

# Pultrusion

## Product Line Guide

**THERMACLEAN®**



# STYPOL® XYCON®

## Pultrusion

### Product Line Guide

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CCP offers a full line of resins to meet the needs of the pultrusion industry. CCP also offers support products such as cleaning materials. The products included in this guide are CCP's recommended products for pultrusion. Custom product development is available for specialty applications. Please consult your CCP Account Manager for more information.

Additional information, including technical datasheets and MSDS's, for specific products can be found on CCP's website, [www.ccpcompositesus.com](http://www.ccpcompositesus.com).

#### I. Pultrusion Resins

Viscosity, SPI gel time and short description and are shown for each product to aid in differentiating the products. The viscosity and SPI gel times shown are not manufacturing control criteria and are listed for reference only. Particular batches will not conform exactly to the numbers listed because storage conditions, temperature changes, age, testing equipment (type and procedures) can each have a significant effect on test results. Products with properties outside of these values can perform acceptably. Final suitability of the product is in the end performance.

CODE	VISCOSITY <sup>1</sup>	SPI REACTIVITY <sup>2</sup>			COMMENTS
		Gel Time	Time to Peak Exotherm	Peak Exotherm	
<b>Stypol® Unsaturated Polyester Resins</b>					
<b>040-2304</b>	2950 cps LVF #2 @ 6 rpm	6 minutes	8 minutes	400°F	Isophthalic Polyester Resin –Medium reactivity, flexible, high viscosity
<b>040-2988</b>	2650 cps LVF #2 @ 6 rpm	5 minutes	6 minutes	400°F	Isophthalic Polyester Resin –Medium reactivity, rigid, chemical resistant, high viscosity
<b>040-9322</b>	2400 cps LVF #3 @ 30 rpm	4 minutes	5 minutes	435°F	Isophthalic Polyester Resin – Medium to high reactivity, flexible, high viscosity
<b>040-9341</b>	1450 cps LVF #3 @ 30 rpm	4 minutes	5 minutes	435°F	Isophthalic Polyester Resin – Medium to high reactivity, flexible, medium viscosity
<b>040-9342</b>	550 cps RVT #3 @ 50 rpm	4 minutes	5 minutes	425°F	General Purpose Polyester Resin – Medium to high reactivity, low viscosity
<b>040-9343</b>	600 cps LVF #2 @ 60 rpm	4 minutes	5 minutes	435°F	Isophthalic Polyester Resin – Medium to high reactivity, flexible, low viscosity
<b>040-9531</b>	2650 cps LVF #3 @ 12 rpm	4 minutes	5 minutes	380°F	Orthophthalic Polyester Resin – Medium reactivity, flexible
<b>MSCK0600</b>	1750 cps LVF #2 @ 12 rpm	6 minutes	7 minutes	440°F	Isophthalic Polyester Resin – High reactivity, rigid, excellent surface



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		Gel Time	Time to Peak Exotherm	Peak Exotherm	
<b>MSTC0500</b>	2350 cps HBT #1 @ 20 rpm	5 minutes	6 minutes	440°F	cosmetics, medium viscosity
					Terephthalic Polyester Resin – High reactivity, tough, high viscosity
<b>Xycon<sup>®</sup> Hybrid Resins</b>					
<b>047-1040</b>	350 cps LVF #2 @ 30 rpm	12 minutes	14 minutes	380°F	Modified Thermosetting Acrylic Resin for use in conjunction with Stycol <sup>®</sup> 040-7263. Together these products form a tough, heat and water resistant polymer
<b>Epovia<sup>™</sup> Vinyl Ester Resins</b>					
<b>RF-1001 DMV</b>	400 cps LVF #3 @ 60 rpm		Not available		Bisphenol-A Vinyl Ester Resin – excellent physical properties, heat and chemical resistant
<b>RF 1051</b>	400 cps LVF #3 @ 60 rpm		Not available		Novolac Epoxy Vinyl Ester Resin – excellent physical properties, exceptional heat resistance and chemical resistance.
<b>RF 2000 SE</b>	400 cps LVF #3 @ 60 rpm		Not available		Brominated Bisphenol-A Vinyl Ester Resin – flame retardant and chemical resistant
<b>RF 3200</b>	500 cps LVF #3 @ 60 rpm		Not available		Elastomer Modified Epoxy Based Vinyl Ester Resin – High elongation

Notes:

1. Viscosity tests run using a Brookfield viscometer at 77°F (25°C).
2. Gel time tests run per the SPI method (180°F, 1.0% BPO)

## II. Shrinkage Control Additives

Some pultrusion applications require the use of shrinkage control additives. These additives reduce shrinkage and improve surface cosmetics.

TRADENAME	CODE	DESCRIPTION
<b>Stycol<sup>®</sup></b>	<b>ACPW4000</b>	Crystalline polystyrene in styrene (NVM – 40 %, Viscosity – 8000 cps)
	<b>APVJ4001</b>	Polyvinyl Acetate in styrene (NVM – 40%, Viscosity - 1800 cps)

## III. Cleaners

CCP offers water-based and solvent-based cleaning products suitable for use in the closed molding industry. These products are part of CCP THERMACLEAN<sup>®</sup> Industrial Cleaners product line.

