



Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT	FluorAcryl™ 6968
GENERIC NAME	Fluorinated Aliphatic Hexafunctional Urethane Acrylate
MANUFACTURER	Cytonix, LLC, 8000 Virginia Manor Road, Beltsville, MD 20705
PHONE	Business Office 301-470-6267, Product Information 703-929-5324, fax 301-470-6269
WEB ADDRESS	http://cytonix.com
PRODUCT CONTACT	mailto: elanza@cytonix.com
BUSINESS CONTACT	mailto: business@cytonix.com
REVISION DATE	4-5-2010
PRODUCT USE	Oil and water repellent coating. Not intended for use as part of a medical device.

SECTION 2: INGREDIENTS

INGREDIENT	Wt%	C.A.S. NUMBER
Aliphatic Urethane Acrylate	30-35	PROPRIETARY
Acrylic Esters	35-40	PROPRIETARY
Dihydroperfluoropentane	20-25	138495-42-8

This formulation does not contain PFOA or PFOS and does not derive from compounds comprising these materials. The components of this product are in compliance with the chemical notification requirements of TSCA. All applicable chemical ingredients in this material are listed on the European Inventory of Existing Chemical Substances (EINECS), or are exempt polymers whose monomers are listed on EINECS. Volatile components of Fluoro-Compounds are VOC exempt per Federal Register August 25, 1997 [Volume 62, Number 164].

SECTION 3: SUMMARY OF HAZARDS

PHYSICAL HAZARDS	Unstable (reactive) upon depletion of inhibitor
ACUTE HEALTH EFFECTS	Suspect severe eye irritation hazard, suspect skin irritation hazard, suspect skin sensitization hazard, suspect respiratory tract irritation hazard, suspect skin absorption hazard, suspect ingestion hazard
CHRONIC HEALTH EFFECTS	See Supplement Section of MSDS for chronic health effects data on one of the components of this product.

SECTION 4: PHYSICAL AND CHEMICAL DATA

BOILING POINT	55°C (Initial - C
pH	6.5 - 7.5
FREEZING POINT	not determined
SPECIFIC GRAVITY	AP 1.08-1.32
VISCOSITY	5,000-10,000 cps at 25°C
SOLUBILITY IN WATER	Negligible
VAPOR PRESSURE	226 mm Hg @ 25°C (Initial - Dihydroperfluoropentane)
STABILITY	Stable
HAZARDOUS POLYMERIZATION	May occur on depletion of inhibitor
APPEARANCE AND ODOR	Cloudy, viscous liquid with an acrylic odor
CONDITIONS TO AVOID	High temperatures, localized heat sources, oxidizing conditions, freezing conditions, direct sunlight, ultraviolet or ionizing radiation, inert gas blanketing; Strong oxidizers, strong reducers, free radical initiators, inert gases, oxygen scavengers. Incompatible with alkali or alkaline earth metals such as powdered Al, Zn, Be, Na, Mg, etc.
HAZARDOUS DECOMPOSITION	Carbon monoxide/carbon dioxide/nitrogen oxides/hydrogen. Hydrofluoric acid, carbonyl halides, cyanide/isocyanates and amines may be released at high temperatures or during a fire.

SECTION 5: EXPOSURE INFORMATION

Exposure Limits (Dihydroperfluoropentane)	
PEL (OSHA)	None Established
TLV (ACGIH)	None Established
AEL * (Cytonix)	200 ppm, 8 & 12 Hour TWA 400 ppm
Animal (Dihydroperfluoropentane)	
Oral LD50	> 5,000 mg/kg in rats
Dermal ALD	> 5,000 mg/kg in rabbits
Inhalation (4 hr LC50)	11,100 ppm in rats
Aquatic Toxicity (Dihydroperfluoropentane)	
96 hour LC50, fathead minnows	27.2 mg/L
96 hour LC50, rainbow trout	13.9 mg/L
48 hour LC50, Daphnia magna	11.7 mg/L

SECTION 6: FIRE AND EXPLOSION

FLASH POINT (PMCC)	> 100°C
AUTOIGNITION TEMP	not determined
FLAMMABLE LIMITS	not determined
HAZARDS	High temperatures, inhibitor depletion, accidental impurities, or exposure to radiation or oxidizers may cause spontaneous polymerizing reaction generating heat/pressure. Closed containers may rupture or explode during runaway polymerization.
EXTINGUISHING MEDIA	Dry chemical, CO2, Water spray, Foam, Water fog

