



Made in the
United States of America

Conductive Acrylic Paint Application Instructions



Figure 1. Conductive Acrylic paint.

Description

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 5 gallon (19 litres) containers in light grey (similar to PMS 429). The color may vary between production lots.

NOTE: Conductive Acrylic Paint has a one year shelf life from the date of invoice. The product should not be allowed to freeze. Store at temperatures above 45 degrees as stated in the Material Safety Data Sheet. We recommend that these products be stored in their original containers and be sealed when not in use. We cannot guarantee performance if not properly mixed or is used after one year from date of sale.

General Guidelines

GROUNDING:

Conventional grounding practices like connecting painted surfaces to ground or internal building grounds are only required for applications of Conductive Acrylic Paint that are not in excess of 20 square feet (1.8 square metres). For applications that are greater than 20 square feet (1.8 square metres), grounding should 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 capacitive 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 any of the Desco Industries companies.

Surface Preparation

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. If the surface is concrete, it must be in good condition.

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 formulated, poured, or finished.

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.

You must test for moisture in the concrete. If moisture is present, the floor should not be coated until the source of the moisture is determined and eliminated.

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:

Adhesion can be improved by using a standard industrial type primer. 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.

COVERAGE:

Conductive Acrylic Paint will cover 300 to 400 square feet (27.87 to 37.16 square metres) at a 1 to 1.5 mil (0.0254 to 0.0381 mm) thick dry film per gallon (3.87 litres) on a smooth surface. Coverage is less on coarse or textured surfaces. Two coats are recommended to achieve maximum performance from the paint.

Application

Always use in a well ventilated area or wear a suitable respirator. Wear appropriate eye protection such as splash goggles and impervious type protection gloves to protect hands.

MIXING

1. Mix paint thoroughly before use (See Figure 2) using a 500-1500 RPM variable speed drill and paint mixing attachment or a paint mixer.

2. If the paint, after properly mixing, is not freely transferring from the roller to the floor, the Statguard ESD paint can be thinned with water up to 10% max by volume.

a. Start by slowly mixing 5% water into the master container and apply again.

b. Do not add more than 10% of water to the mix.

APPLICATION BY ROLLER

1. Stir paint thoroughly to mix any settled solids to produce uniform grey color.

2. Combine separate cans of paint into one container to ensure uniform color distribution. It is recommended that a test area be coated to ensure that the adhesion and electrical performance of the paint is acceptable. (See Adhesion Testing, Figure 5.) If the test areas show inadequate adhesion, use an industrial floor primer/sealer.

3. Saturate a 1/4" (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.

4. A minimum number of strokes from the applicator on the substrate is recommended to minimize air bubbles.

APPLICATION BY 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 0.020-0.025" (0.508-0.635 mm).

Mix paint thoroughly before using and stir occasionally when applying. No thinning necessary for spray applications. Room temperature must be above 50°F (10°C).

