

Instruction for Filling UN-Certified Plastic Drums with Hazardous Waste Using Vermiculite

This procedure outlines the correct method for filling **UN-certified plastic drums (50 L or 60 L, type 1H2)** with bottles or small containers containing hazardous liquid or semi-liquid waste. The objective is to ensure safe containment, proper segregation, and full compliance with **IMDG** and **UN packaging regulations**.

1. Preparation

- Verify that the drum is **UN-certified (1H2 type)**, clean, and free of damage.
- Ensure all bottles or small containers are **compatible with the waste**, tightly sealed, and correctly labeled.
- Prepare **clean, dry vermiculite** as absorbent and cushioning material.

2. Segregation by IMO Class

- **Do not mix materials belonging to different IMO hazard classes in the same drum.**
- Each drum must contain **only one single IMO hazard class** (e.g., Class 3 flammable liquids, Class 8 corrosive substances, etc.).
- The number of drums used must therefore correspond to the number of different IMO classes present in the waste.
- Within each drum, only **compatible materials** of the same hazard class may be packed together.
- If in doubt about compatibility, consult the Material Safety Data Sheet (MSDS) and IMDG segregation table before filling.

3. Drum Filling Procedure

1. Place a **5–10 cm layer of vermiculite** at the bottom of the drum.
2. Position the **sealed bottles or containers upright** on the base layer, keeping at least **2 cm distance** between each container and from the drum wall.
3. **Fill all voids** between bottles with vermiculite so that each item is completely surrounded and immobilized.
4. For multiple layers, repeat the above steps, maintaining the same spacing and cushioning.
5. Cover the top layer with **at least 5 cm of vermiculite** to ensure full encapsulation.
6. Lightly tap the drum to settle the vermiculite and remove air pockets.
7. Close the drum securely with the **lid and metal locking ring**, and verify leak-tightness.

4. Labeling and Documentation

- Affix all **required hazard labels** and **handling symbols** according to IMDG, UN, and Basel Convention requirements.
- Clearly indicate:
 - The **UN number** (e.g., UN 3291, UN 1851, etc.)
 - The **hazard class** (e.g., Class 3, Class 6.1, Class 8)
 - The **waste description**
- Record both **net and gross weights** (including vermiculite) on the official **Weighing and Collection Form**.

5. Storage and Handling

- Store filled drums in a **well-ventilated, shaded, and secure area**, away from ignition sources and incompatible substances.
- Ensure only **trained personnel** with proper **PPE** (gloves, goggles, protective clothing) handle the drums.
- Never stack drums more than two levels high unless secured and approved for stacking.

6. Regulatory References & Safety Notes

- This procedure ensures compliance with:
 - The **IMDG Code**,
 - **UN Model Regulations**, and
 - The **Basel Convention** for the safe shipment and handling of hazardous waste.
- **Vermiculite** serves as both absorbent and cushioning material, minimizing leakage and impact risk during handling and transport.
- **Segregation by IMO class** is a mandatory requirement for international shipment authorization and prevents chemical incompatibility or reaction risks.