FIREFIGHTING PROCEDURES	Do not enter fire area without proper protection. See Section 4. Fight fire from safe distance/protected location. Heat/impurities may increase temperature/build pressure/rupture closed containers, spreading fire, increasing risk of burns/injuries. Water may be ineffective in firefighting due to low solubility. Use water spray/fog for cooling. Pressure relief system may plug with solids, increasing risk of overpressure. Notify authorities if liquid enters sewer/public waters.
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SECTION 7: HEALTH HAZARDS

INHALATION	No significant signs or symptoms indicative of any adverse health hazard are expected to occur at standard conditions due to the low volatility of this material. However, aerosols, or vapors which may be generated at elevated processing temperatures, may cause respiratory tract irritation. Symptoms of irritation may include coughing, mucous production and shortness of breath.
EYE CONTACT	Although no appropriate human or animal health effects data are known to exist, this material is expected to cause severe eye irritation. Symptoms of irritation may include pain or burning sensation, redness, swelling, and tearing.
SKIN ABSORPTION	Although no appropriate human or animal health effects data are known to exist, this material is expected to be a health hazard by skin absorption.
SKIN IRRITATION	Although no appropriate human or animal health effects data are known to exist, this material is expected to be a skin irritant. Symptoms of irritation may include localized redness or rash and swelling. Prolonged or repeated skin contact with this material may cause a more severe skin response such as blistering, ulcers and deep scarring. Although no appropriate human or animal health effects data is known to exist, this material may cause an allergic skin reaction (sensitization) in susceptible individuals upon repeated exposure.
INGESTION	Although no appropriate human or animal health effects data are known to exist, this material is expected to be an ingestion hazard.
MEDICAL CONDITIONS	No additional medical information found.

SECTION 8: PROTECTIVE EQUIPMENT / CONTROL MEASURES

RESPIRATORY	If this material is handled at elevated temperature or under mist forming conditions, NIOSH/MSHA approved respiratory protection equipment should be used.
EYE	Eye protection, including both chemical splash goggles and face shield, must be

SKIN	worn when possibility exists for eye contact due to spraying liquid or airborne particles. Contact lenses must not be worn. When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn. This equipment must be cleaned thoroughly after each use.
ENGINEERING CONTROLS	If handling results in aerosol or vapor generation, local exhaust ventilation is recommended.
HYGIENE	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
WORK PRACTICES	Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse. Shower after work using plenty of soap and water.

SECTION 9: EMERGENCY AND FIRST AID

INHALATION	If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.
EYE CONTACT	In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention.
SKIN CONTACT	Immediately remove contaminated clothing. Wash skin thoroughly with mild soap/water. Flush w/lukewarm water for 15 minutes. If sticky, a waterless cleaner may be used. Seek medical attention if ill effect or irritation develops.
INGESTION	If swallowed, give lukewarm water (pint) if victim completely conscious/alert. Do not induce vomiting/risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.
EMERGENCY MEDICAL	Continue to rinse eye with clean water for 20-30 minutes, retracting eyelids often. Contact ophthalmologist immediately. Treat burns or allergic reactions conventionally after decontamination.

SECTION 10: SPILL AND DISPOSAL PRECAUTIONS

RECOVERY	Spilled or released material may polymerize and release heat/gases. Extinguish all ignition sources and ventilate area. Wear protective equipment during clean-up. Dike and recover large spill. Soak up small spill with inert solids (such as vermiculite, clay) and sweep/shovel into vented disposal container. Wash spill area with a strong detergent and water solution; rinse with water but minimize water use during clean-up. For spills on water, contain, minimize dispersion and collect. Dispose/report per regulatory requirements.
DISPOSAL	Non-contaminated, properly inhibited material is not a RCRA hazardous waste. However, contaminated material/soil/water may be RCRA/OSHA hazardous waste due to potential for internal heat generation (see 40 CFR 261 and 29 CFR 1910). It is the responsibility of the generator to determine at the time of disposal whether the material meets the criteria of a hazardous waste. Comply with all applicable federal, state and local regulations. Use registered transporters. Disposal options include land filling solids at permitted sites; fuel blending or incinerating liquids. Assure emissions comply with applicable regulations. Dilute aqueous waste may biodegrade; avoid overloading/poisoning plant biomass. Assure effluent complies with applicable regulations.