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

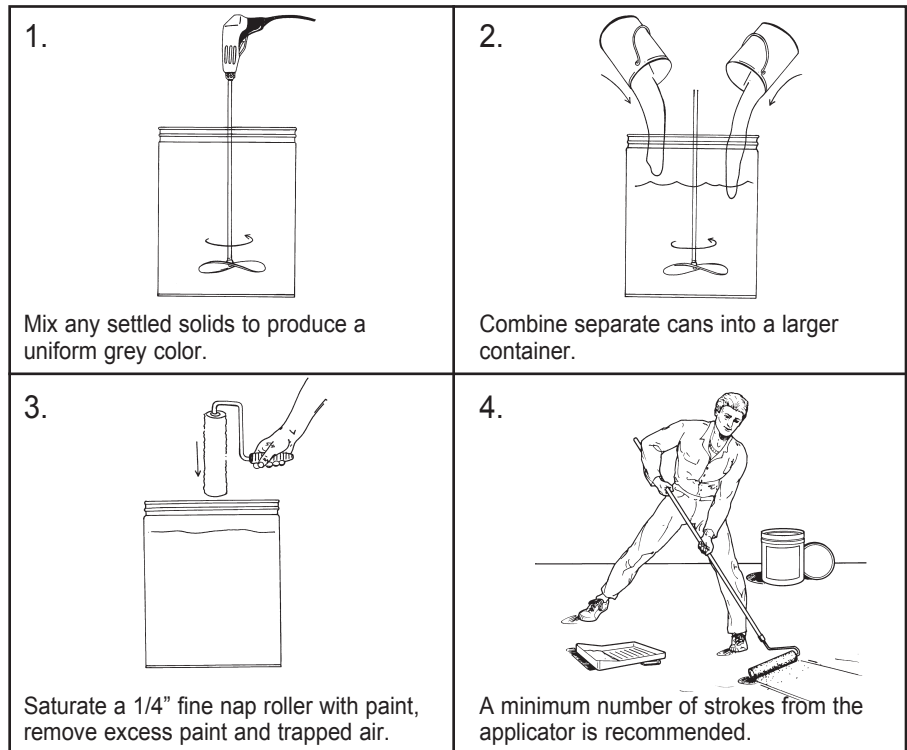


Figure 2. Paint application with roller.

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.

Finish/Sealer

Desco Conductive Acrylic Paint can be overcoated or sealed with Floor Finish static dissipative coating to increase durability, enhance shine, improve ease of maintenance, and seal out dirt and debris. **Because of the matte finish of Desco Conductive Light Grey Acrylic Paint it is recommended that Floor Finish be applied for gloss and ease of maintenance.** is a polymer base floor finish/sealer that can be used as a top coat on the Conductive Acrylic Paint. Surface resistivity will then be in the 10E6-10E7 ohms range. Two coats are recommended. Three coats will improve electrical properties, durability and reduce frequency of maintenance. Apply Floor Finish after 48-72 hours after last coat of paint. Paint becomes dry to the touch, but is not fully cured to accept a finish coat until this time. If you notice the paint color coming off when finishing, it is too soon to apply. Please wait for the paint to cure fully. Ask for Technical Bulletin TB-2088 for more information on Floor Finish.

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.

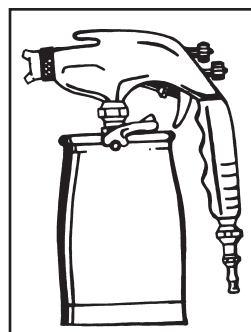


Figure 3. Spray paint application

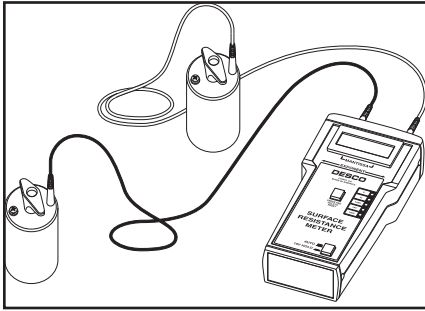


Figure 4. Electrical testing on the painted floor using a Surface Resistance Test Kit.

Drying Time

It is recommended that Conductive Acrylic Paint be allowed to dry at a temperature in excess of 45°F (7°C) until dry. A minimum of 2 to 4 hours drying time should be allowed before applying the second coat. The 2nd coat should be allowed to cure for 48 hours before taking electrical readings. After 48 hours readings taken will be reflective of the long term electrical characteristics of the material.

Physical Properties

Type:

Water base acrylic coating

Color:

Light Grey

Vehicle Type:

Pure acrylic resin waterborne

Pigment Type:

Lead free, iron oxide, titanium dioxide and extenders

Viscosity: 26" #3 Zahn cup

Solids: 24% by volume

Coating Density: 9.54 lbs per gallon

Gloss: 2 @ 60°F

Temperature Range:

Wet: 33°F - 110°F (1°C - 43°C)

Dry: 33°F - 300°F (1°C - 149°C)

(300°F [149°C] not continuous)

Electrical Properties

Surface Resistivity:

10E5 ohms/sq. per ASTM D257

Static Charge Decay:

<0.01 sec. per FTMS 101B, Method 4046

Charge Generation:

Zero per AATCC Step Test, Method 134-1979

RTT:

10E5 ohms per ANSI ESD-S7.1

RTG:

