

## Description and Basic Properties

ES- 2830 is terephthalic based, medium-reactivity unsaturated polyester resin. It has high mechanical properties and chemical resistance. FRP applications, corrugated sheets, modular, cabins, boats, tanks, vans, pipes, shower cabin, car bumper, panel building structures, etc. used in the production.

Application Methods	Chemical Structure
Hand lay-up Filament winding	Acid : Terephthalic Acceleration : No Reactivity : Medium

## Properties of Liquid Form

	Unit	Value	Method
<b>Appearance</b>	-	Clear, yellowish	-
<b>Viscosity<sup>1</sup></b>	cp	250 ± 50	ISO 2555
<b>Monomer Content</b>	%	45 ± 3	ISO 3251
<b>Density</b>	g/cm <sup>3</sup>	1.10 ± 0.02	ISO 1675
<b>Acid Number</b>	mg KOH/g	15 ± 5	ISO 2114
<b>Gel Time<sup>2</sup></b>	min	8 - 20	ISO 2535
<b>25° C - 35° C</b>	min	10 - 24	ISO 584
<b>25° C – Max.° C</b>	min	Max 40	ISO 584
<b>Peak Exotherm<sup>2</sup></b>	° C	200 ± 10	ISO 584
<b>Shelf Life</b>	month	6	-

<sup>1</sup>Brookfield DV II, 25° C, 3 spd 10 rpm

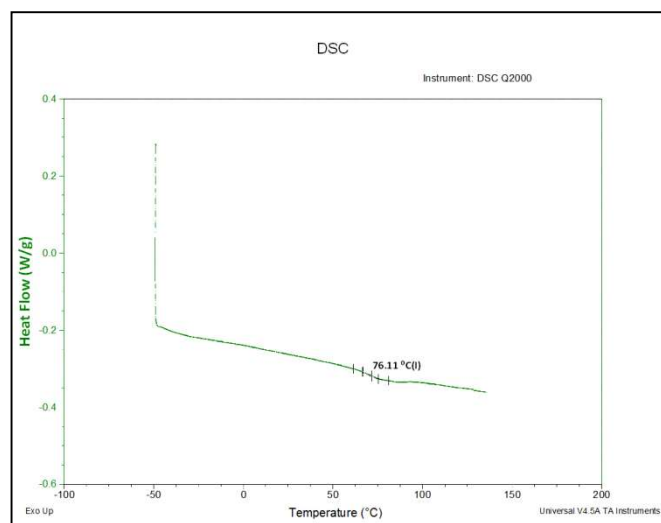
<sup>2</sup>25° C, 1% Cobalt Octate 1 gr and 1,1 gr MEK-P (Butanox M60) for 100 g sample

### Mechanical Properties of Cured Resin

	Unit	Value <sup>1</sup>	Method
<b>Tensile Strength</b>	MPa	70 ± 5	ASTM D638
<b>Tensile E-Modulus</b>	GPa	4.1 ± 0.4	ASTM D638
<b>Elongation at Break</b>	%	1.5 ± 0.1	ASTM D638
<b>Flexural Strength</b>	MPa	130 ± 10	ASTM D790
<b>Flexural E-Modulus</b>	GPa	3.6 ± 0.4	ASTM D790
<b>Heat Deflection Temperature (HDT)<sup>2</sup></b>	° C	75 ± 5	ISO 75 A
<b>Barcol Hardness</b>	Barcol	45 ± 5	ASTM D2583
<b>Glass Transition Temperature (Tg)</b>	° C	80 ± 5	ISO 11357 - 2

<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



**Differential Scanning Calorimetry (DSC) Determination of Glass Transition Temperature (Tg)**

## 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

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