

### A. Personal precautions, protective equipment and emergency procedures

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Move container to safe area from the leak area.
- Avoid skin contact and inhalation.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away, isolate hazard area and deny entry.

### B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

### C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Avoid entering to sewers or water system.
- Prevent the influx to waterways, sewers, basements or confined spaces.
- Spilled material should be treated as a potential risk of waste collected.

## 7. HANDLING AND STORAGE

### A. Precautions for safe handling

- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Avoid contact with incompatible materials.
- Comply with all applicable laws and regulations for handling
- Refer to Engineering controls and personal protective equipment.
- Contaminated work clothing should not be allowed out of the workplace.

### B. Conditions for safe storage, including any incompatibilities

- Avoid direct sunlight.
- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.
- Do not eat, drink or smoke when using this product.
- Store away from water and sewer.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### A. Exposure limits

#### o ACGIH TLV

- [Manganese] : TWA, 0.02 mg/m<sup>3</sup>, as Mn, Respirable particulate matter, 0.1 mg/m<sup>3</sup>, as Mn, Inhalable particulate matter
- [Nickel] : TWA, 1.5 mg/m<sup>3</sup>, Inhalable nickel particulate mass-Elemental/Metal, TWA, 0.1 mg/m<sup>3</sup>, Inhalable nickel particulate mass-Soluble compounds, TWA, 0.2 mg/m<sup>3</sup>, Inhalable nickel particulate mass-Insoluble compounds
- [Cobalt] : TWA, 0.02 mg/m<sup>3</sup>, as Co
- [Copper] : TWA, 0.2 mg/m<sup>3</sup> (Fume, as Cu), TWA, 1 mg/m<sup>3</sup> (Dusts and Mists, as Cu)
- [Aluminium] : TWA, 1 mg/m<sup>3</sup>, Respirable Particulate Matter

#### o OSHA PEL

- [Aluminium]: 15 mg/m<sup>3</sup> (Total dust), 5 mg/m<sup>3</sup> (Respirable fraction)
- [Manganese]: (C) 5
- [Nickel]: 1mg/m<sup>3</sup>
- [Cobalt]: 0.1mg/m<sup>3</sup>