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## 30A400D-18

30A400D-18 is a low profile, low shrink, unsaturated polyester laminating resin designed for use in the production of boats, canoes, RVs, and general fiberglass parts. 30A400D-18 contains a maximum of 35% styrene (HAP) by weight, which meets the EPA 40 CFR Part 63 requirements of the National Emission Standards for Hazardous Air Pollutants (HAP) for boat manufacturing and the "International Standard ISO 12215-1 Small Craft – Hull construction and scantlings.

### Part 1: Materials: Thermosetting resins, glass-fibre reinforcement, reference laminate" requirements for resin type B.

#### FEATURES BENEFITS

• Low Laminate Exotherm	• Good cosmetic surface and minimal glass print
• Moderate Trim Time	• Shorter cycle times and fast Barcol development
• Good Fiberglass Wet-Out	• Easy roll-out and high laminate physical properties
• Less Than 30% HAP (Styrene)	• Less odor and lower emissions in the shop

#### LIQUID PROPERTIES RESULTS

Viscosity, Brookfield Model LV #3 Spindle @ 60 rpm, 77°F (25°C), cps	500-600
Thixotropic Index	2.5-3.0
100 grams resin @ 77°F (25°C), catalyzed with 1.5% M-50a by weight *	
1. Gel Time, min:sec	15:00-20:00
2. Gel to Peak Exotherm Time, min:sec	10:00-17:00
3. Peak Exotherm	280-320°F (138-160°C)
Non-Volatile Content, %	65.0-69.0
Hazardous Air Pollutant (Styrene) Content, %	25.7-29.7

#### TYPICAL PROPERTIES

Thickness	1/8 inch (3.2 mm) Casting	1/8 inch (3.2 mm) Laminate
Construction	Not Applicable	4 Piles 1.5 oz/ft <sup>2</sup> , 33% Glass Mat
Flexural Strength, ASTM D790	16,700 psi (115 MPa)	22,300 psi (154 MPa)
Flexural Modulus, ASTM D790	5.19 x 10 <sup>5</sup> psi (3,580 MPa)	11.7 x 10 <sup>5</sup> psi (8,070 MPa)
Tensile Strength, ASTM D638	8,400 psi (58 MPa)	12,700 psi (88 MPa)
Tensile Modulus, ASTM D638	5.48 x 10 <sup>5</sup> psi (3,780 MPa)	13.3 x 10 <sup>5</sup> psi (9,170 MPa)
Tensile Elongation, ASTM D638	2.0 %	1.1 %
Barcol Hardness, 934-1 gauge, ASTM D2583	40-45	44-48
Heat Distortion Temperature, ASTM D648	178 °F (81°C)	

\* The gel time and reactivity will vary due to the type and concentration of Free Radical Initiator (catalyst), shop temperature, humidity, and type of fillers used. In order to meet your individual needs consult our technical sales representative for assistance.

The air-curing capabilities of DCPD laminating resins are well documented. Ambient temperature, catalyst level, laminate thickness and configuration can all contribute to accelerating and surface cure. Care must be taken to ensure that secondary laminates have good adhesion. Cured surfaces should be sanded between laminates.

Revised: 12/01/2010

## 30A400D-18 DCPD Laminating Resin Technical Data Sheet

Our Products are intended for sale to industrial and commercial customers. We request that Customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute a warranty, expressed or implied, including any warranty or merchantability or fitness, nor is protection from any law of patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special, incidental or consequential damages.  
 Last updated 12/01/2010.

Distributor to the Composites Industry

# 30A400D-18 DCPD LAMINATING RESIN

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Warehouse No: 0001

This MSDS complies with 29 CFR 1910.1200 (Hazard Communication).

## SECTION I - PRODUCT IDENTIFICATION

Product Name: 30A400D-18 DCPD LAMINATING RESIN  
General or Generic ID: Unsaturated Polyester Resin  
Hazard Classification: Flammable Liquid  
Shipping Name: Resin Solution, 3, UN1866, PG III

## SECTION II - HAZARDOUS COMPONENTS

INGREDIENT	CAS NO.	PERCENT	OSHA-PEL	ACGIH-TL NOTE
Unsaturated Polyester Base Resin	See Index	67.0	None-Est.	None-Est
Styrene	100-42-5	31.0	50 ppm TWA	50 ppm (1)
Alpha Methyl Styrene	98-83-9	2.0	100 ppm	50 ppm

(1) OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm PEL for workplace exposure to styrene. This proposal was agreed upon by representatives of the UPR industry. The OSHA STEL is 100 ppm. The ACGIH recently changed the TLV for styrene from 50 ppm to 20 ppm, and the STEL from 100 ppm to 40 ppm.

