AIRTECH
ADVANCED MATERIALS GROUP

MATERIAL SAFETY DATA SHEET

Dahlar 9000 – Issue Date: September 12, 2008

SECTION I - PRODUCT IDENTIFICATION

Trade Name: **Dahlar 9000**
Product Class:
Supplier: **Airtech International, Inc.**
5700 Skylab Road
Huntington Beach, CA 92647
Telephone: 714-899-8100
Fax: 714-899-8179

Emergency Telephone: **800-424-9300**

NFPA, NPCA - HMIS
NFPA Ratings: Health= 2 Flammability= 1 Reactivity= 0
Formula: CAS #:

SECTION II – HAZARDOUS INGREDIENTS

Exposure Limits for Particulates (Not otherwise regulated):
15 mg/m3, 8 Hr. TWA, total dust.
5 mg/m3, 8 Hr. TWA, respirable dust.

Tetrafluoroethylene-Hexafluoropropylene Copolymer
CAS #: 25067-11-2 Percentage: >98
OSHA PEL: None established
ACGIH TLV: None established

Cadmium Sulfoselenide**
CAS #: 12626-36-7 Percentage <0.7
OSHA PEL: 5 ug/m3, 8 Hr. TWA, as Cd
ACGIH TLV: 0.01 mg/m3, total dust, 0.002 mg/m3, respirable dust, as Cd, A2

**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.

Titanium Dioxide
CAS #: 13463-67-7 Percentage: <0.1
OSHA PEL: 15 mg/m3, total dust, 8 Hr. TWA
ACGIH TLV: 10 mg/m3, total dust, 8 Hr. TWA, A4

Heated above 400°C (750°F) can evolve as degradation products:

Hydrogen Fluoride as a degradation product
CAS #: 7664-39-3 Percentage: <1
OSHA PEL: 3 ppm, 8 Hr. TWA, as F
ACGIH TLV: 3 ppm, 2.6 mg/m3, Ceiling as F

Carbonyl Fluoride as a degradation product
CAS #: 353-50-4 Percentage: <1
OSHA PEL: None established
ACGIH TLV: 2 ppm, 5.4 mg/m3, 8 Hr. TWA
STEL 5 ppm, 13 mg/m3

Perfluoroisobutylene as a degradation product
CAS #: 382-21-8 Percentage: <0.01
OSHA PEL: None established
ACGIH TLV: Ceiling 0.01 ppm, 0.082 mg/m3

SECTION III – PHYSICAL DATA

Description: Red Film
Odor: None
Melting point: 260-275 C (500-527 F)
Solubility in water: Insoluble
Specific gravity: 2.1 - 2.2
Form: Film

SECTION IV – FIRE AND EXPLOSION DATA

Flammable Properties
Flash Ignition Temperature: 530-550 C (986-1022 F) Method: ASTM D1929
Self Ignition Temperature: 520-560 C (968-1040 F) Method: ASTM D1929
UL-94 Flammability Rating: V-0
Limiting Oxygen Index: >95 Method: ASTM D2863

Difficult to ignite, and flame goes out when initiating source is removed (UL-94). Limited flame spread and low smoke generation (NFPA 262-1990, UL-910). Complies with NFPA definition of "limited combustible" material. High self-ignition and auto-ignition temperatures (ASTM D1929).

Fire and Explosion Hazard: Hazardous gases/vapors produced in fire

Are hydrogen fluoride (HF), carbon monoxide, potentially toxic fluorinated compounds.
Fire Fighting Instructions: Wear self-contained breathing apparatus. Wear full protective equipment. 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.

Extinguishing media: Water, foam, dry chemical, CO_2

SECTION V – HEALTH HAZARD DATA

DAHLAR 9000 is not hazardous as shipped. The primary hazard associated with these polymers is the inhalation of fumes from overheating or burning, which may cause "polymer fume fever". (See Human Health Effects Below).

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.

HUMAN HEALTH EFFECTS OF OVEREXPOSURE TO FEP COPOLYMER:

Inhalation of fumes from overheating FEP may cause polymer fume fever, a temporary flu-like illness with fever, chills, and sometimes 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 or 2 days by fever, chills, difficulty in breathing, cyanosis, and pulmonary edema. Acute or chronic overexposure to HF can injure the liver and kidneys.

Inhalation, ingestion, or skin or eye contact with Carbonyl Fluoride may initially include: skin irritation with discomfort or rash; eye corrosion with corneal or conjunctival ulceration; irritation of the upper respiratory passages; or temporary lung irritation effects with cough, discomfort, difficulty breathing or other shortness of breath. Symptoms may be delayed.

Perfluoroisobutylene is an extremely toxic gas 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. Overexposure may cause death. (Inhalation 2-hour LC50 = 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.

Carcinogenicity Information
The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

	IARC	NTP	OSHA	ACGIH
Cadmium Sulfoselenide	X	X	X	X

Emergency and First Aid Procedure:
In case of Inhalation: No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary. If exposed to fumes from overheating or combustion, move to fresh air. Consult a physician if symptoms persist.
In case of 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.
In case of eye contact: Immediately flush eyes with plenty of water for at least 15 minutes.. Call a physician.
In case of Ingestion: No specific intervention is indicated as compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

SECTION VI – REACTIVITY DATA

Chemical stability: Stable at normal temperatures and storage conditions.
Incompatibility with other materials: Incompatible or can react with finely divided metal powders (e.g., aluminum and magnesium) and potent oxidizers like fluorine (F2) and related compounds (e.g., chlorine trifluoride, C1F3). Contact with incompatibles can cause fire, an explosion.

Hazardous decomposition products: Heating above 275 C (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 380 C (716 F), with larger amounts at higher temperatures.

SECTION VII – SPILL OR LEAK PROCEDURE

Steps to be taken in case material is released or spilled
Review Fire and Explosion Data Section IV before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Sweep up to avoid slipping hazard.

Ecotoxicological Information

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

Waste Disposal
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.

SECTION VIII – SPECIAL PROTECTION INFORMATION

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

Respiratory Protection: A respirator is not required if local exhaust ventilation is adequate. At processing temperatures less than 400 C (750 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.

Protective Clothing: If there is potential contact with hot/molten material, wear heat resistant clothing and footwear.

Eye/Face Protection: 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.

Other Protection: 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

SECTION IX – SPECIAL PRECAUTIONS

Storage: Keep containers closed to avoid contamination.

Medical Use: CAUTION: Do not use in medical applications involving permanent implantation in the human body.

TRANSPORTATION INFORMATION: Shipping Information:
DOT Proper Shipping Name: Not regulated.

STATE RIGHT-TO-KNOW LAWS

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 SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.01%) FOR SPECIAL HAZARDOUS SUBSTANCES): None known

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM: Cadmium compound

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS): Cadmium compound

U.S. FEDERAL REGULATIONS:

TSCA Inventory Status: Listed

USER'S RESPONSIBILITY

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers. It is your responsibility to use this information to develop appropriate work practice guidelines and employee instructional programs for your operation.

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