Conductive Acrylic Paint Application Instructions

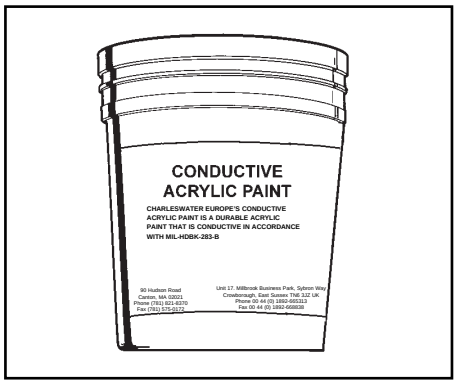

Figure 1, Item No. 71016, 3.8 litres

Description

Charleswater Europe's Conductive Acrylic Paint is a one part floor coating formulated to produce controlled dissipation of static electrical charges. Conductive Acrylic Paint is very effective as a static control floor coating for electronics manufacturing, assembly, and storage. It is available in a 3.8 litre container in grey: Item no. 71016.

General Guidelines

GROUNDING:
Conventional grounding practices like connecting painted surfaces to ground or internal building grounds are required for applications of Conductive Acrylic Paint that are not in excess of 1.8 square metres. For applications that are greater than 1.8 square metres, grounding may not be required. The electrical properties of conductive paint enable the surface to dissipate 5000 volts to zero in less than 0.01 seconds per FTMS 101C, Method 4046 without conventional grounds. The conductive paint becomes a reservoir that effectively drains static charges.

Foot grounders should be used in conjunction with flooring painted with Conductive Acrylic Paint to properly ground personnel. For more information, please contact the Charleswater Europe factory.

CONCRETE:
New concrete should cure for a minimum of 28 days before coating with Conductive Acrylic Paint. Not all concrete is created equal -- concrete surfaces vary widely in physical and chemical qualities due to the way the concrete was originally formulated, poured, or finished.

The two most important characteristics for successful application of Conductive Acrylic Paint applications are:

1. The surface must be clean, dry, dull, and smooth. Heavy dirt or grease build-up should be removed with a stripper or degreaser. Cleaning methods range from: sweeping, vacuuming, wire brush, air-blasting, water jet, steam cleaning, or stripping.

2. There are several methods to prepare problem concrete. Each method depends on the condition of the concrete. Adhesion properties can be increased by profiling or roughing the surface through acid etching, rotary drum sanding, scarifying, or mechanically scratching the surface.

Concrete that is on grade, that is, poured directly onto the ground, must be sealed. Concrete is very porous and will absorb the moisture in the ground.

SEALING: Sealing is not needed unless your floor is in contact with a moisture source that could be absorbed into the floor.

PRIMING:
Conductive Acrylic Paint bonds well to clean, dry concrete. However, a standard industrial primer can be used on certain difficult to bond substrates and enhance the adhesion of Conductive Acrylic Paint.

PREVIOUSLY PAINTED SURFACES:
The surface should be clean and free of dust, grease, wax, and soap residue. Wash with ordinary detergent and water. Rinse thoroughly with clean water and let dry. Glossy surfaces can be dulled by lightly sanding and then vacuuming, and cleaning. Cracks and holes should be repaired before applying the Conductive Acrylic Paint. Adhesion can be improved by using a standard industrial type primer.

UNPAINTED SURFACES:
Metal should be primed with red oxide primer. Concrete, wood, plastics, and most other surfaces should be properly cleaned. Let dry and then apply Conductive Acrylic Paint. Adhesion can be improved by using a standard industrial type primer.

COVERAGE:
Conductive Acrylic Paint will cover 28 to 37 square metres at a 1 to 1.5 mm thick dry film per 3.8 litre on a smooth surface. Coverage is less on coarse or textured surfaces. Two coats are recommended to achieve maximum performance from the paint.

