



## TECHNICAL DATA SHEET

### Anti-fog / Anti-Frost Coating 2266-188

#### For use on GLASS

### General Description

Anti-fog coating consists of two part polyurethane based coating solution for imparting permanent anti-fog properties to glass while allowing light transmission >99%. The condensation control coating when properly cured will prevent fogging under extreme temperature and humidity conditions. The Part A resin is a solvent based mixture and Part B is a reactive Isocyanate which forms a film post heat cure. A silane primer is required for coating adhesion to glass.

### Typical Physical Properties

<u>188-A Property</u>	<u>Temp</u>	<u>Unit</u>	<u>Approved Spec. Range</u>
Appearance (Visual)	RT		Viscous Liquid
Color (Visual)	RT		Slight Yellow
Non-Volatiles (NVN 1.1)	NA	%	Avg. 9.60
Sp. Gravity (SPG 1.0)	25C	g/ml	Avg. 0.964
Moisture (KFT 1.0)	RT	%	<0.70
Viscosity (BVK 1.0) (#2 Spindle @ 30 RPM)	25C	Cps	Avg. 590
Flash Point	18.9°C	Centigrade	66°F

<u>188-B Property</u> (AKA: SG61-B & 2009-68-2B)	<u>Temp</u>	<u>Unit</u>	<u>Approved Spec. Range</u>
Appearance (Visual)	RT		Clear Liquid
Color (Visual)	RT		Colorless
Non-Volatiles (NVN 1.1)	NA	%	46-51
Isocyanates (NCO 1.2)	NA	%	10.5 – 12.2
Flash Point	16.1°C	Centigrade	61°F

### Coating Methods and Application

The dry coating should be a smooth evenly distributed layer with a dry coating solids weight of 0.5 – 1.0 grams per 1000 square surface inches. The anti-fog coating should exhibit no orange peel, fish eyes, runs, drips, crazing or foreign inclusions.

Methods of application included curtain, roll, dip and spray coating. The anti-fog solution as supplied will be adequate for most glass produced however testing should be done to determine adhesion tolerance post heat cure for each glass substrate. The primer layer must be dry and clean before application of the antifog coating solution.

Mix Ratio A to B : 95: 5

Stir mixture in vessel with a low speed solvent mixer for 5 to 15 minutes until homogeneous. Mix time will vary relative to size of batch. If coating solution displays air bubbles let stand until bubbles dissipate.

In HVLV spray applications use 5 to 10% solids at 8-10 psi typical of automotive paints. If the spray fan of coating shows spotty coverage increase air pressure incrementally until an even coating. The coating can be layered to achieve coating thickness.



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#### Coating Cure

Coating performance is reduced, if not properly cured. Adhesion and antifog properties can be affected. We recommend a thermal cure of 125C for 30 mins.

The following are approximate time and temperatures. With variance in thermal curing systems we recommend running a time and temperature trial to determine optimal condition.

<u>Temperature</u>	<u>Time</u>
110C – 230F	1 Hour
125C – 257F	30 Mins
140C – 302F	10 Mins

#### Coating Thickness

Recommended dry coating thickness is .05 to 1.0mils (1 to 25 microns). Coating thickness <.04 mils will have reduced anti-fog properties due to thin thickness. Approximate wet coat thickness to dry film thickness is 10:1. The optimum level to be used in any particular case should be determined by trial testing prior to production, however 20 microns has shown excellent Frost resistance. Sheeting effect is indifferent to coating thickness however, if the substrate is contaminated with grease and oils this can destroy the anti-fog properties.

#### Chemical Resistance

A patch test should be performed for each glass substrate. Brief exposure to most organic solvents (including ketones, aromatic and chlorinated hydrocarbons, esters and alcohols) will not harm the coating. Methanol and Isopropanol will soften and remove the coating. Cured coating can be cleaned with 50% water :: 50% Ethanol.

Clean substrate with Alcohol or similar solvent, rinse with water and dry before application of antifog coating if contaminated with grease and oils.

#### Clean Up

Best to clean equipment before coating solidifies. Coating residual can be cleaned with DAA, MEK, MIBK or similar solvent. Adhere to local ordinances before disposal in wastewater systems.

Fully cured anti-fog coating can be cleaned with typical household liquid cleaners.

#### Safety Precautions

Flash Point of recommended mixture (Part A & Part B) : 61°F (16.1°C)

Keep away from heat, flame and sparks as vapor may ignite. Use proper bonding and grounding of containers during liquids transfer as described in USA National Fire Protection Association document NFPA 77.

When handling wear neoprene gloves and safety glasses. Skin contact may cause local redness; wash with soap and water. Eye contact may cause redness or swelling of conjunctiva; flush with water for 15 minutes. Swallowing or inhalation may cause headache, vomiting, diarrhea, dizziness, drowsiness, nausea; administer oxygen or fresh air. **Please refer to MSDS of each Hydromer Formula.**