

AquaVue™ WTJ

W-Silicone Urethane Hybrid Emulsion

T-Roll Coat or Spray

J-Ambient or Low Bake

*Handling
Guide*

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Inspiring creativity with sound solutions

Description

AquaVue™ is a two component water based silicone hybrid coating designed for use as a colored coating on glass for interior and furniture application. The product is totally lead free and environmentally safe. After the application to the glass the applied coating cures to a tack-free hard film which has excellent adhesion and chemical rating.

Purpose

AquaVue™ is designed to adhere to a variety of glass substrates. The product forms a hard, durable coating and is resistant to cleaning chemicals.

Application Equipment

Roll Coater

Roll Specifications

Reverse rotation with 42 grooves per inch will apply six (6) mils.

Coating Thickness: 152µm (6 mils).

Less thickness affects the product's durability.

Lighter colors require a second coat for total opacification.

Contact the machinery manufacturer to make sure that the cleaning material is compatible with the roll.

Spray

Coating Thickness: Spray: 6 mils (152 µm)

Less thickness affects the product's durability.

Lighter colors require thicker coatings for total opacification.

General Material Handling

Adhesion Testing

It is highly advisable, and mandatory on all jobs over 500 square feet, to perform a peel adhesion test and enter the results in the job log. Several samples should be run alongside the job using the same glass, cleaning techniques, etc., as the actual lites and then after drying a careful test done. This test will highlight any quality deficiencies.

Refer to ICD Peel Adhesion Test and MEK Double Rub Test. These methods of quality control MUST be incorporated for use and approval of AquaVue™.

Aeration

Aeration of AquaVue™ can occur with excessive agitation at or near the surface of a container. A moderate spinning dispersing blade near the bottom of the liquid in the container (1 inch above the bottom of the pail) produces the best results with the least likelihood of introducing air. Excessive air entrapment may be removed by long term slow agitation. Depending on the amount of air entrapped, mixing may exceed one (1) hour.

Catalyst

AquaVue™ coating requires the use of a Catalyst (KV-630).

The Catalyst is included with each shipment. The use level for the Catalyst is 1% by weight of coating.

Calculate 1% of this weight (1/100 by weight). For Example, 100 pounds (lbs.) of liquid will require 1 pound (lb.) of Catalyst solution. Or, 100 grams of liquid will require 10 grams of Catalyst solution.

Once the Catalyst is introduced to liquid, the liquid must be thoroughly mixed. Frequently scrape sides of container to ensure thorough Catalyst incorporation. After mixing the Catalyst into the liquid, there should be a 10-15 minute wait time before application of liquid.

Dilution

Water can be used to dilute AquaVue base material for spray applications. Once AquaVue is activated with the KV-630 Catalyst add water to reduce viscosity. Typical amount of reduction is 10-15% water by weight of base material. While the activated AquaVue base is mixing, slowly add the water. Mix an additional 5 minutes.

Insulated Glass (IG) Units

Edge deletion is recommended.

AquaVue™ should be on the number 4 surface.

Jobsite Protection of Coated Glass

Once architectural glass products have arrived on the job site, proper storage methods can help to insure protection from damage caused by prolonged exposure to moisture, construction site dust and debris, caustic chemicals, and exposure to other construction chemicals and activities. Improper storage and handling can lead to damage of any architectural glass product including spandrel glass products. As well, failure to follow these instructions may void an ICD AFF Warranty on the project.

Release: The Glass Association of North America (GANA) recently issued a Glass Information Bulletin (TD-03-1003), of which is attached to this Technical Bulletin.

Open Storage: Over wrap with water-proof material.

Cased Goods: Line case with APPROVED barrier material

Material Coverage

Thickness: 152 μm

6 mils

M2/liter: 6.5 M2/liter

SF/liter 70.5 Sq./liter

Mixing Equipment Recommendation



Production Mixer



Air Mixer

753

A mixing stick will not accomplish a fine dispersion. Poor mixing of the material can result in color variances and potential poor coating because of the lack of adequate applied silicone, and may lead to poor adhesion and future separation from the glass.

