

# AQUACOLOR

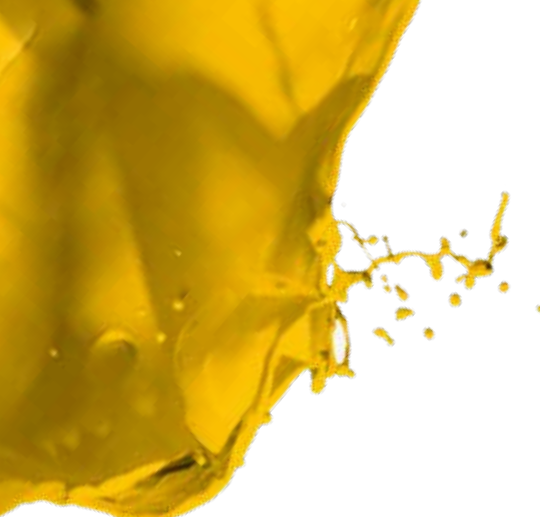
WATER BASED SYSTEM

PROCEDURE MANUAL





# CONTENTS



## **PART 1 - OVERVIEW**

1.1	Introduction	Page 4
1.2	The Coating	Page 4
1.3	Adhesion	Page 4

## **PART 2 - PREPARATION**

2.1	Glass Preparation	Page 5
2.2	Coating Preparation	Page 5
2.3	Colour Mixing	Page 6
2.4	Viscosity Measure	Page 6
2.5	Pot Life & Coverage	Page 6
2.6	Storage	Page 6
2.7	Shelf Life	Page 6
2.8	Mixing or Stirring Paint	Page 6

## **PART 3 - COATING APPLICATION**

3.1	Applying the Coating	Page 7
3.2	Spray Gun Adjustments	Page 7
3.3	Spray Technique	Page 7

## **PART 4 - INSPECTION OF COATED GLASS**

4.1	Coating Examination	Page 8
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## **PART 5 - LAMINATION**

5.1	Types of Lamination	Page 8
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## **PART 6 - PROBLEMS & SOLUTIONS**

5.1	Table of Problems and Solutions	Page 9
5.2	Applying Vinyl for the Decoration of Glass	Page 9

## **PART 7 - INSTALLATION OF AQUACOLOR**

7.1	Installation of Aquacolor	Page 10
7.2	Accelerated / Forced Curing	Page 10

## **PART 8 - COLOUR MATCHING**

8.1	Samples	Page 11
8.2	Colour Retention	Page 11

## **PART 9 - TESTING**

9.1	Retained Sample for BC Coatings Internal Testing	Page 12
9.2	Boiling Test Procedure	Page 12
9.3	Boil Test Assessment Criteria	Page 12
9.4	Reasons For Unacceptable Results	Page 12
9.5	Procedure For Unacceptable Results	Page 12

## **PART 10 - EQUIPMENT**

10.1	Basic Equipment Requirement	Page 13
10.2	Equipment Maintenance	Page 13

## **PART 11 - DIGITAL PRINTING**

11.1	UV Digital Ink	Page 13
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## **SUMMARY**

	Conclusion	Page 14
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## 1.1 INTRODUCTION

Coated Glass, using traditional paint systems have been readily available for many years in the form of Ceramic Frits and more recently 2 pack Polyurethanes.

Growth has increased to the point where coloured glass has now become a standard decorative wall panelling system.

Due to environmental pressures and subsequent Government intervention, the standard means for the decoration of glass is due to change.

Aquacolor is a water based, environmentally friendly, coating system for glass. It retains all the adhesive qualities of Vetrocolor, yet complies with all the latest standards in Green / 5 Star production.

Aquacolor has been tested independently for VOC emissions – See VOC Document.

Architects and Designers now have the ability to specify a water based, air dry coating system on glass and still be confident of long term stability.

## 1.2 THE COATING

Aquacolor is a Waterbased, Single Pack, Polyurethane coating. It is internally Cross-Linked to provide resistance to chemicals and moisture.

The main features of the Aquacolor Water Based Polyurethane are:-

- Low VOC ratings
- Resistance to Moisture
- Durability to weathering
- Chemical and mechanical resistance
- Greater covering power due to higher solids content.
- Fast cure and handling times for production.

The base White Coating can be applied as a single coating or mixed with a range of tinters to provide an unlimited range of colour options.

Fourteen standard tinters are used in the system for colour matching.

Being a Water based Polyurethane, Aquacolor's main advantage and point of difference over standard water based coatings is its resistance to moisture and chemical attack.

