

# Resin

## Permafil® 712

- ▶ High flash point, very low VOC emissions
- ▶ High bond strength for lower vibration noise and for high speed rotating devices
- ▶ Stable at room temperature
- ▶ Lower weight loss than other similar formulations for reduced shrinkage and longer machine life
- ▶ Low build for reduced clean up
- ▶ Low viscosity for improved penetration
- ▶ UL 1446 system recognition up to 240°C

### General description

Permafil® 712 is a solventless, unsaturated polyester resin developed for use in dip and bake or VPI tanks to replace low flash point solvent type varnishes where flammability and VOC emissions are of a prime concern.

### Application

The retention of its excellent properties over a wide temperature range make Permafil® 712 resin particularly suitable for use in applications where good penetration and low film build are desired such as in dry type transformers and random wound coils. Permafil® 712 also performs very well in VPI applications when used in conjunction an insulation system designed for DAP resins. Contact Von Roll Isola USA, Inc. for recommendations.

### Processing

Permafil® 712 resin can be used in conventional or automated dip and bake process and in VI or VPI equipment. For suggested cycle times and process specifics, please contact Von Roll Isola USA, Inc.

Suggested Cure Cycle: 4-6 hours at 275°F (135°C) or 2-3 hours at 302°F (150°C) or 1-2 hours at 320°F (160°C)

(These times apply to small units. For larger equipment, the time for the part to reach the

Quality: Default

		Value	Test norm
<b>Physical properties</b>			
Volatile content	lbs/gal. (kg)	≤0.8 (0.36)	ASTM D-6053
Specific Gravity 77°F(25°C)		1.17	
Flash point		>200°F (93°C) Pensky Martins Closed Cup	
Film build on steel (avg.)	mils (mm)	0.5 (0.013)	
Gel time (Sunshine) @ 118°C	minutes	20-30	
Viscosity Reducer		Diallyl Phthalate	
Viscosity (Brookfield) 77°F (25°C)	cps	500-1000	
<b>Weight</b>			
Total weight	lbs/gal. (kg)	9.75 (4.43)	

Quality: After curing

		Value	Test norm
<b>Mechanical properties</b>			
Bond Strength (Helical Coil) MW-35 @ 25°C	lbs(N)	47 (209)	ASTM D-648
Bond Strength (Helical Coil) MW-35 @ 155°C	lbs(N)	14 (62)	ASTM D-648
Heat distortion temperature	°F (°C)	248 (210)	ASTM D-648
<b>Electrical properties</b>			
Dissipation factor @ 105°C tan delta	%	0.9	ASTM D-150
Dielectric constant; 60Hz, 77°F (25°C)		3.16	ASTM D-150
Dissipation factor @ 125°C tan delta	%	1.3	ASTM D-150
Dielectric strength, Short Time	V/mil(kV/m m)	>2500 (63.5)	ASTM D-115
Dissipation factor @ 155°C tan delta	%	2.0	ASTM D-150
Dissipation factor @ 170°C tan delta	%	4.1	ASTM D-150

desired curing temperature should be added to these suggested cure times.) resin can be used in conventional or automated dip and bake process and in VI or VPI equipment. For suggested cycle times and process specifics, please contact Von Roll Isola USA, Inc.

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### Health and safety

Material Safety Data Sheets defining the known hazards and describing safety precautions appropriate for this product are available upon request from Von Roll USA, Inc., 200 Von Roll Drive, Schenectady, New York

12306 (518) 344-7100. Similar information sheets for solvents and other chemicals used with this product may be obtained from the appropriate supplier and used accordingly.

**Standards**

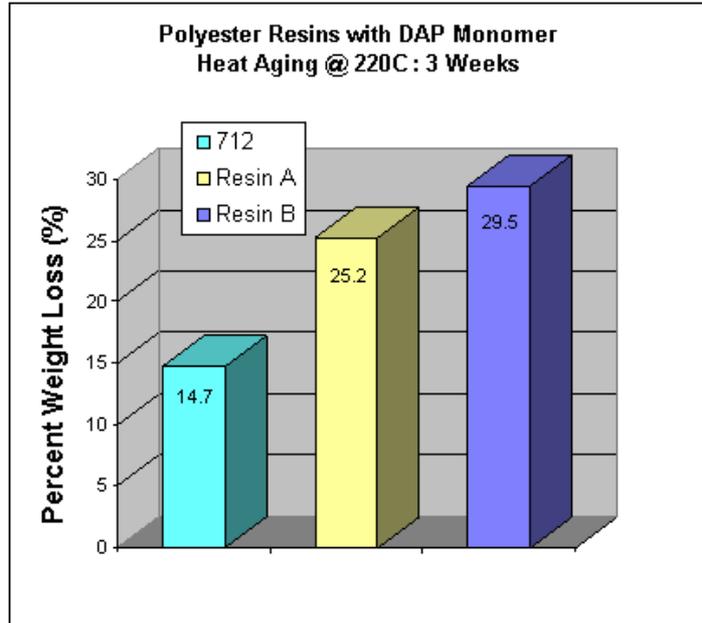
The properties shown in this data sheet are typical values only, and should not be used as a basis for preparing specifications. Contact our Customer Service department, (518) 344-7100 for assistance in preparation of specifications for your specific system application.

**Storage Conditions**

Permafil® 712 resin can be expected to stay within its specified gel time limits when stored pre-catalyzed for up to 12 months at 77°F (25°C). In normal use with adequate turnover, shelf life can be extended by adding uncatalyzed 712 varnish or by using the appropriate inhibitor solution at recommended levels.

**Order Data**

Permafil® 712 resin is available pre-catalyzed in 55-gallon drums or uncatalyzed in 5 and 55-gallon containers from Von Roll USA, Inc. or from authorized Von Roll distributors. For the name of your distributor or for more information on this product, contact our Customer Service department, (518) 344-7100



The product properties set forth in this data sheet are based on the results of testing of typical material produced by the affiliated companies of Von Roll Holding Ltd. (underneath referred as Von Roll). Some variation in product properties is typical. Comments or suggestions relating to any subject other than product properties are offered only to call the end-user's or other person's attention to considerations which may be relevant in the independent determination of the use and/or manner of use of product. Von Roll does not claim or warrant that the use of its product will have the results described in this data sheet or that the information provided is complete, accurate or useful. The user should test the product to determine its properties and its suitability for the intended use. Von Roll expressly disclaims any liability for any damage, harm, injury, cost or expense to any person resulting directly or indirectly from that person's reliance on any information contained in this data sheet. Nothing contained in this data sheet constitutes representation or warranty as to any matter whatsoever. Von Roll makes no warranties whatsoever in this data sheet, expressed or implied, including any implied warranty or fitness for a particular use or purpose. Von Roll shall in no event be liable for incidental, exemplary, punitive or consequential damages.

**Advantages**