Section-1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the substance/preparation:

Commercial name: CYCLOHEXANE
Chemical name: CYCLOHEXANE C_6H_{12}

Synonyms: Hexamethylene, Hexanaphthene, Hexahydro benzene.

1.2 Use of the substance /preparation: Solvent for lacquers and resins; paint & varnish remover; in the extraction of essential oils; in the manufacturing of adipic acid, caprolactam.

1.3 MANUFACTURER & SUPPLIER: Reliance Industries Limited

Emergency Coordination Centre contact details:

Hazira Mfg. Division Village Mora, Dist Surat, Gujarat, India	SSM Office	+91 2612835050/+912612835056 (Available 24X7)

SSM: Site Shift Manager

Section 2 – HAZARD IDENTIFICATION

2.1 Classification of the substance/mixture: Hazard class and category code.

GHS Category:

Health	Environmental	Physical
Aspiration toxicity: Category 1 Skin irritation: Category 2 Specific Target Organ Toxicity (SE): 3	Aquatic Acute 1 Aquatic Chronic 1	Flammable – Category 2

NA: Not available, SE: Single Exposure.
Data reference: http://ecb.jrc.ec.europa.eu/esis/, Official Journal of the European Union regarding EU GHS

GHS Category table for reference:

Study/hazard statement	Category 1	Category 2	Category 3	Category 4	Category 5
Acute Oral LD50	≤ 5 mg/kg Fatal if swallowed	> 5 ≤ 50 mg/kg Fatal if swallowed	> 50 ≤ 300 mg/kg Toxic if swallowed	> 300 ≤ 2000 mg/kg Harmful if swallowed	> 2000 ≤ 5000mg/kg May be harmful if swallowed
Acute Dermal LD50	≤ 50 mg/kg Fatal in contact with skin	> 50 ≤ 200 mg/kg Fatal in contact with skin	> 200 ≤ 1000 mg/kg Toxic in contact with skin	> 1000 ≤ 2000 mg/kg Harmful in contact with skin	> 2000 ≤ 5000 mg/kg May be harmful in contact with skin
Acute Inhalation Dust LC50 Gases LC50 Vapours LC50	≤ 0.05 mg/L ≤ 100 ppm/V ≤ 0.5 mg/L Fatal if inhaled	> 0.05 ≤ 0.5 mg/L > 100 ≤ 500 ppm/V >0.5 ≤ 2.0 mg/L Fatal if inhaled	> 0.5 ≤ 1.0 mg/L > 500 ≤ 2500 ppm/V > 2.0 ≤ 10 mg/L Toxic if inhaled	> 1.0 ≤ 5 mg/L >2500 ≤ 20000 ppm/V > 10 ≤ 20 mg/L Harmful if inhaled	See footnote below this table
Flammable liquids	Flash point < 23 degrees C and initial boiling point ≤ 35 degrees C. Extremely flammable liquid and vapour	Flash point < 23 degrees C and initial boiling point > 35 degrees C. Highly flammable liquid and vapour	Flash point ≥ 23 degrees C≤ 60 degrees C. Flammable liquid and vapour	Flash point > 60 degrees C ≤ 93 degrees C. Combustible liquid	Not Applicable

Note: Gases concentration are expressed in parts per million per volume (ppm/V).
NOTE 1: Category 5 is for mixtures which are of relatively low acute toxicity but which under certain circumstances may pose

a hazard to vulnerable populations. These mixtures are anticipated to have an oral or dermal LD50 value in the range of 2000-5000 mg/kg bodyweight or equivalent dose for other routes of exposure. In light of animal welfare considerations, testing in animals in Category 5 ranges is discouraged and should only be considered when there is a strong likelihood that results of such testing would have a direct relevance for protecting human health.
NOTE 2: These values are designed to be used in the calculation of the ATE for classification of a mixture based on its ingredients and do not represent test results. The values are conservatively set at the lower end of the range of Categories 1 and 2, and at a point approximately 1/10th from the lower end of the range for Categories 3 – 5.

