

VETROCOLOR

GLASS COATING SYSTEM

PROCEDURE MANUAL



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1.1 INTRODUCTION

Although surface coating coloured glass has been available throughout the world for many years, its accessibility and versatility has been very limited. Traditionally it has been available as toughened / tempered glass only, with a limited colour selection and restrictions to minimum quantities for manufacture.

Through Vetrolcolor technology and technique, manufacturing the product known as "Colourcoted Glass", architects, designers and renovators have access to a huge range of coloured glass products where the possibilities are unlimited.

As the Vetrolcolor system utilises spray techniques, all glass types can be Colourcoted.

At last, large, medium and small quantities of Colorcote annealed, laminated, toughened, heat strengthened, bent, patterned and textural (Slumped) glass is available.

Unlimited colour selection and special effects, such as Metallics and Pearlescents are now available. As the application is completed by spray, the traditional problem of lack of opacity has been eliminated and the unique combination of primer and paint manufactured to exact Vetrolcolor formulations ensure an excellent bond between the coating and the glass.

It is no wonder that we see today an enormous rise in the popularity of surface coated coloured glass, and there is no doubt, through our commitment to quality and service, that Vetrolcolor will remain leaders in this rapidly expanding market.

1.2 THE COATING

The Polyurethane coating is simply a plastic film. An invert, impervious plastic coating remains once the chemical reaction has taken place between the components Polyol and Isocyanates (tinter and hardener.)

The Vetrolcolor system uses a specially modified Acrylic Polyurethane coating, which is an extremely flexible coating. This coating is generally more 'user friendly' and gives a faster drying time than other Polyurethanes.

The main features of the Acrylic Polyurethane are:

- External durability to weathering
- Chemical and mechanical resistance
- Greater covering power due to higher solids content

Over the years, the coating of glass has been restricted to enamels, which are baked onto the glass surface.

The advantages of 2-Pack Polyurethane over Enamels include:

- Greater range of colours
- Ability to cope with both large and short runs
- Diversification and scope of finishes (e.g. Metallics and Pearlescents)
- Ability to coat 'non toughened / tempered' glass which can be cut, drilled and edged
- No need for high baking facilities

Note: Vetrolcolor is not recommended for laminated glass for safety reasons. We recommend BC Coatings Waterbased Aquacolor for this substrate which has been tested and certified.





1.3 ADHESION

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

Four stages are incorporated into the Vetrolcolor system to ensure maximum adhesion:

1. Cleaning of Glass

The Glass must be thoroughly cleaned before the Vetrolcolor primers are sprayed onto the glass surface.

The glass should be washed through a glass washing machine. If this equipment is not available, the glass surface should be either steam cleaned, washed with warm water, or a *Wax & Grease Remover* should be used.

When using a grease and wax remover it is vital that the solution is completely removed from the glass.

2. Primer - Chemical Etching of the Glass Surface

The Vetrolcolor primer is sprayed onto the prepared surface. This solution etches the surface of the glass.

Two systems are available, Solvent Based and Water Based - *See 2.1 Glass Preparation*.

3. Adhesive Activator - Mixed into coating

A special additive called *VC801 Activator* is put into the Polyurethane coating. This chemical bites into the primed glass and cross-links with the Polyurethane, forming a hard paint surface which is permanently bonded to the glass surface.

4. Specially Modified Polyurethane

A specially modified 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.

VC835 Glass Cleaning Primer

VC835 is used for cleaning of glass surfaces and adhesion promotion.

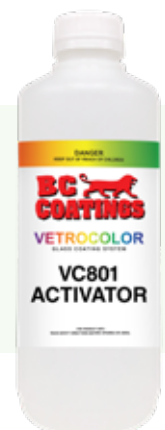


VC1000 Final Clean

VC1000 Final Clean is used for cleaning of glass surfaces.

VC801 Activator

VC801 Activator is used for activation of 2-Pack Polyurethane coatings for conventional spray systems to be used on glass and some plastic surfaces.



