

MATERIAL SAFETY DATA SHEET



A5000 ST

1. PRODUCT AND COMPANY NAME

PRODUCT NAME: A5000 ST

DESCRIPTION: Clear FEP Shrinkable Release Tubing

MANUFACTURER: Richmond Aircraft Products
12801 Ann Street
Santa Fe Springs, CA 90670

FOR MORE INFORMATION CALL: 562-906-3300
IN CASE OF EMERGENCY CALL: 562-906-3300

2. COMPOSITION/INFORMATION ON INGREDIENTS

| <u>Ingredient Name</u> | <u>CAS #</u> | <u>% of Ingredient</u> |
|--|------------------|------------------------|
| Tetrafluoroethylene-hexafluoropropylene copolymer | (CAS 25067-11-2) | >98% |
| *Cobalt phosphate | (CAS 13455-36-2) | <2% |
| Titanium dioxide | (CAS 13463-67-7) | <0.05% |
| Heated above 400C (750F) can evolve as degradation products: | | |
| Hydrogen fluoride | (CAS 7664-36-3) | <1% |
| Carbonyl fluoride | (CAS 353-50-4) | <1% |
| Perfluoroisobutylene | (CAS 382-21-8) | <0.01% |

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

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3. HAZARD IDENTIFICATION

POTENTIAL HEALTH HAZARDS

| | |
|------------------------|---|
| Route of Entry: | Inhalation |
| Target Organs: | Respiratory |
| Inhalation: | <p>Inhalation of fumes from overheating FEP may cause polymer fume fever, a temporary flu-like illness with fever, chills, and sometimes a cough, of approximately, 24 hours duration. There are some reports in the literature of persistent pulmonary effects in individuals, especially smokers, who have had repeated episodes of polymer fume fever. Because of complicating factors, such as mixed exposures and smoking history, these findings are uncertain. Protection against acute exposure should also provide protection against any potential chronic effects. Smokers should avoid contamination of tobacco products, and should wash their hands before smoking. Significant skin permeation after contact appears unlikely. There are no reports of human sensitization. Small amounts of carbonyl fluoride, hydrogen fluoride and Perfluoroisobutylene may also be evolved when FEP COPOLYMER is overheated or burned. Inhalation of low concentrations of HYDROGEN FLUORIDE can initially include symptoms of choking, coughing, and severe eye, nose, and throat irritation, possibly followed after a symptomless period of 1 to 2 days by fever, chills, difficulty in breathing, cyanosis, and pulmonary edema. Acute or chronic overexposure to HF can injure the liver and kidneys. PERFLUOROISOBUTYLENE is an extremely toxic as for which inhalation is the most likely route of human exposure. Inhalation exposure may cause severe symptoms of pulmonary edema with wheezing, difficulty in breathing, coughing up sputum and bluish discoloration of the skin. Coughing and chest pain may occur initially. However, severe symptoms of pulmonary edema may be delayed for several hours and then become rapidly worse. Over-exposure may cause death. (Inhalation 2-hour LC50 w 1.05 ppm in rats) Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures from thermal decomposition products.</p> |
| Skin Contact: | Skin irritation with discomfort or rash |
| Eye Contact: | Eye corrosion with corneal or conjunctival ulceration |
| Ingestion: | Not a route of exposure |

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4. FIRST AID MEASURES

| | |
|----------------------|--|
| Inhalation: | None needed under normal usage. If exposed to vapors at elevated processing temperatures, remove to fresh air. If symptoms persist consult a physician. |
| Skin Contact: | The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable. If molten polymer gets on skin, cool rapidly with cold water do not attempt to peel polymer from skin. Obtain medical treatment for thermal burn. |
| Eye Contact: | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. |
| Ingestion: | None needed. Consult a physician if necessary. |

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

| | |
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| Flash Point (Method Used): | 530-550C (986-1022F) (ASTM D1929) |
| LEL: | N/A |
| UEL: | N/A |
| Extinguishing Method: | Water, foam, dry chemical, CO2 |
| Special Fire Fighting Procedures: | Wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus and full protective clothing. |
| Unusual Fire and Explosion Hazards: | Does not burn without an external flame. Protect from hydrogen fluoride fumes which react with water to form hydrofluoric acid. Wear Neoprene gloves when handling refuse from a fire. |

6. ACCIDENTAL RELEASE MEASURES

Always wear recommended personal protective equipment. Collect and place in a solid waste container.

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7. HANDLING AND STORAGE

Handling Precautions: Avoid contamination of cigarettes or tobacco with dust from this material. Do not use a torch to clean this material from equipment without local exhaust ventilation and respirator.

