NAFION FILMS

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification
"NAFION" is a registered trademark of DuPont.

Trade names and Synonyms
"NAFION" 117, 120
"NAFION" NE105, NE105F, NE1135, NE115N, NE151F,
"NAFION" NE1035, NF1035N,
"NAFION" NE112, NF115,
"NAFION" NX112F, NX115F, NX117F

Company Identification
Manufacturer/Supplier:
Fuel Cell Earth LLC
1 Melvin St Unit C
Wakefield, MA 01880

Emergency Phone: (617) 532-0582
CHEMTREC: (800) 424-9300
Web Site: www.fuelcellearth.com

Phone Numbers
Product Information 1-(800) 441-7515
Transport Emergency 1-(800) 424-9300
Medical Emergency 1-(800) 441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

<table>
<thead>
<tr>
<th>Material</th>
<th>CAS Number</th>
<th>%</th>
</tr>
</thead>
</table>
TETRAFLUOROETHYLENE/PERFLUORO
(4-METHYL-3, 6-DIOXA-7-OCTENE-1-
SULFONIC ACID) CO POLYMER

or

TETRAFLUOROETHYLENE/PERFLUORO
(4-METHYL-3, 6-DIOXA-7-OCTENE-1-
SULFONYL FLUORIDE) COPOLYMER

or

Sodium Salts of above

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CAS NUMBER</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TETRAFLUOROETHYLENE/PERFLUORO (4-METHYL-3, 6-DIOXA-7-OCTENE-1-SULFONIC ACID) CO POLYMER</td>
<td>31175-20-9</td>
<td>100</td>
</tr>
<tr>
<td>TETRAFLUOROETHYLENE/PERFLUORO (4-METHYL-3, 6-DIOXA-7-OCTENE-1-SULFONYL FLUORIDE) COPOLYMER</td>
<td>26654-97-7</td>
<td>100</td>
</tr>
</tbody>
</table>

Components (Remarks)

Material is not known to contain Toxic Chemicals under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

ADDITIONAL HEALTH EFFECTS

Read "Safety on Handling and Use" Bulletin E63118 before using "Nafion."

ACUTE OR IMMEDIATE EFFECTS: ROUTES OF ENTRY AND SYMPTOMS

INGESTION: Not a probable route of exposure

SKIN: Prolonged contact may cause skin irritation to some individuals.

EYE: Reversible cornea opacity and mild conjunctivitis.

INHALATION: Not respirable in pellet form. Inhalation of fumes from overheating or burning "Nafion," or from smoking tobacco or cigarettes contaminated with polymer dust, may cause polymer fume fever, a flu-like illness with chills and fever. Symptoms may not occur for several hours after exposure and go away in 24-48 hours even in absence of treatment.

Carcinogenicity Information

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

FIRST AID MEASURES

First Aid

INHALATION

If exposed to fumes from overheating or combustion, remove to fresh air.

SKIN CONTACT

...
The compound is not likely to be hazardous by skin contact but cleansing the skin after use is advisable.

**EYE CONTACT**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

**INGESTION**

No specific intervention is indicated as compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

**FIRE FIGHTING MEASURES**

**Flammable Properties**

Flash Point: N/A  
Method: N/A  
Hazardous gases/vapors produced in fire are hydrogen fluoride (HF), and, organic fluorine compounds.

**Extinguishing Media**

Water, Foam, Dry Chemical, CO2

**Fire Fighting Instructions**

Wear protective clothing and use self-contained breathing equipment to protect from acidic fluoride fumes.

**ACCIDENTAL RELEASE MEASURES**

**Safeguards (Personnel)**

Note: Review the FIREFIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with cleanup. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during cleanup.

**Accidental Release Measures**

Pick up to avoid slipping hazard.

**HANDLING AND STORAGE**

**Handling**

See FIRST AID and PERSONAL PROTECTIVE EQUIPMENT Sections.

**Storage**

Store in cool, dry place. Keep away from flammable materials.

**EXPOSURE CONTROLS/PERSOAL PROTECTION**

**Engineering Controls**

*VENTILATION: Local exhaust for operations above 150 C (302 F)*
Personal Protective Equipment

EYE/FACE PROTECTION
Wear safety glasses.
Recommended glove material: No information was found for selection of materials of construction for protective clothing.

RESPIRATOR Use a NIOSH approved positive pressure air supplied respirator if concentrations may exceed exposure limits. Air purifying respirators are inadequate for this material.

Exposure guidelines

Exposure Limits
"NAFION" FILMS

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

STABILITY AND REACTIVITY

Chemical Stability
Stable at normal temperatures and storage conditions.

Conditions to Avoid
At temperatures above 150 C (302 F), toxic and corrosive decomposition fumes are liberated.

Incompatibility with other materials
None reasonably foreseeable.

Decomposition
HAZARDOUS DECOMPOSITION PRODUCTS- hydrogen fluoride, carbonyl fluoride, toxic fluoro-organic compounds.

ECOLOGICAL INFORMATION

Ecotoxicological Information
AQUATIC TOXICITY:
No information is available. Toxicity is expected to be low based on insolubility in water.

DISPOSAL CONSIDERATIONS

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.

TRANSPORTATION INFORMATION

Shipping Information

DOT
Not regulated.

REGULATORY INFORMATION

U.S. Federal Regulations
TSCA Inventory Status: In compliance with TSCA Inventory requirements for commercial purposes.

State Regulations (US)

STATE RIGHT-TO-KNOW LAWS
No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of the products on this Material Safety Data Sheet.

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: None known.

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): None known.

OTHER INFORMATION

Additional information
MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications see DuPont Bulletin No. H-50102.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. 

**Responsibility for MSDS:** L.W. Buxton

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Chesnut Run Plaza 713
Wilmington, DE 19880-0713

**Distributor Address:**
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1 Melvin St. Unit C
Wakefield, MA 01880

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(617) 532-0582

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(888) 414-3193