Application

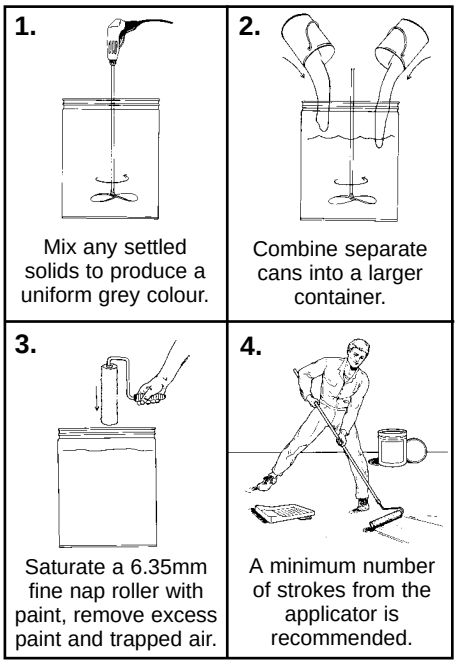

Figure 2. Paint application with roller.

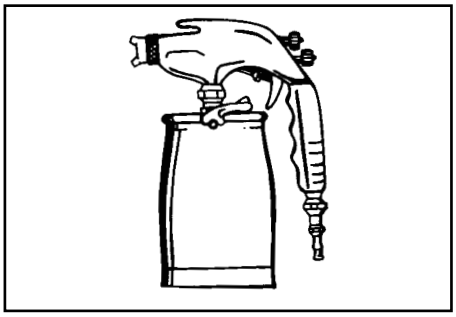

Figure 3. Spray paint application

1. Stir paint thoroughly to mix any settled solids and produce uniform colour. Combine separate cans of paint into one container to ensure uniform colour distribution.

2. It is recommended that a test area be coated to ensure that the adhesion and electrical performance of the paint is acceptable. If the test areas show inadequate adhesion, use an industrial floor primer/sealer.

3. It is recommended that Conductive Acrylic Paint be allowed to dry at a temperature in excess of 7°C until dry. A minimum of 1 to 2 hours drying time should be allowed before applying the second coat. Wait a minimum of 12 hours drying time after the last coat

before allowing light traffic on the coated area. At high humidity levels, a longer drying time may be necessary.

4. Allow 3 weeks before washing newly applied paint. Do not use abrasive cleaners.

ROLLER

Saturate a 6.35 mm fine nap roller or an industrial brush with paint. Remove excess paint and trapped air from the applicator by moving applicator several times in the paint tray. A minimum number of strokes from the applicator on the substrate is recommended.

SPRAY

Conventional Spray Gun: "E" fluid tip and needle and #704, 765 or 78 air gap.

Airless Spray: Spray gun and spray cap or suitable orifice diameter 0.508-0.635 mm.

Mix paint thoroughly before using and stir occasionally when applying. No thinning necessary. Room temperature must be above 10°C.

A minimum of two coats of Conductive Acrylic Paint is recommended for appropriate static protection.

Clean Up

Wash applicators with water immediately after painting. Remove paint spills promptly with a wet cloth. Close container after each use. Keep container from freezing.

Maintenance

Use sweeper, vacuum, or broom to remove dirt. Allow two weeks drying time before using a damp mop to clean the coated area. Do not use abrasive cleaners, floor rinse, or scrubbing machine to clean the floor.

Optional Finish/Sealer

Charleswater Europe's Conductive Acrylic Paint can be over-coated or sealed with Statguard® Floor Finish static dissipative coating to increase durability, enhance shine, improve ease of maintenance, and seal out dirt and debris. Statguard® is a polymer base floor finish/sealer that can be used as a top coat on the Conductive Acrylic Paint. Two coats are recommended. Three coats will increase electrical properties, durability and reduce frequency of maintenance. Ask for Technical Bulletin PPE-5023E for more information on Statguard® Floor Finish.

