1. IDENTIFICATION

PRODUCT NAME: Xenon Difluoride
CHEMICAL FORMULA: XeF2

COMPANY NAME:
Pelchem (Pty) Ltd
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2. HAZARD IDENTIFICATION

NFPA Rating (scale 0-4)
Health Hazard: 3 Flammability: 0 Instability: 1

• GHS CLASSIFICATION


• EMERGENCY OVERVIEW

Hazard Statements:
H271 – May cause fire or explosion; strong oxidizer
H316 – Causes mild skin irritation

• PRECAUTIONARY STATEMENTS

General Precaution

Xenon Difluoride is a strong oxidizing solid which is a white, pungent crystal. Xenon Difluoride is severely irritating and potentially damaging to contaminated tissue. This product can react with liquid organic materials (acetone, alcohol etc). Paper can spontaneously combust on contact with solid Xenon Difluoride. Xenon Difluoride is water and moisture-sensitive, and will react with water to generate hydrofluoric acid fumes and a small amount of heat. Emergency responders must wear proper personal protective equipment and have adequate fire protection for the incident to which they are responding

Prevention
P210 – Keep away from heat/sparks/open flames/hot surfaces – no smoking
P220 – Keep/store away from clothing/combustible materials
P221 – Take any precaution to avoid mixing with combustibles
P280 – Wear protective gloves/protective clothing/eye protection/face protection
P283 – Wear fire/flame resistant/retardant clothing

Response
P306+P360 – IF ON CLOTHING: Rinse immediately the contaminated clothing and skin with plenty of water before removing clothes
P371+P380+P375 – In case of fire: Evacuate area. Fight fire remotely due to risk of explosion
P370+P378 – In case of fire: apply water mist from a protected location or from a safe distance for extinction
P332+P313 – If skin irritation occurs: Get medical advice/attention

Storage
P402 + P404 – Store in a dry place in a closed container

Disposal
P501 – Dispose of contents/container with a slightly acidic water solution or return to supplier for cylinder and product recycle

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME OF SUBSTANCE: Xenon Difluoride
SYNONYMS: Xenon fluoride (XeF2); Xenon difluoride (XeF2); Xenon (II) fluoride (F2Xe)

UN No: UN3085  CAS-No: 13709-36-9

4. FIRST AID MEASURES

♦ INHALATION:
  Remove from exposure immediately. Apply artificial respiration (rescue breathing) if needed. Get medical attention.

♦ SKIN CONTACT:
  Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention, if needed. The use of calcium gluconate gel may be considered

♦ EYE CONTACT:
  Rinse eyes immediately with large amounts of water or normal saline solution, keeping eyes wide open. Consult a physician
♦ INGESTION:
If vomiting occurs, keep head lower than hips to help prevent aspiration. Get medical attention, if needed.

5. FIRE-FIGHTING MEASURES

♦ FIRE AND EXPLOSION HAZARD:
Negligible fire hazard. May ignite or explode on contact with combustible materials.

♦ EXTINGUISHING MEDIA
Water.
Do not use dry chemical, carbon dioxide or halogenated extinguishing agents. Large fires, flood with water. Apply water from a protected location or from a safe distance.

♦ FIREFIGHTING
Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out.

6. ACCIDENTAL RELEASE MEASURES

♦ OCCUPATIONAL SPILL:
Avoid contact with combustible materials. Do not touch spilled material. Small dry spills: Move containers away from spill to a safe area. Small liquid spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards. NFPA 430 Code for the Storage of Liquid and Solid Oxidizing Materials. Store under an inert atmosphere. Store in a tightly closed container. Avoid contact with water or moisture. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

EXPOSURE LIMITS:

♦ XENON DIFLUORIDE:
INORGANIC FLUORIDES (as F): 2.5 mg/m3 OSHA TWA 2.5 mg/m3 ACGIH TWA 2.5 mg/m3 NIOSH recommended TWA 10 hour(s) 2.5 mg(F)/m3 UK OES TWA MEASUREMENT METHOD: Treated pad with pre-filter (with special coating); Reagent; Ion-specific electrode; NIOSH III # 7902, Fluorides.

♦ VENTILATION:
Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

♦ EYE PROTECTION:
Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
CLOTHING:
Wear appropriate chemical resistant clothing.

GLOVES:
Wear appropriate chemical resistant gloves.

RESPIRATOR:

The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
Measurement Element: E

12.5 mg/m³ Any dust and mist respirator.
25 mg/m³ Any dust and mist respirator. Any supplied-air respirator.
62.5 mg/m³ Any supplied air respirator. Any powered, air-purifying respirator with a dust and mist filter. May need acid gas sorbent.
125 mg/m³ any air-purifying respirator with full-face piece and a high-efficiency particulate filter. May need acid gas sorbent. Any self-contained breathing apparatus with a full-face piece.
250 mg/m³ any supplied-air respirator with a full face piece that is operator in a pressure-demand or other positive-pressure mode.

Escape – Any air-purifying respirator with a full-face piece and a high-efficiency particulate filter. May need acid gas sorbent. Any appropriate escape-type, self-contained breathing apparatus.

