

SOLBIN® TA3

TECHNICAL DATA SHEET

Product description

Solbin TA3 is a thermoplastic resin consisting of polyvinyl chloride (VC), polyhydroxyacrylate and polyvinyl acetate (VAc).

Product characteristics

- Soluble in ketones, esters and chlorinated hydrocarbons, but insoluble in alcohol, oil and aliphatic hydrocarbons.
- Has superior mechanical properties such as anti-abrasion, flexibility, and non-tackiness.
- Provides excellent and stable dispersibility to inorganic pigments or magnetic powder in paints and dried layers, even with high packing density.
- Offers a wide choice of coating formulations due to its compatibility with various resins such as polyurethane, epoxy resins, NBR, isocyanate, etc.

General properties

Attributes	Test Results
Appearance	White powder
Grain Size	Passes wholly through 28 mesh sieve
Bulk Density (g/cc)	~ 0.7 g/cc
Composition (weight %)	
VC	83.0 ± 4.0
VAc	4.0 ± 2.0
Hydroxyacrylate	13.0 ± 2.0
Degree of Polymerization	350 ± 50
Molecular Weight Mn	2.4 X 10 ⁴
Glass Transition Temp. (°C)	65°C
Solution Viscosity (mPa·s) (MIBK/TOL. 20% @25°C)	80± 30
Solution Appearance	Colorless, Transparent

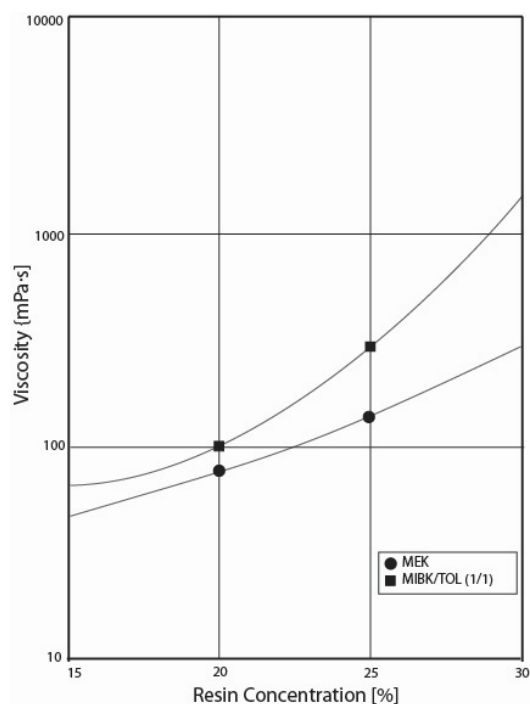
Solubility

Solbin TA3 is highly soluble in organic solvents such as ketones, esters and chlorinated hydrocarbons.

Solvent	25°C	50°C	Solvent	25°C	50°C
Tetrahydrofuran	S	S	Methanol	I	I
Acetone	S	S	Isopropanol	I	I
MEK	S	S	n-Butanol	I	I
MIBK	S	S	Ethylene glycol	I	I
Cyclohexanone	S	S	Methyl acetate	SW	S
Ethylene dichloride	SC	S	Ethyl acetate	SW	S
Aromatic	SW	SW	Butyl acetate	SC	S
Toluene	SW	SW	DBP	S	S
Xylene	SW	SW	Dioxane	S	S
Aliphatic	I	I	Isophorone	S	S

Notes: S... Soluble; SC...Soluble but turns cloudy;
PS...Partially soluble; SW...Swells; I...Insoluble

Viscosity of Solbin TA3 solutions with various solvents.



SOLBIN TA3

Compatibility with Modifying resins			SOLBIN TA3/Other			
			9/1	4/1	1/1	1/4
Alkyd	Beckosol ^{*1}	1307-60-EL	O	O	O	O
		1334-EL	O	O	O	X
		1323-60-EL	O	O	O	O
Styrene -Alkyd	Styresol ^{*1}	4250	Δ	Δ	X	X
		4400	O	O	X	X
Melamine	Beckamine ^{*1} Superbeckamine ^{*1}	J-138	O	O	O	O
		TD-126	O	O	O	X
		J-820	O	O	O	O
		G-821	O	O	O	O
Epoxy	Epikote ^{*2}	828	O	O	O	O
		1001	O	O	Δ	X
Urethane	Nippolan ^{*3}	2300 series	O	O	O	O
		3000 series	O	O	O	O
	Coronate ^{*3}	L	O	O	O	

Coating/film Notes: O-Transparent ; Δ - Slightly clouded;
X- Whitish or knurled. *1—DIC Crop.; *2—Japan Epoxy
Resins Co. Ltd.; *3 Nippon Polyurethane Industry Co., Ltd.

Applications

- Metal Protective Paints—Due to the excellent non-corrosive properties of Solbin TA3 and the toughness of the film it produces it is ideal for coating steel and galvanized plates that will be fabricated later.
- Finish coatings —TA3 reacts with organic radicals such as isocyanate to perform cross-linking, producing an extremely tough .
- Plastic coatings—Adds gloss to both coating and ink for gravure printing on plastic. Creates a better decorative effect.

How to Use

- To ensure Solbin TA3 quickly goes into solution it is recommended to disperse it into a weaker solvent such as toluene and xylene then blend with the stronger solvent.
- Solbin TA3 is usually dissolved in a combination of both ketone (e.g. MEK and MIBK) and aromatic hydrocarbon (e.g. toluene and xylene) solvents in equal proportions, to produce a solution of 15% - 20% concentration by weight. For coatings on a porous substance, (paper or cloth), faster drying solvents such as MEK and acetone are recommended.
For Spray coating, MIBK is used. For baking on metals, ketone with a high boiling point such cyclohexanone is used. For roll coatings, cyclohexanone or isophorone are sometimes used.
- Heating to around 50°C and sufficient agitation are required to speed up dissolving.

- In order to provide proper flexibility, resilience and adhesiveness to film, 5-20 PHR of plasticizer are added. The kind and amount of plasticizer to be added can be determined in the same manner as in the method of blending polyvinyl chloride resins.
- Most common pigments can be employed.
- Stabilizers against heat and light are used, as with conventional polyvinyl chloride resins. The addition of about 0.2% propylene oxide, in this case, can prevent the corrosion of containers and change in paints in storage.
- Any method of coating, including spraying, roll coating and others, may be used. For roll coating, a solution of 200-400 seconds in Ford Cup No.4 viscosity should be used. For Spray applications a solution of 60-80 seconds Ford Cup No.4 viscosity should be used at an air pressure of 98-100psi and a liquid pressure of 20-30psi.
- Solbin TA3 does not usually provide satisfactory adhesion through air drying alone. The following chart provides the degree of adhesion to various surfaces by air drying:

Excellent	Polyvinyl chloride resin, Acryl resin
Good	Concrete, Plaster
Fair	Chlorinated rubber
Inferior	Metal, Wood, Paper, Cloth, Phenol resin, Alkyd resin, Butyral resin, Celluloid, Shellac, Dried waterborne or oil paints

- Short-time baking at 170-190°C will significantly improve adhesion and surface gloss. When primers are used, sufficient adhesion may be obtained without baking.

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Caution

- ◆ Follow the precautions in the material safety data sheet and technical references.
- ◆ SOLBIN is for industrial use only.
- ◆ The data in this document does not include all specifications. Purchasers must conduct tests of their own before putting the product to practical use to verify its compliance, with their intentions for its employment.
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