



SINGAPORE HIGHPOLYMER CHEMICAL PRODUCTS PTE LTD

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VINYL ESTER RESIN SHCP 7110

A. GENERAL DESCRIPTION

SHCP 7110 is Vinyl Ester Resin, non-thixotropic and quick curing type for filament winding, hand lay-up and spray up moulding. This resin is suitable for anti-corrosion, chemical resistant tank, pipe and fittings...etc. Especially recommended for Chemical Engineering, due to its excellent performance on strength properties. But, for clear transparent casting purpose is not recommended.

1. Properties of liquid SHCP 7110

<u>TEST ITEMS</u>	<u>TEST METHOD</u>	
Appearance	JIS K 6901	Viscous Liquid
Viscosity (Ps/30°C)	JIS K 6901	4 - 5
Specific Gravity (30°C)	JIS K 6901	1.048
Gel Time (minute/30°C)	JIS K 6901	20 - 35
Monomer Content (%)	ISO 3251-1974	45 ± 2
Mineral Content (%)	DIN 1645-1976	Max. 0.05
Linear Curing Shrinkage (%)	ASTM D2566-69	1.9 ~ 2.1

2. Properties of cured SHCP 7110

<u>PROPERTY</u>	<u>TEST METHOD</u>	
Density	ASTM C905-01	1.033 g/cm ³
Barcol Hardness	ASTM D2583-07	39 BHC
Heat Distortion Temperature	ASTM D648	103 degree C
Glass Transition Temperature	ASTM E1356-03	106 degree C
Water Absorption	ISO /R 62-1980	Max. 80mg
Elongation	ASTM D638	5-6 %
Tensile Strength	ASTM D638	75 Mpa ²
Tensile Modulus	ASTM D638	3.49 Gpa
Flexural Strength	ASTM D790	135 Mpa
Flexural Modulus	ASTM D790	3.09 Gpa

B. USAGE

SHCP 7110 performs best when it is completely cured. To do so, a proper combination of catalyst and accelerator must be used at room temperature for a sufficient period of time. Generally, 1.5 percent of catalyst (BUTANOX LPT MEKP <very low reactive MEKP>) together with 0.5 percent of accelerator (6% cobalt content) is used.

If temperature falls below 25°C, **0.05% to 0.2% of Dimethyl Aniline (DMA)** can be added to achieve the complete cure.

Adjustments for shorter or longer geltime can be achieved by ranging the quantities of catalyst and/or accelerator used. As a rule, however, the amount of catalyst used should not be more than 2% or less than 1% while that of accelerator should range between 0.2% and 0.6%. Be sure to measure accurately.

Ensure that the accelerator must be completely mixed into the resin before catalyst is added in order to avoid a direct blending which due to a violent reaction may result in an **EXPLOSION**.

Since the viscosity increased as the storage period of resin lengthens, Styrene Monomer can be added to lower it to a desired level.

However owing to difficulties in presenting information applicable to all situations, no warranty is expressed or implied and users are recommended to carry out their own tests to determine the applicability of the above information and the suitability of SHCP resin for their particular requirements.

C. STORAGE

SHCP polyester resin will remain stable if stored in the dark and at temperatures below 25°C in an air-conditioned room. Their stability however deteriorates markedly at higher temperatures, especially when they are directly exposed to sunlight. Hence they should be kept in a cool, dark place. It is advisable to finish it within three months.

D. PACKING

SHCP polyester resin is packed in steel drums of standard size, containing 180 kilogrammes in net weight.

E. ENQUIRIES

SHCP is specialized in manufacture of different types of unsaturated polyester resin for a wide range of applications. It can make in accordance with customers' specifications to meet their needs. Technical services are also provided to its customers. For any inquiries, please contact Sales Manager, Singapore Highpolymer Chemical Products Pte Ltd.



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CASE STUDY BY USING SHCP 7110 VINYL ESTER RESIN

P/J	OWNER OF THE PROJECT	PLACE	PRODUCTS	DATE
EWF	MITSUBISHI HEAVY INDUSTRIES, LTD	ENGLAND	FRP SPRAY PIPES FOR FGD PLANT	JAN-02
EED	MITSUBISHI HEAVY INDUSTRIES, LTD	ENGLAND	FRP SPRAY PIPES FOR FGD PLANT	APR-03
HH-20	MITSUBISHI HEAVY INDUSTRIES, LTD	JAPAN	FRP SPRAY PIPES FOR FGD PLANT	JUL-03
NTF	MITSUBISHI HEAVY INDUSTRIES, LTD	CHINA	FRP SPRAY PIPES FOR FGD PLANT	MAR-04
CHX-300	MITSUBISHI HEAVY INDUSTRIES, LTD	CHINA	FRP SPRAY PIPES FOR FGD PLANT	JAN-05
OTHERS: MANY PROJECTS				

Copper Refinery Project in South Africa



Acidic Glycol Waste Water Tank in Singapore



FRP Piping Project in Indonesia

