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Material Safety Data Sheet

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1 Product Identification

Tradename: FC-725 FLUORAD(TM) BRAND CONFORMAL COATING (INACTIVE)
Product ID: 98-0211-1251-5, 98-0211-1252-3, 98-0211-1253-1, ZF-0002-1038-3,
Intended Use of Product: Coating for electronic circuit boards.
Division: 3M SPECIALTY MATERIALS

2 Composition/Information on Ingredients

Ingredient Name	CAS Number	Percentage
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N-BUTYL ACETATE	123-86-4	70.0
FLUOROALKYL ACRYLATE POLYMER	Trade Secret	Approx 30.0
RESIDUAL ORGANIC FLUORO-CHEMICALS	Mixture	0 - 1

NOTE: FLUOROALKYL ACRYLATE POLYMER is a Trade Secret. Refer to section 15 for further information.

Each percentage is expressed as the ratio of the weight of the ingredient to the weight of the controlled product.

3 Hazards Identification

Critical Hazards:

Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Single overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Flammable liquid and vapour.

See Sections 7 and 11 for further information.

4 First Aid Measures

Instructions for Eye Contact: Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

Instructions for Skin Contact: Flush skin with large amounts of water. If irritation persists, get medical attention.

Instructions for Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.

Instructions for Ingestion: If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

5 Fire Fighting Measures

Flash point: 25 C PMCC ASTM D93

Lower Explosive Limit (%): Not Available.

Upper Explosive Limit (%): Not Available.

Autoignition temperature: Not Available.

Suitable Extinguishing Media: Carbon Dioxide; Dry chemical;

Exposure Hazards during Fire: No data available.

Combustion Products from Fire: Carbon monoxide and carbon dioxide; hydrogen fluoride; Toxic vapours, gases or particulates;

Fire Fighting Procedures: Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

6 Accidental Release Measures

Personal Precautions:

Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

Spill Response:

Ventilate the area with fresh air. Remove all ignition sources such as flames, smoking materials, and electrical spark sources. Use only non-sparking tools. Contain spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Cover with absorbent material. Cover spill area with a fire-extinguishing foam designed for use on solvents, such as alcohols and acetone that can dissolve in water. An AR - AFFF type foam is recommended. Collect as much of the spilled material as possible. Clean up residue with an appropriate organic solvent. Read and follow safety precautions on the solvent label and MSDS. Place in an approved metal container. Seal the container.

Methods for Disposal:

Incinerate in a permitted hazardous waste incinerator. Combustion products will include HF. Facility must be capable of handling halogenated materials.

7 Handling and Storage

Storage Requirements:

Store away from areas where product may come into contact with food or pharmaceuticals. Store in a cool place. Keep container closed when not in use.

Incompatible Materials: Store away from heat. Store out of direct sunlight. Strong oxidizing agents;

Ventilation: Keep container in well-ventilated area.

Fire Prevention: Ground containers securely when transferring contents. Wear low static or properly grounded shoes.

Explosion Prevention: Flammable liquid and vapour. Keep away from heat, sparks, open flame, pilot lights and other sources of ignition. Vapours may ignite explosively. Explosive when mixed with oxidizing substance.

Use Instructions: Keep container tightly closed. No smoking: Smoking while using this product can result in contamination of the tobacco and/or smoke and lead to the formation of the hazardous decomposition products mentioned in section 10 of this MSDS. DO NOT AEROSOLIZE.

8 Exposure Controls/Personal Protection

Personal Protection

Eye Protection: Avoid eye contact with vapours, mists, or spray. Indirect vented goggles

Hand Protection: Wear appropriate gloves when handling this material. The following glove material(s) are recommended: polyvinyl alcohol;

Skin Protection: Avoid skin contact. The following protective clothing material(s) are recommended: apron;

Respiratory Protection: Avoid breathing of airborne material. Select one of the following approved respirators based on airborne concentration of contaminants and in accordance with regulations: half-mask organic vapour respirator with dust/mist prefilter;

Ingestion (Prevention): Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

Recommended Ventilation: If exhaust ventilation is not adequate, use appropriate respiratory protection. Provide ventilation adequate to control vapour concentrations below recommended exposure limits and/or control spray or mist.

Ingredient Exposure Data

N-BUTYL ACETATE (123-86-4)

Specific Ingredient Data: LD50 (rabbit, dermal): > 5000 mg/kg

LC50 (rat, inhalation(aerosol)/4 hours): 160 ppm

LD50 (rat, oral):: 10768 mg/kg

LC50 (rat, inhalation/4 hours):: 2000 ppm

PIN (Product Identification Number):: 1123

Inventory Certifications:: CICS - Chinese Inventory of Chemical Substances

TSCA - Toxic Substances Control Act (USA)

2-731;2-735 MITI - Ministry of International Trade and Industry (JAPAN)

2046581 EINECS - European Inventory of Existing Commercial Chemical Substances

DSL - Domestic Substances List (Canada)

PICCS - Philippines Inventory of Commercial Chemical Substances

KE-04179 KECI - Korean Existing Chemicals Inventory

AICS - Australian Inventory of Chemical Substances

Exposure Limits:: ACGIH: TWA 150 ppm

ACGIH: TWA 713 mg/m³

ACGIH: STEL 200 ppm

ACGIH: STEL 950 mg/m³

EU Hazard Symbols and Risk Phrases:: EU - Adaptation 25 (R:10-66-67)

EU Nota:: 6

FLUOROALKYL ACRYLATE POLYMER (Trade Secret)

Specific Ingredient Data: No data available.

