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ATOFINA Chemicals, Inc. MAR 10 2003
2000 Market St.,
Philadelphia, PA 19103-3222
January 08, 2003

ROSEMOUNT ANALYTICAL INC
UNITOC DIVISION
2400 BARRANCA PKWY
IRVINE CA 92606

Dear Sir or Madam:

Enclosed is the most current edition of the Material Safety Data Sheets for the specified Product(s):

Product Name	ID
KYNAR (R) 370 PLT PVDF	02858

This document has been written in accordance with the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (29 CFR 1910.1200).

The MSDS identifies the hazardous and non-hazardous ingredients of the product, the health hazard data, and safe-handling procedures that are associated with the product. This information should be used to assist you in maintaining a safe working environment for your employees.

If additional MSDS are necessary, please contact the Product Safety and Regulatory Affairs Department at the following phone number:

(800) 932 - 0420

ATOFINA Chemicals, Inc.
2000 Market St., Philadelphia,

Very Truly Yours,
ATOFINA Chemicals, Inc.
Technical Polymers
Customer Service Department

Enclosures:

0034381

1 PRODUCT AND COMPANY IDENTIFICATION**Technical Polymers**ATOFINA Chemicals, Inc.
2000 Market St.,
Philadelphia, PA 19103-3222**EMERGENCY PHONE NUMBERS:**Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(303) 623-5716 (24Hrs)

Information Telephone Numbers	Phone Number	Available Hrs
Engineering Polymers (Pebax & Rilsan)	(800) 932 - 0420	Mon - Fri 8:00am - 6:00pm EST
Fluoropolymers (Kynars)	(800) 722 - 9668	Mon - Fri 8:00am - 6:00pm EST

Product Name KYNAR (R) 370 PLT PVDF
Product Synonym(s)

Chemical Family Fluoropolymer
Chemical Formula
Chemical Name Vinylidene Fluoride Polymer
EPA Reg Num
Product Use

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS RegistryNumber	Typical Wt. %	OSHA
Ethene, 1,1-difluoro-, homopolymer	24937-79-9	71	N
Carbon black	1333-86-4	22	Y
Zinc oxide	1314-13-2	6	Y
2-Ethylhexyl diphenyl phosphate	1241-94-7	1	Y

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

While this material is not classified as hazardous under Federal OSHA regulations, this MSDS contains valuable information critical to the safe handling and proper use of this product. This MSDS should be retained and available for employees and other users of this product.

The components of this product are all on the TSCA inventory list.

3 HAZARDS IDENTIFICATION**Emergency Overview**

Odorless Black Pellets

HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICES.

CAUTION!

MELT PROCESSING MAY RELEASE VAPORS WHICH MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. As a finished product, it is a synthetic, high molecular weight polymer. Due to its chemical and physical properties, this

material does not require special handling other than the good industrial hygiene and safety practices employed with any industrial material of this type. Melt processing under normal conditions should not release hazardous fumes in significant amounts. However, if the melt temperature or shear become excessive, hazardous by-products can be released. (See section 10 for additional information). If degradation occurs due to high temperature (which may be caused by excessive shear) hazardous decomposition products will be emitted, which include hydrogen fluoride, and may include polymer fumes and oxides of carbon the concentrations of which may vary with processing time and temperatures.

4 FIRST AID MEASURES

IN CASE OF CONTACT, flush the area with plenty of water. Remove material from clothing. Wash clothing before reuse. If molten polymer gets on the skin, cool rapidly with cold water. Do not attempt to peel polymer from the skin. Obtain medical treatment for thermal burns.

IF SWALLOWED, do NOT induce vomiting. Give water to drink. Get medical attention immediately. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF INHALED, If dust or vapors are inhaled, remove to fresh air. If breathing is difficult, give oxygen and get medical attention.

GENERIC FIRST AID, - For hydrogen fluoride (HF). If thermal decomposition of this product occurs releasing HF, additional first aid measures are required. HF decomposition by-product is extremely corrosive and can cause severe burns which may not be immediately visible or painful. Exposure to HF may be fatal if absorbed through the skin, inhaled or swallowed. In all cases of major hydrogen fluoride exposure (including skin burns about the size of the palm of the hand) hypocalcemia may be present. Monitor calcium levels frequently and EKG for signs of calcium depletion. Patients with burns of the neck or face, or with signs of respiratory irritation, should be monitored for delayed pulmonary edema, and edema of the upper airway with respiratory obstruction. Respiratory care should be closely supervised and may include further administration of 2.5% calcium gluconate by nebulization. Do not administer local anesthetics after skin contact as the level of pain is an indication of the effectiveness of the calcium gluconate treatment. If pain continues longer than 30 minutes, consider injecting calcium gluconate (5%) into the skin and subcutaneous tissue beneath, around and within the affected area. If ingestion occurs, do not induce vomiting. Administer 4 to 8 ounces of water followed by 2 to 4 ounces of an antacid containing calcium or magnesium.

