

Product Description

SWANCOR 980 is an elastomer modified epoxy vinyl ester resin. It provides excellent elongation (i.e. superior toughness) of FRP laminates. The advantages of high elongation include increased adhesion strength to substrate, superior impact strength over market vinyl ester resins, superior abrasion and stress resistance. It also has good corrosion resistance to a broad of organic and inorganic acids, alkalis, oxidizing chemicals and salt solutions etc.

Applications

- Chemical corrosion resistance services with stress resistance.
- Primer for concrete and metal.
- Resin mortar formulations.
- Centrifugal casting or other fabrication methods with thick layer build-up.
- High performance sporting composites.

Fabrication Methods

- Can be easily applied by hand lay-up laminating, spray-up, pultrusion, resin transfer molding (RTM) and filament winding.
- Can be used in polymer concrete casting.

Typical properties of liquid resin

Property* ¹	Value	
Appearance	Opaque liquid with two-phase	
Solid Content (%)	54 ~ 56	
Viscosity * ²	300 ~ 450 cps	300 ~ 450 mPa.s
Specific Gravity	1.01 ~ 1.03	
Gel Time (min)* ³	15~25	
Shelf Life (months)	6	

*¹ Measurement was obtained under 25°C.

*² LVT-#3-60rpm @25°C.

*³ 6% Cobalt: 0.4phr, 100% DMA: 0.05phr, MEKP: 1.2phr @25°C.

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Typical clear casting properties of cured resin

Property	SI* ⁴	US Standard	Test Method
Tensile Strength	62 ~ 69 Mpa	9,000 ~ 10,000 psi	ASTM D638
Tensile Modulus	3.1 ~ 3.3 GPa	4.5 ~ 4.8 X10 ⁵ psi	ASTM D638
Tensile Elongation	6 ~ 9%	6 ~ 9%	ASTM D638
Flexural Strength	103 ~ 118 Mpa	15,000 ~ 17,000 psi	ASTM D790
Flexural Modulus	2.9 ~ 3.3 Gpa	4.3 ~ 4.8 X10 ⁵ psi	ASTM D790
Volume Shrinkage	7.5 ~ 8.5%	7.5 ~ 8.5%	ASTM D2566
Heat Distortion Temperature* ⁵	76 ~ 82°C	169 ~ 180°F	ASTM D648
Barcol Hardness	28 ~ 34	28 ~ 34	ASTM D2583

*⁴ SI values based on conversion.

*⁵ Curing condition for HDT: 24hours at room temperature then 2 hours at 105°C.

Comparative information of reverse impact strength of SWANCOR 980 laminates

Isophthalic polyester resins	16 in-lb.
Bisphenol A epoxy vinyl ester resins	57 in-lb.
Novolac epoxy vinyl ester resins	28 in-lb.
SWANCOR 980	210 in-lb.

Typical gel time of SWANCOR 980

Gel Time Temperature	Materials	10~20 min	20~40 min	40~60 min
		Cured by MEKP/CoOct/DMA* ⁶		
18°C	MEKP	1.50%	1.20%	1.20%
	CoOct	0.40%	0.30%	0.25%
	DMA	0.05%	0.05%	0.05%
25°C	MEKP	1.20%	1.20%	1.00%
	CoOct	0.40%	0.20%	0.20%
	DMA	0.03%	0.03%	0.03%
30°C	MEKP	1.20%	1.00%	1.00%
	CoOct	0.40%	0.30%	0.20%
	DMA	0.03%	0.01%	0.01%
Cured by BPO/DMA* ⁷				
18°C	BPO	1.00%	1.00%	1.20%
	DMA	0.08%	0.04%	0.06%
25°C	BPO	1.00%	1.00%	1.00%
	DMA	0.05%	0.03%	0.06%
30°C	BPO	1.00%	0.80%	0.60%
	DMA	0.04%	0.03%	0.03%

*⁶ Concentration: CoOct: 6%, DMA: 100%

*⁷ Concentration: BPO: 98%, DMA: 100%

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Notice in Use

1. If SWANCOR 980 is blended with cobalt-salt promoters, shelf life will be shortened. Promoted SWANCOR 980 must be used within one month.
2. SWANCOR 980 will present two-phase while sitting in storage in nature. Thorough mixing is necessary before use in order to obtain maximum performance.
3. The gel time of SWANCOR 980 is affected primarily by catalyst concentration and temperature. The variations of cure characteristics may be caused by the variations of catalyst, humidity, pigment, fillers and other additives. It is recommended that the fabricators check the cure characteristics with a small quantity resin before proceeding for bulk production.
4. SWANCOR 980 contains organic solvent (styrene). Keep away from heat, sparks and flames.
5. SWANCOR 980 is a potentially reactive chemical. Please store it in dark and keep away from heat and direct sunshine.
6. Containers, not completely emptied must be closed immediately after use.

MATERIAL SAFETY AND HANDLING INFORMATION

SKIN CONTACT:

Thoroughly wash exposed area with soap and water immediately. Remove contaminated clothing. Launder contaminated clothing before re-use.

EYE CONTACT:

Flush with large amount of water immediately and continuously for 20 minutes, lifting upper and lower lids occasionally. Get medical attention.

INGESTION:

Do not induce vomiting. Keep person warm, quiet and get medical attention. Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal.

INHALATION:

If affected, remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Keep person warm, quiet, and get medical attention.

PERSONAL PROTECTION:

Do not breathe vapors. High concentration of vapor can be hazardous. Keep out of sewers. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. For large spills, warn public of downwind explosion hazard. Check area with explosion meter before re-entering area. Ground and bond all containers and handling equipment.

RESIN STORAGE

Keep away from ignition sources; flames, pilot lights, electrical sparks, and sparking tools. NO SMOKING. Do not store in direct sunlight. Store separate from oxidizing materials, peroxides, and metal salts. Keep container closed when not in use. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 25°C (77°F). Copper or copper containing alloys should be avoided as containers.

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SWANCOR 980

Epoxy Vinyl Ester Resins



SPILLS

Eliminate all ignition sources (flares, flames, including pilot lights electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent or other absorbent material and shoveled into containers.

WASTE DISPOSAL

Destroy by liquid incineration in accordance with applicable regulation. Contaminated absorbent should be disposed in accordance to government regulations.

PACKAGE

Standard packing is 200 Kg steel drum. 20Kg pail is available on request.

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