Physical Properties

Type:
Water base acrylic coating

Colour:
Grey

Vehicle Type:
Pure acrylic resin waterborne

Pigment Type:
Lead free, iron oxide, titanium dioxide and extenders

Viscosity:
50 Krebs units

Solids:
21% by volume

Coating Density:
1.0 kilograms per litre

Gloss:
30 @ 60°

Electrical Properties

Surface Resistivity:
3.8×10^5 ohms/sq. per ASTM D257

Static Charge Decay:
<0.01 sec. per FTMS 101B, Method 4046

Charge Generation:
Zero per AATCC Step Test, Method 134-197

RTT:
2.0×10^5 ohms per ANSI ESD-S7.1

RTG:
8.0×10^5 ohms per ANSI ESD-S7.1

Testing

Representative areas should be tested for adhesion and electrical performance of the paint before applying paint to the entire floor. To best ensure consistent results, the test should be done at various locations.

ELECTRICAL PROPERTIES:
Test the surface resistivity, point-to-point resistance, and resistance-to-ground properties of coated area per ANSI ESD-S7.1 test method. For quick and easy verification of the paint's electrical properties, Charleswater Europe recommends the use of our 99100 Surface Resistance Test Kit (Figure 4). For more information request Technical Bulletin PPE-5032E.

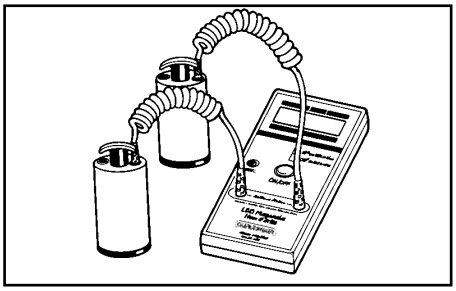

Figure 4. Electrical testing on the painted floor using Surface Resistance Test Kit, Item #99100.

ADHESION:
Allow newly applied paint to dry a minimum of 48 hours before proceeding with the test. At humidity levels over 55% RH, allow 72 hours of drying time before testing. Use a razor to cut a cross or a few perpendicular lines over a 75 mm by 75 mm area on several spots of the thoroughly dried area. Use a piece of masking tape to cover the marked area. Make sure the tape is thoroughly adhered to the test area. Pull the tape off the surface and examine the amount of paint which has peeled off during the test. Better surface preparation (acid etching, cleaning or sanding) should be done on the substrate to enhance the adhesion.

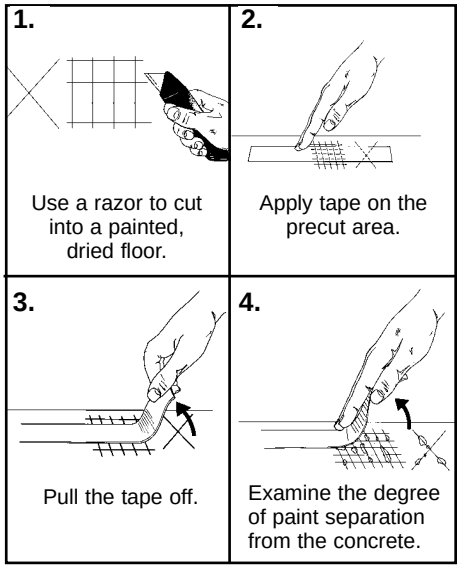

Figure 5. Adhesion test on the painted floor.

Limited Warranty
Charleswater Europe expressly warrants that for a period of one (1) year from the date of purchase, Charleswater Europe's Conductive Paint will be free of defects in material. Within the warranty period, the material will be replaced, free of charge. Any material under warranty should be shipped prepaid to the Charleswater Europe factory in Crowborough, UK. Include a copy of your original packing slip, invoice, or other proof of date of purchase. Call customer service at 00 44 (0) 1892-665313 before shipping for a return authorization number. Warranty replacements will take approximately one week.

Warranty Exclusions
THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

Limit of Liability
In no event will Charleswater Europe or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.

Conductive Acrylic Paint

1. IDENTIFICATION OF THE PRODUCT AND OF THE ENTERPRISE

Chemical name: Paint, Conductive

Manufacturer
Charleswater
Hudson Road
Canton, MA 02021
U.S.A.