GHS Category table for reference: Continued

Study/hazard statement	Category 1	Category 2	Category 3
Eye Irritation	Effects on the cornea, iris or conjunctiva that are not expected to reverse or that have not fully reversed within 21 days. Causes severe eye damage.	2A: Effects on the cornea, iris or conjunctiva that fully reverse within 21 days. Causes severe eye irritation. 2B : Effects on the cornea, iris or conjunctiva that fully reverse within 7 days. Causes eye irritation.	Not applicable
Skin Irritation	Destruction of skin tissue, with sub categorization based on exposure of up to 3 minutes (A), 1 hour (B), or 4 hours (C). Causes severe skin burns and eye damage.	Mean value of ≥2.3 > 4.0 for erythema / eschar or edema in at least 2 of 3 tested animals from gradings at 24, 48, and 72 hours (or on 3 consecutive days after onset if reactions are delayed); inflammation that persists to end of the (normally 14-day) observation period. Causes skin irritation.	Mean value of ≥1.5 < 2.3 for erythema / eschar or edema in at least 2 of 3 tested animals from gradings at 24, 48, and 72 hours (or on 3 consecutive days after onset if reactions are delayed). Causes mild skin irritation.
Environment: Acute Toxicity Category	96 hr LC50 (fish) ≤1 mg/L 48 hr EC50 (crustacea) ≤1 mg/L, 72/96 hr ErC50 (aquatic plants) ≤1 mg/L Very toxic to aquatic life	96 hr LC50 (fish) >1≤10 mg/L 48 hr EC50 (crustacea) >1≤10 mg/L 72/96 hr ErC50 (aquatic plants) >1≤10 mg/L Toxic to aquatic life	96 hr LC50 (fish) >10≤100 mg/L 48 hr EC50 (crustacea) >10≤100 mg/L 72/96 hr ErC50 (aquatic plants) >10≤ 100 mg/L Harmful to aquatic life
Flammable Aerosol	Extremely flammable aerosol	Flammable aerosol	Not Applicable
Flammable solids	Using the burning rate test, substances or mixtures other than metal powders: (a) wetted zone does not stop fire and (b) burning time < 45 seconds or burning rate > 2.2 mm/second Using the burning rate test, metal powders that have burning time ≤5 minutes Flammable solid	Using the burning rate test, substances or mixtures other than metal powders: (a) wetted zone does not stop fire for at least 4 minutes and (b) burning time < 45 seconds or burning rate > 2.2 mm/second Using the burning rate test, metal powders that have burning time > 5 ≤10 minutes Flammable solid	Not Applicable
Flammable gases	Gases, which at 20 degrees C and a standard pressure of 101.3 kPA: (a) are ignitable when in a mixture of 13% or less by volume in air; or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit. Extremely flammable gas	Gases, other than those of category 1, which, at 20 degrees C and a standard pressure of 101.3 kPA, have a flammable range while mixed in air. Flammable gas	Not Applicable

GHS Label: GHS02: Flame, GHS08: Carcinogen, GHS07: Warning, GHS09: Environmental Toxicity,

Signal word: Danger

Details of statements:

Hazard Statements	H225: Highly flammable liquid and vapour. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H336: May cause drowsiness or dizziness. H400: Very toxic to aquatic life. H410: Toxic to aquatic life.
Precautionary Statement Prevention	P 102: Keep out of reach of children. P 103: Read label before use. P210: Keep away from heat/sparks/open flames/hot surfaces* No smoking. P233: Keep container tightly closed.

	P 240: Ground/bond container and receiving equipment. P 241: Use explosion-proof electrical/ventilating/lighting/ equipment. P 242: Use only non-sparking tools. P 243: Take precautionary measures against static discharge. P 261: Avoid breathing dust/fume/gas/mist/vapours/spray*. P 264: Wash thoroughly after handling. P 271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective Clothing/eye protection/face protection/hearing protection
Precautionary Statement Response	P 101: If medical advice is needed, have product container or label at hand. P301+P316: IF SWALLOWED: Get emergency medical help immediately P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with Water/shower. P370+P378: In case of fire: Use foam for extinction. P302+P352: IF ON SKIN: Wash with plenty of soap and water. P321: Specific treatment see label P331: Do NOT induce vomiting P332+P313: If skin irritation occurs: Get medical advice/ attention. P362+ P364: Take off contaminated clothing and wash before re-use. P304+P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. P319: Get medical help if you feel unwell. P391: Collect spillage.
Precautionary Statement Storage	P405: Store locked up. P 403+P235: Store in a well-ventilated place. Keep cool.
Precautionary Statement Disposal	Follow local regulation

Data reference: Official Journal of the European Union regarding EU GHS

Hazard ratings:

NFPA HAZARD CODES	RATINGS SYSTEM
HEALTH: 1	0 = No Hazard
FLAMMABILITY: 3	1 = Slight Hazard
INSTABILITY: 0	2 = Moderate Hazard
	3 = Serious Hazard
	4 = Severe Hazard

2.2 Information pertaining to particular dangers for human: Product irritates Respiratory track, eyes and skin. The substance may cause effects on the central nervous system. Exposure could cause lowering of consciousness. Repeated or prolonged contact with skin may cause dryness and cracking and dermatitis.