It retains the advantageous properties of a standard 2 pack polyurethane, yet its resin system is based on an environmentally friendly water based coating.

## 1.3 ADHESION

Through the specialised paint bonding system, Aquacolor ensures that the coating is thoroughly bonded to the glass surface, enabling it to perform well over the expected life of the article.

Three stages are incorporated into the Aquacolor system to ensure maximum adhesion:

### 1. Cleaning & Priming of Glass

The Glass is cleaned and primed by using the Aquacolor *VC900 Waterbased Cleaner / Primer*. This solution cleans the glass surface and also physically and chemically etches the Glass to increase adhesion.

### 2. Adhesive Activator - Mixed into coating

A special additive called *UW1801 Activator* is put into the Waterbased coating before application. This chemical bites into the primed glass and cross-links with the Waterbased Polyurethane, forming a hard paint surface which is permanently bonded to the glass surface.

### 3. Specially Modified Waterbased Polyurethane

A specially modified Waterbased Polyurethane is used for the coating of glass. Glass properties and minerals are added to raw materials during the manufacture of the coatings, ensuring maximum adhesion to the glass surface.



## 2.1 GLASS PREPARATION

Before the processing of the glass, the panels should be thoroughly checked for imperfections and measured against specified drawings.

The Aquacolor *VC900 Water based Primer / Cleaner* is sprayed onto the Glass surface. When wiped over the glass, this solution will remove excess dirt and grease as well as chemically and physically prepare the surface for the application of Aquacolor.

A non-abrasive white Scotch-brite is used to scrub the solution over the glass surface. A white foam will be evident over the surface. This foam demonstrates the cleaning and priming of the product.

This foam is then wiped off the glass surface using a clean lint free rag.

The same solution is very lightly sprayed over the glass a second time. A different clean rag is now used to wipe and remove all traces of the solution.

**\*Please note white Scotch-brite is used for first clean only.**

If the solution is not thoroughly removed after the second application, a streak will be noticeable in certain lights. This streak is the chemical etching into the glass surface.

This must be removed or will be evident after paint application.

**\*In colder months special attention should be paid to the removal of all excess cleaner / primer.**

All rags used, should be made of a material, which absorbs moisture. A situation where moisture is retained by a synthetic material and transferred onto the next panel is unacceptable. It is recommended that a cotton based material be used.

In the case of metallics, after the second step of cleaning, with a very fine spray of *VC1000 Final Clean* onto a rag, the glass surface should be wiped again.

## 2.2 COATING PREPARATION

A strong coating remains when 1-Pack Waterbased Polyurethane is applied in the correct manner.

As with all paints, the Coating must be thoroughly stirred before application.

The Aquacolor colour is poured into a measuring jug and 2% of *UW1801 Adhesion Activator*, is added.

It is recommended that a maximum 10% of water is then added to this solution.

### EXAMPLE

- 1000 ml UW1800 White (7023)
- 20 ml UW1801 Additive
- 100 ml Water

It should also be noted that ambient temperatures will determine the amount of Water to be added to the mix. In warmer temperatures, the amount of water can be decreased. However it is suggested that no more than 10% of water be mixed into the mixed coating at any time.

BC Coatings recommends that before commercial production starts that the local tap water is used in formulation to test for possible issues with local tap water. After first application coated panels should be tested as per testing procedures – [see page 11](#).

## 2.3 COLOUR MIXING

The Aquacolor system offers an unlimited range of colours through its tinting system.

14 colour tinters are in the range, these include:

UW RED	(0925)
UW BRIGHT RED	(1010)
UW MAROON	(1102)
UW VIOLET	(1980)
UW GREEN SHADE BLUE	(2614)
UW BLUE	(2730)
UW GREEN	(3300)
UW PRIMROSE	(4220)
UW MID YELLOW	(4411)
UW YELLOW OXIDE	(4621)
UW SCARLET	(5920)
UW RED OXIDE	(6219)
UW WHITE	(7023)
UW TINTING BLACK	(7500)

# PREPARATION



The 14 tinters in the range can be mixed in any combination to match all colours.

*For example: Suave Mauve*

Pigment Name		% (wt)	Grams
7023	WHITE BASE	94.6565	1128
1980	UW VIOLET	0.6877	8
3300	UW GREEN	0.4502	5
6219	UW RED OXIDE	4.2056	50
<b>TOTAL:</b>		<b>1191</b>	

In some cases, slight adjustments may have to be made to the original formula, because of minute changes in the colour concentration of the tinters.