## SECTION III - PHYSICAL DATA

### PROPERTY MEASUREMENT

Initial Boiling Point	For Styrene	293.40 Deg F (145.22 Deg C) @ 760.00 mm Hg
Vapor Pressure For Styrene		4.3 mm Hg @ 68 Deg F (20 Deg C)
Specific Gravity		1.02-1.14 @ 77 Deg F (25 Deg C)
Vapor Density Air = 1		3.6
Evaporation Rate		Slower than Ether

## SECTION IV - FIRE AND EXPLOSION DATA

Flash Point: 88 Deg F (31.1 Deg C) for Volatile Component

Flammable: (Lowest Value of Styrene) Lower - 1.1%  
(Upper Value of Styrene) Upper - 6.1%

Extinguishing Media: Foam, carbon dioxide, dry chemical, or water fog.

Hazardous Decomposition Products: May form toxic materials such as carbon dioxide, carbon monoxide, and various hydrocarbons.

Special Firefighting Procedures: Wear self-contained breathing apparatus with a full facepiece operated in pressure demand or other positive pressure mode when fighting fires. Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by ignition sources at locations distant from material handling point.

Never use welding or cutting torch on or near drum (even empty) because product vapor can ignite explosively.

## SECTION V - HEALTH DATA

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**Permissible Exposure Level:** Not established for product. See Section II.

### POTENTIAL HEALTH EFFECTS

**Eyes** - Can cause severe irritation, redness, tearing, blurred vision.

**Skin** - Prolonged or repeated contact can cause moderate irritation, defatting, dermatitis.

**Inhalation** - Excessive inhalation of vapors can cause nasal irritation, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness, and even asphyxiation.

**Swallowing** - Can cause gastrointestinal irritation, nausea, vomiting, diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis.

30A400D-18

### TARGET ORGAN EFFECTS

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals, and may aggravate pre-existing disorders of these organs in humans: mild, reversible kidney effects, effects on hearing, respiratory tract (nose, throat, and airways), testis, liver. Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans, and may aggravate pre-existing disorders of these organs: central nervous system effects, mild effects on color vision, effects on hearing, and respiratory tract damage (nose, throat, and airways).

### FIRST AID

**If on Skin:** Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use.

**If in Eyes:** Flush with large amount of water, lifting upper and lower lids occasionally. Get medical attention.

**If Swallowed:** Do not induce vomiting. Keep person warm, quiet, and get medical attention. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal. **If Inhaled:** If affected, remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Keep person warm, quiet, and get medical attention.

### PRIMARY ROUTE(S) OF ENTRY

Inhalation, skin absorption, skin contact, eye contact.

30A400D-18

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## SECTION VI - REACTIVITY DATA

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**Hazardous Polymerization:** Possible

**Stability:** Stable

**Incompatibility:** Avoid contact with strong alkalis, strong mineral acids, and oxidizing agents.

**Conditions to Avoid:** Exposure to excessive heat or open flame, storage in open containers, prolonged storage (6 months), storage above 100 Deg F (38 Deg C), and contamination with oxidizing agents.

**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide, low molecular weight hydrocarbons, and organic acids.

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## SECTION VII - SPILL OR LEAK PROCEDURES

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Eliminate all ignition sources (flares, flames (including pilot lights), and electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, shovel or pump to tank or drums. Remaining liquid may be absorbed in sand, clay, earth, or other absorbent material and shoveled into containers.

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## SECTION VIII - PROTECTIVE EQUIPMENT TO BE USED

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**Respiratory Protection:** If PEL of the product or any component is exceeded, an NIOSH/MSHA approved respirator is advised in absence of proper engineering control (see your safety equipment supplier).

