

## DION<sup>®</sup> 9800

(Formerly ATLAC<sup>®</sup> 580-05 & 580-05A)  
Urethane Modified Vinyl Ester Resins

### DESCRIPTION

DION<sup>®</sup> 9800 is a premium urethane modified vinyl ester resin with many unique features. The urethane modification creates a tough, resilient polymer that combines outstanding chemical resistance and high temperature performance with excellent laminating properties.

DION<sup>®</sup> 9800 has exceptional wetting characteristics with carbon and aramid as well as conventional glass fibers.

### APPLICATION

- It can be made thixotropic using regular (non hydrophobic) grades of fumed silica, and will not foam when used with standard MEKP initiators.
- DION<sup>®</sup> 9800 is especially formulated for hand lay-up, pultrusion and filament winding.

### FEATURES

### BENEFITS

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Urethane modified vinyl ester polymer</li></ul>                                       | <ul style="list-style-type: none"><li>• Tough, impact resistant laminates</li><li>• Highly corrosion and temperature resistant</li><li>• Ideal for filament winding</li></ul> |
| <ul style="list-style-type: none"><li>• Excellent wet-out with glass, carbon and aramid fibers</li></ul>                      | <ul style="list-style-type: none"><li>• Improved mechanical properties and corrosion resistance</li></ul>   |
| <ul style="list-style-type: none"><li>• Non-foaming with MEKP initiators</li></ul>  | <ul style="list-style-type: none"><li>• Reduced air entrapment</li></ul>  |
| <ul style="list-style-type: none"><li>• Compatible with standard grades of fumed silica</li></ul>                             | <ul style="list-style-type: none"><li>• No need for expensive treated silicas</li></ul>   |
| <ul style="list-style-type: none"><li>• Preaccelerated version available</li></ul>  | <ul style="list-style-type: none"><li>• Provides flexibility by not requiring the addition of dimethylaniline</li></ul>   |
| <ul style="list-style-type: none"><li>• Manufactured using statistical process control in ISO 9002-certified plants</li></ul> | <ul style="list-style-type: none"><li>• Consistent batch-to-batch performance</li></ul>   |

The information herein is general information designed to assist customers in determining whether our products are suitable for their applications. Our products are intended for sale to industrial and commercial customers. We require customers to inspect and test our products before use and to satisfy themselves as to contents and suitability for their specific applications. We warrant that our products will meet our written specifications. **Nothing herein shall constitute any other warranty express or implied, including any warranty of merchantability or fitness for a particular purpose**, nor is any protection from any law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is limited to replacement of our materials and in no event shall we be liable for special, incidental or consequential damages.

**PROPERTIES**

**PHYSICAL DATA IN LIQUID FORM AT 25°C (77°F)\***

Properties	Unit	Value	Test method
Non-Volatiles, NV	%	52-54	18-001/B070
Viscosity Brookfield Model LV, Spindle 2 at 30 rpm	cps /mPa.s	350-450	18-021/ASTM D 2196-86
Specific gravity / Density	g/cm <sup>3</sup>	1.05 ± 0.02	18-030 / ISO 2811-2001
Gel time DION <sup>®</sup> 9800: unaccelerated DION <sup>®</sup> 9800-05A: preaccelerated **	minutes minutes	15-25 30-40	COMP02 COMP02
Flash point (Seta Closed Cup)	°C / °F	32 / 89	ASTM D 3278-95
Shelf life, minimum	months	6	

\*\* Contains 0.1% dimethylaniline

**TYPICAL NON-REINFORCED CASTING PROPERTIES\***

Properties	Unit	English	Metric	Test method
Tensile Strength	psi MPa	13,100	90	ASTM D 638-02 ISO 527-1993
Tensile Modulus	psi MPa	460,000	3,200	ASTM D 638-02 ISO 527-1993
Tensile Elongation	% %	3.2-4.2	3.2-4.2	ASTM D 638-02 ISO 527-1993
Flexural Strength	psi MPa	22,600	156	ASTM D 790-02 ISO 178-2001
Flexural Modulus	psi MPa	490,000	3,378	ASTM D 790-02 ISO 178-2001
Heat Deflection Temperature	°F °C	244	118	ASTM D 648 ISO 75-1993
Hardness, Barcol Model 934-1		38	38	ASTM D 2583-99

*\*Properties in this bulletin are typical of those obtained in controlled laboratory tests and are provided as guidelines.*

**TYPICAL LAMINATE PROPERTIES AT ELEVATED TEMPERATURES**

Temp. °C / °F	Tensile Strength		Flexural Strength		Flexural Modulus	
	psi	mPa	psi	mPa	psi	mPa
25 / 77	19,500	134	26,300	181	1,010,000	6,960
65 / 150	19,500	134	25,600	176	870,000	5,995
93 / 200	19,500	134	23,100	159	740,000	5,100
121 / 250	13,000	90	19,200	132	580,000	4,000
149 / 300	9,000	62	7,400	51	320,000	2,205

