

Shenzhen Jianghe New Materials Technology Co.,Ltd

Technical Data Sheet (TDS)

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Doc No.: PUR-518AB-33X2-TDS-001

Issue Date: 2023-05-23

Revision: 1.0

518AB-33X2

Application Instructions

518AB-33X2 Series is a two-component polyurethane resin system designed for room temperature or heat-assisted curing. Upon curing, it forms a transparent, glossy protective coating suitable for various stickers, wall decals, signage, nameplates, and decorative items.

The product is supplied as separate base and hardener components, which must be thoroughly mixed in a specified ratio to form a transparent, flexible resin after curing.

The cured 518AB-33X2 exhibits outstanding weather resistance and UV stability, making it suitable for long-term outdoor applications. It meets the stringent material requirements of the automotive industry. For indoor use, it guarantees no yellowing for approximately three years.

Composition

518A-33X2 is the polyol component, while 518B-33X2 is the isocyanate component. The system is suitable for both manual dispensing and mechanical dispensing applications.

Product Characteristics

1. Extended pot life combined with fast heat-assisted curing enables significantly improved production efficiency.
2. Low viscosity with excellent bubble release; cures to a smooth, high-gloss surface with superior flatness and non-tacky finish.

3. High clarity with strong adhesion and notable surface gloss.
4. Excellent weatherability and UV resistance after curing; maintains stable performance across a wide temperature range (0°C to 80°C).

Uncured Properties

Test Items	Test Methods	518A-33X2	518B-33X2
Appearance	Visual inspection	Colorless to light yellow viscous liquid	Colorless transparent liquid
Viscosity	25°C, mPa·s	250±100	30±30
Mix Ratio by Weight	A:B=3:1		
Pot Life (25°C)	15 mins		
Curing Time	65°C×3.5h or 25°C×24h		
Shelf Life	25°C, sealed	6 months	3 months

Process Flow

The 518AB-33X2 series is offered in both manual-dispensing and mechanical-dispensing formulations, with the manual version providing longer pot life and slower curing characteristics, while the mechanical version is designed for shorter pot life and faster curing.

1. Manual Dispensing

- ① Maintain ambient temperature at 15–25 °C and relative humidity below 70%. Store 518A-33X2 and 518B-33X2 under these conditions for 24 hours before use.
- ② Preheat substrates such as PVC, plastic labels, or metal labels in an oven at 60 °C to remove surface moisture. Then place the labels on a level surface and secure them with adhesive tape.
- ③ Clean the label surfaces to remove dust and oil contamination.
- ④ Precisely weigh 518A-33X2 and 518B-33X2 at a weight ratio of 3:1, then mix thoroughly until uniform.
- ⑤ Degas the mixture under a vacuum of –0.1 MPa until no bubbles remain.
- ⑥ Draw the degassed resin into a clean syringe and dispense it evenly onto the prepared substrate. A typical coating thickness is 2 mm; the resin will self-level.

- ⑦ Within 5 minutes after dispensing, inspect the surface for bubbles or dust. Use a pin to burst any small bubbles and guide resin into any uncovered corners.
- ⑧ Cure the coated labels in an oven at 60–80 °C for 2–3.5 hours, or allow to cure at room temperature for 24 hours, until the surface is tack-free.

2. Mechanical Dispensing Process

- ① Place the sealed containers of 518A-33X2 and 518B-33X2 in a controlled environment (15–25 °C, relative humidity <70%, dust-free) for more than 96 hours to allow entrapped air from transportation to dissipate.
- ② Install and secure suction pumps into each container, then let the system stand for 24 hours.
- ③ Position the labels on a flat horizontal surface and fix them with adhesive tape.
- ④ Clean the label surfaces thoroughly to remove dust and oils.
- ⑤ Flush the static mixer and dispensing head with dichloromethane or ethyl acetate.
- ⑥ Prime the system by dispensing material to purge air from the hoses, static mixer, and dispensing head.
- ⑦ Dispense the mixed resin evenly onto the label surface.
- ⑧ Spread the resin across the entire surface using a needle and remove any residual bubbles.
- ⑨ Transfer the coated labels to a curing oven at 60 °C.
- ⑩ Allow 2–4 hours for complete curing before collecting and packaging.

Processing & Curing Parameters

Item	Unit or Condition	518A-33X2:518B-33X2
Appearance	Visual inspection	Surface finish: Colorless transparent, smooth and ripple-free
Hardness	Shore A	70±5
Tensile Strength	MPa	>25
Elongation at Break	%	>150

Packaging Specifications

5 kg PE plastic pail / 20 kg steel pail.

Storage, Transportation & Precautions

1. This product is classified as non-hazardous and should be transported as general chemicals.
2. Store in a cool, dark, and sealed environment at 15–25°C with relative humidity <70%. Refer to the container for the specific shelf life.
3. Component B is unstable when exposed to air and must be resealed immediately after use. Both Components A and B are highly moisture-sensitive—strictly prevent contact with water vapor.
4. For manual dispensing, weigh components accurately according to the specified ratio and mix thoroughly. Note that pot life shortens when mixing quantities exceed 100g.

Note: The performance data provided are typical values measured at 25 °C and 65% relative humidity. They are for reference only and do not represent a guarantee of performance under all specific conditions. Users should verify suitability through actual testing. For improved results, Component A may be vacuum-dried to remove moisture prior to use, if conditions permit.