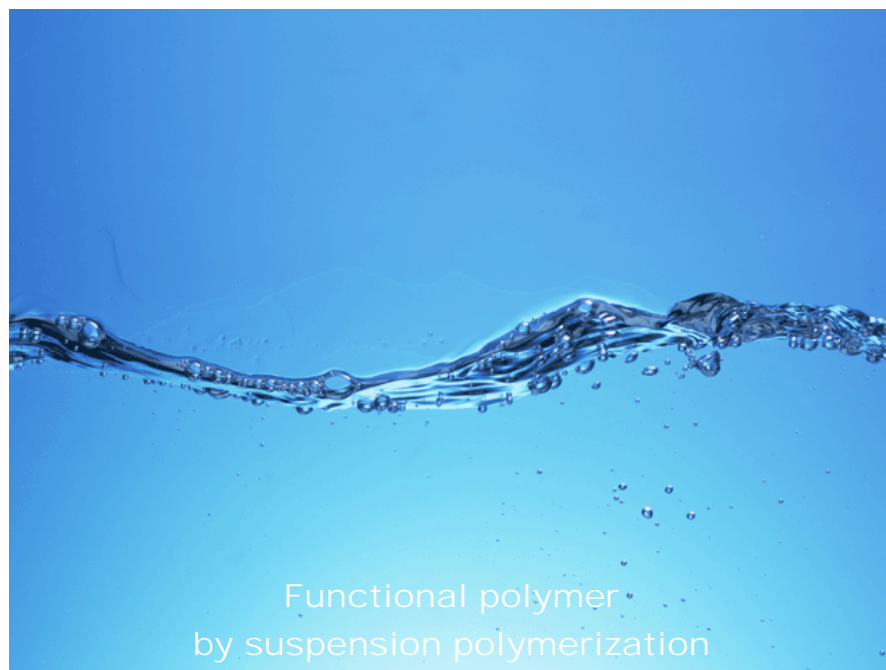


扫码联系

产品经理:



TEISANRESIN
Acrylic ester copolymer



Functional polymer
by suspension polymerization



Introduction

We, Nagase ChemteX Corporation started research and development of polymers based on acrylic ester in 1955, established extremely unique industrial suspension polymerization method to manufacture relatively Low Tg(Glass Transition Temperature) functional polymers. Since then we have begun to manufacture and sold various functional polymers under the trade names of "TEISANRESIN". They made by our original technology are used in a variety of fields such as industrial material, automobiles, IT devices and electronics, because its properties such as flexibility, tackiness, adhesive property, cohesive power and resistance factor are determined by combining monomers. It is especially used as flexibility ingredients or epoxy resin modifiers in the field of electronic materials because of less low molecular weight component (e.g. oligomer) and very few impurities and high durability.

We would like to introduce a wide variety of product line with various functional groups (e.g. carboxylic group, hydroxyl group, epoxy group), Tg, molecular weight etc, and hope they will meet your requirements for your product designs.

In addition, we will be able to supply custom products suitable for your requests by our high polymer design technology.

We have developed a range of unique suspension polymerization products based on acrylic radical polymerization technologies and, placed on the market.

Nagase ChemteX hopes to build up Win-Win relationship with you through our products. We welcome your inquiries on the products in this catalogue and for custom-made advanced materials.

Nagase ChemteX: Ensuring the richness of tomorrow through Chemistry

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Feature

- Relatively narrow molecular weight distribution and high molecular weight polymer. Because suspension polymerization propagates in the droplets of monomers, it is substantially the same as bulk polymerization. Its polymerization velocity and polymerization degree are large.
- Less residual monomer, very low molecular weight component compared with polymers made by solution polymerization, emulsion polymerization.
- Very few impurities, because of no use of surfactant in the polymerization process like emulsion polymerization
- High durability. Low deterioration of adhesive power caused by the oxidation or heating, because a polymer main chain of TEISAN RESIN consists of saturated bonds.
- Possible to improve strength of film that is made of TEISANRESIN with the use of cross-linking agent (e.g. isocyanate, epoxy compounds) in case of having the functional group (e.g. COOH, OH) in the polymer.
- Besides of the products in the catalogue, we can offer customized products after consultation with you about your requests.
 - Can control a desired molecular weight (M_w $30 \sim 110 \times 10^4$, it depends on polymer component) .
 - Can change functional groups (COOH, OH, epoxy) and its content.
 - Can produce polymer on an industrial scale even if it has relatively low T_g (ca. $-30 \sim \text{r.t.}$).
 - Can change solvent type (MEK, Toluene, Ethyl Acetate, PMA etc) and solid content (Can supply solvent dissolution products only).

