

Elvacite® 4086A

Acrylic Resin for Improved Alcohol Resistance

Elvacite® 4086 is a solid bead resin specially designed for use in coatings for plastics, such as ABS, PS and PVC. It has good compatibility with many binders and plasticisers, and has excellent solubility in a wide range of solvents. It is designed to have an optimum combination of excellent adhesion, alcohol resistance and surface hardness.

Performance Features and Key Benefits

- Good adhesion to a variety of plastic substrates
- Exceptional resistance to abrasion and moisture
- Excellent ultraviolet and chemical resistance
- Excellent alcohol resistance

Typical Properties^a

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Appearance	Solid bead
Specific Gravity, 25° C	1.13
Glass Transition Temp, onset (calculated)	100°C
Molecular Weight (Mw)	86,000
Acid Number (mg KOH/g Resin)	5
<i>a) Typical physical properties listed are approximate values and should not be considered manufacturer's release specifications. Manufacturer's release specifications are subject to change without notice, please contact your Elvacite® representative for the latest product specification details.</i>	

Preparing Solutions

Elvacite® resins dissolve at room temperature but require constant agitation to prevent solvent-swollen granules of polymer from forming agglomerates and sticking to the walls of the vessel. Important: The polymer beads should be sifted directly into the vortex of the stirred solvent to speed wetting-out and dispersion. Continuous low-shear agitation for periods of 1-12 hours, depending on the grade and concentration of resin, is recommended.

After the solution appears clear in the tank, a sample should be spread out on a Leneta card or glass. After the solvent evaporates and a film forms on the card or glass, there should not be any resin seeds. If there are any seeds, the tank should be agitated further to fully dissolve the resin. Tank agitation should not be stopped (except for sampling) until the film test indicates there are no resin seeds. Any cloudiness or residue may indicate that some polymer remains undissolved. The presence of water in the system can also cause cloudiness.

Solution time can be reduced by heating; most common solvents can be heated to approximately 49°C (120°F) without the need for reflux equipment. High-shear agitation also cuts dissolving time, but requires care to avoid overheating and excessive solvent loss.

Alcohol Resistance

The table below shows results of double-rub testing on smooth finish steel. Panels are made by coating a 40% solids solution in n-Butyl acetate using a 5-mil doctor blade. The panels were dried overnight then tested by rubbing with 2-propanol on cheesecloth until the substrate is exposed.

Acrylic Resin	2-propanol double rubs
Elvacite® 2016 (control)	50
Elvacite® 4086A	167

Solvent Solubility

Table depicts the solubility of Elvacite® 4086A at 30% solids in various solvents.

Solubility of Elvacite® 4086A		
Solvent	Solubility	Rating
Toluene	S	C
Acetone	S	C
Methyl ethyl ketone	S	C
Dimethyl carbonate	S	C
Methyl isobutyl ketone	S	C
n-Butyl acetate	S	C
t-Butyl acetate	S	C
Ethyl acetate	S	C
n-Propyl acetate	S	C
Methyl acetate	S	C
2-propanol	I	-
Low odor mineral spirits	I	-
<i>(S = Soluble, H = Cloudy/hazy solution, C= Clear solution, I = Insoluble)</i>		

Viscosity and Gloss

The table below illustrates typical viscosities of Elvacite® 4086A in varying solvents at 30% solids.

Solvent	Viscosity (cP)	Gloss (60°)
Acetone	518	84
Toluene	310	88
Methyl ethyl ketone	568	-
Methyl isobutyl ketone	1220	-
n-Butyl acetate	1260	-
Ethyl acetate	524	-
n-Propyl acetate	784	-

COMPLIANCE WITH FDA REGULATIONS revised April 1, 2019

Pasadena, Texas, USA Grade: ELVACITE® 4086A

Issue date: December 2019

We, MITSUBISHI CHEMICAL AMERICA, INC., Specialty Resins Division, confirm that Elvacite® 4086A complies with the compositional requirements of the following United States of America's Food and Drug Administration (FDA) regulations.

Elvacite® 4086A is cleared for use under the FDA 21 CFR 175.105 for adhesives used as components of articles intended for use in the packaging, transporting, or holding food.

Elvacite® 4086A is cleared for use under FDA 21 CFR 175.300 in resinous and polymeric coatings used as the food contact surface of articles intended for use in producing, packing, processing, preparing, treating, packaging, transporting, or holding food. The coating in its finished form in which it is to contact food is subject to a restriction on its chloroform soluble extractives.

Compliance with the limitation on extractives can only be demonstrated by tests carried out in the final article.

Elvacite® 4086A is cleared for use under FDA 21 CFR 175.320 in resinous and polymeric coatings for polyolefin films, provided it is intended for repeated food contact use as specified in FDA 21 CFR 175.300(a).

The coating in its finished form in which it is to contact food is subject to a restriction on its chloroform soluble extractives.

Compliance with the limitation on extractives can only be demonstrated by tests carried out in the final article.

Elvacite® 4086A is cleared for use under FDA CFR 176.170 as a component of the uncoated or coated food contact surface of paper and paperboard intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting or holding aqueous and fatty foods.

Compliance with the limitation on extractives can only be demonstrated by tests carried out in the final article.

Elvacite® 4086A is cleared for use under FDA 21 CFR 176.180 as a component of the uncoated or coated food contact surface of paper and paperboard intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding dry food.

Elvacite® 4086A is cleared under FDA 21 CFR 177.1010 as semirigid and rigid acrylic plastics articles intended for use in contact with food. The semirigid and rigid acrylic plastics in the finished form in which they are to contact food are subject to limitation on extractives

Compliance with the limitation on extractives can only be demonstrated by tests carried out on the final article.

This statement of compliance is correct at the date of issue.

As food contact regulations and product formulations are subject to change, it is the user's responsibility to ensure that they are in possession of a current statement of compliance.

Pasadena, Texas, USA

Issue date: February 2022

Mitsubishi Chemical America, Inc., Specialty Resins Division hereby certifies that the country chemical inventory status of Elvacite® 4086A is as follows.

US	CA	AU	CN	KR	NZ	PH	TW	JP	Russian Federation	TH	Vietnam
TSCA	DSL	AIIC	IECSC	KECI	NZIoC	PICCS	TCSI	ENCS	Unified list of chemicals	DIW	NCI
Listed as Active	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Y: Listed

N: Not Listed

For further information or samples, please contact your local distributor, or:

Mitsubishi Chemical America, Inc.

Specialty Resins Division
9675 Bayport Blvd.
Pasadena, Texas 77507
Phone (713)758-8190
www.m-chem.com/specialtyresins
MCA-SPR.sales@m-chem.com

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