2.3 Information pertaining to particular dangers for the environment: Possible adverse effects on aquatic organisms.

2.4 Other adverse effects:

Highly flammable and easily ignitable substance. Danger of ignition at normal temperature. Readily evaporates and vapours form with air toxic and explosive mixtures heavier than air. Mixtures keep above ground and after ignition they spread fast into far distances. Ignition possible when exposed to hot surfaces, sparks, naked flames and by electrostatic discharges too. The substance is practically insoluble in water, floats on the water level and forms toxic and explosive mixtures above the water level. Risk of explosion if emptied into drains or released into wastewater.

Target Organs: Eyes, skin, respiratory system, central nervous system

Route of entry:

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
Yes	Yes	Yes	Yes	Yes

DATA REFERENCE**:** http://toxnet.nlm.nih.gov/cgibin/sis/search.

Health hazards:

Source	NTP listed?	IARC cancer review group?	OSHA Regulated?
Carcinogenicity	No	No	No

DATA REFERENCE: Toxic release inventory (TRI) basis of Occupational Safety and Health Administration (OSHA) carcinogen, National Toxicological program (NTP), International Agency for Research on Cancer (IARC), http://toxnet.nlm.nih.gov/cgi-bin/sis/search.

Section 3 – COMPOSITION & INFORMATION ON INGREDIENTS

Ingredients / Hazardous	CAS No.	EC No.	Percentage
Cyclohexane/Yes	110-82-7	203-806-2	>99. 90 %

Data reference: http://ecb.jrc.ec.europa.eu/esis/

Section 4 – FIRST AID MEASURES

4.1 General advice

IMMEDIATE MEDICAL ATTENTION IS REQUIRED AFTER INHALATION OR AFTER SWALLOWING.

In case of health troubles or doubts, seek medical advice immediately and show this (Material) Safety Data Sheet.

Ensure activity of vitally important functions until the arrival of the doctor (artificial respiration, inhalation of oxygen, heart massage). If patient is unconscious, or in case of danger of blackout, transport patient in a stabilised position. In case of first-degree burns (painful redness), and second-degree burns (painful blisters), cool the affected area with cold running water for a long time. In case of third-degree burns (redness, cracking pale skin, usually without pain), do not cool affected skin, dress the area with sterile dry gauze only.

4.2 Inhalation

Remove patient to fresh air, keep him warm and in order to rest quietly. Avoid walking. Seek medical advice.

SYMPTOMS AND EFFECTS: irritation, headache, dizziness, weakness, stupefaction, irritant coughing, convulsions, unconsciousness, possible respiratory inhibition or arrest.

4.3 Skin contact

Immediately take off all contaminated clothing and footwear. Flush effected area

with copious quantities of water. Seek medical advice.
SYMPTOMS AND EFFECTS: mild irritation, degreasing, absorption.

4.4 Eye contact

Immediately flush eyes with clean lukewarm water and continue flushing for at least 15 minutes – keep the eyelids widely apart and flush thoroughly with mild water stream from the inner to the outer. Seek medical advice.
SYMPTOMS AND EFFECTS: severe irritation, cornea damage.

4.5 Swallowing

Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

SYMPTOMS AND EFFECTS: nausea, vomiting, convulsions, irregular heartbeat.

Section 5 – FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media: Foam, Dry Chemical Powder, and CO2. Water in the form of spray may be used to keep fire exposed containers cool and disperse vapours.

5.2 Extinguishing media to be avoided: Water in the Jet form.

5.3 Caution about specific danger in case of fire and fire-fighting procedures: Danger of violent reaction or explosion. Vapours may travel considerable far distances and cause subsequent ignition. Vapours are heavier than air, may cumulate along the ground and in enclosed spaces – danger of explosion. Do not empty into drains. When burning, it emits carbon monoxide, carbon dioxide and irritant fumes. Containers with the substance exposed to excessive heat may explode.

Move product containers away from fire or keep cool with water spray as a protective measure, where feasible.

5.4 Special protective equipment for fire-fighters

Wear full protective fire-resistant clothing and self-contained breathing apparatus.