Blending should be done so as not to introduce air.

Overrun (excess)

Any overcoat or excess should not be allowed to reach the reverse side of the glass being coated, or for that matter, any other glass. Excess must be removed before cure. If excess remains on extreme methods are required for removal. It may be virtually impossible to remove. Please contact ICD office for further details.

Pot Life

Eight (8) hours; once Catalyst has been added to base material

Once mixed, the material can be used for up to 8 hours (while in a sealed container). Please keep excess activated material in a tightly sealed container until ready to use. Also please keep excess unactivated base material and catalyst tightly sealed when not in use. Both the base and catalyst are moisture reactive.

Physical Properties

AquaVue™ will attain maximum physical properties (full cure) in 7 to 14 days.

Repainting & Repairing AquaVue™ coating

Instructions to Recoat

1. Use of clean water and detergent
2. Thoroughly clean all dust residues from AquaVue™ coating.
3. Wash cured coating and rinse well
4. Allow coating to dry.
5. Apply AquaVue™ directly to prepared surface

Safety

The uncured, liquid ink can cause eye irritation. Skin and eye contact should be avoided. In case of eye contact, flush eyes with water for at least 15 minutes and obtain medical attention. For skin contact, flush affected areas with water as soon as practical.

Shelf Life

Shelf life is twelve (12) months from date of shipment. Storage conditions can affect shelf life. Please contact ICD for information. Shelf life may be extended by storage in cool environment.

Silicone, Proper cure of

ICD performs compatibility tests on many sealants and adhesives, as a service to architects and AFF's. Each individual material is applied, cured and tested with ICD

products. For example, we approve of Dow Corning 795 and we also approve Dow Corning 1199 for use with ICD silicones. These products are tested individually and not in conjunction with multiple sealants. The resulting test combinations would be endless. It is then important to consult each sealant manufacturer for compatibility information between sealants and other materials.

Storage & Reuse

Storage temperature should be at room temperature: 1-24°C (34-74°F). Higher temperatures may be detrimental to product stability.

Excess heat may excite chemical reactions.

Vision Glass

AquaVue™ is NOT recommended for vision glass.

Wall Cladding below 72" and Dow Corning® 1199 Clear Silicone

ICD has evaluated Dow Corning® 1199 clear silicone. We find the silicone to be compatible with and adhere well to AquaVue™

This material is approved for wall cladding applications below 72" in height. All other instructions remain the same.

Color

Batch Variations

ICD maintains rigid color matching specifications with AquaVue™. In any color matching program there is the possibility of slight batch to batch variations in color. ICD recommends utilizing the same color batch on one project.

Color Matching on Proper Glass, Importance of

When seeking exact color matches (particularly with light colors) specify exactly or send a sample of the glass on which AquaVue™ will be used.

Remember also that glass will vary between manufacturers, and even between float plants it will sometimes not be exactly the same.

Dark and light colors

Extreme care should be taken when using darker colors and then lighter colors. The equipment should be thoroughly cleaned, especially when changing from a dark color to a light color.

Excellent Resistance

All of the pigments used in AquaVue™ are rated excellent in color retention.

Glass Color Variations between Float Glass Manufacturers

Glass color variations from different float glass producers are common. This variation of color is related to the different raw materials utilized in the manufacture of glass. The variations of color, specifically the greenish tint in clear float, can cause color differences. Variations in tinted float glass can cause significant color and shading differences. NEVER inter-mix glass types, colors, manufacturers on the same job.

Glass substrate Color Matching

For proper matching of colors the larger the sample of the color to be matched the better the match will be by ICD. ICD must receive several samples of the glass on which the AquaVue™ will be used or very exact specification of the glass that is going to be used. As well, any standard paint fan deck may be used and that specific number conveyed to ICD for exact matching.

Light colors

The lighter colors require a consistent, even coating so that there is consistent shading throughout.

The lighter colors may also need a thicker coating, depending on the opacity required.

Mismatches from Differing Application Methods

In the case of light colors, mismatching may occur if a part of the job is roll coater, curtain coater, spray and part screen print. If possible, it is always best to try to run the whole job by one method.

