



UCAR™ VMCA

Solution Vinyl Resin

Description

UCAR™ VMCA Solution Vinyl Resin is a low molecular weight, carboxy functional terpolymer comprised of vinyl chloride, vinyl acetate and maleic acid. It is supplied as a powder. The vinyl chloride content is ~81% while the carboxy level is ~2.0%.

Introduction

UCAR VMCA Solution Vinyl Resin has a high tolerance for aromatic diluents. It is crosslinkable with epoxy containing UCAR™ VERR-40 Solution Vinyl Resin. UCAR™ VMCA Resin has good adhesion to vinyls, metals, concrete and cellulosic substrates. Due to its low molecular weight, this resin provides solutions with low viscosity and high solids.

Typical Applications

- Can be used in a wide variety of clear and pigmented coatings
- Useful as an adhesive for metal, wood, paper, film, foil and fabric
- Useful with UCAR VERR-40 Solution Vinyl Resin in high solids, thermosetting coatings which can be cured after coating
- Cited in FDA regulations for use in food contact applications

Typical Properties

Property ⁽¹⁾	Value	Method
Molecular Weight	15,000	Dow M
Acid Number	19	Dow M
Inherent Viscosity, (dL/g)	0.32	ASTM D-1243
Specific Gravity	1.34	ASTM D-792
Glass Transition Temperature, (°C)	70	Dow M
Solution Viscosity @ 25°C, (mPa.s)	55 ⁽²⁾	Dow M
K-Value	36	Calculated
Degree of Polymerization	240	Calculated
Composition, % by Weight		
Vinyl Chloride	81	
Vinyl Acetate	17	
Maleic Acid	2	

(1) Typical properties, not to be construed as specifications.

(2) 30% solids in MEK.

Safety and Handling

The Dow Chemical Company provides its customers with a product specific Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS) to cover potential health effects, safe handling, storage, use and disposal information. Dow strongly encourages its customers to review the MSDS on its products and other materials prior to their use.

UCAR™ VMCA Solution Vinyl Resin is normally supplied as a powder in multi-ply paper bags. It may also be supplied in bulk rail cars or hopper trucks. The resin should be stored in dry place in its original closed packaging.

UCAR VMCA Resin has a shelf life of approximately twelve months when stored at 24°C (75°F) and low humidity. Storage at higher temperatures or conditions of high humidity may result in some product discoloration.

Safety and Handling (Cont.)

For further handling information consult the Dow brochure, *UCAR™ Solution Vinyl Resin Storage and Handling*, Form. No. 322-00054.

Product Stewardship

The Dow Chemical Company has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis of our Product Stewardship philosophy by which we assess the health and environmental information on our products and then take the appropriate steps to protect employee and public health and the environment. The Dow Chemical Company has enduring commitments to Responsible Care® in the management of chemicals worldwide. Our Product Stewardship program rests with every individual involved with Dow products from the initial concept and research to the manufacture, sale, distribution, and disposal of each product.

Customer Notice

Dow encourages its customers and potential users of Dow products to review their applications for such products from the standpoint of human health and environmental quality. To help ensure that Dow products are not used in ways for which they were not intended or tested, Dow personnel are available to assist customers in dealing with ecological and product safety considerations. Your Dow sales representative can arrange for the proper contacts. Dow literature, including Material Safety Data Sheets or SDS should be consulted prior to the use of Dow products.

Medical Application Policy

Dow will not knowingly sell or sample any product or service ("Product") into any commercial or developmental application that is intended for:

- (a) permanent (Long term) contact with internal body fluids or internal body tissues. Long term is a use which exceeds 72 continuous hours (except 30 days for PELLETHANE™ Polyurethane Elastomers);
- (b) use in cardiac prosthetic devices regardless of the length of time involved (cardiac prosthetic devices include, but are not limited to, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems and ventricular bypass assisted devices);
- (c) use as a critical component in medical devices that support or sustain human life; or
- (d) use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

Additionally, all Products intended for use in pharmaceutical applications must pass the then current Pharmaceutical Liability Guidelines. For additional information please contact your regular Dow representative.

Food Contact Applications

This product is cited in FDA regulations for use in food-contact applications. When used unmodified for food contact applications, this product will comply with the U.S. Food, Drug, and Cosmetic Act as amended under Food Additive Regulations 21 CFR 175.105, 175.300(b)(3)(xv), 175.320, 175.380(a), 175.390(b)(2), 176.170(b)(2), 176.180(b)(1), 177.1200 and 177.1210(b). These CFR sections should always be consulted for the complete context before any conclusion is made as to the allowed regulated use.

Also consult the Dow brochure, *UCAR™ Solution Vinyl Resins Flexible Solutions for Coatings*, Form No. 322-00051-0902. The starting monomers used to manufacture this UCAR™ Solution Vinyl Resin are listed in Annex II, Section A "List of authorized monomers and other starting substances" in Commission Directive 2002/72/EC, as amended, relating to plastic materials and articles intended to come into contact with foodstuffs.

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Food Contact Applications (Cont.)

The starting monomers are also listed in the "Inventory list of substances used for the manufacture of surface coatings intended to come into contact with foodstuffs" of Council of Europe Resolution AP (2004)1.

There are restrictions and/or defined migration limits for each monomer which must be met by the final cured coating. Please contact your Dow representative for further information and forthcoming EC directives and regulations regarding your particular application.

Regulatory Status

UCAR™ VMCA Solution Vinyl Resin is a polymer according to the definition in Directive 92/32/EEC (7th Amendment to Directive 67/548/EEC) and all starting materials and intentional additives are listed in the European Inventory of Existing Chemical Substances (EINECS).

For more information on the regulatory status of this product, please refer to the Material Safety Data Sheet (MSDS) or SDS for this product.

Chemical Inventory Listing

CAS Number ⁽¹⁾		9005-09-8
Europe	EINECS	Polymer
United States	TSCA	9005-09-8
Canada	DSL	9005-09-8
Australia	AICS	9005-09-8
Japan	ENCS	(6)-76 and (6)-82
Korea	KECL	KE-35350
Philippines	PICCS	9005-09-8
China	SEPA	9005-09-8

⁽¹⁾Please refer to the Material Safety Data Sheet (MSDS) or SDS for this product to ensure this CAS number is consistent with the product(s) you use.

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