SECTION 11: ADDITIONAL PRECAUTIONS

HANDLING	Wear appropriate protective equipment when handling this material (See Section 8 of MSDS). Some acrylic oligomers and oligomer blends are viscous or extremely viscous and may require heating to facilitate handling. To facilitate product transfer from original container, product may be heated to 80C/176F for not more than 24 hours. Do NOT use localized heat sources such as band heaters to heat/melt product. Do NOT use steam. Hot boxes or hot rooms are recommended for heating/melting material. The hot box or hot room should be set at a maximum temperature of 80C/176F. Do not overheat--this may compromise product quality and/or result in an uncontrolled hazardous polymerization. If product freezes, heat as indicated above and mix gently to redistribute the inhibitor. Product should be consumed in its entirety after heating/melting--avoid multiple "re-heats" which may affect product quality or result in product degradation.
STORAGE	Product is packaged with inhibitor(s). Unless inhibited, product can polymerize, raising temperature and pressure possibly rupturing container. Check inhibitor content periodically, adding to bulk material if needed. In addition, the product's inhibitor(s) require the presence of dissolved oxygen. Maintain, at a minimum, the original headspace in the product

container and do not blanket or mix with oxygen-free gas as it renders inhibitor ineffective. Ensure air space (oxygen) is present during product heating/melting. Store product indoors at temperatures greater than product's freezing point (or greater than 0C/32F if no freezing point available) and below 38C/100F. Avoid prolonged (longer than shelf-life) storage temperatures above 38C/100F. Store in tightly closed containers in a properly vented storage area away from: heat, sparks, open flame, strong oxidizers, radiation, and other initiators. Prevent contamination by foreign materials. Prevent moisture contact. Use only non-sparking tools and limit storage time. Unless specified below, shelf-life is 6 months from receipt.

DECONTAMINATION Follow standard plant procedures or supervisor's instructions for decontamination operations.

SECTION 12: LABEL INFORMATION

USE STATEMENT	FOR INDUSTRIAL USE ONLY
SIGNAL WORD	WARNING
PHYSICAL HAZARDS	UNSTABLE (REACTIVE) UPON LOSS OF INHIBITOR
HEALTH HAZARDS	MAY CAUSE SEVERE EYE IRRITATION; MAY CAUSE SKIN IRRITATION; MAY CAUSE ALLERGIC SKIN REACTION
PRECAUTIONARY MEASURES	HAZARDOUS POLYMERIZATION MAY OCCUR UPON DEPLETION OF INHIBITOR. DO NOT HANDLE NEAR HEAT, SPARKS, OR OPEN FLAME. DO NOT USE DRUM HEATER TO FACILITATE HANDLING. AVOID BREATHING VAPOR/MISTS. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. USE ONLY WITH ADEQUATE VENTILATION/PERSONAL PROTECTION. WASH THOROUGHLY AFTER HANDLING. KEEP CONTAINER CLOSED WHEN NOT IN USE. BEFORE USING PRODUCT, READ MATERIAL SAFETY DATA SHEET (MSDS).

SECTION 13: SUPPLEMENTAL INFORMATION

NPCA - HMIS RATING	Health 2, Flammability 1, Reactivity 2
CHRONIC HEALTH DATA	No chronic health effects data are known to exist for this product as a whole. However, an 18 month skin painting study in mice conducted with one of the acrylic ester components of this product, showed an increased incidence of lymphoma. There was no evidence of skin tumors. However, internal organ histopathology slides from this study were peer reviewed, and it was determined that the lymphomas were misdiagnosed. In addition, no increased incidence of skin or visceral tumors were seen in another lifetime mouse skin painting study that was conducted with this component.
INHIBITORS	This material contains an inhibitor (HQ, MEHQ, etc.) at <1%. The type and amount meet product specifications. Contact a company representative for exact concentrations and details on inhibitor level maintenance.
REGULATORY	TSCA STATUS TSCA status: All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory. CALIFORNIA PROPOSITION 65 California Proposition 65 Information: This product contains, or may contain, trace quantities of a substance(s) known to the state of California to cause cancer and/or reproductive toxicity.
INTERNATIONAL STATUS	Australia (AICS): not included on inventory Canada (DSL): 60-70 DSL; 30-40% NDSL China (IECSC): included on inventory Europe (EINECS): not included on inventory Japan (ENCS): included on inventory Korea (ECL): included on inventory Philippines (PICCS): not included on inventory

SECTION 14: DISCLAIMERS

Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product itself. The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or

methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable. This MSDS has been prepared in accordance with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

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