A spray painter with competent colour matching skills will have no problems with these adjustments. Please note that BC Coatings can be contacted directly if problems are experienced. [See page 13.](#)

#### 2.4 VISCOSITY MEASURE

Viscosity of paint refers to the thickness, or conversely, the thinness of the coating after mixing. Temperatures can affect the viscosity of the water based coating markedly.

Quite simply, the hotter the temperature, the thinner the paint. Thicker paint results from cooler conditions. The mixer or painter must be aware of these changes and the effect it will have on the application of paint.

On a warm day the mixer or painter will require less water than would be added on a cooler day.

Viscosity can be measured by using a viscosity cup measure. The cup is submerged into the mixed water based polyurethane.

The filled cup is lifted out of the paint and the time taken for the paint to flow out of the cup is the viscosity measurement. The time is measured in seconds. Although there is no exact measurement BC Coatings recommends a measure of 25 seconds as a starting point.

Viscosity required is dependent on the spraying technique, application and the atmospheric conditions.

A 10% water based mix is an adequate starting point and adjustments of water can be made depending upon the conditions. Do not exceed 10% water addition.

#### 2.5 POT LIFE & COVERAGE

The usable life of the coating, which has been mixed with the Additive and Water, is 8 hours. Left over paint should be thrown away. It should under no circumstances be used again the next day.

The spray painter must carefully estimate the amount of paint needed to complete the job. Coverage of paint varies according to the colour, but approximately 1 litre of Aquacolor will cover 3-4 square metres of glass.

#### 2.6 STORAGE

All coating materials, including the One-pack Waterbased Polyurethane and adhesive Activator should be kept away from food and drink.

The storage area must not be exposed to direct sunlight, heat, naked flames or sparks, and the temperature should be kept between 5°C and 40°C.

All containers are to be closed and airtight whenever not in use. Please refer to local authorities for additional regulations.

#### 2.7 SHELF LIFE

All materials should be used within 12 months of receipt. Aquacolor offers a twelve months warranty when the storage procedures are met.

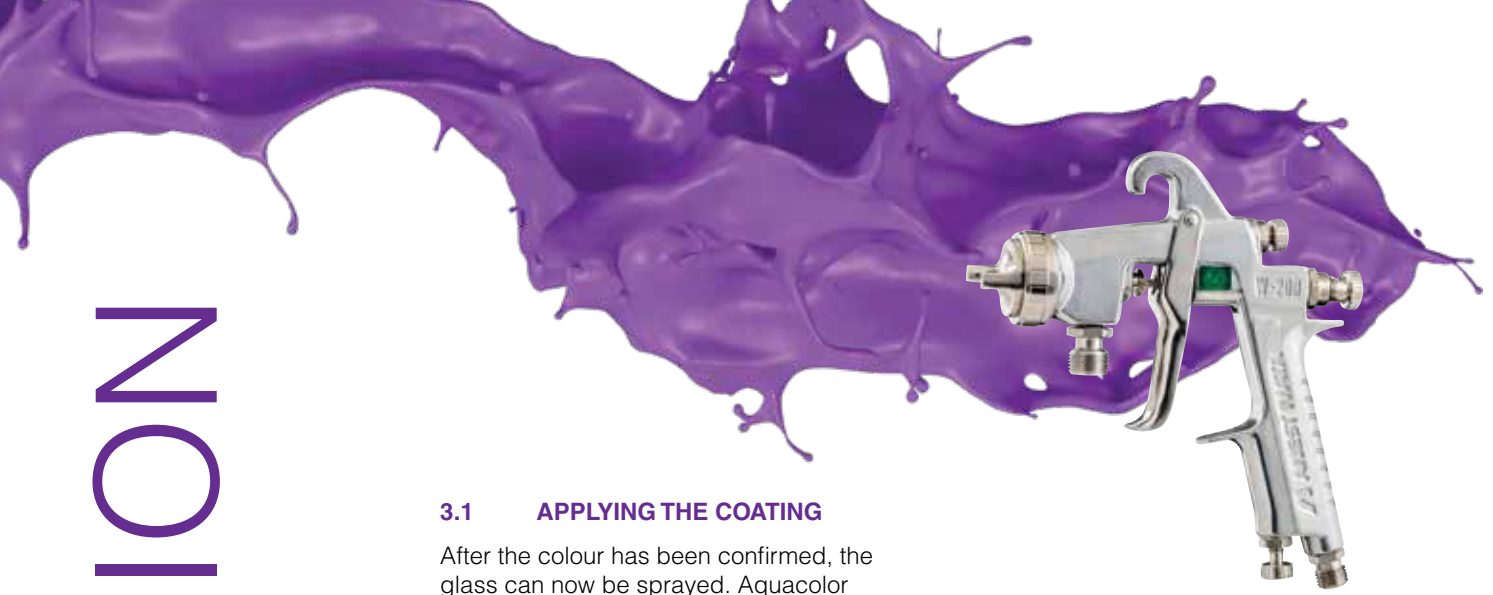
#### 2.8 MIXING OR STIRRING PAINT

All water based coatings can be affected by air and the coating can congeal at the bottom of the buckets over time and also skim on the edges.

