



**MATERIAL SAFETY DATA SHEET**

**MSDS# 1000**

**SECTION 1**

QUADRANT EPP  
2120 FAIRMONT AVENUE  
P.O. BOX 14235  
READING, PA. 19612-4235

TELEPHONE NUMBERS:  
PRODUCT INFORMATION(Quadrant EPP ) -  
610-320-6600  
TRANSPORTATION EMERGENCY (CHEMTREC) -  
800-424-9300

MATERIAL IDENTIFICATION

PRODUCT NAME: **DELTRIN AF, AF BLENDS AND 588 AF PRODUCTS**

CHEMICAL NAME: **POLYOXYMETHYLENE, FORMALDEHYDE HOMOPOLYMER (POM) ACETAL HOMOPOLYMER.**

CAS NO.: **9002-81-7 (BASE POLYMER)**

PRODUCT USE: **ENGINEERING THERMOPLASTIC STOCK SHAPE FOR SUBSEQUENT FABRICATION.**

TSCA INVENTORY STATUS: **ALL REPORTABLE INGREDIENTS ARE LISTED IN THE TSCA CHEMICAL SUBSTANCE INVENTORY.**

---

**SECTION 2**

HAZARDOUS INGREDIENTS (ADDITIVES NOT HAZARDOUS BY 29 CFR 1910.1200)

IDENTITY	CAS#	CONCENTRATION	TVL (TWA)
<b>Acetal</b>		<b>&gt;80%</b>	
<b>Stabilizer</b>		<b>&lt;2%</b>	
<b>Pigment</b>		<b>&lt;1%</b>	
<b>Polytetrafluoroethylene</b>	<b>9002-84-0</b>	<b>&lt;20%</b>	
<b>Formaldehyde</b>	<b>50-00-0</b>	<b>&lt;0.005%</b>	

---

## SECTION 3

HEALTH HAZARD DATA

ACUTE OR IMMEDIATE EFFECTS: ROUTES OF ENTRY AND SYSTEMS  
INGESTION: **NOT A PROBABLE ROUTE OF EXPOSURE.**  
SKIN: **MOLTEN ACETAL CAUSES THERMAL BURNS.**  
EYE: **MECHANICAL IRRITATION ONLY.**  
INHALATION: **SHAPES NOT RESPIRABLE.**

## Health Hazard Continued

## Acetal Polymer

There are no known effects from exposure to the Delrin polymer itself. If overheated, the polymer releases formaldehyde which may cause skin, eye and respiratory irritation and allergic reactions.

## Polytetrafluoroethylene

Inhalation of PTFE dust may cause generalized irritation of the nose, throat and lungs with cough, difficulty breathing or shortness of breath.

Heating PTFE above 300 degrees C may liberate a fine particulate fume. Inhalation may product polymer fume fever, a temporary flu like condition with fever, chills, nausea, shortness of breat, chest tightness, muscle or joint ache and sometimes cough and elevated white blood cell count. The symptoms are often delayed 4 to 24 hours and resolve without further complications. However some individuals with repeated episodes of polymer fume fever have reported persistent pulmonary effects. Protection against polymer fume fever should also provide protection against any potential chronic effects.

Exposure to decomposition product from PTFE heated over 400 degrees C may cause pulmonary inflammation, hemorrhage or edema. These more serious consequences of exposure may occur from extreme thermal decomposition of PTFE which can liberate fume particles and toxic gases (carbonyl fluoride, hydrogen fluoride and other fluorinated gases) especially under conditions of poor ventilation.

Compared to nonsmokers, polymer fume fever symptoms appear to be more prevalent and serious in smokers. Smokers must avoid contamination of tobacco with residual polymer from their hands or from fumes and should wash their hands before smoking.

## SECTION 4

EMERGENCY FIRST AID

- If exposed to fumes from overheating, move to fresh air. Consult a physician if symptoms persist.
- Wash skin with soap and plenty of water.
- Flush eyes with water. Consult a physician if symptoms persist.
- If molten acetal contacts skin, cool rapidly with cold water. Do not attempt to peel acetal from skin. Obtain medical attention to thermal burn.

