellent chemical resistance
- Low to medium viscosity
- High bond strengths

APPLICATION AND CURING PROCEDURE

- Preheat unit to 250° to 275°F (121° to 135° C) unit temperature for 1 hour. Recommended but not absolutely necessary.
- Allow unit to cool to 140° to 170°F (60° to 77°C).
- Dip unit into varnish for 10 to 15 minutes or until bubbling stops
- Drain unit for 10 to 15 minutes
- Bake unit at 325° to 375°F (162° to 191°C) unit temperature for 1 to 12 hours depending on unit size.

PHYSICAL PROPERTIES

	25% Solids	35 % Solids	50% Solids
SPECIFIC GRAVITY @ 25° C	0.942-0.950	0.974 - 1.022	0.998 - 1.046
WEIGHT per GALLON @ 25° C (ASTM D1475-60)	7.8-7.9	8.1 - 8.5	8.3 - 8.7
COLOR	Clear Amber	Clear Amber	Clear Amber
VISCOSITY @ 25° C			
Brookfield	30-60cps	100 - 250 cps.	900-1500 cps.
#2 Zahn Cup	N/A	43 - 61 sec.	N/A
#4 Zahn Cup	N/A	N/A	45 - 60 sec.
FLASH POINT (ASTM D 93 - PMCC)	83°F	83°F	94°F
CURE TIME (AL cup, 10 grams, 325°F)	30 min. max.	30 min. max.	30 min. max.
RECOMMENDED THINNER	Ped. 10421	Ped. 10421	Ped. 10421
% FREON R-22 EXTRACTION	0.39%	.38%	N/A
CORROSIVE EFFECT ON COPPER	N/A	N/A	None
CHEMICAL RESISTANCE			
Water	Over 1500 hours	Over 1500 hours	
Acid (10% Sulfuric Acid)	Over 1500 hours	Over 1500 hours	
Alkali (1% Sodium Hydroxide)	Over 1500 hours	Over 1500 hours	
Salt water	Over 1500 hours	Over 1500 hours	

PED 923 Epoxy Hermetic Insulating Varnish

STORAGE / SHELF LIFE Shelf life of this resin in unopened containers is typically 12 months @ 25°C when stored in a dry/controlled environment.

ELECTRICAL PROPERTIES

DIELECTRIC BREAKDOWN (ASTM D 149)

AS MADE 4000 volts/mil
 24 Hrs. in distilled water 3200 volts/mil
 96 Hrs. @ 96% relative humidity 4000 volts/mil
 Sample thickness - .9 mils

Sample thickness tested on steel panels. Experience has shown that for solid and semi-solid materials, the dielectric strength varies inversely as a fractional power of the specimen thickness.

DIELECTRIC CONSTANT DISSIPATION FACTOR

	25°	50°	100°	150°	200°	25°	50°	100°	150°	200°
.120 kHz	3.6	3.3	2.1	1.7	1.8	.120 kHz .008	.01	.03	.01	.08
1 kHz	3.6	3.3	2.1	1.7	1.8	1 kHz .004	.01	.01	.01	.02
10 kHz	3.6	3.3	2.1	1.7	1.7	10 kHz .007	.005	.01	.01	.01

Dielectric constant and dissipation factor tests done according to ASTM D 150. For additional detail on DF and DC, see appendix A.

Values for dielectric constant and dissipation factor are affected by frequency, temperature, and voltage stress. Experience has shown these values decrease as frequency increases; increase as temperature increases; and increase as voltage stress increases.

SURFACE RESISTIVITY ASTM D 257 - 3.01×10^{15} ohms/cm²

VOLUME RESISTIVITY (ohm-cm) (ASTM D 257) 1.7×10^{15} 1.4×10^{14} 1.0×10^{12} 2.6×10^{10}

MECHANICAL PROPERTIES

HYDROLYTIC STABILITY -(1% distilled water, 1 week at 180°C, sealed tube)

No physical decomposition noted. Based on the condition of the sample after aging, 923 is suitable for hydrolytic conditions.

GLASS TRANSITION (T_g) 81.5°C

COEFFICIENT OF THERMAL EXPANSION - 2.3×10^{-5} in/in/°C

BOND STRENGTH vs. TEMP - MW35, cured 2 hrs. at 150°C, double dip (ASTM D2519)

BREAK TEMP (°C)	BOND STRENGTH
25°	35.3 #
60°	31.5 #
80°	30.0 #
100°	32.0 #
150°	6.7 #
180°	3.6 #
200°	2.9 #

PED 923 Epoxy Hermetic Insulating Varnish

THERMAL CLASSIFICATION PER U.L. 1446

	BASECOAT	OVERCOAT	NEMA	TI
TWISTED PAIR	Polyimide	None	MW16	220
HELICAL COIL	Polyester	Polyamide	MW76	130
TWISTED PAIR	Polyester	Polyamide-imide	MW35	155
HELICAL COIL	Polyester	Polyamide-imide	MW35	200
TWISTED PAIR	Polyurethane	Polyamide	MW28	130
HELICAL COIL	Polyurethane	Polyamide	MW28	130

Altana Electrical Insulation (Zhuhai) Co.,Ltd warrants the chemical composition of its products within stated tolerances, but does not guarantee that a product will be appropriate for any particular application. Any recommendation, performance of tests or suggestion is offered merely as a guide and is not a substitute for a thorough evaluation by the manufacturer. No representative of Altana Electrical Insulation (Zhuhai) Co.,Ltd has the authority to offer a warranty that a product will perform satisfactorily in manufacturing a product and no such representation should be relied upon.

ALTANA ELECTRICAL INSULATION (ZHUHAI) CO.,LTD DISCLAIMS ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR WARRANTY OF MERCHANTABILITY. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE CHEMICAL SPECIFICATIONS AND TOLERANCES STATED. ALTANA ELECTRICAL INSULATION (ZHUHAI) CO.,LTD LIMITS ITS LIABILITY TO REPLACEMENT OF PRODUCT THAT IS OUT OF SPECIFICATIONS WHEN DELIVERED AND EXCLUDES ANY AND ALL CONSEQUENTIAL DAMAGES AND INCIDENTAL DAMAGES.

ANY CLAIMS FOR BREACH OF WARRANTY MUST BE BROUGHT WITHIN ONE YEAR OF THE DATE OF SALE. ALTANA ELECTRICAL INSULATION (ZHUHAI) CO.,LTD 'S OFFER TO SELL PRODUCTS IS LIMITED TO THE TERMS, DISCLAIMERS AND LIMITATIONS EXPRESSED HEREIN AND PD GEORGE OBJECTS TO ANY TERMS THAT VARY FROM OR ARE INCONSISTENT WITH THESE TERMS, DISCLAIMERS AND LIMITATIONS. THESE TERMS MAY NOT BE VARIED BY ANY COURSE OF PERFORMANCE OR ORAL AGREEMENT.