BC Coatings recommends that a simple dispersion mixer be used before tinting colours to stir the paint thoroughly.



# COATING APPLICATION



## 3.1 APPLYING THE COATING

After the colour has been confirmed, the glass can now be sprayed. Aquacolor recommends that a small amount of coating be retained (200-300g will be sufficient). This coating can be stored in a small container, labelled and kept for a suitable period.

The retained colour can be used in the cases of breakage, scratching during installation, or any other problems, which may eventuate in the near future.

**\*It is important to note that BC Coatings recommends that the coating be applied in temperatures between 15 and 30°C. A situation where cold paint is applied to a cold glass surface is certainly not conducive to excellent adhesive properties. Such conditions will also dramatically increase curing times.**

Before spraying, the prepared glass is checked again for blemishes or imperfections.

The first coat on the glass surface is important for finish and adhesion. It is essential that a full wet coat be applied as the first coat. UW Coatings are very different to other 2 pack systems and need to be applied in this manner.

After application of the first coat, the surface should be checked for contamination and foreign objects, and these removed before application of the second coat. Particles can be removed by using fine tweezers or a fine blade.

If problems are observed and rectified, it is important that the second coat is identical to the first, that is, a wet spray needs to be applied to fill in holes and/or gaps.

## 3.2 SPRAY GUN ADJUSTMENTS

The ability of the spray painter to use and control the spray gun under differing conditions is paramount to achieving an acceptable coating finish.

The desired pattern, volume of fluid output and fine atomisation can easily be achieved by regulating the pattern adjusting knob, air adjusting knob and fluid adjusting knob.

### Pattern Adjusting Knob

Adjusting knob to the counter-clockwise will make the spray pattern wider.

### Fluid Adjusting Knob

Turning the material / fluid knob clockwise will reduce volume of fluid output and counter-clockwise will increase fluid output.

### Air Adjusting Knob

Turning air nozzle clockwise will reduce the air volume and counter-clockwise will increase the air volume.

## 3.3 SPRAY TECHNIQUE

Glass can be sprayed during production using 2 different techniques.

**Horizontal:** Glass Panels are laid flat on suitable supports. The applicator applies the Aquacolor over the glass surface. Paint can be applied quickly and in greater volume as the chance of runs and / or sags are minimized if not eliminated.

Once panels are coated, it is easier in regards to handling to move glass into a drying position on racks. Finger marks on wet paint are no longer an issue.

**Vertical:** Glass Panels are placed on an A Frame in a vertical position. The applicator can apply the Aquacolor without having to bend over the glass for an even application.

Apart from potentially falling or tripping over the glass, which is a major safety issue, another issue is the even application of the paint.

An even coating is easier to achieve when the coating is applied to the glass on a Vertical. Cross - over of the fan width can be achieved with a greater level of success, this is extremely important in the application of metallics.

# INSPECTION OF COATED GLASS

## 4.1 COATING EXAMINATION

Once the glass has been coated, it is imperative the coating is inspected the following day. Two areas need to be addressed:

### 1. Opacity of coating

Colour coated glass is adhered to various substrate using non-acidic silicone and double-side tape. The double-sided tape holds the glass in position until the silicone cures.

If the glass panel is not sufficiently coated, the double-sided tape will be seen (4-5 coats is usually sufficient for coverage). Optically clear glass will require 5-6 coats for coverage.

The day after coating, the glass should be inspected for opacity by placing a black and white cardboard grid under the glass. If any section of the grid can be seen through the glass, the panel should be rejected. Further coats will need to be applied.

Once the panel has been inspected for opacity, the glass is checked for imperfections and blemishes.

### 2. Blemishes and imperfections in coatings

Most problems should be picked up during application of the coating. However, if these faults are not rectified they can be treated once the coating has partially cured.

Dust deposits, oil on the glass surface, or other blemishes can be rectified by scratching through the semi-cured paint to the affected area on the glass surface.

Small touch-ups are possible by recoating by brush or spray. The paint must be applied medium - wet, to slowly build up the affected area.

The Part A that has been stored in a small container ([See 3.1](#)) is used for touch-up.