Section 6 –ACCIDENTAL RELEASE MEASURES

6.1 Person-related safety precautions

Isolate hazard area. Evacuate all unauthorized personnel not participating in rescue operations from the area. Avoid entry into danger area. Remove all possible sources of ignition. Stop traffic and switch off the motors of the engines. Do not smoke and do not handle with naked flame. Use explosion-proof lamps and non-sparking tools. Avoid contact with the substance. Apply recommended full protective personal equipment. When escaping from the contaminated area, wear mask with cartridge against organic vapours. In case of general average, evacuate personnel from danger area. In places under the ground level and in enclosed spaces (including drains) risk of explosion and accumulation of toxic vapours.

6.2 Precautions for protection of the environment

Prevent from further leaks of substance. Do not allow substance to enter soil, water and sewage systems. In case of substance discharge to water courses or water containers, inform water consumers immediately, stop service and exploitation of water.

6.3 Recommended methods for cleaning and disposal

Pump off substance safely, soak up residues with compatible porous material and forward for disposal in closed containers. Dispose-off under valid legal waste regulations. Approach spill from upwind and higher ground if possible. Decontamination area workers should wear appropriate PPE.

Section 7 –HANDLING AND STORAGE

7.1 Information for safe handling

Observe all fire-fighting measures (no smoking, do not handle with naked flame and remove all possible sources of ignition). Take precautionary measures against static discharges. Wear recommended personal protective equipment and observe instructions to prevent possible contact of substance with skin and eyes and inhalation. Avoid leak to environment. Handle under adequate ventilation. Avoid leak to environment. Remove contaminated clothing and decontaminate as per guidelines before reuse.

7.2 Information for storage

Storerooms should meet the requirements for the fire safety of constructions and electrical facilities and should be in conformity with valid regulations. Store in cool, well-ventilated place with effective exhaust, away from heat and all sources of ignition. Store in tightly closed container. Do not store together with oxidizing agents. Take precautionary measures against static discharges. Avoid leak to environment.

7.3 Information for specific use: NA.

Section 8 –EXPOSURE CONTROL & PERSONAL PROTECTION

8.1 Occupational Exposure Limits:

Material	Source	Type	ppm	mg/m3	Notation
CYCLOHEXANE	ACGIH	TWA	100		
	ACGIH	STEL	NA		
	ACGIH	SKIN_DES TWA	NA		
	NIOSH	IDLH	*1300		
	OSHA	TWA	300	1050	
	OSHA	STEL	NA		

NA: Data not available
DATA REFERENCE: http://toxnet.nlm.nih.gov/cgi-bin/sis/search.

8.2 Occupational exposure controls

Collective protection measures: General and local ventilation, effective exhaust.
Individual protection measures: Personal protective equipment (PPE) for the protection of eyes, hands and skin corresponding with the performed labour has to be kept at disposition for the employees. In cases, where the workplace exposure control limits cannot be observed with the help of technical equipment or where it is not possible to ensure that the respiratory system exposure does not represent a health hazard for the personnel, adequate respiratory protection have to be kept at disposition. In the case of continuous use of this equipment during constant work, safety breaks have to be scheduled, if the PPE-character requires this. All PPE have to be kept in disposable state and the damaged or contaminated equipment has to be replaced immediately.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT (PPE):

HANDS	EYES	BODY	RESPIRATORY
			

Respiratory protection: If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-face piece respirator, airline hood, or full-face piece self-contained breathing apparatus. Protective mask with canister A (brown coloured, protecting against organic vapours), self-contained breathing apparatus.

Eye protection: Use chemical safety goggles and/or a full-face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Hand protection: Wear gloves of impervious material.

Body protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Protective cover all antistatic design recommended, impervious when handling big amounts (nitrile rubber), sealed leather footwear (free from synthetic adhesives)

Hygiene Measures: Wash hands, forearms and face thoroughly after handling. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

8.3 Environmental exposure controls

Proceed in accordance with valid air and water legislative regulations.