TEISANRESIN Product line and property

Product Name	Functional group	Solvent	Solid Content (%)	Viscosity (mPa·s)	Molecular weight (Mw, × 10 ⁴)	Acid value ^{※1}	Tg ^{※2} (°C)	Packaging ^{※3}	Status ^{※4}
SG-70L	COOH/OH	MEK/Tol	12.5	1600	90	Acid value c.a.5mgKOH/g	-13	170Kg DM 15Kg Can	C
SG-708-6	COOH/OH	MEK	20	5000	70	Acid value c.a.9mgKOH/g	4	160Kg DM 15Kg Can	C
WS-023 EK30	COOH/OH	MEK	30	6000	50	Acid value c.a.20mgKOH/g	-10	170Kg DM 15Kg Can	C
SG-280 EK23	COOH	MEK	23	14000	90	Acid value c.a.30mgKOH/g	-29	170Kg DM 15Kg Can	C

※1 The acid value is a value as a solid resin.

※2 Values of Tg are the theory calculation values.

※3 Always have no stock for export specifications. Information about packaging are possible packaging-form. Please contact us.

※4 C: Commercial D: Development We will inform you of the availability when we receive an inquiry.

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Please refer to the Material Safety Data Sheet (MSDS) for all components before using.

Do not use in medical applications involving permanent implantation in the human body.

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TEISANRESIN Product line and property

Product Name	Functional group	Solvent	Solid Content (%)	Viscosity (mPa·s)	Molecular weight (Mw, $\times 10^4$)	Epoxy value ^{※1} or OH value ^{※1}	Tg ^{※2} (°C)	Packaging ^{※3}	Status ^{※4}
SG-P3	Epoxy	MEK	15	6000	85	Epoxy value c.a.0.21 eq./Kg	12	160Kg DM 15Kg Can	C
SG-80H	Epoxy	MEK	18	1000	35	Epoxy value c.a.0.07 eq./Kg	11	160Kg DM 15Kg Can	C
SG-600 TEA	OH	Tol/AcOEt	15	5000	120	OH value c.a.20mgKOH/g	-37	170Kg DM 15Kg Can	C
SG-790	OH	Tol/AcOEt	23	1300	50	OH value c.a.40mgKOH/g	-32	170Kg DM 15Kg Can	C

※1 The epoxy value or the OH value is a value as a solid resin.

※2 Values of Tg are the theory calculation values.

※3 Always have no stock for export specifications. Information about packaging are possible packaging-form. Please contact us.

※4 C: Commercial D: Development We will inform you of the availability when we receive an inquiry.