If the problem area is too large, joins in the paint surface will be noticeable. The entire paint surface will have to be removed with a suitable thinner ([Contact BC Coatings](#)) and the glass recoated.

## 4.2 REMOVAL OF CURED COATING

The coating when fully cured is extremely resistant to chemical and as such the panels need to be inspected after coating has been applied.

It is recommended that after 30 minutes the face of the glass is inspected for blemishes and / or issues.

If coated panel fails inspection it is recommended that the still fresh glass is placed in a bed of water and/or water is applied over coated surface to soften coating and allow for removal of film.

If the coating is allowed to cure overnight a strong solvent, *i.e* Thinner, MEK should be used. The solvent can be applied to paint and allowed to weaken the bond and allow for removal of paint using a blade and / or rag wipe.

# LAMINATION

## 5.1 TYPES OF LAMINATION

The Aquacolor Waterbased System is compatible with all forms of lamination used in the glass industry.

### PVB Lamination:

The coating is a polyurethane based waterborne coating and when reheated becomes compatible with the PVB film and adheres correctly to the film and glass surface.

Please [contact BC Coatings](#) for AS/NZ 2208 Australian Glazing Standards for test reports.

### Liquid Pour Lamination:

The coating when fully cured is compatible with Polyester resin used for liquid pour.

### EVA Lamination:

The coating is also compatible with EVA films and also adheres directly to EVA film and Glass after lamination.

It is important that the coating is tested against all films and resins as production times will control the outcome of the bond between all forms of lamination.

The coating should be allowed to cure for at least 3 days before Liquid Pour lamination to allow for removal of excessive water. This process can be accelerated with the use of heat and / or airflow.

It is important to introduce a QC system to check compatibility on a batch to batch basis for the coating as changes in raw materials due to supply changes for resins and films could cause issues in compatibility.



## 6.1 TABLE OF PROBLEMS AND SOLUTIONS

PROBLEM	CAUSES	SOLUTION
<b>Delamination</b> (Separation of paint from glass)	<ul style="list-style-type: none"> <li>• Stained glass (oil, dirt etc)</li> <li>• Cold glass, cold paint</li> <li>• Incorrect mixing ratios</li> <li>• Excessive moisture on glass surface</li> <li>• Contamination in air lines</li> </ul>	<ul style="list-style-type: none"> <li>• Clean Glass</li> <li>• Paint in controlled factory conditions</li> <li>• Mix to recommended ratios</li> <li>• Paint in a controlled humidity atmosphere</li> <li>• Clean air lines regularly</li> </ul>
<b>Silicon Bleed</b> (Shadowing effect through glass face after installation)	<ul style="list-style-type: none"> <li>• Coating not cured</li> <li>• Silicon applied in blobs</li> <li>• No grey backing for Metallics</li> <li>• Using acidic silicon</li> </ul>	<ul style="list-style-type: none"> <li>• Coating must be cured before installation</li> <li>• Silicon applied in vertical strips</li> <li>• Apply grey backing over all Metallics</li> <li>• Use Neutral cure</li> </ul>
<b>Banding</b> (Light and dark striped effect usually running parallel)  Observed in Pearls, Metallics, Frosts and Transparents	<ul style="list-style-type: none"> <li>• Application of coating too wet</li> <li>• Poor application technique</li> <li>• Spray Gun not clean</li> </ul>	<ul style="list-style-type: none"> <li>• Apply coating in light coats with even crossover of gun strokes</li> <li>• Clean gun regularly</li> </ul>
<b>Silicon spotting</b> (Appears as clear spots throughout coating)	<ul style="list-style-type: none"> <li>• Water and / or moisture in air line</li> <li>• Silicon in air within factory</li> </ul>	<ul style="list-style-type: none"> <li>• Do not spray when silicon is in factory environment</li> <li>• Use a refrigerated dryer in air line</li> <li>• Remove all oil from air line</li> </ul>
<b>Runs and Sags</b> (Build up of coating in a droplet effect running vertically down the panel)	<ul style="list-style-type: none"> <li>• Material applied too heavy</li> <li>• Re-coating of wet material</li> <li>• Too much water in mix</li> <li>• Air pressure too high</li> </ul>	<ul style="list-style-type: none"> <li>• Allow coats to flash-off</li> <li>• Spraying technique to be addressed (speed, distance etc)</li> <li>• Thinner a recommended level</li> </ul>
<b>Silking</b> (Evident in Metallics when aluminium particles run the one way)	<ul style="list-style-type: none"> <li>• Applying Metallics too heavily</li> <li>• In-sufficient flash-off times between coats</li> <li>• Wrong gun adjustment and technique</li> </ul>	<ul style="list-style-type: none"> <li>• Do not apply in heavy coats and allow flash-off time</li> <li>• Use correct gun techniques</li> </ul>
<b>Mottling</b> (Appears as patchy, uneven finish)	<ul style="list-style-type: none"> <li>• Coating applied too heavy and wet</li> <li>• Too much water in mixing ratio</li> <li>• Air pressure too high</li> </ul>	<ul style="list-style-type: none"> <li>• Apply light to medium coating</li> <li>• Use recommended thinning ratio</li> <li>• Decrease air pressure</li> </ul>
<b>Applying Vinyl</b>	<ul style="list-style-type: none"> <li>• Residue or glue not removed from glass after vinyl has been removed</li> </ul>	<ul style="list-style-type: none"> <li>• Glass to be scrubbed in areas where vinyl has been removed</li> </ul>
<b>Frying on Edges</b>	<ul style="list-style-type: none"> <li>• Paint allowed to start curing on edges before respraying.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply wet on wet, do not wait too long between coats.</li> </ul>
<b>Dry Spray or Orange Peel</b>	<ul style="list-style-type: none"> <li>• Small tip on gun used, especially evident on Gloss clear application.</li> </ul>	<ul style="list-style-type: none"> <li>• 2mm Gun tip to be used to allow for a heavy film build.</li> </ul>
<b>Coating bubbles and / or reacts</b>	<ul style="list-style-type: none"> <li>• Spraying in excessive heat or cold.</li> </ul>	<ul style="list-style-type: none"> <li>• Spray in controlled spray booth and / or use modified water based reducer.</li> </ul>