Differing cures may also, with light colors, have detectable differences in the coating.

As with all things regarding color: Consistency in all aspects of the job is preferable!

Samples

ICD will provide 100mm x 200mm (4" x 8") color matched samples for customer approval free of charge. Telephone ICD for information on larger or additional sample requirements.

Charges for Samples

ICD does not charge for the color match or the sample.

ICD does charge for the air freight delivery.

Primary Colors

Available primary colors for custom color matching.

WTJ-40-115 Primary White	WTJ-46-626 Primary Pthalo Blue
WTJ-41-008 Primary Black	WTJ-47-713 Primary Yellow Oxide
WTJ-42-019 Primary Pthalo Green	WTJ-47-714 Primary Yellow
WTJ-45-521 Primary Red Oxide	WTJ-48-004 Primary Orange
WTJ-45-520 Primary Red	WTJ-49-413 Primary Violet

AquaVue™ for Spray

The base spray material must be stirred thoroughly 5-10 minutes with good agitation prior to addition. The use level for the catalyst 1% by weight.

Example: Calculate 1% of base material weight (1/100 by weight). In other words: 100 grams base material and 1 gram catalyst.

While the catalyst and AquaVue coating is mixing calculate 10% of base material weight (10/100). In other words: 100 grams of base material and 10 grams of water.

Add water to activated AquaVue™ base material. This is the starting amount of water to use. Mix an additional 5 minutes.

Additional 5-10% water can be added for spray applications.

Surface Preparation

A glass washing machine is recommended.

Surface preparation is required for successful use of AquaVue™. A good grade of detergent must be used so that proper adhesion will be assured. All foreign contamination must be removed from the surface before application of AquaVue™. Not doing so can lead to failure of adhesion.

Always clean and inspect glass just prior to the application of AquaVue™.

Hand washing is not an approved method under the AFF Program.

ICD recommends and endorses the following of PPG Industries method; "PPG Industries Recommended Techniques for Washing Glass".

Water temperatures should range from 100°F to 140°F to ensure solubility of detergents.

Once clean handle glass with care, even skin oils can lead to a lack of coating adhesion.

ALWAYS wear clean cotton gloves.

Curing

Ambient Cure (Room Temperature Cure)

Curing in room temperature 20°C (70°F), 50 % RH, required minimum 12 hours and then coated glassed can be carefully handled.

Allow 14 days before installation. Coating will reach maximum adhesion and physical properties within 21 days.

IR Cure

IR Oven: 3 to 6 minutes 300-325°F (149-163°C) glass temperature. Coating should be allowed pre-flash, 20 minutes minimum, before exposure to cure temperatures above 212°F (100°C).

Adhesion Testing

- Coated glass sample-cured to proper temperature
- MEK
- Soft Cloth

Procedure

1. Wet cloth with MEK
2. With cloth over finger rub one direction about 5cm (2 inches)
3. Then repeat motion in other direction
4. One back and forth motion is equal to one double rub
5. Repeat process 50 times or until the coating rubs off glass substrate
6. After 50 rubs rewet the cloth with more MEK
7. Repeat process for 50 more double rubs or until coating rubs off glass
8. Rewet cloth with more MEK
9. Keep on rubbing until 200 double rubs have been achieved or until coating rubs off glass.
10. If 200 double rubs are reached and the coating is still adhered to the glass you have a pass and cure has been obtained.

11. If less than 200 rubs are obtained, you have not reached sufficient cure.

Shipping and Handling

Handling of Clean glass substrates

Once the glass has been cleaned, extreme care should be exercised in the handling of it. Since the oil from finger or palm can affect COATINGS adhesion, **clean cotton gloves** should be worn if the glass has to be manually handled prior to the product application.

Stacking

Do not stack until fully tested (24 hours).

Stack only with paper approved separators.

Shipping

For shipping, the substrates should be so packed that there will be no opportunity for abrasion of the AquaVue™ by any rough or sharp objects.

Best packaging is 3µm (1/8") poly foam interleaved.

Paper interleaving should be approved by ICD.

No acidic material should be used for packing.