2.1 GLASS PREPARATION

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

The panel should be thoroughly washed to remove all traces of oil, dirt or contaminates.

The solvent based system **VC835 Glass Cleaner / Primer** is sprayed onto the glass surface. The solution is then wiped off with a clean white rag.

A streak will be noticeable in certain lights. This streak is the chemical etching into the glass surface.

The panel is then wiped over with **VC1000 Glass Final Clean**, removing all traces of residue. Please note that although the excess residue is removed, the glass surface is still chemically etched. Once the glass surface has been primed, the coating can be applied. It is recommended that the prepared glass surface be painted on the same day the preparation has occurred.

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.

All residue must be completely removed from the glass surface after priming and before application of coating.

It is recommended that a cotton based material be used.

The **VC900 Cleaner / Primer** is a water based system which cleans the glass surface and also mechanically etches it. This etching, allowing the VC800 Vetrolcolor Coating to bond to the glass surface, offering a permanent link. The following steps are required in processing the VC900 Waterbased system.

VC900 is to be sprayed over the glass surface. A fine steel wool is then used to scrub the surface removing stains and etching the glass surface. A clean rag is then used to remove all residue.

The procedure is repeated a second time, spraying the solution over the glass surface but only using a clean rag to wipe over the glass and remove all residue.

It is important to note that all traces of the cleaner be wiped off the glass.

In the case of Metallics, after the second step of cleaning, the glass surface should be wiped again with a clean rag using an alcohol based solvent such as **VC1000 Glass Final Clean**.

2.2 COATING PREPARATION

A strong abrasive resistant coating remains when 2-Pack Polyurethane is mixed correctly. When specific guidelines are not adhered to, an inefficient, vulnerable coating remains. 2-Pack Acrylic Polyurethane, as mentioned previously, is the result of a chemical reaction between two components, (Polyol and Isocyanates).

These two components must be mixed in the correct ratio. Acrylic Polyurethane, as used in the Vetrolcolor system is a 4:1 ration mix, that is 4 part Polyol (Tinter) to 1 part Isocyanate (Hardener).

BLACK OPAQUE

- 4 Parts Black Tinter (Part A)
- 1 Part Hardener (Part B)
- To this, the 3% of Adhesion Activator - VC801, is added by volume.

Before spraying the 2-Pack Polyurethane, a Thinner - VC800 is added to the Part A and Part B and Activator mix.

Under average paint spraying conditions, where the temperature is between 15 to 30 Celsius, and the humidity is below 80%, a 10% mixing ratio of thinners is used. ([See 2.3 for an explanation](#))

For example:

BLACK OPAQUE

- 4 parts black tinter
- 1 part hardener
- 3% of activator. (3% of Part A + Part B)
- Thin up to 10%

The 4-part mix must be stirred thoroughly before application. The Vetrolcolor coating is mixed by a combination of weight and volume. (*i.e.* the colour is mixed to specified formulations using scales (weight).

The finished colour, Part A is then mixed with the Hardener, Activator and Thinners in millilitres (volume).

It is important that the coatings are mixed by volume, as the SG ratio varies for all colours. (*e.g.* White has a high SG ratio, if it is mixed by weight the ratio ends up closer to 3:1 ratio. In this case less Part A - paint is used. Consequently the coverage or yield of the paint is dramatically reduced).

2.3 COLOUR MIXING

The Vetrocolor system offers an unlimited range of colours through its tinting system. 14 colour tinters are in the range, these include:

VC RED	(0925)
VC BRIGHT RED	(1010)
VC MAROON	(1102)
VC VIOLET	(1980)
VC GREEN SHADE BLUE	(2614)
VC BLUE	(2730)
VC GREEN	(3300)
VC PRIMROSE	(4220)
VC MID YELLOW	(4411)
VC YELLOW OXIDE	(4621)
VC SCARLET	(5920)
VC RED OXIDE	(6219)
VC WHITE	(7016)
VC TINTING BLACK	(7500)

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

For example: Suave Mauve

Pigment Name	%(wt)	Grams
7016 VC WHITE BASE	94.6565	1128
1980 VC VIOLET	0.6877	8
3300 VC GREEN	0.4502	5
6219 VC RED OXIDE	4.2056	50
TOTAL:	1191	

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 15.](#)

2.4 VISCOSITY MEASURE

Viscosity of paint refers to the thickness, or, conversely, the thinness of the Polyurethane after mixing. Temperatures can affect the viscosity of the Polyurethane 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 solvent or thinners 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 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. There is no exact viscosity measurement required for the painting of glass.