10E5 ohms per ANSI ESD-S7.1

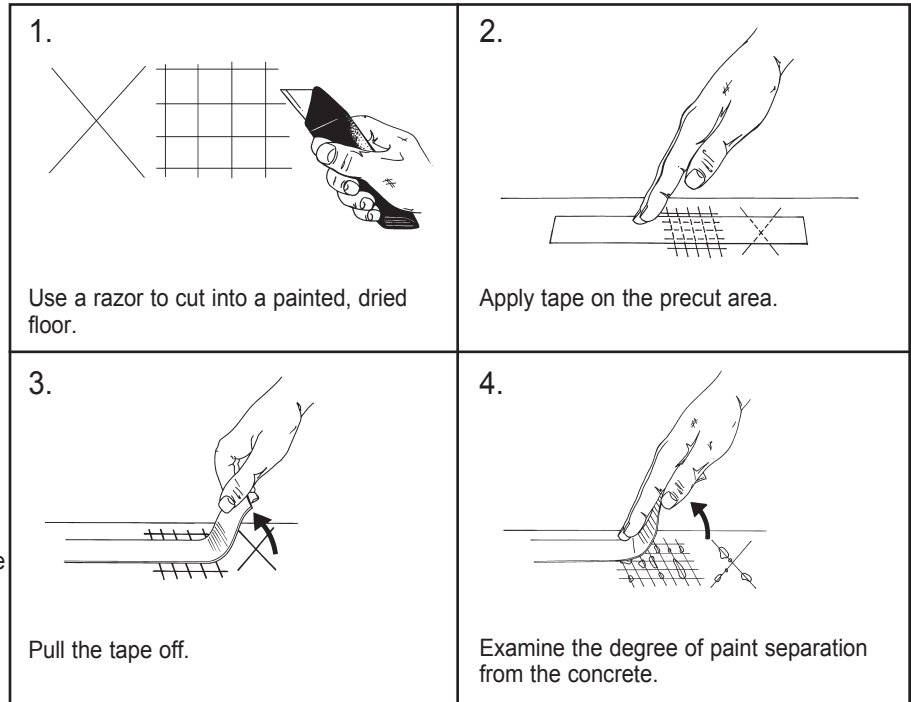


Figure 5. Adhesion test on the painted floor.

Testing

Test patch 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, we recommend the use of our a Surface Resistance Test Kit (Figure 4). For more information contact any of the Desco Industries Inc. companies.

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 3" by 3" (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. If any significant portion is transferred to the tape, better surface preparation (acid etching, cleaning or sanding) should be done on the substrate to enhance the adhesion.

RoHS Compliance Statement

None of the following materials are intentionally added in manufacturing this product: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) as outlined in the Directive 2002/95/EC Article 4.1. See Desco Industries Inc. letter on-line at DescoIndustries.com.

Material Safety Data Sheet

Material Safety Data Sheet maybe used to comply with EC, according to 91/155EC and ANSI Standard Z400.1-1998
Date: June 1, 2008

NFPA Designation 704

Degree of Hazard

4 = Extreme

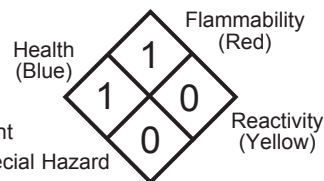
3 = High

2 = Moderate

1 = Slight

0 = Insignificant

Special Hazard



Conductive Acrylic Paint

1. IDENTIFICATION OF THE PRODUCT and OF THE ENTERPRISE

Chemical name: Paint, Conductive

Manufacturer: Desco Industries Inc.
One Colgate Way
Canton, MA 02021
U.S.A.

Emergency Phone: (781) 821-8370

Fax: (781) 575-0172

2. INFORMATION ON INGREDIENTS/COMPOSITION

Ingredients	Weight	CAS-No.	TLV-value	R-Phrases
Ethylene Glycol Monobutyl Ether*	2.5-10%	111-76-2	25 ppm	R20/21/22-36/38
n-butanol*	0-2.5%	71-36-3	50 ppm	R10-22-37/38-41-67
Mineral Spirits	0-2%	64741-41-9	100 ppm	
2-(2-Butoxyethoxy)ethanol	0-1%	112-34-5	NE	R36
2-ethyl-1-Hexanol	0-1%	104-76-7	NE	
Ammonium Hydroxide	0-1%	1336-21-6	50 ppm	R34, R50

*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

Hazard description: Not applicable

Information concerning particular hazards for human and environment:

The product does not have to be labeled due to the calculation procedure of the "General Classification guidelines for preparations of the EU" in the latest valid version.