First Aid Supplies for Hydrogen Fluoride

Use of the following materials has been shown to be useful for HF treatment as explained above:

2.5% calcium gluconate gel
1.0% calcium gluconate in saline ocular solution
2.5% calcium gluconate in saline inhalant
antacid containing calcium or magnesium

5 FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature	NE	
Flash Point	NE	Flash Point Method
Flammable Limits- Upper	NA	
Lower	NA	

Extinguishing Media

Use water spray, carbon dioxide, foam or dry chemical.

Fire Fighting Instructions

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

Fire and Explosion Hazards

When burned, the following hazardous products of combustion can occur: Oxides of carbon and Hydrogen fluoride

6 ACCIDENTAL RELEASE MEASURES**In Case of Spill or Leak**

Contain spill. Sweep or scoop up and remove to suitable container. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7 HANDLING AND STORAGE**Handling**

Avoid breathing processing fumes or vapors. Use only with adequate ventilation. Avoid prolonged contact with eyes, skin and clothing. Keep container tightly closed.

Storage

Store in a cool, dry place. This material is not hazardous under normal storage conditions; however, material should be stored in closed containers, in a secure area to prevent container damage and subsequent spillage.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION**Engineering Controls**

Investigate engineering techniques to reduce exposures. Provide ventilation if necessary to minimize exposure. Dilution ventilation is acceptable, but local mechanical exhaust ventilation preferred, if practical, at sources of air contamination such as open process equipment.

Eye / Face Protection

Use good industrial practice to avoid eye contact. Processing of this product releases vapors or fumes which may cause eye irritation. Where eye contact may be likely, wear chemical goggles and have eye flushing equipment available.

Skin Protection

Minimize skin contamination by following good industrial hygiene practice. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

Respiratory Protection

Avoid breathing processing fumes or vapors. Where airborne exposure is likely, use NIOSH approved respiratory protective equipment appropriate to the material and/or its components and substances released during processing. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitation specification by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full-face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION
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Other Protective Equipment
NOTE:

In the event of thermal decomposition resulting in an HF exposure or release, decontamination of the equipment involves the use of protective equipment. Contact an Industrial Hygienist or safety personnel for type of equipment necessary.

Airborne Exposure Guidelines for Ingredients

Exposure Limit		Value
Zinc oxide		
ACGIH STEL	-As fume	10 mg/m ³
ACGIH TWA	-As dust	10 mg/m ³
ACGIH TWA	-As fume	5 mg/m ³
OSHA TWA PEL	-Respirable fraction	5 mg/m ³
OSHA TWA PEL	-Total dust	15 mg/m ³
Carbon black		
ACGIH TWA	-	3.5 mg/m ³
OSHA TWA PEL	-	3.5 mg/m ³

-Only those components with exposure limits are printed in this section.

-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.

-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.

-WEEL-AIHA Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic skin reactions.

Other Exposure Limit Information (product-based)

Exposure Limit Memo:

ACGIH ceiling limit for Hydrogen fluoride (HF) has a TLV of 3 ppm.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Odor	Odorless Black Pellets
pH	
Specific Gravity	1.76-1.78
Vapor Pressure	NE
Vapor Density	NE
Melting Point	156-160 deg C
Freezing Point	
Boiling Point	NE
Solubility In Water	Negligible
Evaporation Rate	NE
Percent Volatile	NE

10 STABILITY AND REACTIVITY**Stability**

This material is chemically stable under normal and anticipated storage, handling and processing conditions. Thermal decomposition of polymer will generate hydrogen fluoride (HF). Thermal decomposition of the polymer begins to generate HF at 600 degrees F (315 degrees C) and the evolution of HF becomes rapid at 700 degrees F (370 degrees C). Normal melt processing conditions rarely exceed a melt temperature of 535 degrees F (280 degrees C). The tip and mandrel are often set at higher temperatures. Laboratory testing has shown high polymer stability (TGA in nitrogen) at temperatures up to and including 600 degrees F (315 degrees C). Above this melt temperature, processors should exercise extreme caution because degradation may occur. We recommend that ATOFINA Chemicals, Inc. technical personnel are consulted if elevated melt temperature processing is required.