TRADENAME	CODE	DESCRIPTION
<b>THERMACLEAN<sup>®</sup> POWDER</b>	<b>095-0042</b>	Non-hazardous water-based cleaner for tools, equipment containers and floors. CCP's strongest water based cleaning compound formulated to clean liquid and cured resins.
<b>UNISOLVE<sup>™</sup></b>	<b>095-0100</b>	Solvent based resin cleaner for use on tools and equipment.
<b>UNISOLVE<sup>™</sup></b>	<b>095-0102</b>	Solvent based resin cleaner for use on tools and equipment. Includes anti-gelling chemistry for increased resin loading capacity



**CCP COMPOSITES US  
WARRANTIES, DISCLAIMERS AND LIMITATION OF LIABILITY (Rev. 10/11)**

Seller warrants that: (i) Buyer shall obtain good title to the product sold hereunder, (ii) at Shipment such product shall conform to Seller's specifications; and (iii) the sale or use of such product will not infringe the claims of any U.S. patent covering the product itself, but Seller does not warrant against infringement which might arise by the use of said product in any combination with other products or arising in the operation of any process. **SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, EVEN IF THAT PURPOSE IS KNOWN TO SELLER. ANY APPLICATION INFORMATION OR ASSISTANCE WHICH SELLER MAY FURNISH TO BUYER IS GRATUITOUS AND SHALL IN NO WAY BE DEEMED PART OF THE SALE OF PRODUCT HEREUNDER OR A WARRANTY OF THE RESULTS OBTAINED THROUGH THE USE OF SUCH PRODUCT.**

Without limiting the generality of the foregoing, if any product fails to meet warranties mentioned above, Seller shall at Seller's option either replace the nonconforming product at no cost to Buyer or refund the Buyer the purchase price thereof. The foregoing is Buyer's sole and exclusive remedy for failure of Seller to deliver or supply product that meets the foregoing warranties. Seller's liability with respect to this contract and the product purchased under it shall not exceed the purchase price of the portion of such product as to which such liability arises. Seller shall not be liable for any injury, loss or damage, resulting from the handling or use of the product shipped hereunder whether in the manufacturing process or otherwise. In no event shall Seller be liable for special, incidental or consequential damages, including without limitations loss of profits, capital or business opportunity, downtime costs, or claims of customers or employees of Buyer. Failure to give Seller notice of any claim within thirty (30) days of shipment of the product concerned shall constitute a waiver of such claim by Buyer. Any product credit received by Buyer hereunder, if not used, shall automatically expire one (1) year from the date the credit was granted. Notwithstanding any applicable statute of limitations to the contrary, any action by Buyer relation to a claim hereunder must be instituted no later than two (2) years after the occurrence of the event upon which the claim is based. All the foregoing limitations shall apply irrespective of whether Buyer's claim is based upon breach of contract, breach of warranty, negligence, strict liability, or any other legal theory.

## COMPOSITES SAFETY INFORMATION

(October 2011)

All sales of products manufactured by CCP Composites US (CCP), and described herein, are made solely on condition that CCP's customers comply with applicable health and safety laws, regulations and orders relating to the handling of our products in the workplace. Before using, read the following information, and both the product label, and Material Safety Data Sheet pertaining to each product.

Most products contain styrene. Styrene can cause eye, skin and respiratory tract irritation. Avoid contact with eyes, skin and clothing. Impermeable gloves, safety eyewear and protective clothing should be worn during use to avoid skin and eye contact. Wash thoroughly after use.

Styrene is a solvent and may be harmful if inhaled. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Extended exposure to styrene at concentrations above the recommended exposure limits may cause central nervous system depression causing dizziness, headaches or nausea and, if overexposure is continued indefinitely, loss of consciousness, liver and kidney damage.

Do not ingest or breathe vapor, spray mists or dusts caused by applying, sanding, grinding and sawing products. Wear an appropriate NIOSH/MSHA approved and properly fitted respirator during application and use of these products until vapors, mists and dusts are exhausted, unless air monitoring demonstrates vapors, mists and dusts are below applicable exposure limits. Follow respirator manufacturer's directions for respirator use.

The International Agency for Research on Cancer (IARC) reclassified styrene as Group 2B, "possibly carcinogenic to humans." This revised classification was not based on new health data relating to either humans or animals, but on a change in the IARC classification system. The Styrene Information and Research Center does not agree with the reclassification and published the following statement: Recently published studies tracing 50,000 workers exposed to high occupational levels of styrene over a period of 45 years showed no association between styrene and cancer, no increase in cancer among styrene workers (as opposed to the average among all workers), and no increase in mortality related to styrene.

Styrene is classified by OSHA and the Department of Transportation as a flammable liquid. Flammable products should be kept away from heat, sparks, and flame. Lighting and other electrical systems in the work place should be vapor-proof and protected from breakage.

Vapors from styrene may cause flash fire. Styrene vapors are heavier than air and may concentrate in the lower levels of molds and the work area. General clean air dilution or local exhaust ventilation should be provided in volume and pattern to keep vapors well below the lower explosion limit and all air contaminants (vapor, mists and dusts) below the current permissible exposure limits in the mixing, application, curing and repair areas.

Some products may contain additional hazardous ingredients. To determine the hazardous ingredients present, their applicable exposure limits and other safety information, read the Material Safety Data Sheet for each product (identified by product number) before using. If unavailable, these can be obtained, free of charge, from your CCP representative or from: CCP Composites US, P.O. Box 419389, Kansas City, MO 64141-6389; 816-391-6053.

FIRST AID: In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If affected by inhalation of vapors or spray mist, remove to fresh air. If swallowed, get medical attention.

Those products have at least two components that must be mixed before use. Any mixture of components will have hazards of all components. Before opening the packages read all warning labels. Observe all precautions.

Keep containers closed when not in use. In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations. Emptied containers may retain hazardous residue. Do not cut, puncture or weld on or near these containers. Follow container label warnings until containers are thoroughly cleaned or destroyed.

**FOR INDUSTRIAL USE AND PROFESSIONAL APPLICATION ONLY. KEEP OUT OF REACH OF CHILDREN.**