CHRONIC EFFECTS: CHRONIC INHALATION STUDIES IN ANIMALS HAVE SHOWN THAT FORMALDEHYDE CAUSES NASAL CANCER IN RATS. THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER HAS CLASSIFIED FORMALDEHYDE AS A CARCINOGEN IN GROUP 2A, AND THE NATIONAL TOXICOLOGY PROGRAM INCLUDED FORMALDEHYDE IN ITS ANNUAL REPORT ON CARCINOGENS. THE OSHA TWA FOR FORMALDEHYDE IS 0.75 PPM (8 HOURS). THE ACGIH TLV IS CEILING 0.3 PPM. THE OSHA STEL IS 2 PPM.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY THIS MATERIAL: NO DATA ARE AVAILABLE THAT ADDRESSES MEDICAL CONDITIONS THAT ARE GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

---

SECTION 5FIRE AND EXPLOSION HAZARD DATA

FLASH IGNITION TEMPERATURE: 608 F./ 320 C. METHOD: ASTM D-1929

UNUSUAL FIRE, EXPLOSION HAZARDS: NONE KNOWN.

HAZARDOUS COMBUSTION PRODUCTS: FORMALDEHYDE MAY BE RELEASED IF PRODUCT IS EXPOSED TO EXCESSIVE HEAT OR FIRE.

SPECIAL FIRE FIGHTING INSTRUCTIONS: FIRE FIGHTERS AND OTHERS EXPOSED TO PRODUCTS OF COMBUSTION SHOULD WEAR FULL PROTECTIVE CLOTHING INCLUDING SELF-CONTAINED BREATHING APPARATUS. FIRE FIGHTING EQUIPMENT SHOULD BE THOROUGHLY DECONTAMINATED AFTER USE.

EXTINGUISHING MEDIA: WATER SPRAY OR ANY CLASS A EXTINGUISHING AGENT.

---

>= **Physical health Hazards:**

DUST MAY FORM EXPLOSIVE MIXTURES WITH AIR. AVOID DUST FORMATION AND CONTROL IGNITION SOURCES. ALL PLASTIC DUST PARTICLES SUSPENDED IN AIR ARE COMBUSTIBLE AND MAY BE EXPLOSIVE. KEEP AWAY FROM HEAT, SPARKS, FLAME, AND OTHER IGNITION SOURCES. PREVENT DUST ACCUMULATIONS AND DUST CLOUDS. EMPLOY GROUNDING, VENTING, AND EXPLOSIVE RELIEF PROVISIONS IN

ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICES AND NFPA PROVISIONS IN ANY PROCESS CAPABLE OF GENERATING DUST AND/OR STATIC ELECTRICITY. EXPLOSION HAZARDS APPLY ONLY TO DUSTS, NOT GRANULAR FORMS OF THIS PRODUCT. SEE ALSO SPECIAL PRECAUTIONS SECTION BELOW.

---

**SECTION 6**ACCIDENTAL RELEASES

SPILL OR RELEASE: **CLEAN UP BY VACUUMING OR SWEEPING TO PREVENT FALLS.**

---

**SECTION 7**STORAGE CONDITIONS

**Dry storage.**

---

**SECTION 8**PROTECTION INFORMATION

**EYE: Safety glasses are recommended to prevent particulate matter from entering eyes while grinding or machining.**

**SKIN: Protective gloves are required when handling hot polymer. Also, long sleeve cotton shirt and long pants if handling molten polymer.**

**VENTILATION: Local exhaust at processing equipment to keep particulates below 15 mg/m<sup>3</sup>, the OSHA limit for nuisance dusts. Grinding and machining of parts should be reviewed to assure that particulate levels are kept at recommended levels. Also, formaldehyde fumes may be released during fabrication.**

**RESPIRATOR: None under normal processing, if ventilation is adequate. If formaldehyde concentration is above 1 ppm, a properly fitted NIOSH approved respirator is required.**