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

A 10% solvent mix is an adequate starting point and adjustments of solvents thinners can be made depending upon the conditions. Do not exceed 20% solvent addition.

2.5 POT LIFE & COVERAGE

The pot life of the coating, which has been mixed with the hardener, 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 Part A + Part B will cover 4-5 square metres of glass.

2.6 STORAGE

All coating materials including the 2-Pack Polyurethane, Hardener, Thinners, Adhesive Activator, Primer and Cleaner can be stored together. The coating materials 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 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. Vetrocolor offers a 12 month warranty when the storage procedures are adhered to.



COATING APPLICATION



3.1 APPLYING THE COATING

After the colour has been confirmed, the glass can now be sprayed. Vetrocolor recommends that a small amount of coating from Part A 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 light 'dust coat' be applied as the first coat, (low material, wide fan, medium air).

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 fine 'dust' spray needs to be applied to fill in holes and / or gaps.

When the coated surface is satisfactory, the material nozzle can be opened (counter-clockwise) and the air knob turned counter clockwise to increase air volume.

The glass should be covered sufficiently after 4 wet coats.

Flash off time, is the amount of time between coats. It is recommended that a minimum of approximately 10-15 seconds be allowed between the applications of wet coats.

Too little time between coats can lead to pin holing and runs. *See 5.1 application problems.*

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.

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.

A small hole in the paint can then be touch-up by recoating. The paint must be applied in "dust coats", (low material, low air pressure), 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 paint stripper and the glass recoated.

In reference to Metallics, it is important to note that a Metallic panel is extremely difficult to touch-up. To remove a small blemish from a Metallic film and attempt to touch up area will in nearly in all occasions result in a shadow effect around the perimeter of the touch-up area.

BC Coatings recommends that all Metallic panels are coated in the morning. These panels can be checked once the Metallic film is touch-dry (2-3 hours).

After the panel has been inspected and passed, the backing grey coat can be applied.

If an imperfection is observed through the face of the glass, the coating will have to be removed completely by applying thinners and washing clean.

After the coating has been removed, all steps will need to be repeated.

It is recommended that a double step in washing be used to guarantee the glass is thoroughly cleaned.





5.1 TABLE OF PROBLEMS AND SOLUTIONS

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

5.2 APPLYING VINYL FOR THE DECORATION OF GLASS

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 Vetrolcolor 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 **VC835** and **VC1000** can be used, to prepare the glass for coating.

Once the coating has been applied, the remaining vinyl can be peeled off the glass surface within 1-2 hours after spray to ensure clean sharp lines, leaving designed Vetrolcolor graphics.

If the residue from the vinyl is not completely removed, the coating will delaminate, particularly if the panel is going to be liquid pour laminated.

It is also important that a solvent resistant vinyl is used to retain a sharp edge on the graphics.

*** Please note that difficulty can be experienced in trying to remove all the residue left by the Vinyl, without damaging the edge of the Vinyl film.**

RANGE OF FINISHES

6.1 OPAQUES

- Unlimited range of colour options available
- No backing colour required
- Colours are matched using BC Coatings tinting system to specified formulations
- 4 coats of paint are required for coverage of glass. White coating requires a greater number of coats on glass than darker colours (e.g. 5 coats). Starphire of Optically Clear Glass requires a higher level of coverage than Float Glass.
- Suitable for Liquid Pour lamination

When laminating Black Opaque Panels, BC Coatings recommends that the glass surface is sprayed with **VC800 Gloss Clear** as the first coat. Gloss Clear has greater adhesive properties than the Black. During lamination the shrinking of the resin can place added strain to the Glass / Paint Bond.