Engineering measures: Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Section 9 –PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquid, colourless
Odour	Sweet chloroform like
Solubility in water	55 mg/L at 25 °C
Relative Density (H2O=1)	0.8
Boiling Point °C	80.7 °C at 760 mm Hg
Melting Point °C	6.5 °C
Relative Vapour Density (Air=1)	2.9
Flash point °C	-18 °C (Closed Cup)
Auto ignition °C	245 °C
Vapour pressure (mmHg) @ 20 °C	78
Molecular weight	84.2
Explosive limits in air % by volume	LEL 1.3% UEL 8%
pH	NA
Viscosity mPa.s @20 °C	0.98
Pour point	NA
Evaporation rate (water=1)	NA
Octanol/water partition coefficient log Kow	3.44
% Volatile	NA

NA: NOT AVAILABLE
DATA REFERENCE https://pubchem.ncbi.nlm.nih.gov/

Section 10 –CHEMICAL STABILITY AND REACTIVITY INFORMATION

10.1 Conditions to avoid
Concentrations within the explosion limits, sources of ignition, high temperature, sun radiation.
10.2 Material to avoid
Liquid nitrogen dioxide into nitration column containing hot CYCLOHEXANE can create an explosion. Incompatible with strong oxidizers.
REACTIVE GROUPS: Hydrocarbons, Aliphatic Saturated.
10.3 Hazardous decomposition products
Thermal decomposition generates carbon monoxide and carbon dioxide.

Section 11 –TOXICOLOGICAL INFORMATION

11.1 Acute effects
After swallowing possibility of aspiration (passage into the lung) and danger of chemical pneumonia (pulmonary oedema). Product irritates eyes and skin. High vapour concentrations irritate respiratory system and eyes and may lead to fast coma and death. Liquid is absorbed through skin and may develop allergic eruption.
Acute toxicity data:

Parameter	Route	Species	Values	Exposure period
LD50	Oral	Rat	>5000 PPM	Not applicable
LC50	Inhalation	Rat	>9500 ppm	4 hours
LD 50	Dermal	Rabbit	>2000 mg/kg	Not applicable

Data Reference
https://echa.europa.eu/documents/10162/d99cee39-82e6-4754-aac1-497106c9bd7c (European Union Risk Assessment 2004 for Cyclohexane
11.2 Repeated dose toxicity: Studies performed on cyclohexane via the inhalation route in mice and rats showed that slight liver effects were induced after sub-acute or sub-chronic exposure. Increases in mitotic index figures and in absolute and relative liver weight and centrilobular hypertrophy were noted in both rats and mice at dose levels between 6,000 and 7,000 ppm. The NOAEL for hepatic effect is estimated to be 2,000 ppm (6,880 mg/m^3). This value is very conservative since the effects observed in the liver from 6,000 ppm upwards may be of an adaptive nature. No signs of neurotoxicity were observed in sub-acute, or sub chronic studies performed on both rats and humans.
Data Reference: European Union Risk Assessment 2004 for Cyclohexane.

11.3 Sensitisation: May cause skin irritation.
11.4 CMR effects (carcinogenicity, mutagenicity, toxicity for reproduction)
Not a CMR
11.5 Toxicokinetic, metabolism, distribution

Section 12 –ECOLOGICAL INFORMATION

12.1 Ecotoxicity data:

Parameter	Route	Species	Values	Exposure period	Condition of bioassay
LC50	Inhalation	Cheatogammarus marinus	2.2 mg/l	96h	(semi-static; closed system, low headspace, based on initial measured concentrations), (Adema and van den Bos Bakker, 1986)
LC50	Inhalation	Pimephales promelas	4.53 mg/l	96h	flow-through, measured concentrations), (Geiger et al., 1987)
EC50	Inhalation	Daphnia magna	3.78 mg/l	48h	(Static, closed system without headspace, nominal concentration), (Abernethy et al., 1986)

12.2 Mobility: Substance is expected to have moderate mobility

12.3 Persistence and degradability:

Hydrolysis: Hydrolysis is not expected to occur due to the lack of hydrolysable functional groups.

Photo oxidation: In the atmosphere, cyclohexane will react with the photochemically produced hydroxyl radicals. Substance is readily biodegradable in the aquatic environment. Data Reference: European Union Risk Assessment 2004 for Cyclohexane.

12.4 Bio accumulative potential:

A bioaccumulation test with Cyprinus carpio according to OECD GL 305 C yielded a BCF of 31-102 at a water concentration of 100 µg/l and 37-129 at 10 µg/l (CITI, 1992). Data Reference: European Union Risk Assessment 2004 for Cyclohexane.

12.5 Results of PBT assessment Persistence and Degradation: Photo-degrade in air.

12.6 Other adverse effects: NA.

Environmental Fate: NA.