Conductive Products
Unit 17. Millbrook Business Park
Sybron Way
Crowborough, East Sussex TN 3JZ
United Kingdom

Emergency
Phone: (781) 821-8370
Fax: (781) 575-0172

Phone: 00 44 (0) 1892-665313
Fax: 00 44 (0) 1892-668838

2. INFORMATION ON INGREDIENTS/COMPOSITION

Ingredients	Weight	CAS-No.	TLV-value	R-Phrases
Ethylene Glycol Monobutyl Ether*	10%	111-76-2	25 ppm	R20/R21/R22, R37
Mineral Spirits	1.0%	8032-32-4	100 ppm	Carc, Cat 2, R22, R45
Butonal*	2.0%	71-36-3	50 ppm	R10, R20
Ammonium, Hydroxide	2.0%	1336-21-6	50 ppm	R34, R37
Aromatic Acid	1.0%	65-85-0		
Ektasolve EP	1.0%	2807-30-9	25 ppm	R10, R21, R36
DE Glycol*	1.0%	111-90-0		

* Listed Chemical Subject To Reporting Requirement of SARA Section 313 of Title III

HMIS Rating	Health	1	Reactivity	0
	Flammability	0	Personal Protection	B

3. HAZARDS IDENTIFICATION

Eyes	May cause irritation, possible corneal injury, eye damage, and/or blindness.
Skin	Repeated or continuous contact may cause irritation of the skin. No evidence of adverse effects. May cause nausea, dizziness & weakness.
Ingestion	May cause nausea, vomiting, and diarrhea. May cause headache, dizziness & stupor. May cause abdominal discomfort. Contains a carcinogen, may cause cancer.
Inhalation	May cause headache & dizziness, & possible unconsciousness. May cause nausea & vomiting. Vapours may irritate the eyes, nose, throat, & respiratory tract.

4. FIRST AID MEASURES

Eye Contact	Flush with water for at least 15 minutes. Contact a physician immediately.
Skin contact	Wash with soap and water. Remove contaminated clothing. Consult a physician if irritation persists.
Ingestion	Induce vomiting, drink 2 glasses of water. Contact a physician.
Inhalation	Move subject to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. Contact a physician.

5. EXTINGUISHING MEASURES

Proper Extinguishing Media	The National Fire Protection (NFPA) classifies ingredient liquids to be Class B fires. Therefore, any approved Fire Extinguisher or extinguishing agent may be used for fire fighting purpose, e.g. CO_2, dry chemical and foam.
Protective Clothing	Wearing of appropriate protective equipment including elf-contained breathing apparatus should be used.
Special Procedures	Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up, and possible auto ignition or explosion when exposed to extreme heat.

6. MEASURES TO EXPOSURE OF PRODUCT

Personal Precautions	Wearing protective clothing. Inhalation protection Extinguish all ignition sources.
Environmental Precautions	N/A
Cleaning Procedures	Dike and collect material into plastic container. Water rinse and drain, flush small amounts. Use sanitary landfill disposal. Follow state and local regulations (RCRA; Subtitle D).

7. HANDLING AND STORAGE

Handling	Use in well-ventilated areas; avoid breathing vapours. Keep containers closed when not in use. Avoid from freezing.
Storage	Storage Temperature: Max. 49°C/120°F - 1°C/34°F. Keep from freezing.

8. EXPOSURE CONTROL/PERSONAL EXPOSURE

Control Parameters	TLV-value 50 ppm maximum for Ethylene Glycol Monobutyl Ether
Other Regulations	None
Measures For Technical Control	Preferences of technical measure to prevent or control contact with the product. Isolating process and personnel, mechanical ventilation (dilution and local exhaust) and the regulation of process conditions. In case of non-prevention or non-control, proper protective wearing should be used.
Respiratory Protection	Wear MSHA/NIOSH approved respirator where exposure limits are exceeded.
Hand Protection	Impervious/Neoprene Gloves
Eye Protection	Chemical Splash Goggles (ANSI-87.1)
Work/Hygienic Practices	Wash hands before eating, smoking, or using washroom facilities.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Liquid
Colour	Grey, Opaque
Smell	Mild
pH	8.5
Boiling Point at °C	100-101°C
Freezing Point at °C	0°C
Flash Point at °C	-17.7 °C
Explosive Limits	LEL: 0.8 UEL: 25.0
Inflammability Limits (vol % in air)	N/A
Solubility in water	Complete
Vapour Pressure (mmHg)	92.43 mm @ 20°C
Vapour Density (air = 1)	Heavier than air
Density at 20°C	979 grams/litre
Specific Gravity (H20 = 1)	1.21
Inflammability	Classification according to OSHA and EC-regulations “non-flammable”
Ignition Temperature	N/A
Evaporation Rate	Slower than n-butyl acetate
% Volatile by Volume	13.299%