## 6.2 APPLYING VINYL FOR THE DECORATION OF GLASS

In instances where a design is required for the decoration of glass and the volume is insufficient to justify screen printing, a masking system can be used.

A sheet of Vinyl is applied over the **cleaned** glass surface. The Vinyl can be either pre-cut or can be cut after application to glass.

The Vinyl design, which is to be coated, is then peeled of the glass surface leaving the Vinyl where the glass is to be clear.

Before the application of Aquacolor adhesive steps, the glass surface must be thoroughly cleaned, removing all traces of residue left by the Vinyl.

After the residue has been removed, the Aquacolor Primer / Cleaner can be used before application of coating.

Once the coating has been applied, the remaining vinyl can be peeled off the glass surface, leaving the designed Aquacolor Graphics.

## 7.1 INSTALLATION OF AQUACOLOR

### Product:

UW1800 One-Pack Aquacolor Glass Coatings System

### Description:

UW1800 One-Pack is a modified Waterbased Polyurethane designed to maintain maximum appearance for a maximum length of time. It's principal application area is for the decoration of glass.

### Recommended Adhesive:

A non acidic glazing silicone such as Bostik V60 neutral cure glazing weatherproofing silicone sealant.

### Application of Adhesive:

1. Aquacolor coating must be fully cured (*See 7.2 for curing details*).
2. The high performance adhesive is to be applied in vertical strips, as per manufacturers recommendations.
3. Gaps of no less than 100mm should be left between vertical lines.
4. These vertical strips should be narrow, no more than 5mm.
5. In order for the adhesive to cure, air must be allowed to penetrate. In regard to Metallics, do not perimeter seal the panel for 24 hours.
6. In a situation where the coated glass is to be installed near a heat source, ensure the adhesive is no closer than 200mm from the source of the heat. (Splashbacks).

### Curing times

BC Coatings recommends 4 days ambient curing be allowed before the installation of the Aquacolor coated glass, using the recommended silicon.

**\* Please note that special care must be taken with the application of Metallics. The reflective nature of the Metallic coating requires that special care is taken with the amount of Silicon applied.**

**Please contact manufacturer for specialised Metallic installation sheets.**

To accelerate curing times, a combination of heat and air movement is required. Please note that after accelerated heating, the Aquacolor coating must be allowed to cool and harden. (4-5 hours is the minimum time frame for this process) *See Section 7.2 on accelerated / forced curing.*

## 7.2 ACCELERATED / FORCED CURING

In order to maximise production, a combination of heat and air can be used to facilitate to curing of the coating. It should be noted that the Aquacolor Waterbased Coating can only be forced dried to a certain level, over a given time frame.

Once the coating has been applied to the glass surface the coating must be allowed to stand for at least 30 minutes (Flash-off time) Heat can be applied to the coating. (40 Degrees for 30 minutes)

Please note that once the heating cycle has been completed, the coating must be allowed to cool down and harden.

