Material Safety Data Sheet

M PHENYLENEDIAMINE (RXSOL-60-6605-015)

1. Product and Company Identifaction

Product Name	M PHENYLENEDIAMINE
Part Number	RXSOL-60-6605-015

Company Details:

RX MARINE INTERNATIONAL
105, A wing , BSEL , TECH PARK.
VASHI ,NEW BOMBAY 400703 INDIA

Branch : Kandla, Mumbai , Chennai, Vizag, Kolkata, UAE , OMAN , CANADA and KENYA

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2. Composition / informationon ingredients

Chemical name	CAS-No.	EC NO	Weight	Index-No.	Formula
m-Phenylenediamine	108-45-2	203-548-7	108,14 g/mo	612-147-00-3	C6H8N2

3. Hazards Identification

Classification according to Regulation	Acute toxicity, Oral (Category 3), H301 Acute toxicity, Inhalation (Category 3), H331 Acute toxicity, Dermal (Category 3), H311 Eye irritation (Category 2), H319 Skin sensitization (Category 1), H317 Germ cell mutagenicity (Category 2), H341 Short-term (acute) aquatic hazard (Category 1), H400 Long-term (chronic) aquatic hazard (Category 1), H410
Signal Word	Danger
Hazard Statements	H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H341 Suspected of causing genetic defects. H410 Very toxic to aquatic life with long lasting effects.
P280 Wear protective gloves.P305 + P351 + P338	Wear eye protection/ face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Precautionary statements - response	P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. P302 + P352 + P312 IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell. P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	None
Other hazards	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher

4. First Aid Measures

General advice	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher
If inhaled	After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
Eye Contact	After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.
Swallowed	If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.
Skin Contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
Ingestion:	Do not induce vomiting. Obtain medical attention.If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration.
Notes to Physician	Treat symptomatically
If swallowed	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects, both acute and delaye	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Indication of any immediate medical attention and special treatment needed	No data available

5. Fire-fighting Measures

Flammability	May be combustible at high temperature.
Flash Point	CLOSED CUP: Higher than 93.3°C (200°F).
Suitable extinguishing media	Water Foam Carbon dioxide (CO2) Dry powder
Unsuitable extinguishing media	For this substance/mixture no limitations of extinguishing agents are given.
Special hazards arising from the substance or mixture	Carbon oxides Nitrogen oxides (NOx) Combustible. Development of hazardous combustion gases or vapours possible in the event of fire
Further information	Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Hazardous combustion products	Fire may cause the evolution of Sulphur oxides, nitrogen oxides.
Advice for firefighters	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
Protective Equipment	Use personal protective equipment.
Specific Hazards Arising from the Chemical	Has a fire-promoting effect due to the release of oxygen. Ambient fire may liberate hazardous vapours.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection
Spillage	Oxidizing material. Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Prevent entry into sewers, basements or confined areas dike if needed. Eliminate all ignition sources. Call for assistance on disposal.
Personal Protection	Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: Protective equipment see section 8.
Enviromental Precaution	Environmental precautions
Methods and materials for containment and cleaning	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.
Reference to other sections	For disposal see section 13.

7. Handling and Storage

Advice on safe handling	Work under hood. Do not inhale substance/mixture.
Advice on protection against fire and explosion	Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge
Hygiene measures	Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.
Precautions for safe handling	For precautions see section 2.2.
Storage conditions	Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage conditions	Tightly closed. Dry
Storage class	Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects
Specific end use(s)	Apart from the uses mentioned in section 1.2 no other specific uses are stipulated
Handling	Keep away from heat. Keep away from sources of ignition. Keep away from combustible material.. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, metals
Advice on general occupational hygiene	Advice on safe handling Observe label precautions. Change contaminated clothing. Wash hands after working with substance.

8. Exposure controls and personal protection

Engineering Control	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Eye/face protection	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses
Body Protection	Protective clothing
Skin protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Full contact Material: Nitrile rubber Minimum layer thickness: 0,11 mm Break through time: 480 min Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M) Splash contact Material: Nitrile rubber Minimum layer thickness: 0,11 mm Break through time: 480 min Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario
Respiratory protection	Recommended Filter type: Filter A-(P2) The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
Other Protection Measure	Handle in accordance with good industrial hygiene and safety practice.
Control of environmental exposure	Do not let product enter drains.



Gloves



Suit

9. Physical and chemical properties

Physical state	Flakes
Colour	light gray
Odour	No data available
Odor Threshold	Not Applicable
pH	Not Applicable
Melting Point	Melting point/range: 64 - 66 °C
Boiling Point	282 - 284 °C
Flash Point	No data available
Evaporation Rate	Not Applicable
Flammability (solid, gas)	No data available
Explosive limits	No Data Available
Upper/lower flammability or explosive limits	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Vapour pressure	0,00038 hPa at 20 °C - OECD Test Guideline 104
Density	1,14 g/cm3 at 20 °C
Vapour Density	No Data Available
Specific Gravity	1.98 g/cm3 at 20 °C
Partition coefficient	No data available
Explosive properties	None
Water Solubility	429 g/l at 20 °C - OECD Test Guideline 105
Ignition temperature	No information available.
Surface tension	70,7 mN/m at 20 °C
Other safety information	No data available

10. Stability and reactivity

Reactivity	The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.
Stability	The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	Violent reactions possible with: Strong oxidizing agents acids
Conditions to avoid	no information available
Incompatible materials	No data available
Hazardous Polymerization	In the event of fire: see section 5