---

**SECTION 9**PHYSICAL/CHEMICAL DATA

APPEARANCE: **STOCK SHAPE MAY BE ROD, PLATE, TUBE, OR STRIP FORM.**

ODOR: **ESSENTIALLY ODORLESS.**

MELTING POINT: **172 - 184 C./ 342 - 363 F.**

SOLUBILITY IN WATER: **INSOLUBLE**

VOLATILE CONTENT %: **<1%**

SPECIFIC GRAVITY: **1.39 - 1.44**

---

**>= Precautions For Repair & Maintenance Of Contaminated Equipment:  
Eliminate ignition sources:**

TRANSFER FROM STORAGE WITH A MINIMUM AMOUNT OF DUSTING. GROUND ALL TRANSFER, BLENDING, AND DUST COLLECTING EQUIPMENT TO PREVENT STATIC SPARKS IN ACCORDANCE WITH NFPA 70 "NATIONAL ELECTRIC CODE". REVIEW AND COMPLY WITH ALL RELEVANT NFPA PROVISIONS, INCLUDING BUT NOT LIMITED TO NFPA 484 AND NFPA 654 RELATED TO COMBUSTIBLE DUST HAZARDS. REMOVE ALL IGNITION SOURCES FROM MATERIAL HANDLING, TRANSFER, AND PROCESSING AREAS WHERE DUST MAY BE PRESENT. LOCAL EXHAUST VENTILATION SHOULD BE PROVIDED IN WORK AREA.

---

**SECTION 10**HAZARDOUS REACTIVITY

STABILITY AT ROOM TEMPERATURE: **STABLE.**

MATERIALS TO AVOID: **STRONG ACIDS AND BASES, DECOMPOSES FORMING FORMALDEHYDE. STRONG OXIDIZING AGENTS.**

CONDITIONS TO AVOID: **HEATING ABOVE 230 C./ 446 F.- FORMS FORMALDEHYDE.**

---

**SECTION 11**TOXICOLOGICAL INFORMATION

CHRONIC TOXICITY: **DELTRIN PRODUCT SHAPES ARE HARMLESS.**

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: **NO DATA IS AVAILABLE WHICH ADDRESSES MEDICAL CONDITIONS THAT ARE GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE TO THIS PRODUCT.**

CARCINOGENICITY: **REFER TO SECTION 4 (CHRONIC EFFECTS) FOR EFFECTS OBSERVED IN ANIMALS.**

---

## SECTION 12

ECOLOGICAL INFORMATION

**AQUATIC TOXICITY:** Toxicity is expected to be low based on insolubility of polymer in water.

---

## SECTION 13

DISPOSAL

**SPILL OR RELEASE:** Clean up by vacuuming or wet sweeping to minimize dust exposure.

**WASTE DISPOSAL:** Recycling is encouraged, Landfill or incineration in compliance with Federal, State, and Local regulations.

---

## SECTION 14

TRANSPORT INFORMATION

DOT HAZARD CLASS: **NA**

SHIPPING NAME: **NA**

---

**SECTION 15A  
REGULATORY INFORMATION**SECTION 313 SUPPLIER NOTIFICATION:  
(SARA TITLE III-TOXIC CHEMICALS LIST)

This product contains no known toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR 372.

STATE RIGHT TO KNOW LAWS

No substances on the state hazardous list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated. While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substances lists, to the best of our knowledge the products on this Material Safety Data Sheet contain no such substances except for those specifically listed below:

PENNSYLVANIA:

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1% OR MORE: **NONE KNOWN.**

SUBSTANCES ON THE PENNSYLVANIA SPECIAL HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 0.01% OR MORE: **NONE KNOWN.**

CALIFORNIA PROPOSITION 65:

SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER:  
**FORMALDEHYDE.**

SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH  
 DEFECTS OR OTHER REPRODUCTIVE HARM: **NONE KNOWN.**

**SECTION 15B  
 LABELING INFORMATION**

<b>Health</b>	<b>0</b>
<b>Flammability</b>	<b>1</b>
<b>Reactivity</b>	<b>0</b>
<b>PPE</b>	<b>A</b>
<b>#Acute *Chronic</b>	

**SECTION 16**

MISCELLANEOUS INFORMATION

Issued by: Richard Frey, SHE Manager, NA

Issued: January 8, 2009

Supersedes: October 29, 2008

The information set forth herein has been gathered from standard reference materials and/or supplier test data and is, to the best knowledge and belief of Quadrant EPP, accurate and reliable. Such information is offered solely for your consideration, investigation and verification, and it is not suggested or guaranteed that the hazard precautions or procedures mentioned are the only ones that exist. Quadrant EPP makes no warranties, expressed or implied, with respect to the use of such information or the use of the specific material identified herein in combination with any other material or process, and assumes no responsibility therefor.

NA = Not applicable

NE = Not established.

> = New or revised information in this section when " > " appears in the left margin.

**END OF MSDS**