**\* Once the coating has cooled down, a comprehensive test for full cure is as follows.**

Apply a small amount of Water to a sample cloth. Apply wet cloth over the coated surface. If a streak of colour is visible on the cloth, the coating is not yet fully cured. No colour stain should be visible.

# COLOUR MATCHING



## 8.1 SAMPLES

The coating of samples for each individual job is an essential part of the Aquacolor paint system.

For every sample sent to designers and architects, one sample of identical colour is to be retained for colour and testing purposes. Colour name, formulation and applications should be recorded in a sample booklet.

(e.g Sample Booklet)

**Colour Name:** Silver Sparkle

## 8.2 COLOUR RETENTION

Before the coating of a particular job, a sample panel and swatch is prepared. This colour swatch is retained and recorded by sticking it to the colour formulation printout.

The formulation provided is reduced to approximately 150g - Part A, for the coating of a 200mm x 200mm sample.

If the sample is approved, the painter has a retained colour swatch to refer too for the spraying of the job. This sample can also be sent direct to BC Coatings for scanning or mixing of Part A colour.

Sample No.	Date	Client Formula	Comments
23	08/04/2016	Mr Smith • 1st coat - 4g sparkle in 100g clear • 2nd coat • Backing	<ul style="list-style-type: none"><li>• 1st coat - Light application (low air, low material)</li><li>• 2nd coat - Light medium application</li><li>• White - 2 coats, normal spray application for coverage</li></ul>



## 9.1 RETAINED SAMPLE FOR BC COATINGS INTERNAL TESTING

In all jobs, a sample must be coated and, retained for testing purposes in the event of product failure.

This sample must be fully labelled and coded and also must be painted on the same day as job batch, using the same paint and processing of said job.

## 9.2 BOIL TEST PROCEDURE

It is imperative that adhesion testing be an integral part of the Aquacolor coating process:

1. 10 vertical lines, 2mm apart are cut into the paint surface using a razor blade, each line being approximately 50mm in length
2. 10 horizontal lines are then cut across the verticals, 2mm apart and 50mm in length
3. The crosshatched sample is immersed vertically in water (66°C) for 3 minutes
4. The sample is then transferred without delay and immersed in boiling water for a period of 2 hours
5. The sample panel is then removed from the boiling water and examined for defects
6. The cross-hatched panel is then left for 24hrs
7. Firmly apply 150mm of Scotch tape the cross hatched area, leave for 30 minutes then peel the tape off slowly and examine the tape for paint particle

## 9.3 BOIL TEST ASSESSMENT CRITERIA

Use the following assessment criteria. All results should be recorded in a test register.

**UNACCEPTABLE**

Paint completely removed from glass in cross-hatched area.

**ACCEPTABLE**

Over 80% of paint left on glass in crosshatched area.

**EXCELLENT**

No paint is removed from crosshatched area.

## 9.4 REASONS FOR UNACCEPTABLE RESULTS

- Too much adhesive promoter in paint
- Not enough adhesive promoter in paint
- Glass surface not absolutely clean and dry (e.g. Dirt, oil, etc)
- Incorrect application technique (e.g. first Coat too heavy)
- Cold glass and paint

## 9.5 PROCEDURE FOR UNACCEPTABLE RESULT

1. Prepare a new sample for testing
2. Repeat the steps in testing for adhesion
3. If the sample results are again unacceptable, contact you're nearest distributor for further instructions



TEST	PERFORMANCE
Dry adhesion	10
Wet adhesion	10
Permeability	10
Resistance to heat	10
Resistance to heat, slow cooling	10
Resistance to heat, thermal shock	10
Acid resistance	10
Alkali resistance	10
Boiling water resistance	10
Accelerated resistance to ultra violet light 500	10
Hours fadeometer	10
Humidity resistance 96 hours @ 60c 85% humidity	10

A comprehensive Unisearch test report can be obtained upon request

Unisearch



# EQUIPMENT

## 10.1 BASIC EQUIPMENT REQUIREMENT

Equipment requirements are minimal for the Aquacolor coating system.

Recommended items include:

- Compressor and Receiver - Air supply
- Refrigerated Air Dryer - Removes moisture from air lines
- Pre and after filters - Oil and foreign materials are removed from air lines
- Spray Booth - Removes fumes and over-spray
- Spray Guns (2mm setup) - Application of paint on Glass
- Boil Tanks - Used for adhesion testing
- Mask - Protects painter from fumes
- Electronic Scales (to .1gm) - Measuring paints and additives
- Heating room to accelerate production

An air-conditioned room may be required for painting if the climate is not conducive to paint application (e.g. in very cold or humid climates).