11. Toxicological information

Acute toxicity	LD50 Oral - Rat - 280 mg/kg Remarks: (External MSDS) Symptoms: Nausea, Vomiting Oral: absorption LC50 Inhalation - Rat - male - 4 h - 3,2 mg/l - aerosol (OECD Test Guideline 403) Acute toxicity estimate Dermal - 300 mg/kg (Expert judgment)
Skin corrosion/irritation	Skin - Rabbit Result: No skin irritation Remarks: (ECHA)
Serious eye damage/eye irritation	Eyes - Rabbit Result: Irritating to eyes.(OECD Test Guideline 405) in vivo assay - Mouse May cause sensitization by skin contact. (OECD Test Guideline 429)
Respiratory or skin sensitization	No data available
Serious eye damage/eye irritation	Remarks Mixture causes serious eye damage.
Rout Of Entry	Inhalation. Ingestion.
Toxicity to Animal	WARNING THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE Acute oral toxicity (LD50)689 mg/kg [Rat].

Toxic Effects on Human	May cause damage to the following organs: upper respiratory tract. Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, sensitizer), of ingestion, of inhalation (lung irritant, lung sensitizer).
Germcell mutagenicity	In vitro tests showed mutagenic effects Test Type: in vitro test Test system: S. typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: In vivo micronucleus test Species: Mouse Application Route: Gavage Method: OECD Test Guideline 474 Result: negative
Reproductive toxicity	No data available
Specific target organ toxicity-single exposure	No data available
Special Remarks on other Toxi Effects on Humans	Acute Potential Health Effects: Skin: Causes skin irritation. May cause skin sensitization, an allergic reation, which becomes evident upon re-exposure to this material. Eyes: Causes eye irritation. Ingestion: Causes gastrointestinal (digestive) tract irritation with nausea, vomiting, and diarrhea. May be harmful if swallowed. Inhalation: Causes respiratory tract irritation. May cause chemical pneumonitis and pulmonary edema, inflammation, edema of bronchi and larynx. Chronic Potential Health Effects: Repeated or prolonged skin exposure may cause allergic reactions in sensitive individuals. Repeated or prolonged exposure by inhalation may affect respiration and metabolism.
Additional Information	Endocrine disrupting properties
Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. RTECS: OD2800000 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.
Endocrine disrupting properties	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. RTECS: DK2625000 burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Damage to the eyes. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Stomach - Irregularities - Based on Human Evidenc
Skin corrosion/irritation	Skin - Rabbit Result: Skin irritation - 4 h (OECD Test Guideline 404)
Respiratory or skin sensitization	Buehler Test - Guinea pig Result: negative (US-EPA)
Germcell mutagenicity	Test Type: Ames test Test system: Escherichia coli/Salmonella typhimurium Result: negative
Specific target organ toxicity - single exposure	No data available
Endocrine disrupting properties	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. RTECS: SS7700000 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Nausea, Dizziness, Headache, Dermatitis, Pulmonary edema. Effects may be delayed., Discoloration of the skin. After absorption: Risk of methaemoglobin formation with headache, cardiac dysrhythmia, drop in blood pressure, dyspnoea and spasms, principal symptom: cyanosis (blue discolouration of the blood).

12. Ecological information

Persistence and degradability	Biodegradability aerobic - Exposure time 28 d Result: 2 % - Not readily biodegradable. (OECD Test Guideline 301D)
Toxicity	Mixture No data available
Toxicity to fish	Flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 512 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	Flow-through test LC50 - Gammarus fasciatus (freshwater shrimp) - 7,8 mg/l - 48 h
Toxicity to algae	Ftatic test EC50 - Pseudokirchneriella subcapitata - 2,93 mg/l - 96 h (US-EPA)
Eco Toxicity	Not Available
COD and BOD 5	Not Available
Products Biodegradation:	The methods for determining the biological degradability are not applicable to inorganic substances.
Mobility in soil	No Information available
Results of PBT and vPvB assessment	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher
Endocrine disrupting properties	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other adverse effects	Discharge into the environment must be avoided.

13. Disposal considerations

Waste treatment	Method	No data available

14. Transport information

UN number	ADR/RID: 1673 IMDG: 1673 IATA: 1673
UN proper shipping name	ADR/RID: PHENYLENEDIAMINES IMDG: PHENYLENEDIAMINES IATA: PHENYLENEDIAMINES
Transport hazard class(es)	ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1
Packaging group	ADR/RID: III IMDG: III ATA: III
Environmental hazards	ADR/RID: yes IMDG Marine pollutant: yes IATA: no
Special precautions for user	No data available
Further information	Not classified as dangerous in the meaning of transport regulations.

15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture	This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.
National legislation	Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous : ACUTE TOXIC substances. : ENVIRONMENTAL HAZARDS
DSCL (EEC)	R8- Contact with combustible material may cause fire. R20/22- Harmful by inhalation and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin. R42/43- May cause sensitization by inhalation and skin contact. S22- Do not breathe dust. S24- Avoid contact with skin. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves.
Other regulations	Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable. Take note of Dir 94/33/EC on the protection of young people at work.
Chemical Safety Assessment	For this product a chemical safety assessment was not carried out

16. Other information

Other Information	The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and weassume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Rx Marine International has been advised of the possibility of such damages.