10. STABILITY AND REACTIVITY

Stability/Reactivity	Stable at normal conditions.
Conditions to avoid	Temperatures above 49°C/120°F and below 1°C/34°F, open flames and sparks.
Materials to avoid	Strong Oxidizing agents and alkalies.
Hazardous Decomposition	Oxides of carbon and nitrogen. If involved in fire (from other sources) could conceivably result in release of Carbon Dioxide and Carbon Monoxide fumes.

11. TOXICOLOGICAL INFORMATION

Ingredient-Material Description	PEL	TLV (twa) mg/m3	ppm	LD50 (mg/kg) (rat) oral	(rbt) dermal	LC50 (ppm) (rat) Inhal
EB Glycol*	50.0	0.0	25.0	470.0	220.0	0.0
Butanol*	50.0	0.0	50.0	0.0	0.0	0.0
Mineral Spirits	100.00	0.0	100.00	0.0	0.0	0.0
Ammonium Hydroxide	0.0	35.0	50.0	350.00	0.0	0.0
Aromatic Acid	0.0	0.0	0.0	2530.0	2000.0	0.0
Ektasolve EP	0.0	0.0	25.0	3089.0	1337.0	2131.0
Butyl Carbitol	0.0	0.0	0.0	6560.0	4120.0	0.0
DE Glycol*	0.0	0.0	0.0	0.0	0.0	0.0

*Listed Chemical Subject To Reporting Requirement of SARA Section 313 of Title III

12. ECOLOGICAL INFORMATION

No environmental hazards have been reported or known.

Mobility	The product is aqueous and will be separated in aqueous conditions.
Degradability	N/A
Bioaccumulation	Not likely
Ecotoxicity	None known
References to BimSch V	N/A
Hazard Classification	Non-hazardous

13. DISPOSAL CONSIDERATIONS

Product	Dike and collect material into plastic container. Water rinse and drain, flush small amounts. Use sanitary landfill disposal. Follow state and local regulations (RCRA; Subtitle D).
Hazardous Waste Number	Nonregulated

14. TRANSPORT INFORMATION

This product is not classified for transport under ADR/IMDG regulations.

15. REGULATORY INFORMATION

Physical/Chemical Indication	Non-flammable
Risk-phrase	(R20/R21/R22): harmful by inhalation, in contact with skin, and if swallowed (R36/R37/R38): irritates eyes, respiratory systems, and skin (R45): may cause cancer.
Safety Phrase	(S2): keep away from children, (S7): keep containers well closed, (S24/25): avoid contact with skin and eyes, (S45): in case of accident or if you feel unwell, seek medical advice immediately, show label where possible, (S53): avoid exposure, obtain special instruction before use, (S62): if swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.
EU Classification (67/548/EEC-88/379/EEC)	This product does not have to be classified according to the EU Regulations.
EINECS Status	All components are included in the EINECS Inventories.

16. OTHER INFORMATION

Further Information None

Disclaimer

The information given in this publication has been worked up to the best of the knowledge of Charleswater Europe, as well as taking into consideration the applicable laws and regulations. We cannot anticipate all conditions under which this information and our products or the products of the manufacturers in combination with our products may be used. We accept no responsibility for the results obtained by the application information or the safety and suitability of our product or combination with other products. Users are advised to make their own tests to determine the safety and suitability of each such product or product combination for their own purposes. Unless otherwise agreed in writing, we sell the products without warranty, and buyers and end users assume responsibility and liability for loss or damage arising from the handling and use of our products, whether used alone or in combination with other products.