SWANCOR 963 Series

Terephthalic Unsaturated Polyester Resin

Product Description

SWANCOR 963 is a terephthalic unsaturated polyester resin. It offers excellent mechanical properties. It has good water resistance and corrosion resistance properties. It is widely used on pipes and tanks by hand-lay and winding, other equipments needed ordinary chemical resistance and heat resistance, FRP lining, resin mortar(sand: resin≦5) laminates based on **SWANCOR 963** are also suitable for potable water and food contact application. Comply with U.S Food and Drug Aaministration (21 CFR 177.2420) after post-curing and treating by steam.

Applications

- Chemical storage tanks, pipes, scrubbers, ducts.
- Corrosion resistant flooring while incorporated with aggregates.
- Waste water treatment systems.
- Food storage tanks and pure water system.

Fabrication Methods

- Can be easily applied by hand lay-up and spray-up.
- Pultrusion and filament winding.

Typical properties of liquid resin

Property*[1]	**SWANCOR 963**	**SWANCOR 963-P**
Appearance	Turbid liquid	
Density	1.09~1.10 g/cm^3	--
Solid Content	54~60%	
Viscosity*[2]	280~420cps	
Acid Value	7-13 mgKOH/g	
Stability at 80^{o}C	≧24 hours	--
Gel Time	15~35 min*[3]	20~30 min(MEKP:1.0%)
Curing Time	30~55 min	--
Peak Temperature	110~160 ℃	
Shelf Life (25^{o}C)	6 months	3 months

*[1] Measurement was obtained at 25^{o}C.

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*2 LVT-#3-60rpm@25°C.
*3 MEKP: 1.0%，6%Cobalt: 0.6%, Temperature: 25℃

Typical clear casting properties of cured resin

Property	SI	US Standard	Test Method
Tensile Strength	50 MPa	7,250 psi	ASTM D638
Tensile Modulus	3.1 GPa	449,500 psi	ASTM D638
Tensile Elongation	2.5%	2.5%	ASTM D638
Flexural Strength	100 MPa	14,500 psi	ASTM D790
Flexural Modulus	3.5 GPa	507,500 psi	ASTM D790
Volume Shrinkage	1.8%	1.8%	ASTM D2566
HDT	102°C	216°F	ASTM D648
Barcol Hardness	36	36	ASTM D2583

Typical laminate properties*4

Property	Measurement	Test Method
Tensile Strength	121.6 MPa	ASTM D638
Flexural Strength	250.7 MPa	ASTM D790
Barcol Hardness	50	ASTM D2583

*4 Laminate fiber content: 33%, curing conditions: 20°CX24hrs, 100°CX3hrs.

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Typical gel time of SWANCOR 963

Temperature	Materials	Gel time		
		10~20 min	20~40 min	40~60 min
5~10°C	MEKP	-	3.0%	3.0%
	TS-030	-	2.0%	1.5%
10~20°C	MEKP	1.5%	1.5%	1.5%
	TS-030	2.0%	1.0%	0.7%
20~28°C	MEKP	1.2%	1.2%	1.2%
	TS-030	0.6%	0.4%	0.25%
Above 28°C	MEKP	1.2%	1.2%	1.2%
	TS-030	0.4%	0.3%	0.2%
Remarks	Gel time of resin is affected by the ratio of resin, MEKP promoter, fabricating conditions and techniques, so the data listed above are only for references. Please start with small tests before use.			

NOTICE IN USE

1. If **SWANCOR 963** is blended with cobalt-salt promoters, shelf life will be shortened. Promoted **SWANCOR 963** must be used within three months.
2. The gel time of **SWANCOR 963** 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.
3. **SWANCOR 963** contains organic solvent (styrene). Keep away from heat, sparks and flames.
4. **SWANCOR 963** is a potentially reactive chemical. Please store it in dark and keep away from heat and direct sunshine.
5. 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:

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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. Vapor explosion hazard, 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 reentering 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^{o}C (77^{o}F). Copper or copper containing alloys should be avoided as containers.

SPILLS

Eliminate all ignition sources (flares, flames, including pilot lights electrical sparks). Persons not wearing protective equipment should be exclude 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 20 kg or 220 kg steel drum.

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