HAZARDOUS COMPONENT MATERIAL SAFETY DATA SHEET

GENERAL

1. Date Prepared: 1 March 1998
2. Assembly: Tritium Illuminated Night Sights (All Types - Generic)
3. Number: ML-0001
4. Revision: N/A
5. Applicable Federal Acquisition Regulation (FAR) Safety Clause: 28.7102 and 52.223-7000
6. This Safety Data Sheet is based on US Army HCSDS 1172 dated 5 March 1990 and HCSDS 1174 dated 7 Nov 1989

PART I - SENSITIVITY

7. Friction Test: N/A
8. Impact Test: N/A
9. Electrostatic Discharge Test: N/A

PART II - HAZARDS

10. Hazard Rating: 0 (Insignificant)
11. Fire: N/A
12. Auto Ignition Temp: N/A
13. Flash Point: N/A
14. Chemical Composition: Tritium gas in the night sight provides the illumination. It is composed of a minimum 96% pure tritium (H3), a maximum of 2% tritiated water, and the balance (maximum of 4%) chemically inert gas (typically helium).
15. Decomposition Products: Decomposition Products - Could result in over-exposure and contamination - Refer to DLAM 4145.8
16. Flammable and/or Explosive Limits (upper/lower): N/A - Neither the night sight nor the tritium gas which activates it, support fire, explode, or otherwise contribute to the ignition of, or the continuation of, a fire. Because of the extreme heat which would exist in any burning area containing the night sights, should there be a rupture of the vial containing the tritium within the sight, it would immediately vaporize and cause no danger to the inhabitants or fire fighters.
17. Explosion: N/A
18. Explosive Temp (5 seconds): N/A
19. Dusts: N/A
20. Health Hazard Information (Toxicity): Not toxic when the radioactive isotope (tritium) is safely contained in the illuminated night sight.

- Tritium (H3) is a radioactive artificial and natural gaseous isotope of hydrogen. It has a half life of 12.33 years. It decays to stable helium by emitting beta particles of 0.019 millions of electron volts (MeV). Tritium does not emit gamma rays.

- Tritium is a gas having the properties of hydrogen. Under normal conditions the total atmospheric content of molecular 3 H is 11 g. only.

Permissible concentration of tritium (H3) for air and water above natural background:

a) In restricted areas (Ci/ml)
   - air - 5x10^6 (soluble and insoluble)
   - 2x10^3 (Sub*)
   - water - 1x10^-1 (soluble and insoluble)

b) Outside restricted areas (Ci/ml)
   - air - 2x10^-7 (soluble and insoluble)
   - 4x10^-5 (Sub*)
   - water - 3x10^-3 (soluble and insoluble)

Sub* = Submersion in hemispherical infinite cloud of airborne material.

- Unbroken self-luminous sources that contain tritium pose no hazard. This is due to the extremely low energy of the beta radiation that tritium emits, which cannot penetrate the glass wall of the tube. There is no measurable radiation associated with the listed night sights utilizing tritium sources providing the sources remain intact.

- In the event of breakage of a tritium vial, the gas will not escape quickly to the surrounding environment because of the almost hermetic seal provided by its glueing/sealing system. However, some amount of tritium will gradually migrate to the clear window surface of the night sight and remain on the surface and, therefore, those surfaces may become contaminated.

- Tritium, which has either oxidized (i.e. tritiated water), become chemically bonded to other substances (i.e. hydrocarbon compound) or diffuses into matter (i.e. metals) is readily absorbed into the body via inhalation or through the skin and clothing upon contact with tritium contaminated material.

- Should breakage of a tritium source occur, clean-up and decontamination should be performed only by authorized personnel.
- Anyone who may have inadvertently handled broken tritium night sights or potentially contaminated materials, should remove any contaminated clothing and wash hands, arms, face and other exposed parts of the body as soon as possible with soap and water; especially before eating, drinking, smoking, or applying cosmetics.

- At the present time, there is no portable equipment available which can detect the presence of tritium on a contaminated item or person. Any person potentially exposed in a tritium breakage incident should submit a urine sample for tritium analysis. The urine sample should not be taken until four hours have elapsed following potential tritium exposure via inhalation or skin contact.

21. Hazard Class: UN Hazard Class 7

22. Special Requirements: No attempt must be made to disassemble the night sights. If a night sight is defective or no longer wanted, it must be returned to HESCO for corrective measures or disposal.

PART III - SHIPPING/STORAGE CLASSIFICATION

23. DOT Hazard Classification: Radioactive Material - Classifications are for shipment and storage when material is packaged in accordance with sections of 49 CFR as follows:
   - Definition: Section 173.403(w)
   - Packaging: Section 173.421.1 and 173.422
   - Marking: Section 172 Subpart B, 172.101
   - Labeling: None Required

24. DOT Container Marking: Radioactive Materials, Instruments and Articles

25. Authorized Safety Representatives:

   Mr. Zeev Bocian, Radiation Protection Officer, MEPROLIGHT, Ltd.

NOTE: Because of the extremely small quantity of tritium used in each night sight, and the safe manner in which it is sealed-in and protected from external damage, the night sights have been granted an "Exempt" status by the US Nuclear Regulatory Commission. This status means that, once shipped to you by MEPROLIGHT, no follow-up or reporting requirements exist for either the seller or buyer.