GPS Safety Summary

Product Name: Refined Naphthalene

1. General Statement

When crude Naphthalene is processed through different stages, you get Refined Naphthalene of minimum 98.3 per cent purity. Refined Naphthalene is a white or milky white, flaky or powdery crystal. It is used in manufacturing of beta naphthol, phthalic-anhyd ride, tanning agents, moth balls, and in the dye-chemicals and pharmaceutical industries.

2. Chemical Identity

Name:	Refined Naphthalene
Brand names:	Refined Naphthalene
Chemical name (IUPAC):	Naphthalene
CAS number(s):	91-20-3
EC number:	202-049-5
Molecular formula:	$C_{10}H_8$

3. Use and applications

- Refined naphthalene uses:

  Used in manufacturing of different chemicals like Sodium Naphthalene Formaldehyde (SNF), Beta Naphthol, Phthalic Anhydride, Sodium Naphthenate, Tanning agents, Moth Balls, & domestic disinfectants.
  Also used in Dyes manufacturing industries as dyes interme diates & Pharmaceutical industries.

4. Physical / Chemical properties

Property	Value
Appearance	Solid Crystals/ Flakes
Color	White / Slight Off White
Odor	Characteristic
Odor threshold	0.015 PPM
Melting point/range	79 – 82 °C
Boiling point/range	218.1 °C at 101.3 kPa
Vapor pressure	7.2 Pa at 20 °C
Density: (20ºC)	1.069 g/cm³ at 24.7 °C
Bulk density:	NA
Powder (fluffy)	NA
Solubility (in Water)	34.4 mg/l at 25 °C
pH value:	NA
Viscosity at room temp	NA
Decomposition temperature	NA

Flammable and Explosive Properties	Flammable solid in accordance with GHS criteria
Flashpoint	78.5 °C at 99 kPa
Spontaneous Ignition (Autoignition)	540 °C

5. Health Effects

Below health effects aresubjected to if prolonged exposure to substance , negligence to suggested safety Precautions.

Effect Assessment	Result
Routes of Exposure	Inhalation, Eye, Skin, Ingestion.
Acute Inhalation	May cause respiratory tract irritation. May cause effects similar to those described for ingestion.
Acute Ingestion	Harmful if swallowed. May cause liver and kidney damage. May cause methemoglobinemia, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), convulsions, and death. May cause severe digestive tract irritation with abdominal pain, nausea, vomiting and diarrhoea. Exposure may cause anaemia and other blood abnormalities.
Acute eye	Vapours may cause eye irritation. Causes redness and pain.
Acute skin	May cause skin irritation. May be absorbed through the skin in harmful amounts. Causes redness and pain.
Inhalation	Inhalation in very higher amount of naphthalene vapor has been associated with headaches, nausea, vomiting and dizziness. Hemolysis, the abnormal breakdown of red blood cells. In humans, cataracts and other ocular injury have been reported following acute and chronic occupational exposure to naphthalene. Repeated or prolonged exposure to the substance can cause damage to the target organs.
Carcinogenicity	The International Agency for Research on Cancer (IARC) of the World Health Organization (WHO) concluded that there was inadequate evidence to evaluate the carcinogenicity of naphthalene to humans. IARC concluded their evaluation by placing naphthalene in Group 2B, possibly carcinogenic to humans. Suspected of causing cancer.

6. EnvironmentaEffects

Naphthalene may be lost from soil via evaporation, volatilization, and biodegradation. Avoid release to the environment. Very toxic to aquatic life with long lasting effects.

Effect Assessment	Result
warming impact	While processing fumes comes out it impacts warm environment.

Fate and behavior	Result
Biodegradable	Material is biodegradable
Bioaccumulation potential	

PBT/vPvB conclusion	Not relevant.