It should be noted that the Vetrocolor system must be tested for compatibility with any Liquid Pour Resin.

Each resin from various parts of the world have their own inherent characteristics, the coating must be tested for compatibility.

1. Clean prepared glass with **VC835**
2. Remove chemical residue by wiping glass with **VC1000**
3. Pour Part A - Colour. (e.g. 1000ml of white)
4. Pour Part B - Hardener. (e.g. 250ml)
5. Add 3% of VC801 Activator or 1% of VC840 (3% of Part A + Part B, e.g. 37.5ml)
6. Add thinners to paint in 10% ratio (e.g. 125ml). Applicator can make necessary adjustments to thinner if required
7. When mixing to a specified formulation for a particular colour, mix colours to BC Coatings formulation. This mix of the 4 specified colours becomes Part A.

For example:



**Dulux
Regatta Bay
MP24**

Pigment Name	Grams
7016 VC WHITE BASE	312.034g
1980 VC VIOLET	3.852g
2730 VC BLUE	701.373g
3300 VC GREEN	12.591g
PART A =	1029.85g

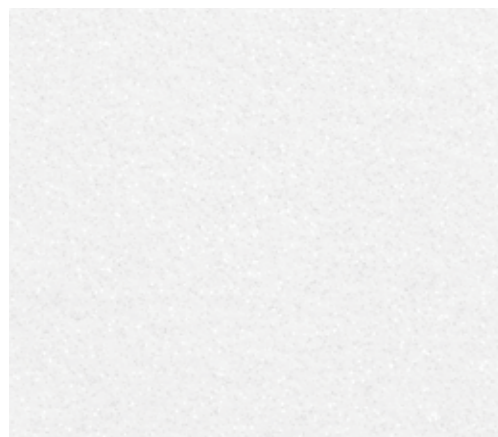
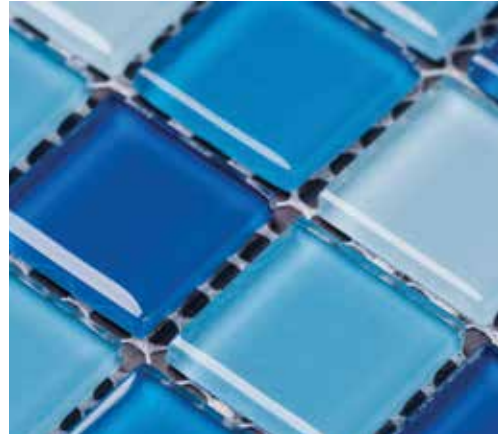
6.2 METALLICS

- Coating to be applied in light coats
- 4-5 coats to be applied for full coverage
- Coating must be backed with Grey opaque coating
- 3 grades of Metallics are available in Course, Medium and Fine. These grades represent the size of the aluminium particles.
- 3 Silver bases can be mixed with colour tints to create a range of coloured Metallics
- Please note that Metallic coatings are extremely sensitive. The utmost care must be taken with installation. The coating must be thoroughly cured. [See 7.1](#)
- BC Coatings recommends that whenever possible a Metallic panel is installed using double-sided tape with only a perimeter seal of silicon.
- Metallics are extremely difficult to touch-up or to rectify imperfections in the coating. It is advised that the coating is checked when touch dry, before backing grey coat is applied.

