

## ES-2146

### Fiber Type Ortho-DCPD Based Thixotropic Polyester

#### DESCRIPTION AND BASIC PROPERTIES

ES-2146 is a pre-accelerated, ortho-DCPD based unsaturated thixotropic polyester resin. It has a low styrene content compared to conventional resins. GRP applications are used. Because of the low deformation and thixotropy when it is applied to vertical surfaces there will be no flowing and hanging and provides homogenous final product. It is used in automotive sector, swimming pool applications, production of tractor and heavy-duty vehicle cabins also it is optimized for marine applications such as yacht, boats and catamarans.

APPLICATION METHODS	CHEMICAL STRUCTURE
Hand lay-up Spray-up	Acid: Ortho-DCPD Acceleration: Yes

#### PROPERTIES OF LIQUID FORM

	UNIT	VALUE	METHOD
Appearance	-	Cloudy, purplish	-
Viscosity <sup>1</sup>	cp	1700±500 (5 rpm)	ISO 2555
		550±50 (50 rpm)	
Monomer Content	%	40 ± 2	ISO 3251
Density	g/cm <sup>3</sup>	1.10±0.02	ISO 1675
Gel Time <sup>2</sup>	min	25 ± 5	ISO 584
Cure Time <sup>2</sup>	min	20 ± 5	ISO 584
Peak Exotherm <sup>2</sup>	°C	145 ± 15	ISO 584
Shelf Life	month	6	-

<sup>1</sup> Brookfield DV II, 25°C, 4 spd  
<sup>2</sup> 25°C, 1.5 ml MEK-P(Butanox M50) for 100 g sample

#### MECHANICAL PROPERTIES OF CURED RESIN

	UNIT	VALUE <sup>1</sup>	METHOD
Tensile Strength	MPa	65 ± 6	ASTM D638
Tensile E-Modulus	GPa	4.8 ± 0.4	ASTM D638
Strain at Fracture	%	2.5 ± 0.2	ASTM D638
Elongation At Break	%	1.3 ± 0.3	ASTM D638
Flexural Strength	MPa	90 ± 10	ASTM D790
Flexural E-Modulus	GPa	3.8 ± 0.3	ASTM D790
Heat Deflection Temperature (HDT) <sup>2</sup>	°C	78 ± 5	ISO 75 A
Impact Strength	Kj/m <sup>2</sup>	9.6 ± 2	ISO 180

<sup>1</sup> For fully cured resin, curing Schedule- 24 hrs at 20°C, 4 hrs at 90°C  
<sup>2</sup> Curing Schedule- 24 hrs at 20°C, 4 hrs at 90°C, 3 hrs at 120°C

#### STORAGE CONDITIONS

It should be stored in a dry, clean and cool place (15-25 ° C) in closed packages. The shelf life of the product is valid for this temperature range and it should not be forgotten that it will shorten at high temperatures. Products with the same charge number and date must be stored together.

Another factor that affects the life of unsaturated polyester resins containing styrene is sunlight. Styrene must be polymerized in the sunlight and products that are considered to shorten the life of the product should be avoided from direct sunlight contact.

#### MORE INFORMATION

ESKİM KİMYA  
Organize Sanayi Bölgesi 6. Cad. No:2 26110 ESKİŞEHİR  
TEL:0(222) 236 01 90 (PBX)  
FAKS: 0(222) 236 01 87

<http://www.eskim.com.tr>

\* This information has been prepared by considering the general conditions. Problems arising due to inadequacy of information ESKİM A.Ş. is not responsible.