7. Exposure

Exposure guidelines:	Exposure Limit Values CAS# 91-20-3: Country — Concentration in mg/m3 United States OSHA: 10ppmTWA;50 mg/m3 TWA Belgium: TWA: 10 ppm VLE; 53 mg/m3 VLE Belgium -STEL: 15 ppm VLE; 80 mg/m3 VLE France: VME: 10 ppm VME; 50 mg/m3 VME Germany: 10 ppm TWA; 50 mg/m3 TWA Germany: skin notation Malaysia: 10ppmTWA;52 mg/m3 TWA Netherlands: 10 ppm MAC; 50 mg/m3 MAC Spain: 10 ppm VLA- ED; Other Countries standards Regulations: Arab Republic of Egypt: TWA 10 ppm (50 mg/cu m); Australia: TWA 10 ppm (50 mg/cu m), STEL 15 ppm (75 mg/cu m); Belgium: TWA 10 ppm (52 mg/cu m), STEL 15 ppm (79 mg/cu m); Denmark: TWA 10 ppm (50 mg/cu m); Finland: TWA 10 ppm (50 mg/cu m), STEL 20 ppm (100 mg/cu m); France: TWA 10 ppm (50 mg/cu m); Hungary: TWA 40 mg/cu m, STEL 80 mg/cu m, skin; Ireland: TWA 10 ppm (50 mg/cu m), STEL 15 (75 mg/cu m); The Netherlands: TWA 10 ppm (50 mg/cu m); The Philippines: TWA 10 ppm (50 mg/cu m); Poland: TWA 20 mg/cu m, STEL 75 mg/cu m; Russia: STEL 20 mg/cu m; Switzerland: TWA 10 ppm (50 mg/cu m); United Kingdom: TWA 10 ppm (53 mg/cu m), STEL/CEIL (C) 15 ppm (08 mg/cu m).

8. Risk Management recommendations

Human health measures	
Organizational	A basic standard of occupational hygiene is recommended. Ensure operatives are well informed of the hazards and trained to minimize exposures. Ensure regular inspection and maintenance of equipment's and machines. Handle and store according to the indications of the Safety Data Sheet.

Protection	Eye/Face protection:	Use Safety glasses with side - shields conforming to EN166, use equipment for eye protection tested and approved under approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
	Skin protection:	Complete suit protecting against chemicals, flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance atthe specific workplace.
	Hand protection:	Handle with gloves. Gloves must be inspected prior. to use. Use proper gloveremoval technique (without touching glove's outer surface) to avoidskin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
	Respiratory protection:	I Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriategovernment standards such as NIOSH (US) or CEN (EU). In case ofbrief exposure or low pollution use breathing filter apparatus (filter ABEK). In case of intensive or longer exposure use (self-contained) breathing equipment.
Engineering controls	Use process enclosures and/or exhaust ventilation to keep airborne dust concentrations below the occupational exposure limit.	
Environment protective measures		
Product must not be released into water without pre-treatment. Neutralize wastewater before release.		

9. Regulatory Information / Classification and Labelling

9.1 Regulatory Information

EU	E1 - environmental hazards (hazardous to the aquatic environment, cat. 1)
WHMIS	This material is classified as D2A under Canadian Worker Hazardous Materials Information System (WHMIS) criteria.
OSHA	The National Institute for Occupational Safety and Health has set a recommended exposure limit at 10 ppm (50 mg/m3) over an eight-hour time-weighted average, as well as a short-term exposure limit at 15 ppm (75 mg/m3).

US federal	US Government agencies have set occupational exposure limits to Naphthalene exposure. The Occupational safety & health Administratio Has set a permissible exposure permissible exposure limit at 10 ppm (50 mg/m3) over an eight-hour time-weighted average.

9.2 Classification and labelling

Under GHS substances are classified according to their physical, health, and environmental hazards.

Classification	
Full text of R, H and EUH Statements.:	
H228:	Flammable Solid.
H302:	Harmful if swallowed.
H351:	Suspected of causing cancer.
H400:	Very toxic to aquatic life.
H410:	Very toxic to aquatic life with long lasting effects.
Signal Word	
Warning	
Pictogram	
GHS03: Flame overcircle	
GHS04: Gascylinder	
GHS06: Skull andcrossbones	
GHS09: Environment