Application

■ Resin Modifier or adhesive binder to give flexibility for electronic materials

Recommended grade

SG-70L, SG-708-6, WS-023 EK30

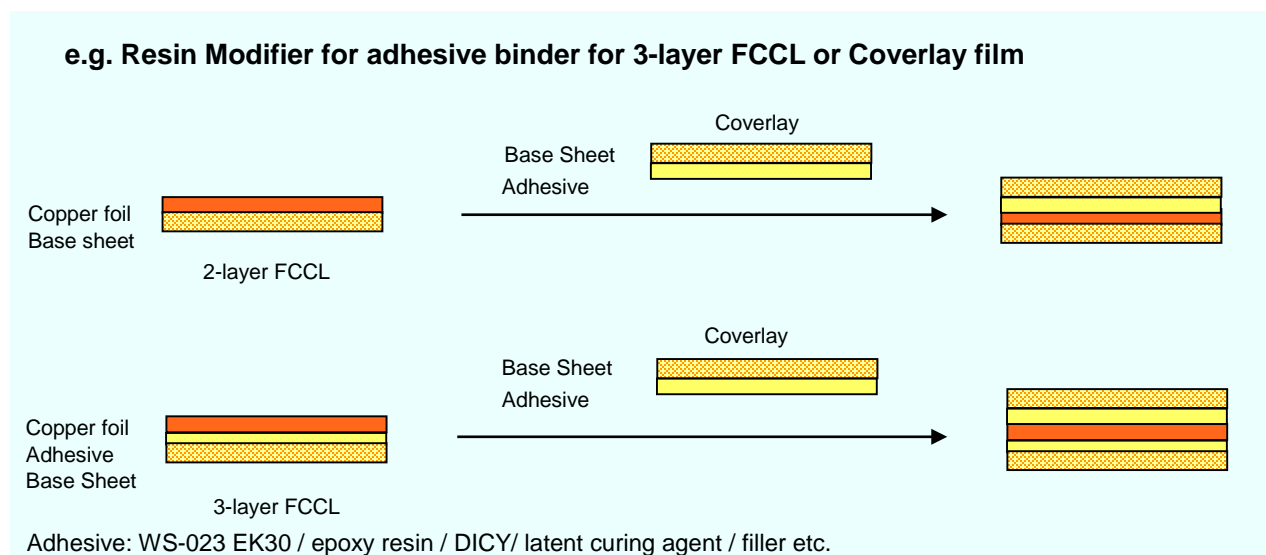


Functional group : COOH、OH

SG-P3, SG-80H



Functional group : Epoxy



■ Other application idea

- Resin modifier / binder resin for Bonding sheet or Stiffener sheet for FPC.
- Resin modifier for anisotropic conductive film.
- Resin modifier for semiconductor-related adhesion sheets (e.g. Die attach film, Die attach paste).

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Technical information

■ Peel Strength

Peel strength (180° peel / Polyimide—Cu plate)

Product name	SG-70L	SG-708-6	WS-023 EK30	SG-P3	SG-80H	SG-280 EK23	SG-600 TEA	SG-790
Peel strength after 24hr (vs. Cu) (N / 25mm)	5.6	7.9	8.5	0.3	1.2	5.8	2.9	3.6
Functional group	COOH/OH			Epoxy		COOH	OH	OH
Molecular weight (Mw, × 10 ⁴)	90	70	50	85	35	90	120	50
Tg (°C)	-13	4	-10	12	11	-29	-37	-32

Measured according to JIS Z0237. Condition:23°C/55%RH. No curing before test

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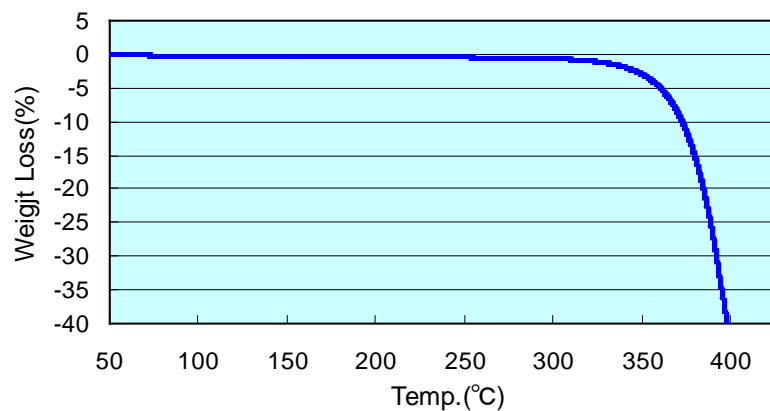
Technical information

■ Thermal analysis data (Thermogravimetry Data)

	SG-70L	SG-708-6	WS-023 EK30	SG-P3	SG-80H	SG-280 EK23	SG-600 TEA	SG-790
3% Weight Loss	347°C	351°C	328°C	350°C	352°C	323°C	317°C	337°C
5% Weight Loss	360°C	363°C	347°C	360°C	364°C	341°C	337°C	352°C
10% Weight Loss	374°C	377°C	368°C	373°C	377°C	363°C	361°C	370°C

The samples for analysis are solid rubber that are made by drying the products at 110°C for 1hr.

Measured by TG-DTA at a heating rate of 10°C/min. under N₂.



Thermogravimetry data of SG-P3

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Handling and Safety

Storage under dry and cool conditions inside a warehouse is recommended. Prolonged storage at high temperatures may cause the degradation of TEISANRESIN. To avoid fire hazards due to vigorous thermal reactions, experimental laboratory tests are recommended before using them .

All persons who use, handle, transport or store these materials need to avoid exposure to them. Use protective gloves, eye protection shields or safety glasses. Avoid direct prolonged exposure. Follow the handling precautions and recommendations stated in the Material Safety Data Sheets (MSDS). Please refer to the Material Safety Data Sheet (MSDS) for all components before using. Wash immediately with soap and water when in direct contact with them.

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