Note: When HF is first detected or the decomposition of the polymer is noted, continue to run the equipment with the heat source turned off and turn off the polymer feed. Run the equipment dry, ventilate the area, and remove non-essential personnel. Purging this product from the equipment can be accomplished using a high viscosity polyethylene. In case of a major decomposition event, evacuate all personnel immediately and call the emergency number listed on the first page of this MSDS.

Hazardous Polymerization

Does not occur.

Incompatibility

Contact with strong bases, esters and ketones may cause a low energy release. Silica (glass fibers) and titanium dioxide will accelerate thermal decomposition.

Hazardous Decomposition Products

Hydrogen fluoride (HF), possible oxides of carbon.

In case of decomposition, see Handling section (7) for additional information.

11 TOXICOLOGICAL INFORMATION**Toxicological Information**

Data on this material and/or its components are summarized below.

Ethene, 1,1-difluoro-, homopolymer

The toxicity data available on this product indicate that the material is practically non-toxic when given orally (rat LD50 6,000 mg/kg) and causes minimal or no biological response upon subchronic contact or prolonged implantation in tissues. Various solvent extracts of this product also caused no adverse reactions in animals.

Carbon Black

Single exposure (acute) studies indicate that this material is practically non-toxic to mice if swallowed (LD50 >10,000 mg/kg). Following repeated inhalation exposure to this material, mild inflammation in the lungs was noted in rats. It has been suggested that at very high exposure levels, lung clearance is overwhelmed leading to increased inflammation. Similar effects have also been reported for other dusts. Following repeated inhalation exposure to this material evidence of heart effects were reported in monkeys. Repeated inhalation of this material has produced effects on lung defense against some infectious agents. No evidence of tumor formation has been observed in monkeys, rabbits, hamsters, guinea pigs, mice or rats after administration by numerous routes. In contrast, solvent extracts of this material have been reported to produce tumors in skin painting studies and by subcutaneous injection. Following long-term dietary administration of this material no increase in tumor incidence was observed in rats and female mice or in animals fed this material in the diet after treatment with a material known to induce colon tumors. In a similar study with rats fed high fat diets containing this material, an increase in colon tumors was observed. This material and extracts of this material are

11 TOXICOLOGICAL INFORMATION

classified as "possibly carcinogenic to humans" (Group 2B) by the International Agency for Research on Cancer based on studies in which this material and extracts of this material produced tumors in animals, but existing epidemiological studies are inadequate for evaluating the carcinogenicity of this material in humans. Several epidemiological studies have not indicated a relationship with exposure to this material and cancer or any other occupational diseases. Some studies have reported lowered pulmonary function in workers with histories of long term exposure to this material. This material has produced positive and negative genetic change in standard tests using bacterial cells, animal cells and animals. The positive responses are usually attributed to the presence of polycyclic aromatic hydrocarbons and other mutagenic impurities that are adsorbed onto the this material.

Zinc Oxide

Single exposure (acute) studies indicate that this material is non-irritating to rabbit skin and eyes. Overexposure to fume may cause metal fume fever whose symptoms may include coughing, chest pain and shortness of breath followed by chills and fever lasting one to two days. Several epidemiology studies of occupationally-exposed workers have shown no evidence of increased cancer incidence. Inhalation exposure (fume) caused impaired lung function and inflammatory changes which returned to normal after three days post-exposure in guinea pigs. Repeated oral administration produced intestinal effects, anemia and kidney effects in ferrets; while dogs showed no adverse effects. Neuronal degeneration was observed in rats exposed orally (10 days). Administration in the diet of female rats prior to mating and throughout gestation resulted in complete resorption of the fetuses. Generally, no genetic changes were observed in standard tests using bacteria and animal cells.

Repeated exposure of humans to this material in controlled skin contact studies produced skin irritation but no skin allergy. Reversible liver effects were observed in rats following repeated administration of this material in their feed. Weight gain reductions were observed in long-term feeding studies with rats and dogs. No birth defects were noted in the offspring of rats given this material orally during pregnancy, even at amounts which produced adverse effects in the mother. This material has produced no genetic changes in standard tests using bacterial and animal cells, or animals. 2-Ethylhexyl Diphenyl Phosphate

Single exposure (acute) studies indicate that this material is practically non-toxic to rats if swallowed (LD50, >24,000 mg/kg) or rabbits if absorbed through skin (LD50, 13,700 mg/kg), no more than slightly toxic to rats if inhaled (4-hr aerosol LC50 >4.8 mg/l; 6-hr vapor LC50 approximately 3 mg/l), practically non-irritating to rabbit eyes, slightly irritating to rabbit skin.