No materials with hydrocarbon base solvents.

Crates should be lined with polyethylene.

Contact ICD.

Compatibility

Certain products such as neoprene or nitrile and some sealants and insulating materials may contain certain chemicals which react adversely when placed next to or on cured AquaVue™. All products so used should be tested and approved by ICD.

Clean-up

Cleaning of the equipment can be accomplished using warm water and detergent. Application equipment should be cleaned after use. Contact the machinery manufacturer to make sure that the cleaning material is compatible with the roll.

Contact the machinery manufacturer to make sure that the cleaning material is compatible with the roll.

ICD performs compatibility tests on many sealants and adhesives, as a service to architects and AFF's. Each individual material is applied, cured and tested with ICD products. For example, ICD approves of Dow Corning 795 and we also approve Dow Corning 1199 for use with ICD silicones. These products are tested individually and not in conjunction with multiple sealants. It is important to consult each sealant manufacturer for compatibility information between sealants and other materials.

For information regarding these and other compatible products, contact ICD.

Roll Coater Application Equipment

Reverse rotation with 42 grooves per inch will apply six (6) mils.

Roll Coater - The Process

Inspect Rolls &

Carefully inspect rolls for debris and dust. Clean as required prior to beginning the process. Use clean screens

Inspection (periodical)

Always inspect coating in the rolls frequently.

Process

After proper blending and mixing of AquaVue™, place tape along the stainless steel doctor roll. This helps identify fill levels as well as protecting the roll from cured material deposits. Start machine.

Pour a single line of the coating into the rolls pouring into the outer edge of the rolls first and then into the center. Material will naturally work to the center of the rolls.

Run a couple of glass samples through the coating line and check the coating for wet thickness, coating quality, pin holes, and debris, etc. before beginning the project fabrication.

Quality & Wet Mil Thickness

Always, inspect each substrate for coating quality and mil thickness using a wet mil gauge.

Warning

WARNING; before working on the coating and doctor rolls, make sure that the power to the machine is OFF and cannot be turned on accidentally.

Wet Mil Thickness Verification

Adjust the rolls, as per roller Coat manufacturers' specs or until the coating is checked and meets 152µm (6 mils).

As the coated glass passes through the rollers, check thickness by using a wet mil gauge as provided by ICD.

Curtain Coater Application Equipment Spray Application Equipment Technical Services

ICD has experienced staff available for technical consultation and fabricators in most major cities.

Warranty

AquaVue™ Limited Warranty

Warranties: All warranties for AquaVue™ are dependent and contingent upon strict adherence to the methods, etc., laid out herein, so IT IS ABSOLUTELY IMPERATIVE THAT THIS GUIDE BE FOLLOWED EXPLICITLY.

LIMITED WARRANTY

AquaVue™

Industrial Control Development, Inc. (ICD), Vancouver, Washington, USA warrants only:

1. AquaVue™ is an **Interior Only** application, to be used in non-exterior exposed surfaces i.e. building facades are not an approved application.
2. That AquaVue™ will meet ICD's sales and technical specifications which are in effect on the date those goods are manufactured, reserving the right, without prior notice, to change any such sales or technical specifications and other descriptive material, as the goods are altered or improved;

3. That AquaVue™ will not flake, peel, chip, blister, develop any noticeable color change (>2 DE), and not to exceed more than a 20% change in gloss for a period of ten (10) years from the date of manufacture, when used, installed and applied in accordance with the following terms and conditions:

a. That the finished product has not been damaged from mishandling, misuse, abuse or purposeful neglect before, during or after application or installation of the goods.

4. That ICD will convey good title to the goods, and;

5. That the goods will be delivered free from any lawful security interest, lien or encumbrance unknown to the original purchaser.

The above warranties are made in lieu of all other written or unwritten, express understanding that there is no implied warranty of merchantability and that there is no implied warranty of fitness for a particular purpose of the goods sold. Original purchaser acknowledges that it is not relying on ICD's skill or judgment to select or furnish goods suitable for any particular purpose and that no other representations were made to it or relied upon by it with respect to the quality and function of the goods.