**CURED DATA**

DION® 9800 resins are formulated for use with methyl ethyl ketone peroxide (MEKP) initiator systems. They can also be used with benzoyl peroxide. DION® 9800 requires the addition of both cobalt octoate or naphthenate, and dimethylaniline (DMA) to obtain optimal cure. DION® 9800-05A is preaccelerated with DMA and requires only cobalt octoate or naphthenate. DION® 9800 responds well to most initiators and, unlike conventional vinyl ester resins, does not foam when catalyzed with MEKP. When fabricating thick sections using DION® 9800 resins, high levels of DMA should be avoided since they can result in a very high peak exotherm. Use of cumene hydroperoxide initiator has been shown to significantly reduce exotherm while developing a rapid cure in thick laminate sections.

**GUIDELINES FOR INITIATOR AND PROMOTER ADDITIONS**

DION® 9800 MEKP INITIATOR					DION® 9800-05A MEKP INITIATOR				
Temp. (°C / °F)	Gel time minutes	DMA (100%) %	Co (6%) %	MEKP (9% active) %	Temp. (°C / °F)	Gel time minutes	DMA (100%) %	Co (6%) %	MEKP (9% active) %
4 / 40	30-40	0.2	0.7	2.4	4 / 40	30-40	0.1	0.7	2.4
10 / 50	30-40	0.1	0.6	1.8	10 / 50	30-40	0.1	0.6	1.8
	40-50	0.1	0.6	1.2		40-50	0.1	0.6	1.0
15 / 60	20-30	0.1	0.6	2.4	15 / 60	30-40	-	0.6	1.8
	30-40	0.1	0.6	1.8		60-70	-	0.6	1.2
	40-50	0.1	0.6	1.2					
24 / 75	15-25	0.1	0.4	1.8	24 / 75	20-30	-	0.4	1.8
	20-30	0.1	0.4	1.4		30-40	-	0.4	1.2
	30-40	0.1	0.4	1.2		50-60	-	0.4	0.9
32 / 90	15-25	0.1	0.3	1.2	32 / 90	15-25	-	0.4	1.2
	20-30	0.1	0.2	1.2		30-40	-	0.3	1.2
	30-40	0.1	0.2	0.9		50-60	-	0.3	1.0

**CUMENE HYDROPEROXIDE (CHP) INITIATOR**

	DION® 9800	DION® 9800-05A
% CHP	3.0	3.0
% cobalt 6%	0.5	0.5
Gel time (min.)	75	90

Caution: Excessive cobalt promoter can inhibit cure and degrade corrosion resistance. Do not use more than 0.5% of cobalt 6% or 0.25% of cobalt 12%. If using cobalt octoate (12%), use half of the amount indicated in the chart for cobalt 6%.

**DION® 9800 PARAFFINATED TOPCOATS**

Even fully cured resin can retain a tacky surface. Surface cure may be improved by incorporating a paraffin wax into the resin used in the final ply. Alternatively, a wax-modified resin can be added as a topcoat once the laminate has hardened.

**SUGGESTED TOPCOAT FORMULATION**

COMPONENTS	PARTS
10% Paraffin Wax Solution	2.0
DMA 100%	0.3
6% Cobalt Naphthenate	0.5
Tween® 20 or 80*	0.3
Fumed Silica**	1.5
MEKP	1.7

Expected Gel time at 24°C / 75°F (minutes) 15

\* UNIQEMA Chemicals – a division of ICI AMERICAS & ICI PLC

\*\* Use in sodium hypochlorite environments will result in decreased chemical resistance and should be avoided. Regular hydrophilic (non-surface treated) grades of fumed silica are suggested for use with DION® 9800 series resins.

**HANDLING AND CURING**

To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 24°C/75°F and away from heat ignition sources and sunlight. Resin should be warmed to at least 18°C/65°F prior to use in order to assure proper curing and handling. All storage areas and containers should conform to local fire and building codes. Copper or copper containing alloys should be avoided as containers. Store separate from oxidizing materials, peroxides and metal salts. Keep containers closed when not in use. Inventory levels should be kept to a reasonable minimum with first-in, first-out stock rotation.

Additional information on handling and storing unsaturated polyesters is available in the **REICHHOLD** application bulletin "Bulk Storage and Handling of Unsaturated Polyester Resins." For information on other **REICHHOLD** resins, contact your sales representative or authorized **REICHHOLD** distributor.

**SAFETY****READ AND UNDERSTAND THE MATERIAL SAFETY DATA SHEET BEFORE WORKING WITH THIS PRODUCT**

Obtain a copy of the material safety data sheet on this product prior to use. Material safety data sheets are available from your **REICHHOLD** sales representative. Such information should be requested from suppliers of all products and understood prior to working with their materials.

DIRECTLY MIXING ANY ORGANIC PEROXIDE WITH A METAL SOAP, AMINE, OR OTHER POLYMERIZATION ACCELERATOR OR PROMOTER WILL RESULT IN VIOLENT DECOMPOSITION