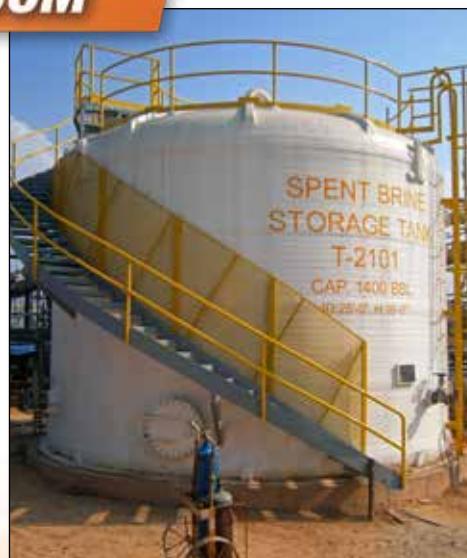


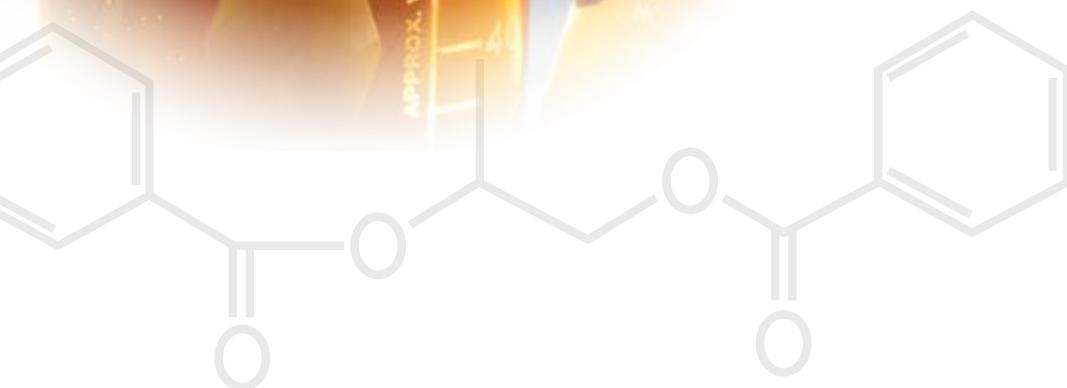
## CORROSION-RESISTANT RESIN GUIDE

[CORROSIONRESINS.COM](http://CORROSIONRESINS.COM)





**THE RIGHT CHEMISTRY...  
FOR THE HARSHEST  
ENVIRONMENTS**



The information contained in this guide is based on laboratory data and field experience. We believe this information to be reliable, but do not guarantee its applicability to the user's process or assume any liability for occurrences arising out of its use. The user, by accepting the products described herein, agrees to be responsible for thoroughly testing each product before committing to production. Our recommendations should not be taken as inducements to infringe any patent or violate any law, safety code or insurance regulation. The term resistance is used in the sense which is commonly used in the trade, not as the complete retention of all optical and mechanical characteristics. Refer to ASTM G 15 and ASME/ANSI RTP-1 for common corrosion definitions. The resistance of Vipel® resins to chemical environments listed in this guide has been established according to ASTM C581 and the ASME/ANSI RTP-1 standard coded "Reinforced Thermoset Plastic Corrosion Resistant Equipment."

## COMBATING CORROSION

AOC is leading the composite industry's fight against the high cost of corrosion. AOC's Vipel® corrosion-resistant resins offer proven, durable performance for a wide range of fiber-reinforced polymer (FRP) applications, including pipes, tanks, water and wastewater treatment, chemical processing, pulp and paper, mining and power generation. Even in the harshest conditions, AOC resins combat corrosion.

## SELECTING A RESIN SYSTEM

This guide is designed to assist fabricators of FRP components in selecting the appropriate resin for parts which will be exposed to highly corrosive environments. The data presented is the result of years of extensive laboratory testing and actual field exposure in North America and Europe.

Resin system selection is determined by the chemical service and environment to which the equipment will be exposed, end-user specifications and preferences, or fabricator recommendation. In addition to this guide, AOC's online Resin Selector (available at [CorrosionResins.com](http://CorrosionResins.com)) will help you find the right resin based on market segment, chemical environment or competitive product. AOC Corrosion advisors also are available any time to answer questions.

Users frequently specify the resin system and laminate construction for particular applications. The requirement may be based on past experience, resin manufacturer recommendations, the supplier of the chemicals being handled, or the manufacturer of an equipment package. Fabricators should always confirm the source of selection and the acceptability of equivalent alternate systems.