LD50 (rat, oral):: No data available.

LC50 (rat, inhalation/4 hours):: No data available.

Exposure Limits:: No data available.

RESIDUAL ORGANIC FLUOROCHEMICALS (Mixture)

Specific Ingredient Data: No data available.

LD50 (rat, oral):: No data available.

LC50 (rat, inhalation/4 hours):: No data available.

Exposure Limits:: No data available.

9 Physical and Chemical Properties

Physical form, Color, Odour:	solution; clear; yellow; butyl acetate odour;
Odour Threshold:	No data available.
pH:	Not applicable
Boiling point/boiling range:	Approximately 126 C
Melting point/melting range:	Not applicable
Vapour pressure:	Approximately 5 mmHg at 20 C

Water Solubility:	Nil
Partition coefficient (K o/w):	No data available.
Specific gravity:	Approximately 1 Water=1
Vapour density:	Approximately 4 Air=1 at 20 C
Volatile organic compounds:	700 gms/liter at 20 C
Evaporation rate:	< 1 BuOAc=1
Viscosity:	Not Available.

10 Stability and Reactivity

Conditions to Avoid: None known.

Materials to Avoid: Strong oxidizing agents;

Hazardous Decomposition: Carbon monoxide and carbon dioxide; hydrogen fluoride; Toxic vapours, gases or particulates;

Stability and Reactivity: Stable. Hazardous polymerization will not occur.

11 Toxicological Information

Effects from Eye Contact:

Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Effects from Skin Contact:

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching. Mild Skin Irritation: Signs/symptoms can include localized redness, swelling, and itching.

Effects from Inhalation:

Single overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness. Upper Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Effects from Ingestion:

Animal studies conducted on organic fluorochemicals which are present in this product indicate effects including liver disturbances, weight loss, loss of appetite, lethargy, and neurological, pancreatic, adrenal and hematologic effects. There are no known human health effects from anticipated exposure to these organic fluorochemicals when used as intended and instructed.

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, nausea, diarrhea and vomiting. Central Nervous System

Depression: signs/symptoms can include headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue, blurred vision, slurred speech, giddiness, tremors and convulsions. Chemical (Aspiration) Pneumonitis: Signs/symptoms can include coughing,

gasping, choking, burning of the mouth, difficulty breathing, bluish colored skin (cyanosis), and possibly death.

Sensitization Information: Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Carcinogenicity: No data available.

Mutagenicity: No data available.

Reproductive Effects: No data available.

Component Based Information: No data available.

Product Based Information: No data available.

Other Effects & Information: A Material Toxicity Summary Sheet (MTSS) has been developed for this product. Please contact the address listed on the first page of this MSDS to obtain a copy of the MTSS for this product. This product contains one or more organic fluorochemicals that have the potential to be absorbed and remain in the body for long periods of time, either as the parent molecule or as metabolites, and may accumulate with repeated exposures. There are no known human health effects from anticipated exposure to these organic fluorochemicals when used as intended and instructed. The presence of organic fluorochemicals in the blood of the general population and subpopulations, such as workers, has been published dating back to the 1970's. 3M's epidemiological study of its own workers indicates no adverse effects.

12 Ecological Information

Environmental Data:

Persistence/Biodegradability:

This product contains one or more organic fluorochemicals that have the potential to resist degradation and persist in the environment

Ecotoxicity Data:

No data available.

Ecofate Data:

Other Effects and Information:

Chemical Oxygen Demand (COD): 1.4 g/g

20-Day Biochemical Demand (BOD20): 1.4 g/g

96-Hr. LC50, Fathead minnow (*Pimephales promelas*): > 180 mg/l

13 Disposal Considerations

Product as Sold: No data available.

Product Packaging: No data available.

Special Instructions: Since regulations vary, consult applicable regulations or authorities before disposal.

14 Transportation Information

Transportation of Dangerous Goods

TDG Classification: Regulated Material.
Proper Shipping Name: RESIN SOLUTION
Class/Division: 3.0
UN Number: UN 1866
Packing Group: III

15 Regulatory Information

WHMIS Classification: B2, D1B, D2B
HMIRC Registry Number: 1006
Filing Date: September 22, 1999
Claim Status: Product obsolete-Claim withdrawn;
Date of Decision: December 7, 1995

NOTE: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Product Certifications: The product on this MSDS, or all its components, is included on the following countries' chemical inventories, as noted:

EINECS - European Inventory of Existing Commercial Chemical Substances

AICS - Australian Inventory of Chemical Substances

CICS - Chinese Inventory of Chemical Substances

MITI - Ministry of International Trade and Industry (JAPAN)

NDSL - Non Domestic Substance List

KECI - Korean Existing Chemicals Inventory

TSCA - Toxic Substances Control Act (USA)

16 Other Information

Reason for Reissue:

The following Sections and topics have been updated or revised:

Update Tradename (Obsolete product)

Section 15 - Regulatory Information

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