12 ECOLOGICAL INFORMATION**Ecotoxicological Information**

No ecological effect studies have been conducted on this material and no information was found in a search of the scientific literature. Under normal conditions of use the component(s) of this material are contained within the polymer matrix. Although ecological exposure to this material is anticipated to be minimal, the data are summarized below. Zinc Oxide

Soluble forms of zinc such as zinc sulfate, zinc acetate and zinc chloride are highly to moderately toxic to worms, snails and clams (EC50 0.3-7.1 mg/l); coho salmon, chinook salmon and rainbow trout (LC50 0.066-7.21 mg/l); blue mussel and copepods (EC50 0.2942-4.300 mg/l); Daphnia magna and Ceriodaphnia reticulata (EC50 0.032-0.799 mg/l); striped bass (LC50 0.43 mg/l); oyster, hermit and dungeness crab, lobster and mysid shrimp (EC50 0.175-0.5913 mg/l); and goldfish, carp, fathead minnows, guppies, pumpkinseed, perch, bass and bluegill sunfish (LC50 0.12-40.9 mg/l; depending on water hardness). They are moderately to slightly toxic to Atlantic silverside, mummichog and flounder (LC50 2.73-83.04 mg/l) and polychaete worms, mud snail, starfish and soft-shell clams (EC50 2.5-50 mg/l). 2-Ethylhexyl Diphenyl Phosphate

Acute studies indicate that this material is slightly toxic to freshwater fish with LC50 values for fathead minnow, bluegill sunfish and rainbow trout ranging from 14-32 mg/L. It is highly toxic to aquatic invertebrates with LC50 values for Daphnia magna and midge larvae being 0.15 and 0.5 mg/L. The acute LC50 value for algae, Selenastrum capricornutum, is 0.2 mg/L.

12 ECOLOGICAL INFORMATION

Chemical Fate Information

No ecological effect studies have been conducted on this material and no information was found in a search of the scientific literature. Under normal conditions of use the component(s) of this material are contained within the polymer matrix. Although ecological exposure to this material is anticipated to be minimal, the data are summarized below. 2-Ethylhexyl Diphenyl Phosphate

This material has been shown to be readily degraded in a river die-away system with half-lives from 1-5 days. It is also shown an ability to bioconcentrate in fish with a measured bioconcentration factor (BCF) of 934 in bluegill sunfish.

13 DISPOSAL CONSIDERATIONS

Waste Disposal

Recover, reclaim or recycle when practical. Dispose of in an approved landfill if allowed locally. Incinerate only if the incinerator is fitted to scrub out hydrogen fluoride and other acidic combustion gases. Comply with federal, state and local regulations. Dispose of in a permitted waste management facility if incineration or landfill is not practical.

Pigmented, filled and/or solvent laden product may require special disposal practices in accordance with federal, state and local requirements.

Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14 TRANSPORT INFORMATION

DOT Name	Not Regulated
DOT Technical Name	
DOT Hazard Class	
UN Number	
DOT Packing Group	PG
RQ	

15 REGULATORY INFORMATION

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)

Immediate (Acute) Health	N	Fire	N
Delayed (Chronic) Health	N	Reactive	N
		Sudden Release of Pressure	N

The components of this product are all on the TSCA inventory list.

Ingredient Related Regulatory Information:
SARA Reportable Quantities
CERCLA RQ
SARA TPQ



KYNAR (R) 370 PLT PVDF

Material Safety Data Sheet
ATOFINA Chemicals, Inc.

SARA Reportable Quantities

2-Ethylhexyl diphenyl phosphate

Zinc oxide

Carbon black

Ethene, 1,1-difluoro-, homopolymer

CERCLA RQ

SARA TPQ

NE

NE

NE

NE

SARA Title III, Section 313

This product does contain chemical(s) which are defined as toxic chemicals under and subject to the reporting requirements of, Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. See Section 2

Zinc oxide

Massachusetts Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Massachusetts Right to Know Substance List.

Carbon black

Zinc oxide

New Jersey Right to Know

This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.

Carbon black

Zinc oxide

Pennsylvania Environmental Hazard

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Environmental Hazard List.

Zinc oxide

Pennsylvania Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.

Carbon black

Zinc oxide

16 OTHER INFORMATION

Revision Information

Revision Date 12 APR 2002

Revision Number 4

Supersedes Revision Dated 27-SEP-2001

Revision Summary

Updated Regulatory Language

Key

NE= Not Established NA= Not Applicable (R) = Registered Trademark



KYNAR (R) 370 PLT PVDF

Material Safety Data Sheet

ATOFINA Chemicals, Inc.

ATOFINA Chemicals, Inc. believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use are beyond the control of ATOFINA Chemicals, ATOFINA Chemicals expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.