## GATHERING DATA FOR GUIDE RESIN SELECTION

When users depend on fabricators to recommend a resin system, it is critical that the user states all aspects of the application and service. Fabricators should get the following information from users:

- The common name and, when possible, the chemical name. For example, muriatic is a common name for hydrochloric acid. This information is generally contained in the Material Safety Data Sheet for the medium.
- Concentration of each of the chemical components.
- Specific gravity of each chemical solution or mixture.
- pH, if it is an aqueous system.
- Normal operating temperature range. Also include any anticipated temperature excursions.
- Maximum use temperature (not max. design temperature).

- Pressure and/or vacuum conditions. For tanks it is also important to know if filling will be by pressure, such as from a tank wagon.
- Any use in food and drug applications, where applicable.
- Length of exposure to the medium if less than continuous. For example, the laminate may need to withstand only occasional splashes of exposure.
- Process description, where a reaction such as neutralization takes place in the tank.
- Fire retardancy, where applicable, including flame spread rating and smoke requirements.
- The chemical resistance of Vipel resins can be negatively affected by fillers or thixotropic additives, consequentially it is not advisable to use these additives or a Vipel resin with fumed silica in the corrosion barrier.

## SORTING OUT THE DETAILS

Normally a suitable resin can be selected from the Corrosion Resistant Resins Guide based on the information in the "Gathering Data" section above and AOC's online Resin Selector at [CorrosionResins.com](http://CorrosionResins.com). A few comments on information featured in this guide should be noted:

- Temperature data presented in the guide represents the highest temperature at which the individual product has demonstrated acceptable service life in a laboratory environment or in actual field use.
- Testing of coupons is ongoing, and environments not tested may be done at the customer's request.
- Serviceability should not be interpreted to mean the full retention of all visual and mechanical properties, but rather an expectation of how a properly designed and fabricated structure will perform.
- Short exposure periods at higher temperatures usually do not affect product integrity if the heat distortion temperature of the cured resin is not exceeded. However, the highest temperature reached and the exposure duration at this temperature should be indicated when making inquiries.
- This list does not apply to mixtures of different media unless we have explicitly stated. It contains chemically declared media and some brand name chemicals, which were not precisely identified with respect to chemical composition.
- When the concentration is listed as less than 100%, the remaining product is water, unless specifically stated otherwise.















































CONCENTRATIONS AND RECOMMENDED MAXIMUM CONTINUOUS EXPOSURE TEMPERATURE - DEGREES °F AND °C

CHEMICAL	AOC RESINS		F010			F085			F701	F764	F737
	K022	K026	F013	F007	F086	K095	F282	K190	F774	F739	
	CONC.%	NOTES	°F/°C								
ZINC SULPHATE	ALL		210 / 99	210 / 99	210 / 99	210 / 99	210 / 99	210 / 99	210 / 99	170 / 77	120 / 49
ZINC SULPHITE	ALL		200 / 93	200 / 93	160 / 71	210 / 99	210 / 99	210 / 99	-	140 / 60	100 / 38
ZINC NITRATE	ALL		210 / 99	210 / 99	210 / 99	210 / 99	210 / 99	210 / 99	180 / 82	170 / 77	120 / 49
ZINC SULPHATE	ALL		210 / 99	210 / 99	210 / 99	210 / 99	210 / 99	210 / 99	210 / 99	170 / 77	120 / 49
ZINC SULPHITE	ALL		200 / 93	200 / 93	160 / 71	210 / 99	210 / 99	210 / 99	-	140 / 60	100 / 38

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 ® Uran is a registered tradename of Arcadian Corporation  
 ® Varsol is a registered tradename of ExxonMobil

# THE WORLD OF AOC®

AOC is a leading producer of unsaturated polyester and vinyl ester resins and is the world leader in innovative resin technology. AOC manufactures its products in facilities strategically located throughout North America and Europe. AOC owned facilities are ISO 9001:2008 certified and use AOC's proprietary process control technology to guarantee batch to batch consistency.

From isophthalic polyesters, and terephthalics, to epoxy novolac and bisphenol A vinyl esters, AOC offers local availability, worldwide, of a broad range of proven Vipel resins through its network of distributors and plants. Please contact the AOC Corrosion Specialists for Vipel resins that meet your corrosion resistant specifications, and put the technology and service of the AOC Corrosion Team to work for you.

## SALES CONTACTS

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## CORROSIONRESINS.COM

**The internet's best resource on  
corrosion-resistant composites.**

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