For unknown concentrations or Immediately Dangerous to Life or Health – Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full-face piece.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical state: Solid
- Color: White
- Physical form: Crystals
- Odor: Pungent
- Molecular weight: 169.29
- Molecular formula: XeF₂
- Boiling point: 114°C
- Melting point: 264-284 °F (129-140 °C)
- pH: Not applicable
- Vapor pressure: 0.5 kPa at 25°C
- Density: 4.32 kg/L
- Packaging density: 2.0 kg/L
- Water solubility: 25g/L at 0°C
- Sublimation PT: 237 °F (114 °C)
10. STABILITY AND REACTIVITY

♦ REACTIVITY:
Contact with water or moist air may form toxic gases or vapors.

♦ CONDITIONS TO AVOID:
Avoid contact with combustible materials. May ignite or explode on contact with combustible materials. Keep out of water supplies and sewers.

♦ INCOMPATIBILITIES:
Combustible materials, reducing agents.

XENON DIFLUORIDE:
ACETONE: May cause an explosion on contact.
DIMETHYLAMINOTRIMETHYLSILANE: In presence or absence of solvent may be explosive at sub-zero temperature.
DIMETHYL-SULFIDE: Interaction in absence of solvent is explosive at ambient temperature.
ETHANOL: May cause vigorous reactions.
LUBRICANTS: May cause an explosion on contact.
OTHER COMBUSTIBLES: May cause an explosion on contact.
PAPER: May burn or cause an explosion on contact.
PENTACARBONYLIRON: May cause an explosion on contact.
POLYETHYLENE: May burn on contact.
POTASSIUM IODATE: May cause vigorous reactions.
POTASSIUMPERMANGANATE: May cause vigorous reactions.
SAWDUST: May burn or cause an explosion on contact.
SILICON + NITROGEN COMPOUNDS: In presence or absence of solvent may be explosive at sub-zero temperatures.
STYRENE: May cause an explosion on contact.
WOOL: May cause an explosion on contact.

OXIDIZERS:
COMBUSTIBLE MATERIALS: May increase the burning rate or cause ignition on contact; finely divided materials may result in an explosion.
ORGANIC MATERIALS: May increase the burning rate or cause ignition on contact; finely divided materials may result in an explosion.
REDUCING MATERIALS: Fire and explosion hazard.

♦ HAZARDOUS DECOMPOSITION:
Thermal decomposition products: halogens.

♦ POLYMERIZATION:
Will not polymerize.

11. TOXICOLOGICAL INFORMATION:

♦ MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
Central nervous system disorder, bone, joint or tooth disorders, eye disorders, kidney disorder, respiratory disorders, skin disorders and allergies.

♦ ADDITIONAL DATA:
May cross the placenta. May be excreted in breast milk.

12. ECOLOGICAL INFORMATION:
No data given

13. DISPOSAL CONSIDERATIONS
Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D003.

14. TRANSPORT INFORMATION
Oxidizing solid, corrosive n.o.s. (xenon difluoride) UN 3085

HAZARD CLASS OR DIVISION: 5.1 Sub Risk: 8
PACKING GROUP: I

PASSENGER AIRCRAFT OR RAILCAR:
1 kg

CARGO AIRCRAFT ONLY:
15 kg

LAND TRANSPORT ADR/RID:
♦ SUBSTANCE NAME:
Oxidizing solid, corrosive n.o.s.
ADR/RID CLASS: 5.1 Sub Risk: 8
ITEM NUMBER: 27(b)
WARNING SIGN/LABEL: 5.1, 8
HAZARD ID NUMBER: 50

♦ AIR TRANSPORT IATA/ICAO:
CORRECT TECHNICAL NAME:
Oxidizing solid,
IATA/ICAO CLASS: 5.1, Sub Risk: 8
PACKAGING GROUP: I
LABEL: Oxidizer, Corrosive

♦ MARITIME TRANSPORT IMDG:
CORRECT TECHNICAL NAME: Oxidizing solid, Corrosive n.o.s. UN/ID NUMBER: UN 3085 IMDG CLASS: 5.1 Sub Risk: 8 PACKAGING GROUP: I, EmS No.: 5.1-11 MFAG Table No.: 760 MARINE
POLLUTANT: Y

15. REGULATORY INFORMATION

♦ TSCA Status : Y
♦ TSCA 12(b) export notification : Not listed.
♦ CERCLA Section 103 (40 CFR 302.4) : N
♦ SARA Section 302 (40 CFR 355.30) : N TPQ
♦ SARA Section 304 (40 CFR 355.40) : N RQ
♦ SARA Section 313 (40 CFR 372.65) : N
♦ California Prop 65 Status : N
♦ SARA ACUTE Hazard : N
♦ SARA CHRONIC Hazard : N
♦ SARA FIRE Hazard : N
♦ SARA REACTIVITY Hazard : Y
♦ SARA SUDDEN RELEASE Hazard : N
♦ WHMIS Classification : N
♦ INTERNATIONAL REGULATIONS:
  EU RISK AND SAFETY PHRASES:
  R: 8-64 Contact with combustible material may cause fire. May cause harm to breastfed babies.

16. OTHER INFORMATION

No other information is currently available for this record.

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