

PRODUCT DESCRIPTION

PRODUCT CODE: C240019

POLYPLEX 490-19 is a pre-promoted thixotropic, corrosion and high-temperature resistant unsaturated polyester laminating resin, based on Terephthalic acid. This resin features a high molecular weight polymer which shows high crosslink density, and offers excellent solvent resistance and retention of physical properties at elevated temperatures. POLYPLEX 490-19 is a cost effective alternative to vinyl ester in many applications. POLYPLEX 490-19 is suitable for use in the construction of FRP fuel storage tanks, and is UL approved as a recognized component under UL 1316. This UL certification qualifies the resin as suitable for fabrication of Underground Fuel Storage Tanks to contain Gasohol (Gasoline/Alcohol blends – Petrol/Alcohol blends).

FEATURES

- Low viscosity under high shear with high thixotropy
- High molecular weight, high crosslink density Terephthalic polyester
- High heat distortion temperature
- Excellent chemical resistance towards acids, salts and polar solvents
- Recognized component under UL1316

BENEFITS

- Good sprayability with minimal drainage on inclined surfaces
- High corrosion resistance, improved toughness
- Greater retention of physical properties at elevated temperatures
- Cost effective alternative to vinyl esters in various applications
- Can be used for single walled UST's or the inner/outer walls of secondary containment Type 1 of Type 11 UST's.

RELATED PRODUCTS

- Polyplex 490-01: Unpromoted, non-thixotropic base resin for Polyplex 490 series
- Polyplex 490-17: Pre-promoted, non-thixotropic variant

RECOMMENDED CATALYST

1.5 % MEKP 9

TYPICAL LIQUID RESIN PROPERTIES @ 25°C

PROPERTY	TYPICAL VALUE	TEST DETAILS
Viscosity - Brookfield	1400 - 1800 cP	LVT sp 2/12
Viscosity - Cone and Plate	240 - 300 cP	Tested @ 23° C Brookfield CAP-2000
Density	1.10 gcm ⁻³	
Styrene Content	47 – 51%	
Appearance	Translucent blue liquid	
Flash Point	31°C	Setaflash
Gel Time	20 - 30 minutes	1% Norox MEKP 9

TYPICAL MECHANICAL PROPERTIES IN CURED STATE

(FULLY POSTCURED CASTING)

PROPERTY	TYPICAL VALUE	TEST DETAILS
Density	1.19 gcm ⁻³	ISO/R 1183-1970
Tensile Strength	60 MPa	ASTM D638
Tensile Elongation	2.0 – 2.5%	ASTM D638
Flexural Strength	115 MPa	ASTM D790
Flexural Modulus	3585 MPa	ASTM D790
Volume Shrinkage	7-8%	ISO 3521-1976
Heat Distortion Temperature	126°C	ISO 75-1974
Barcol 934-1 Hardness	40	Barcol Impressor

FABRICATION

Various methods of fabrication can be specified or recommended, but all basically require that a coat of 0.3mm minimum thickness (corrosion barrier) be applied to the side exposed to the corrosive environment. This layer must be smooth and free of imperfections, and consisting of either:

- Resin - rich layer with a resin content of 80-90%, reinforced with a surfacing veil or tissue of chemical resistant glass.
- Flow coat of resin containing between 2-5% Wax solution (5% paraffin wax in styrene). This applies to structures to structures where the last layer applied is exposed to air during cure. The wax ensures a satisfactory degree of surface cure is obtained.

POST CURE

One of the most important factors governing the corrosion resistance of composites is the degree of cure that the resin obtains. To achieve optimum chemical resistance moulded articles should be properly postcured prior to exposure to any chemical environment. Any of the following minimum postcure schedules are suggested, following initial ambient temperature curing:

- 16 hours @ 65°C
- 3 hours @ 80°C

POST CURE CONTINUED

For higher postcure temperatures, the article should firstly be matured for not less than 24 hours at room temperature. For general service, it is recommended that the laminate reach a minimum of 90% of the clear cast Barcol Hardness value listed above. For highly aggressive conditions elevated temperature post-cure must be employed to attain the highest degree of cure possible.

This bulletin is intended as a guideline only. If doubt exists as to the suitability of our products for a particular purpose, then small test laminates should be evaluated in the appropriate environment.

STORAGE AND HANDLING

To ensure maximum stability and maintain optimum resin handling properties, polyester resins should be stored in closed containers, away from heat sources and sunlight. The resin should be stored away from all sources of ignition. Stored resin quantities should be kept to a reasonable minimum and used on a first in/first out stock rotation basis. Prolonged storage, or unfavourable storing conditions, may cause separation, therefore agitation of the resin before use is recommended.

STANDARD PACKAGING

Mild steel drums (Open Head)
Mild steel pail

Always refer to the MSDS before use