Storage Requirements: Keep container closed to prevent contamination.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Engineering Controls: Use local exhaust to completely remove vapors and fumes liberated during hot processing from the work area.

Protective Equipment: Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying of molten material. A respirator is not required if local exhaust ventilation is adequate. At processing temperatures less than 400 deg C (750 deg F) a NIOSH/MSHA approved air purifying respirator with dust/mist cartridge or canister may provide protection from airborne particulates which cause polymer fume fever. At higher processing temperatures if ventilation is inadequate to maintain hydrogen fluoride and carbonyl fluoride concentrations below exposure limits, use a positive pressure air supplied respirator. Air purifying respirators may not provide adequate protection. If there is potential contact with hot/molten material, wear heat resistant clothing and footwear.

Exposure Guideline/Other:

"Teflon" Release Film all in LON004

PEL (OSHA)

Particulates (Not Otherwise Regulated)

15 mg/m³, 8 Hr. TWA, total dust

5 mg/m³, 8 Hr. TWA, respirable dust

Tetrafluoroethylene-Hexafluoropropylene Copolymer

PEL (OSHA)

None Established

TLV (ACGIH)

None Established

Titanium Dioxide

PEL (OSHA)

15 mg/m³, total dust, 8 Hr. TWA

TLV (ACGIH)

10 mg/m³, total dust, 8 Hr. TWA, A4

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| | |
|---|--|
| Hydrogen Fluoride PEL (OSHA) TLV (ACOH) | 3 ppm, 8 Hr. TWA, as F 3 ppm, 2.6 mg/m ³ , Ceiling as F |
| Carbonyl Fluoride PEL (OSHA) TLV (ACGXH) | None Established 2 ppm, 5.4 mg/m ³ , 8 Hr. TWA STEL 5 ppm, 13 mg/m ³ |
| Perfluoroisobutylene PEL (OSHA) TLV (ACe1H) | None Established Ceiling 0.01 ppm, 0.082 mg/m ³ |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--------------------------------|----------------------|
| Appearance: | Clear plastic film |
| Physical Status: | Solid |
| Odor: | No odor |
| pH: | N/A |
| Vapor Pressure: | N/A |
| Vapor Density: | N/A |
| Boiling Point: | N/A |
| Freezing/Melting Point: | >260-275C (500-527F) |
| Solubility: | Insoluble |
| Spec. Grav./Density: | 2.1 – 2.2 |

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10. STABILITY AND REACTIVITY

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|--|---|
| Stability: | Normally Stable |
| Conditions to avoid: | Avoid exposure to open flame or temperatures exceeding recommended processing temperatures. The maximum temperature to which the film can be exposed will vary with exposure (dwell) time. RAP should be contacted if questions arise concerning specific processing conditions. |
| Materials to avoid (Incompatibility): | Incompatible or can react with finely divided metal powders (e.g., aluminum and magnesium) and potent oxidizers like fluorine (P2) and related compounds (e.g., chlorine trifluoride, C1F3). Contact with incompatibles can cause fire, an explosion. |
| Hazardous Decomposition Products: | Heating above, 275C (527 F), may cause evolution of particulate matter, which can cause polymer fume fever (see HUMAN HEALTH EFFECTS). Trace amounts of hydrogen fluoride, carbonyl fluoride, and perfluoroisobutylene may be evolved at about 380C (716F), with larger amounts at higher temperatures. |
| Hazardous Polymerization: | Will not occur |

11. TOXICOLOGICAL INFORMATION

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|---|---------------|
| Immediate (Acute) Effects: | See Section 3 |
| Delayed (Sub-chronic and chronic) Effects: | See Section 3 |
| Other Data: | |

TETRAFLUOROETHYLENE-HEXAFLUOROPROPYLENE COPOLYMER (FEP)

Inhalation 4 hour LC50 > 4,900 mg/m³ in rats. At very high exposure levels, animals were suffocated by accumulated dust in the lungs. Repeated exposure by ingestion caused no adverse effects.

None of the *components* present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACQIH as a carcinogen.

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12. ECOLOGICAL INFORMATION

No information is available. Toxicity is expected to be low based on insolubility in water.

13. DISPOSAL CONSIDERATIONS

Preferred options for disposal are (1) recycling and (2) landfill. Incinerate only if incinerator is capable of scrubbing out hydrogen fluoride and other acidic combustion products. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/ provincial, and local regulations.

14. TRANSPORT INFORMATION

US DOT Hazard Class: Not regulated
US DOT ID Number: Not applicable

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status: Listed

State Regulations (US)

State Right-To-Know

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet; with the exceptions indicated.

Substances on the Pennsylvania hazardous substance

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16. OTHER INFORMATION

Current Issue Date: 10/05/2010
Previous Issue Date: 02/27/2008