## 10.2 EQUIPMENT MAINTENANCE

### Compressor and Receiver, Refrigerated Dryer and Filters

A systematic maintenance program should be implemented, following supplier's instructions.

### Spray Booth

Filter material should be cleaned, and when necessary replaced, when painted build up becomes excessive.

### Spray Guns

Spray guns should be thoroughly cleaned constantly as you go and at the end of the painting session. Take extreme care not to damage the air cap, fluid nozzle or fluid needle.

Spray thinners to clean out the paint passageway, then use a brush with thinners to clean the air cap, fluid nozzle and other parts when disassembling.

Never immerse spray gun completely in thinners or solvent. When re-assembling always clean the parts again to prevent dust problems.



# DIGITAL PRINTING

## 11.1 UV DIGITAL INK

In recent years the use of UV Digital Ink printers has started to become in vogue in the decorative glass industry.

The use of traditional screen printing is slowly being replaced with the use of printing machines directly applying designs onto the glass surface using the latest in Digital Printers.

These machines offer far greater clarity, definition, colour range and production times than traditional screen printers.

Digital Printers using a ceramic ink where coating is fired in a toughening furnace for adhesion are used as well as machines using UV inks in a post toughening scenario.

Ceramic ink is bonded through heat however attempting to get UV Inks to adhere directly to glass is extremely difficult.

BC Coatings has developed a water based Gloss Clear that adheres to the glass surface and is compatible with UV Inks.

**Step 1:** VC900 Water based cleaner / primer is used to clean glass surface.

**Step 2:** UW1800 Gloss Clear is applied to glass surface.

**Step 3:** Coating is allowed to air dry overnight.

**Step 4:** UV Ink is applied directly over UW1800 Gloss Clear.

**Step 5:** UV Ink is allowed to air dry overnight.

**Step 6:** UW1800 White is applied over design for wall cladding and/or UW1800 Gloss Clear is applied over design if panel is to be laminated.

- Please note above steps in production can be increased using baking or curing accelerates.
- BC Coatings suggests every ink be tested for compatibility and cure times.





# CONCLUSION



The demand for high quality coloured glass is increasing rapidly throughout the world.

To manufacture high quality coloured glass, a controlled scientific approach is essential.

The Aquacolor system is a tested and proven means of manufacturing high quality glass products, which are cost effective. This production, in its various forms has been evident on a world scale for the past 5 years and Australia wide for 10 years.

It is important to note that as the demand for the product increases, so will the need to increase production. This increase in production must be proportionately balanced with an investment in resources to maintain and increase the quality of production.

These resources will take the form of equipment and internal structured systems.

In order to achieve high quality coatings, all the information listed in this manual must be followed as stringently as possible, a deviation from this could lead to unsatisfactory results and consequently a dramatic increase in failures, both in a factory and installed situation.



To clarify any of the information listed, please contact your BC Sales Representative or phone us on (02) 9729 2000 or on any of the details below.



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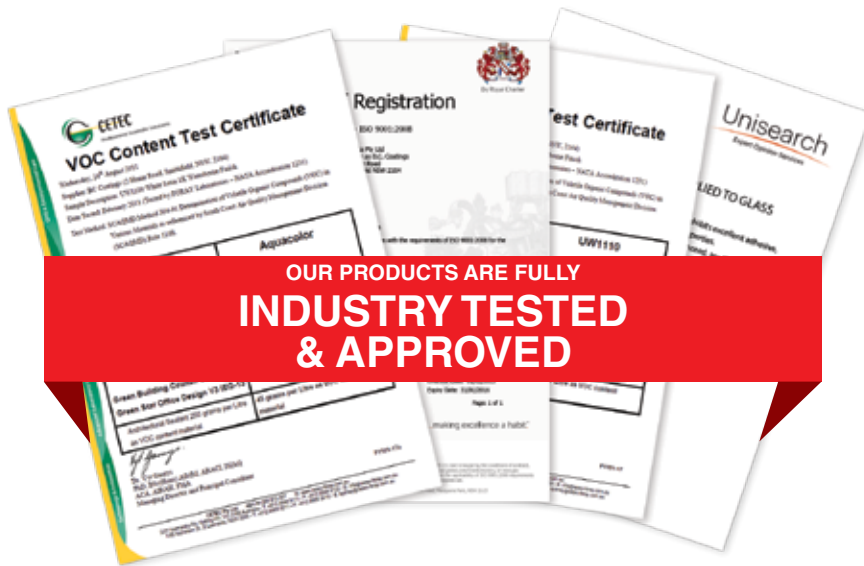
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