1. Clean prepared glass with **VC835**
2. Remove chemical residue by wiping glass with **VC1000** clear solution
3. Pour Part A - Colour (e.g. 1000ml Silver)
4. Pour Part B - Hardener (e.g. 250ml)
5. Add **VC801 Activator** (37.5ml)
6. Add thinners to paint (e.g. 125ml - 10% of Thinners)
7. Apply 2 - 3 dust-coat and 2 medium coats only to glass. The Metallic coating will still appear transparent in light after the recommended number of coats have been applied. This is to be ignored. The backing Grey colour will give opacity.
8. Allow paint to tack off (no less than 1 hour)
9. Apply a grey opaque coating over all Metallics, a similar shade of grey to the Metallic should be applied as the backing coat (Recommended mix is 90% White and 10% Black).
10. Metallic Bases can be mixed with tinters. (e.g. 150ml Silver coarse + 150ml Blue 2730, this becomes Blue Metallic - Part A)
11. Follow points 4 to 8

6.3 PEARLESCENTS

- Apply in light dust coats
 - Mix pearl powder into *VC800 Gloss Clear* OR *VC105 Structured Clear*
 - Always mix 4% of powder into *VC800 Gloss Clear*
 - Colours limited to powder range
 - Very difficult to achieve consistency of colour in production (BC Coatings recommends that whenever possible coloured Metallics are used instead of pearls to achieve consistency in job batches).
 - Pearls perfect for 1 off job lots (e.g. mirrors, tiles or job batches where panels are not lined up in wall cladding situation)
1. Clean prepared glass with *VC835*
 2. Remove chemical residue by wiping glass with *VC1000*
 3. Pour Part A - 100g of *VC800 Gloss Clear*
 4. Add 4% of Pearl powder to Gloss Clear (e.g. 4g - Part A total 104g)
 5. Mix thoroughly
 6. Pour Part B - Hardener (e.g. 26g)
 7. Add 3% of *VC801 Activator* or 1% of *VC840* (3% of Part A + Part B)
 8. Add Thinners to paint (e.g. 10% of total of Part A + B (104g))
 9. Apply paint to glass
 10. Allow coating to tack off (No less than 1 hour)
 11. Mix black opaque *See 6.1 to follow Opaque instructions*
 12. Apply black coating over Pearl finish



INSTALLATION

7.1 INSTALLATION OF VETROCOLOR

Product:

VC800 2-Pack Vetrolcolor System

Description:

VC800 2-Pack is a modified Polyurethane designed to maintain maximum appearance for a maximum length of time. It's principal application area is for the decoration of glass.

Recommended Silicon:

High performance, one part, neutral, rapid curing, high modulus, RTV silicon.

Application of Silicon

1. Vetrolcolor coating must be fully cured [See 7.2 for curing details](#)
2. The high performance silicon is to be applied in vertical strips, as per manufacturers recommendations (The silicon is never to be applied in 'BLOBS' (SAA 125-1998))
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 silicon to cure to a neutralized state, 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 silicon is no closer than 200mm from the source of the heat (Splashbacks)

Curing times

All 2-Pack Polyurethanes require 7 days ambient curing before they attain their full chemical and physical properties.

BC Coatings recommends 4 days ambient curing be allowed before the installation of the Vetrolcolor 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 Vetrolcolor 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 Vetrolcolor Acrylic Urethane is a polymer film, which can only be forced dried to a certain level, over a given time frame.

Unlike a ceramic coating, which can be fully cured when exposed to a specific level of heat, the urethane can't be fully chemically cured as quickly.

Once the coating has been applied to the glass surface, the coating must be allowed to cure for at least 30 minutes (Flash-off time). Heat can be applied to the coating, 70-80° for one hour. This will allow the panel to be easily handled without risk of damage to the coating.

It is important not to expose the fresh coating to high temperatures immediately, as the coating will fry.

*** 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 [VC800 Thinners](#) 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 Vetrolcolor paint system.

For every sample sent to designer and architects, one sample of identical colour is to be retained for colour and testing purposes. Colour name, formulation and applications shouldn't be recorded in a sample booklet.

(e.g Sample Booklet)

Colour Name: Silver Sparkle

Sample No.	Date	Client Formula	Comments
23	08/04/2016	Mr Smith <ul style="list-style-type: none">1st coat - 4g sparkle in 100g clear2nd coatBacking	<ul style="list-style-type: none">1st coat - Light application (low air, low material)2nd coat - Light medium applicationWhite - 2 coats, normal spray application for coverage

8.3 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.

