1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
  - **Product name:** Poly(vinylidene fluoride)
  - **Stock number:** 44080
  - **CAS Number:** 24937-79-9

- **Relevant identified uses of the substance or mixture and uses advised against.**
  - **Sector of Use SU24:** Scientific research and development

- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:**
    - Alfa Aesar, A Johnson Matthey Company
    - Johnson Matthey Catalog Company, Inc.
    - 30 Bond Street
    - Ward Hill, MA 01835-8099
    - Tel: 800-343-0660
    - Fax: 800-322-4757
    - Email: tech@alfa.com
    - www.alfa.com
  - **Information Department:** Health, Safety and Environmental Department
  - **Emergency telephone number:** During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification

- **Classification of the substance or mixture**
  - **Classification according to Regulation (EC) No 1272/2008**
    - The substance is not classified according to the CLP regulation.
  - **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
    - Not applicable
  - **Information concerning particular hazards for human and environment:** Not applicable

- **Label elements**
  - **Labelling according to Regulation (EC) No 1272/2008** Not applicable
  - **Hazard pictograms** Not applicable
  - **Signal word** Not applicable
  - **Hazard statements** Not applicable
  - **Hazard description:**
    - **WHMIS classification:** Not controlled
    - **Classification system:**
      - **HMIS ratings (scale 0-4)**
        - **HEALTH** 1: Health (acute effects) = 1
        - **FIRE** 1: Flammability = 1
        - **REACTIVITY** 1: Reactivity = 1
  - **Other hazards**
  - **Results of PBT and vPvB assessment**
    - **PBT:** Not applicable.
    - **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Substances**
  - **CAS# Description:**
    - 24937-79-9 Poly(vinylidene fluoride)

4 First aid measures

- **Description of first aid measures**
  - **After inhalation**
    - Supply fresh air. If required, provide artificial respiration. Keep patient warm.
    - Seek immediate medical advice.
  - **After skin contact**
    - Immediately wash with water and soap and rinse thoroughly.
    - Seek immediate medical advice.
  - **After eye contact**
    - Rinse opened eye for several minutes under running water. Then consult a doctor.
  - **After swallowing**
    - Seek medical treatment.
  - **Information for doctor**
    - **Most important symptoms and effects, both acute and delayed**
      - No further relevant information available.

(Contd. on page 2)
5 **Firefighting measures**

**Extinguishing media**

**Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards arising from the substance or mixture**

If this product is involved in a fire, the following can be released:

- Carbon monoxide and carbon dioxide
- Hydrogen fluoride (HF)

**Advice for firefighters**

**Protective equipment:**

- Wear self-contained respirator.
- Wear fully protective impervious suit.

6 **Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

**Environmental precautions:**

Do not allow material to be released to the environment without proper governmental permits.

**Methods and material for containment and cleaning up:**

Pick up mechanically.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 **Handling and storage**

**Handling**

**Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

**Information about protection against explosions and fires:** No information known.

**Conditions for safe storage, including any incompatibilities**

**Storage**

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Store away from oxidizing agents.

**Further information about storage conditions:**

- Keep container tightly sealed.
- Store in cool, dry conditions in well sealed containers.

**Specific end use(s)**

No further relevant information available.

8 **Exposure controls/personal protection**

**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Control parameters**

**Components with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

**Additional information:** No data

**Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Protection of hands:**

Impervious gloves
9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:
- Form: Powder
- Color: White
- Odor: Odorless
- Odor threshold: Not determined.

pH-value: Not applicable.

Change in condition
- Melting point/Melting range: 155-160°C (311-320 °F)
- Boiling point/Boiling range: Not determined
- Sublimation temperature / start: Not determined
- Flammability (solid, gaseous): Not determined.
- Ignition temperature: Not determined
- Decomposition temperature: Not determined
- Auto igniting: Not determined.

Explosion limits:
- Lower: Not determined
- Upper: Not determined
- Vapor pressure: Not applicable.
- Density at 20°C (68 °F): 1.76 g/cm³ (14.687 lbs/gal)
- Relative density: Not applicable.
- Vapor density: Not applicable.
- Evaporation rate: Not applicable.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not applicable.
  - Kinematic: Not applicable.

Other information: No further relevant information available.

10 Stability and reactivity

Reactivity

Chemical stability
- Thermal decomposition / conditions to be avoided:
  - Decomposition will not occur if used and stored according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known
- Incompatible materials: Oxidizing agents
- Hazardous decomposition products:
  - Carbon monoxide and carbon dioxide
- Hydrogen fluoride

11 Toxicological information

Information on toxicological effects

Acute toxicity:
- Primary irritant effect:
  - on the skin: May cause irritation
  - on the eye: May cause irritation
- Sensitization: No sensitizing effects known.

Additional toxicological information:
- To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
- No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information

Toxicity
- Aquatic toxicity: No further relevant information available.
Product name: Poly(vinylidene fluoride)

Persistence and degradability
No further relevant information available.

Behavior in environmental systems:
Bioaccumulative potential
No further relevant information available.
Mobility in soil
No further relevant information available.

Additional ecological information:
General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

Other adverse effects
No further relevant information available.

13 Disposal considerations

Waste treatment methods
Recommendation: Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

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<td>Marine pollutant:</td>
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<td>Special precautions for user</td>
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<tr>
<td>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</td>
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15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:
For use only by technically qualified individuals.

Other regulations, limitations and prohibitive regulations
Substances of very high concern (SVHC) according to REACH, Article 57
Substance is not listed.
REACH - Pre-registered substances Substance is listed.
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.
<table>
<thead>
<tr>
<th>Contact:</th>
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<tbody>
<tr>
<td>Zachariah C. Holt</td>
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<tr>
<td>Global EHS Manager</td>
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</table>

Abbreviations and acronyms:
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- CHS: Globally Harmonized System of Classification and Labelling of Chemicals
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- HMIS: Hazardous Materials Identification System (USA)
- WHMIS: Workplace Hazardous Materials Information System (Canada)