Honeywell

PRODUCT STEWARDSHIP SUMMARY

Uranium Hexafluoride

UF_6

Chemical Name:	Uranium hexafluoride
Synonyms:	Uranium(VI) fluoride, hexafluorouranium
CAS Number:	7783-81-5
CAS Name:	
EC (EINECS) Number:	232-028-6
Last Revision Date:	February 2019

- Uranium hexafluoride is a compound used as part of the uranium enrichment process for preparing fuel for nuclear reactors and nuclear weapons. Its triple point (that is, the temperature and pressure that it can exist as solid, liquid, and gas at the same time) is easy to obtain, making it a useful intermediate for this purpose. It can be processed as a gas, pumped into and out of containers as a liquid, and stored as a solid.

- Exposure to uranium hexafluoride can occur at facilities that handle this product or process uranium into uranium hexafluoride. Fumes or dust can be inhaled or may come in contact with the skin or eyes. Good manufacturing and industrial hygiene practices should be followed to prevent or reduce exposure. Workplace exposure limits for uranium hexafluoride have been established for use in worksite safety programs. See the Safety Data Sheet (SDS) for additional information. Because it readily breaks down when exposed to water, the general public is not likely be exposed to uranium hexafluoride.

- Uranium hexafluoride is a volatile, white solid often appearing crystalline in form with a strong pungent odor. It is not flammable or explosive, but it will react with water including moisture in the air and for this reason must be stored in airtight containers. If exposed to air, it will react with water and form hydrogen fluoride (HF) and uranyl fluoride. It also emits alpha, beta, and gamma radiation (at low levels). It is corrosive to metals.

- Exposure to uranium hexafluoride through inhalation or ingestion will be readily absorbed by the body and enter into the blood stream and may cause death at

higher concentrations. Prolonged or repeated exposure to lower concentrations can lead to kidney damage and eventual failure. Both uranium and byproducts (including HF) may also cause decalcification of the bones (by replacing calcium). This substance can cause severe damage to the skin and eyes. The health effects of the release of free fluoride ion from this product is similar to that of hydrofluoric acid. Ingestion and significant inhalation exposure can cause severe systemic effects including hypocalcemia, hypomagnesemia and hyperkalemia resulting in electrolyte imbalance and cardiac arrhythmias.

- Although it can emit low levels of ionizing radiation, Uranium hexafluoride is a A1 carcinogen - known human carcinogen by ACGIH. Uranium hexafluoride has not be determined to be a carcinogen by OSHA, NTP or IARC.

- Uranium hexafluoride is considered toxic to aquatic organisms and many cause long-term adverse effects in the aquatic environment. It exists in the vapor phase under atmospheric conditions, but since it will readily react with water, it is not expected to accumulate in the environment.

- Please **contact us** for more information. Additional information may also be found at the following links:

  Uranium Hexafluoride and Its Properties (Argonne National Laboratory)

  EPA.gov – Acute exposure guideline levels for selected airborne chemicals

  TOXNET – Uranium hexafluoride

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