

**DION® 382-05A**  
**BISPHENOL FUMARATE RESIN**

**DESCRIPTION**

DION® 382-05A is a premium bisphenol-A fumarate resin that demonstrates excellent corrosion resistance in a wide range of aggressive environments.

**APPLICATION**

DION® 382-05A has been used for more than 35 years to manufacture fiberglass-reinforced structures and flake glass-reinforced coatings mortars for use in pulp and paper, caustic-chlorine, metal treatment and many other chemical industries. This family of resins has long been recognized as the industry standard.

**FEATURES**

**BENEFITS**

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| <ul style="list-style-type: none"> <li>• Bisphenol-A fumarate polymer</li> <br/> <li>• High cross link density</li> <br/> <li>• Pre-accelerated</li> <br/> <li>• Chemical components listed under FDA 177.2420 Title 21</li> <br/> <li>• Manufactured using statistical process control</li> </ul> | <ul style="list-style-type: none"> <li>• Resists degradation due to Hydrolysis and other forms of chemical attack</li> <li>• Does not foam upon addition of MEKP initiators</li> <li>• Can be mixed using conventional (not hydrophobic) grades of fumed silica</li> <br/> <li>• Resists deterioration and deformation in high-temperature environments</li> <li>• No need for expensive multi-veil corrosion barriers</li> <br/> <li>• Provides all of the flexibility of a non-promoted resin without requiring addition of dimethylaniline</li> <br/> <li>• Items properly fabricated with DION 382-05A can be used for food, beverage and water storage</li> <br/> <li>• Consistent performance batch-to-batch</li> </ul> |
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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.

**TYPICAL PROPERTIES**

**TYPICAL LIQUID PROPERTIES @ 77°F**

Viscosity (Brookfield), cps.....	475
Non-Volatile, %.....	50
Specific Gravity.....	1.02
Flash Point (Seta closed cup), °F.....	89
DION®382-05A Shelf Life* (minimum), months.....	6

\*See storage section

**TYPICAL MECHANICAL PROPERTIES<sup>1</sup>  
(1/8" UNFILLED CLEAR CASTINGS @ 77°F)**

	ASTM TEST METHOD	CLEAR CASTING
Barcol Hardness .....	D-2583 .....	38
Specific Gravity .....		1.12
Heat Distortion Temperature (264 psi), °F .....	D-648 .....	270
Flexural Strength, psi .....	D-790 .....	17,000
Flexural Modulus, x 10 <sup>6</sup> psi .....	D-790 .....	0.43
Tensile Strength, psi .....	D-638 .....	10,000
Tensile Modulus, x 10 <sup>6</sup> psi .....	D-638 .....	0.43
Tensile Elongation @ Break, % .....	D-638 .....	2.5
Water Absorption, 24 hr. @ RT, % weight gain .....	D-570 .....	0.24
Water Absorption, 2 hr. @ boiling, % weight gain .....	D-570 .....	0.66

**LAMINATE PERFORMANCE<sup>1</sup> @ 77°F**

	ASTM TEST METHOD	LAMINATE
Flexural Strength, psi .....	D-790 .....	19,000
Flexural Modulus, x10 <sup>6</sup> psi .....	D-790 .....	0.88
Tensile Strength, psi .....	D-638 .....	16,000

Laminate Construction: V/M/M/M/V; Glass Content: 30%; Thickness: 0.125 in.  
(V=10-mil C-glass veil; M=1.5-oz chopped strand mat)

<sup>1</sup> Properties reported in this bulletin are typical of those obtained in controlled laboratory tests and are provided as guidelines.

**ELEVATED TEMPERATURE PERFORMANCE<sup>1</sup>**

Temp. (°F)	Flexural Strength (psi)	Flexural Modulus (x10 <sup>6</sup> , psi)	Tensile Strength (psi)	Tensile Modulus (x10 <sup>6</sup> , psi)
77	25,500	1.21	18,000	1.45
150	27,000	1.10	21,500	1.40
200	23,500	1.00	21,500	1.35
250	17,500	0.88	20,000	1.20

Laminate Construction: V/M/M/WR/M/WR/M/M Thickness: 0.25 in. Glass Content: 40%  
 (V = 10-mil C-glass veil, M = 1.5-oz/ft<sup>2</sup> chopped strand mat, WR = 24-oz/yd<sup>2</sup> woven roving)

**CURE CONDITIONS**

DION<sup>®</sup> 382-05A is pre-accelerated and contains enough DMA for use in most situations. Add cobalt naphthenate (6%) and MEKP (9% active oxygen) according to the following table.

TEMP (°F)	GEL TIME (mins.)	DMA-100% (wt%)	CoNaph-6% (wt%)	MEKP (wt%)
60	25-35	0.1	1.0	2.4
	45-50	0.1	1.0	1.8
	60-70	0.1	0.8	1.2
70	30-40	none	1.0	1.8
	45-55		1.0	1.2
	60-70		0.8	1.2
80	25-35	none	1.0	1.2
	45-55		0.8	1.2
	60-70		0.6	1.2
90	15-20	none	1.0	1.2
	40-50		0.8	1.2
	55-65		0.6	1.2

If benzoyl peroxide is preferred, DMA and 10%-tert-butyl catechol (TBC-10) must be added to the resin. Do not use less than 3% 50%-BPO or less than 0.1% **additional** DMA.

TEMP (°F)	GEL TIME (mins.)	DMA-100% (wt%)	TBC-10 (wt%)	BPO-50% (wt%)
60	30-40	0.4	0.2	5.0
	50-60	0.5	0.6	5.0
75	30-40	0.3	0.2	5.0
	50-60	0.4	0.6	5.0
90	30-40	0.3	0.4	5.0

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**

DION <sup>®</sup> 382-05A, parts.....	100.0
10%-Paraffin Wax Solution.....	6.0
DMA-100%, wt% .....	0.3
Cobalt Naphthenate-6%, wt%.....	1.0
Tween 20 or 80.....	0.3
MEKP, wt% .....	1.7
Fumed Silica Thixotrope* (wt%) .....	1.5
Approximate Gel Time @ 25°C, mins. ....	15

\*Use in sodium hypochlorite environments will result in decreased chemical resistance

**STANDARD PACKAGE**

Non-returnable 55-gallon metal drums (452 lb. net) or 40,000 – 44,000 lb. tank truck.

**STORAGE**

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 Reichhold's application bulletin "Bulk Storage and Handling of Unsaturated Polyester Resins." For information on other Reichhold resins or initiators, 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 before use. Material safety data sheets are available from your Reichhold sales representative. Such information should be requested from suppliers of any chemical and understood before working with the material.

**NEVER ADD METAL SALTS (PROMOTERS) OR PROMOTED RESINS TO A PEROXIDE.** When adding organic peroxides to a resin solution, promptly and thoroughly mix the resulting product. Never add organic peroxides to a hot diluent or process. Prevent contamination with foreign materials, including without limitation, accelerators (such as dimethylaniline, other amines or cobalt compounds), heavy-metal oxides or salts (particularly those of cobalt, iron and copper), strong acids and sanding dusts. Use clean containers made of glass, polypropylene, Teflon®, polyethylene, or ceramic to prevent contamination of organic peroxides during its handling.

DION<sup>®</sup> is a registered trademark of Reichhold  
 DION<sup>®</sup> 382-05A is formerly known as Atlac<sup>®</sup> 382-05A  
 TWEEN is a registered trademark of ICI Americas, Inc.