

## Biomass Polyurethane Resin Solution for Gravure Printing Inks

### SANPRENE IB-851B

#### Product Features

SANPRENE IB-851B is a solvent solution of polyurethane resin using biomass raw materials, with a biomass concentration of 45% in the resin. It offers excellent adhesion to various films and blocking resistance, making it a versatile binder resin for laminating gravure inks. It also exhibits excellent low-temperature stability, ensuring good handling properties even in winter. It can also be used as a binder for paints, a primer for films, and a coating material.

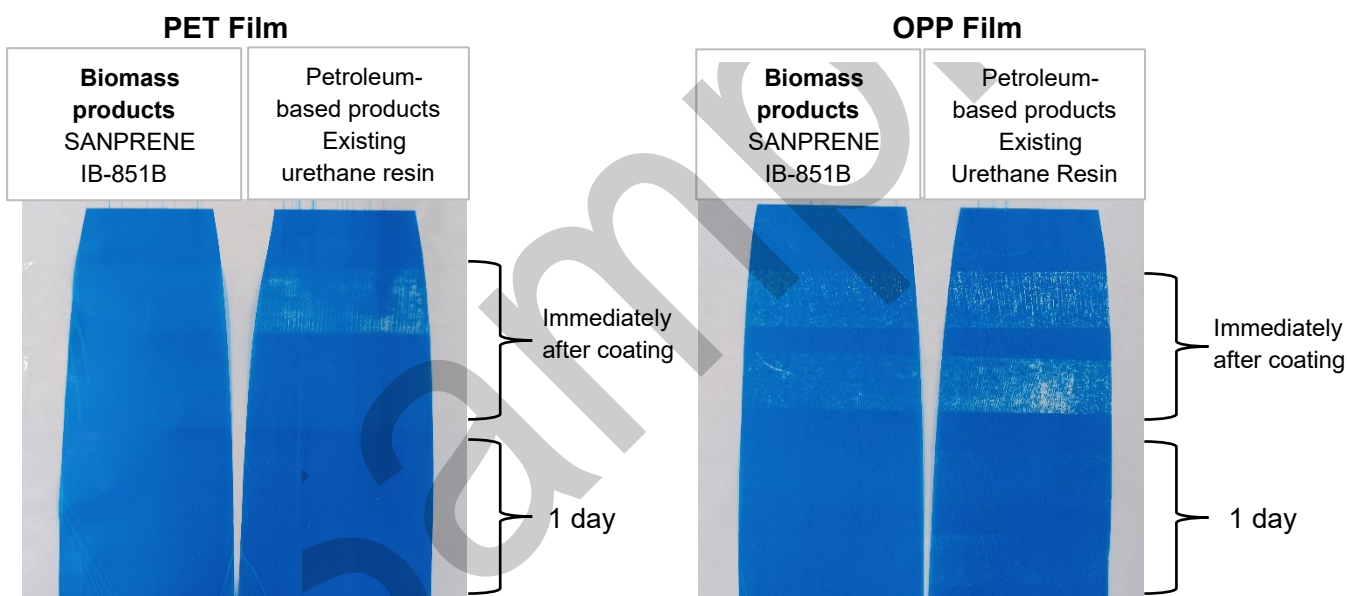
#### ●Biomass Concentration

SANPRENE IB-851B Biomass Concentration: **45%** (in resin solids)

<Calculation Method>

Calculated based on the weight percentage of the biomass raw material used.

#### ●Film Adhesion



<Evaluation Method>

Ink formulated according to the ink formulation table below was dispersed using a bead mill and coated onto each film using a tabletop gravure coater. After drying for 10 seconds in a dryer, cellophane tape was applied to the coated surface with a finger, then peeled off in one swift motion to observe the degree of peelability. After keeping at room temperature for one day, the same peel test was performed.

Ink Formulation Table

Raw Material	Blend Amount (wt%)
Blue Pigment	30
Polyurethane Resin Solution	40
Solvent (Ethyl acetate/Isopropanol = 2/1)	30

### ●Solvent Solubility

Solvent Type	Solubility
Toluene	Dissolves without limit
Methyl ethyl ketone	Dissolves without limit
Ethyl acetate	Dissolves without limit
Isopropanol	Dissoluble up to approximately 80 wt%.

#### <Evaluation Method>

Weigh 100g of SANPRENE IB-851B into a beaker. While stirring, add each solvent 10g at a time. Visually confirm no precipitation or separation occurs.

### ●Resin Properties

Physical Properties	Property Values
Tensile Strength (MPa)	8.2
100% Modulus (MPa)	1.1
Elongation at Break (%)	1170

#### <Test Method>

SANPRENE IB-851B was poured into a polypropylene tray, left at room temperature for 12 hours, then dried for 1 hour in a 70°C circulating air dryer, followed by 1 hour in a vacuum dryer at 105°C and -0.1 MPa, yielding a film-like solid with a thickness of 300 µm. Dumbbell No. 3 specimens were cut out and tensile testing was performed using an Autograph in accordance with JIS 7721.

### ●Applications

Solvent-based inks, paints, primers, coating materials

### ●Application Methods

Gravure Ink Preparation Method

- Prepare gravure ink by mixing SANPRENE IB-851B, pigments, solvents, and ink additives (such as blocking inhibitors and antistatic agents) using a mixing machine like a bead mill or sand grinder mill.
- Adjust the types and quantities of pigments and ink additives as needed based on the desired color and the type of film to be printed.
- Suitable solvents include ethyl acetate, isopropanol, methyl ethyl ketone, toluene, or mixtures thereof.

### ●Typical Properties (These data aren't specifications.)

Appearance	Pale yellow liquid
Evaporation residue (%)	Approx. 30
Viscosity(mPa · s)(20°C)	Approx. 1,000
Solvent	Ethyl acetate/Isopropanol = approx. 2/1 (Weight ratio)

### ●Packaging

Net 170kg drum