**Engineering or administrative controls** should be implemented to reduce exposure. **Ventilation:** Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

**Protective Gloves:** Wear chemical resistant gloves that afford proper protection to the hands, such barrier creams maybe used in some environments as long as proper skin protection is afforded.

**Eye Protection:** Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (Consult your safety equipment supplier.)

**Other Protective Equipment:** Work clothing that covers arms and legs. 30A400D-18

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## SECTION IX - SPECIAL PRECAUTIONS

Containers of this material may be hazardous when empty. Since empty containers retain product residues (vapors, liquid, and/or solids), all hazard precautions given in this MSDS must be observed..

## SECTION X - SUPPLEMENT

Styrene has been identified as a possible human carcinogen by the International Agency for Research on Cancer (IARC). The IARC determination is based on "limited evidence" in animals and other "relevant data." IARC concedes there is "inadequate evidence" on humans for its findings. The Styrene Information and Research Center (SIRC) recently sponsored studies to evaluate potential health effects in laboratory rats and mice exposed by inhalation to styrene for six hours per day for five days per week of their lifetime. The rat study, completed in 1996, showed no increased incidence of tumors related to styrene exposure at levels up to 1000 parts per million (ppm). The results of the mouse study are in the process of being analyzed, and so far only the lungs have been evaluated. The number of lung tumors observed at exposure levels of 20 to 160 ppm was increased as compared to the number of tumors seen in unexposed mice. These lung tumor results from the mouse study have been added to the MSDS for styrene. The lung effects in the new mouse study are in contrast to findings in other studies in both rodents and humans, including the recent SIRC-sponsored study in rats. No link between styrene exposure and an increased incidence of cancer has been found collectively in eight studies of workers in the reinforced plastics and composites industries prior to 1992, or in two subsequent studies of composites/reinforced plastics workers. All together, over 90,000 people have been studied. Exposure levels in these industries are above the levels routinely measured in styrene and polystyrene production. Also in the recent animal studies, irritation and degenerative effects on the olfactory cells in the nose (responsible for the sense of smell) were observed in mice exposed repeatedly by inhalation to 20 ppm and above, and in rats exposed to 50 ppm and above. Atrophy (degeneration) of the olfactory nerve was observed at levels at or above 40 ppm in mice and at or above 500 ppm in rats. SIRC is conducting follow-up research to further understand these findings and their possible importance to humans. Liver damage has been reported in mice at exposure levels of 100 ppm or above; comparable liver damage has not been reported in rats or humans exposed to styrene. It appears that mice are more sensitive to styrene than are other species. Information about potential damage to olfactory cells, irritation in the respiratory tract, and potential liver damage has been added to the MSDS for styrene. We recommend that the precautions in this MSDS be followed. 30A400D-18

## SECTION XI - SUPPLIER NOTIFICATION

This product contains toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372. Please refer to "Section II - Hazardous Components" for the specific product and concentration.

## BASE RESIN CAS INDEX

The base resins indicated under Section II are identified by one or more of the following CAS numbers:

28572-30-7	58182-50-6	
113060-15-4	28679-80-3	61224-63-3
135108-89-3	29011-83-4	62569-28-2
141224-31-9	29350-58-1	64386-66-9
149717-53-3	29403-69-8	67386-67-0
155122-62-6	30110-00-0	67380-21-6
25037-66-5	30946-90-8	67599-39-7
25101-03-5	31260-98-7	67712-08-7
25215-72-9	31472-46-5	67845-68-5
25464-21-5	32505-78-5	67939-08-6
25609-89-6	32677-47-7	67939-40-6
25749-46-6	32762-75-7	68002-44-8
25749-49-9	36346-15-3	68140-84-1
25987-82-0	36425-15-7	68140-88-5
26098-37-3	36425-16-8	68171-28-8
26123-45-5	37339-47-2	68238-98-2
26265-08-7	37347-86-7	68299-40-1
26301-26-8	37999-57-8	68492-68-2
26588-55-6	42133-45-9	68511-26-2
26795-76-6	464920-01-2	68585-94-4
27342-37-6	52453-94-8	68647-07-4
27837-75-8	54228-09-0	72259-64-4
27863-48-6	56083-98-8	81192-92-9

28472-89-1  
28516-30-5  
29403-69-8

56083-99-9  
57863-48-6

9003-20-7  
9065-68-3

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