4. FIRST AID MEASURES

General information:	No special measures required.
Eye Contact	Flush with water for at least 15 minutes, Consult a Doctor.
Skin Contact	Generally the product does not irritate the skin. Wash with soap and water. Remove contaminated clothing. Consult a physician if any irritation persists.
Ingestion	Induce vomiting, drink 2 glasses of water. Contact a physician.
Inhalation	Move subject to fresh air. Consult a Doctor in case of complaints.

5. EXTINGUISHING MEASURES

Proper Extinguishing Media	The National Fire Protection (NFPA) classifies ingredient liquids to be Class B fires. Therefore, any approved Fire Extinguisher of extinguishing agent may be used for fighting purpose, e.g. CO ₂ , dry chemical and foam.
Protective Clothing	Wearing of appropriate protective equipment including self-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	Dilute with plenty of water, do not allow entry to sewers or ground water
Cleaning / Collecting Procedures	Dike and absorb with liquid binding material (sand, diatomite, sawdust)

7. HANDLING AND STORAGE

Handling	Use in well-ventilated areas; avoid breathing vapors. 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 n-butanol and 25 ppm 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, a proper protective wearing should be used.
Respiratory Protection	Not required. Wear MSHA/NIOSH approved respirator where exposure limits are exceeded.
Hand Protection	Impervious/Neoprene Gloves
Eye Protection	Chemical Splash Goggles (ANSI Z-87.1)
Work/Hygienic Practices	Wash hands before eating, smoking, or using washroom facilities

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Fluid
Color	Light Grey, Opaque
Smell	Mild
pH	8.5
Boiling Point at °C	>100-101°C (212-214°F)
Freezing Point at °C	0.0°C (32.0 °F)
Flash Point at °C	65 °C
Explosive Limits	LEL: 0.8 UEL: 25.0
Inflammability Limits	N/A(vol.% in air)
Solubility in water	Complete
VOC per method 24 of EPA	2.3 -2.5 lbs VOC/ gal
Vapor Pressure (mmHg)	92.43 mm @ 20 °C
Vapor Density (air=1)	Heavier than air
Density at 20°C	8.17 lbs./gal or 1.14 g/cm3
Specific Gravity (H2O=1)	1.21
Inflammability	Classification according to OSHA and EC-regulations "non-flammable"
Ignition Temperature	240.0 °C
Evaporation Rate	Slower than n-butyl acetate
% Volatile by Volume	13.229%

10. STABILITY AND REACTIVITY

Stability/Reactivity	Stable product 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 conceivably result in	Oxides of carbon and nitrogen. If involved in fire (from other sources) could release of Carbon Dioxide and Carbon Monoxide fumes.

11. TOXICOLOGICAL INFORMATION

Ingredient-Material Description	PEL mg/m3	TLV (twa)		LD50 (mg/kg)		LC50 (ppm)
		ppm	(rat) oral	(rbt) dermal	(rat) inhal	
Ethylene Glycol Monobutyl Ether *	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	100.0	0.0	0.0	0.0
2-(2-Butoxyethoxy)ethanol	0.0	0.0	0.0	6560.0	4120.0	0.0
2-ethyl-1-Hexanol	0.0	0.0	0.0	3730	1970	0.0
Ammonium Hydroxide	0.0	35.0	50.0	350.0	0.0	0.0

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

- Acute toxicity
- Primary irritant effect:
- On the skin: No irritant effect
- On the eye: No irritant effect
- Sensatization: No sensitizing effects known
- Additional toxicological information:

The product in not classified according to the calculation method of the General EU Classification guideline for Preparations as issued in the latest version. When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

12. ECOLOGICAL INFORMATION

General Notes:

Water hazard class 1 (German Regulations) (self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Mobility	The product is aqueous and will be separated in aqueous conditions
Degradability	N/A
Bioaccumulation	Not likely
Ecotoxicity	None known
Reference to BimSchV	N/A

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

Labeling according To EU guideline: Observe the general safety regulations when handling chemicals. The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (Genman GefStoffV).

National Regulations:

Waterhazard class: Water hazard class 1 (Self-assessment): slightly hazard for water

Physical/Chemical Indication	Non-flammable
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 except cas #104-76-7
TSCA Toxic Substance	All ingredients of this product are listed or are excluded from the listing on the U.S. Control Act (TSCA) Chemical Substance inventory.

16. OTHER INFORMATION

Further Information	None Known
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Disclaimer

The information given in this publication has been worked up to the best of the knowledge of Desco Industries Inc, 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 product 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 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.