Nissin Chemical Industry Co., Ltd.

SOLBIN A TECHNICAL DATA SHEET

Product description

Solbin A is a thermoplastic resin consisting of polyvinyl chloride, polyvinyl alcohol and polyvinyl acetate.

Product characteristics

- Soluble in ketones, esters and chlorinated hydrocarbons. Use aromatic hydrocarbons as diluent solvents. Insoluble in alcohol, oil and aliphatic hydrocarbons.
- Film made from Solbin A is tasteless, odorless, and is unaffected at room temperature by alkalis, mineral acids, alcohol, oil and aliphatic hydrocarbons.
- Combines high water resistance with low moisture permeability and low water absorption.
- Offers superior mechanical properties such as anti-abrasion, flexibility and non-tackiness.
- Imparts good, stable dispersibility to pigments and magnetic powder in paints and dried layers even at high packing density.
- Wide choice of coating formulations due to compatibility with various resins including polyurethane, epoxy resins, NBR, isocyanate, etc.
- When included in the hydroxyl group, Solbin A reacts with organic radicals such as isocynante to perform cross linking.

General properties

Attributes	Test Results
Appearance	Light yellow powder
Grain Size	Passes wholly through 28 mesh sieve
Bulk Density (g/cc)	~ 0.7
Composition (% weight)	
VC	91.5 ± 1.5
VAc	3.0 ± 1.0
VA	5.5 ± 0.5
Degree of Polymerization	420 ± 50
Molecular Weight Mn	3.0 X 10^4
Glass Transition Temp. (°C)	76° C
Solution Viscosity (mPa·s) (MIBK/TOL. 20% @25°C)	220 ± 30

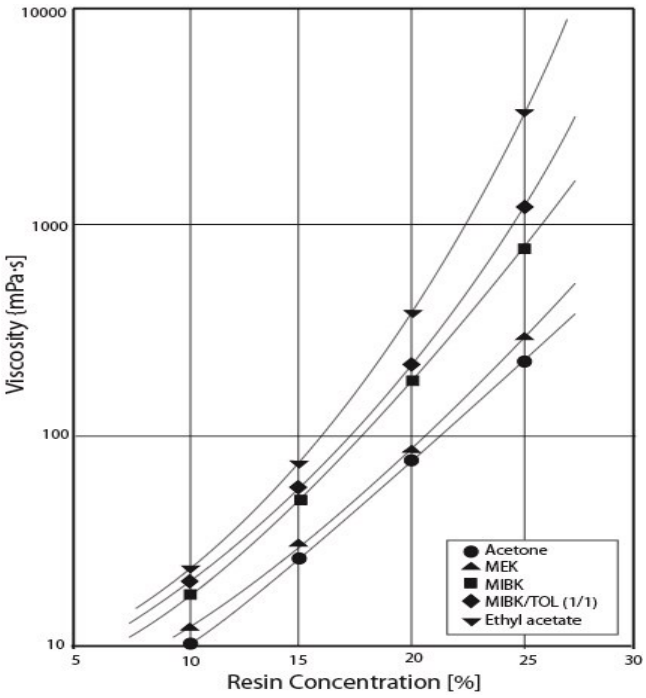
Solubility

Solbin A 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	I	S
Ethylene dichloride	S	S	Ethyl acetate	PS	S
Aromatic hydrocarbon	SW	SW	Butyl acetate	PS	S
Toluene	SW	SW	DBP	S	S
Xylene	SW	SW	Dioxane	S	S
Aliphatic hydrocarbon	I	I	Isophorone	S	S

Notes: S... Soluble; PS...Partially soluble; SW...Swells; I...Insoluble

Viscosity of Solbin A solutions with various solvents (@25°C)



SOLBIN A

Compatibility with Modifying resins			SOLBIN A/ 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	Epicote*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

- Printing Ink - Solbin A is used for coating and gravure printing ink, adding gloss to create a better decorative effect.
- Metal Container Paints - Solbin A is used for lining food and beverage containers. Its anti-corrosiveness makes it an excellent choice for use in container lining, including applications for medicines and cosmetics. It produces a tough film that makes it ideal for coating steel and galvanized tin plates that will be fabricated later.
- Paper and Textile Coating - Solbin A provides a waterproof protection, adding gloss for a better decorative effect.
- Magnetic Paint - Due to Solbin A's excellent dispersing ability for inorganic pigments such as magnetic powder, it is used as a binder and dispersing agent for magnetic paint used to produce magnetized cards and tapes.

How to Use

- To ensure Solbin A 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 A 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 A 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, Cloth, Phenol resin, Alkyd resin, Butyral resin, celluloid, Shellac, Dried water-

- 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.

Please contact: Shin-Etsu MicroSi
1.888.642.7674 www.microsi.com

Nissin Chemical Industry Co., Ltd.
+81.3.3295.3931 www.nissin-chem.co.jp

⚠ Caution

- ♦ Follow the precautions in the material safety data sheet and technical references.
- ♦ SOLBIN is for industrial use only.
- ♦ The data in the 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.
  We give no guarantee that the uses presented in this document do not come in conflict with any patents.
  For the purpose of enhancement of performance or change of specifications, the contents in this document are subject to revision without notice.
- ♦ Permission is required to reprint our data.