Section 13– DISPOSAL CONSIDERATION

Local Legislation: Disposal should be in accordance with applicable regional, national, and local laws and regulations. This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.

13.1 Recommended disposal methods for the substance / preparation
Product reuse or disposal in accordance with valid waste legislative regulations.

13.2 Recommended disposal methods for contaminated packaging
Product is transported in tank-vehicles.

13.3 Waste management measures that control exposure of humans and environment
Proceed in accordance with valid health, air and water legislative regulations.

13.4 Waste regulation: Follow local regulation.

Section 14– TRANSPORT INFORMATION

14.1 International Transport Regulation:
ADR/RID (Road/Rail), IMDG (Sea) and ICAO/IATA (Air)

Proper Shipping Name:	CYCLOHEXANE
Hazard Class:	3, Flammable
UN Number:	1145
Packing Group:	II
Packing Instructions	P001/IBC02
Portable Tank	T4/TP1
Emergency Action Code:	3YE

14.2 Special transport precautionary measures
Not applicable.

Section 15– REGULATORY INFORMATION

(M)SDS format on a 16 Section based on guidance provided in:

Indian Regulation:
Manufacture, Storage and Import of Hazardous Chemicals Rule, 1989.
The Factories Act 1948

International Regulations:
European SDS Directive
ANSI MSDS Standard
ISO 11014-1 1994
WHMIS Requirements

United States
Hazard Communication Standard

Canada
Hazardous Products Act and Controlled Products Regulations

Europe
Dangerous Substance and Preparations Directives

Australia
National Model Regulations for the Control of Workplace Hazardous Substances

The Globally Harmonized System of Classification and Labelling

of Chemicals endorsed by The UN Economic and Social Council

*RISK PHRASES: R11 Highly flammable, R38 Irritating to skin, R50/R53 Very toxic to aquatic organisms /May cause long-term adverse effects in the aquatic environment, R65 Harmful: may cause lung damage if swallowed, R67 Vapours may cause drowsiness and dizziness.

*SAFETY PHRASES: S2 Keep out of the reach of children, S9 Keep container in a well-ventilated place, S16 Keep away from sources of ignition, S25 Avoid contact with eyes, S33 Take precautionary measures against static discharges, S60: this material and its container must be disposed of as hazardous waste, S61 Avoid release to the environment. Refer to special instructions / safety data sheets, S62 If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

These standard risk and safety phrases for use when interpreting (Material) Safety data Sheets are derived from the European Union Regulation, CHIP Regulations - Chemicals (Hazard Information and Packaging for Supply). They are required to be used in (Materials) Safety Data Sheets to identify potential hazards and offer safe handling advice.

Section 16 – OTHER INFORMATION

Training instructions
Personnel handling the product has to be acquainted demonstrably with its hazardous properties,with health and environmental protection principles related to the product and first aid principles
Term card details/Reference: Refer Section 14
Local bodies involved (Applicable only with in India): Local District Authority and Local Crisis Group

Sources of data used to compile the (Material) Safety Data Sheet
Data compilation reference: National Institute for Occupational Safety and Health guide to chemical hazards and International Chemical Safety Cards (WHO/IPCS/ILO) and https://pubchem.ncbi.nlm.nih.gov/, http://webnet3.oecd.org/eChemPortal/Results2.aspx?SubstanceId=169630, . http://ecb.jrc.ec.europa.eu/esis/index.php?PGM=ein, http://www.cdc.gov/niosh/npg/npgd0163.html, Official Journal of the European Union regarding EU GHS

(M)SDS Revision Status:

Date of Revision	Revised Sections	Supersedes
Sep. 01, 2009	Format revised	Feb. 01, 2008
Sep. 01, 2011	Section 4 (4.3)	Sep. 01, 2009
Aug. 01, 2013	Section 2 NFPA Hazard statement	Sep. 01, 2011
Feb. 01,2016	Section 11,12,14	Aug. 01, 2013
Dec.05,2017	Section 2.1,11	Feb. 01,2016
Sept.27,2022	Section 2(2.1,2.2),4(4.5),5(5.1,5.3), 7(7.1),9(Phy & Chem Props) , 11(11.1)	Dec.05,2017

This MSDS is issued by Hazira Manufacturing Division, Reliance Industries Limited.

Contact Details: For any enquiry/comment regarding this Material Safety Data Sheet, kindly contact the Hazira SSM Office - +91 2612835050/+912612835056/ SSMOffice.HZ@ril.com.

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End of (M)SDS