Opaque formulations can be downloaded direct from the Vetrolcolor Web site. It is important to note that only Opaques can be accessed.

Metallic colours are created independently using base Metallics and Tinter range.

8.4 SPECIAL EFFECTS

With certain coatings, (e.g. sparkles), two samples need to be coated for one colour.

The first sample is sparkle in Gloss Clear on glass, and the second sample is sparkle in Gloss Clear on glass backed with an opaque colour. Both samples are to be retained so that an exact remake can be manufactured if necessary.



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 Vetrocolor 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

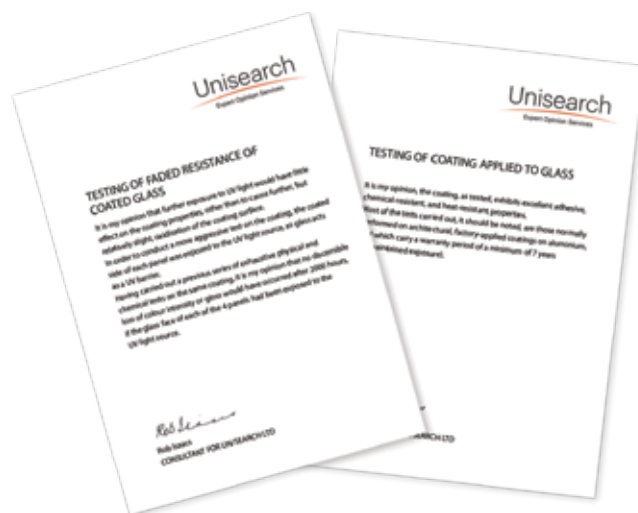
No paint is removed from crosshatched area.

9.4 REASONS FOR UNACCEPTABLE RESULTS

- Too much adhesive promoter in paint
- Not enough adhesive promoter in paint
- Incorrect mixing ration of 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

EQUIPMENT

10.1 BASIC EQUIPMENT REQUIREMENT

Equipment requirements are minimal for the Vetrocolor 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 - 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).

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 Vetrocolor 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 over 20 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.

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 at the end of the painted session. Take extreme care not to damage the air cap, fluid nozzle of fluid needle.

Spray thinners to clean out the paint passage way 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.

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.



Phone your order
1300 222 628



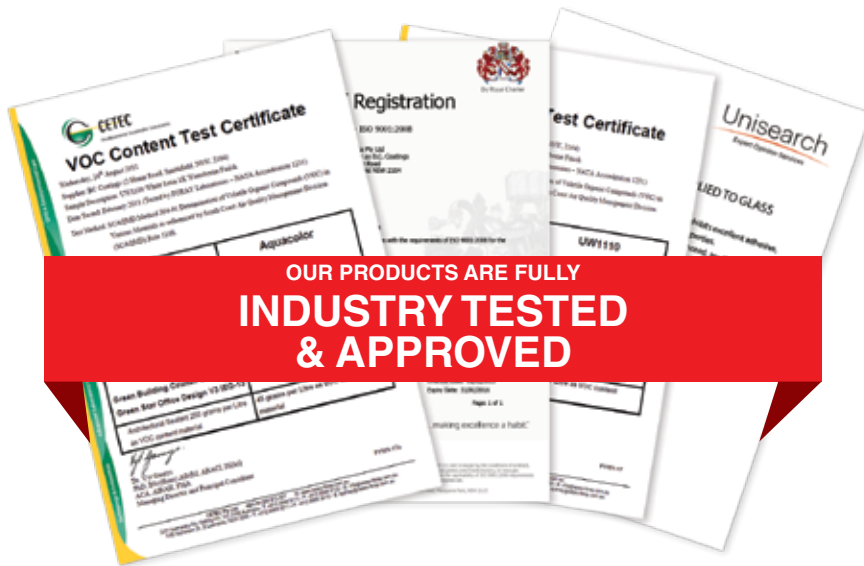
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