SAFETY DATA SHEET

Revision date: 23-Oct-2023

Revision Number 6

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product identifier

Product Name PHENOL MOLTEN

Product Code(s) 000034254901

Other means of identification

UN number 2312

CAS No. 108-95-2

Synonyms Carbolic acid; Hydroxybenzene; Monohydroxybenezene; Monophenol; Oxybenzene; Phenic acid; Phenol alcohol; Phenyl hydrate; Phenyl hydroxide; Phenylic acid; Phenylic alcohol.

Recommended use of the chemical and restrictions on use

Recommended use Industrial applications.

Uses advised against No information available

Supplier
Ixom Operations Pty Ltd
ABN: 51 600 546 512
Level 8, 1 Nicholson Street
Melbourne 3000
Australia

Telephone Number: +61 3 9906 3000

Emergency telephone number

Emergency telephone number **1 800 033 111 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

GHS Classification

Classified as a hazardous chemical in accordance with the criteria of Safe Work Australia - Globally Harmonized System (GHS).

Classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG).

Flammable liquids	Category 4
Acute toxicity - Oral	Category 3
Acute toxicity - Dermal	Category 3
Acute toxicity - Inhalation (Vapors)	Category 3
Skin corrosion/irritation	Category 1 Sub-category B

Serious eye damage/eye irritation	Category 1
Germ cell mutagenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 2

SIGNAL WORD
Danger

Label elements

Skull and crossbones
Corrosion
Health hazard

Hazard statements
H227 - Combustible liquid
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H314 - Causes severe skin burns and eye damage
H331 - Toxic if inhaled
H341 - Suspected of causing genetic defects
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Wash face, hands and any exposed skin thoroughly after handling
Wash eyes thoroughly after handling.
Do not breathe dusts or mists
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear protective gloves / protective clothing / eye protection / face protection
Use personal protective equipment as required
Precautionary Statements - Response
Get medical advice/attention if you feel unwell
Specific treatment (see First aid on this SDS)
If exposed or concerned: Get medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Remove/Take off immediately all contaminated clothing
Wash contaminated clothing before reuse
Immediately call a POISON CENTER or doctor/physician
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Do NOT induce vomiting
In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish.
Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in a well-ventilated place. Keep cool
Precautionary Statements - Disposal

Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Other hazards which do not result in classification
Harmful to aquatic life with long lasting effects

General Hazards

Poisons Schedule (SUSMP) 6

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Chemical name	CAS No.	Weight-%
Phenol	108-95-2	>=99%

4. FIRST AID MEASURES

Description of first aid measures

General advice

For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor. Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Diphoterine® Solution has been shown to significantly reduce the risk of permanent injury. It is essential that the Diphoterine Solution is used as quickly as possible in order to obtain the maximum benefit from its absorbent and neutralising properties. As quickly as possible means within 10 seconds of contact with a chemical. Seek immediate medical attention while treating with Diphoterine Solution.

Inhalation

Remove to fresh air. If breathing is difficult, (trained personnel should) give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Transport promptly to hospital or medical centre.

Eye contact

In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Do NOT use PEG (polyethylene glycol) 400 in the eye. Immediate medical attention is required. Transport promptly to hospital or medical centre. The use of Diphoterine® Solution has been shown to significantly reduce the risk of permanent injury. It is essential that the Diphoterine Solution is used as quickly as possible in order to obtain the maximum benefit from its absorbent and neutralising properties. As quickly as possible means within 10 seconds of contact with a chemical. Seek immediate medical attention while treating with Diphoterine Solution.

Skin contact

If on skin, immerse promptly in a deluge shower and simultaneously remove or cut away all contaminated clothing. As soon as possible, wash skin with PEG (polyethylene glycol) 400 and keep dabbing the exposed skin with gauze or cloth soaked PEG 400. Keep replacing the swab or cloth as it becomes contaminated, and continue applying PEG 400 until there is no detectable odour. Flush with running water until advised to stop by the Poisons Information Centre or a doctor. Transport promptly to hospital or medical centre. The use of Diphoterine® Solution has been shown to significantly reduce the risk of permanent injury. It is essential that the Diphoterine Solution is used as quickly as possible in order to obtain the maximum benefit from its absorbent and neutralising properties. As quickly as possible means within 10 seconds of contact with a chemical. Seek immediate medical attention while treating with Diphoterine Solution.

Ingestion

Clean mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Transport

promptly to hospital or medical centre.

Most important symptoms and effects, both acute and delayed

Symptoms Irritation/Corrosion. May cause redness and tearing of the eyes. Erythema (skin redness). Burning. Coughing and/ or wheezing. Difficulty in breathing.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically. Can cause corneal burns. Delayed pulmonary edema may occur. Liver and kidney damage are possible complications.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Suitable Extinguishing Media Alcohol resistant foam is the preferred firefighting medium but, if it is not available, normal protein foam can be used.

Unsuitable extinguishing media High volume water jet.

Specific hazards arising from the chemical

Specific hazards arising from the chemical Corrosive hazard. Wear protective gloves/clothing and eye/face protection. Combustible liquid. Most vapors are heavier than air. Vapors may spread along ground and collect in low or confined areas (sewers, basements, tanks). Flash back possible over considerable distance.

Hazardous combustion products Carbon oxides.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Hazchem code •3X

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid contact with skin, eyes, and clothing. Do not breathe vapor or mist. Do not touch or walk through spilled material. Ensure adequate ventilation. Evacuate personnel to safe areas. Do not eat, drink or smoke when using this product. Use personal protective equipment as required. Wash thoroughly after handling. Wear protective gloves/protective clothing and eye/face protection.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Determine if phenol is still leaking and if it can safely be prevented from leaking further by closing a valve or shutting off a pump. Since phenol freezes at about 41°C, some leaks may be stopped by freezing the area of the leak. Contain with booms or earthen dikes and allow to solidify - prevent run off into drains and waterways. Collect and seal in properly labelled containers or drums for disposal. Use non-sparking tools. DO NOT spray with water. Phenol may be prone to being blown by wind when solidified – if risk exists, consider careful application of small quantities of warm water (45°C to 55°C) and collect and seal molten product.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

Keep out of reach of children. Avoid contact with skin, eyes, and clothing. Do not breathe vapor or mist. Do not eat, drink or smoke when using this product. Ensure adequate ventilation. Use personal protection equipment. Take off contaminated clothing and wash before reuse. Wash thoroughly after handling. Take precautionary measures against static discharges. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking. All equipment may need to be explosion-proof based on a risk assessment.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from sunlight. Store away from sources of heat or ignition. Store away from foodstuffs. Store locked up. Keep container closed when not in use.

Classified as a C1 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to State Regulations for storage and transport requirements.

This material is a Scheduled Poison and must be stored, maintained and used in accordance with the relevant regulations.

Incompatible materials

Strong oxidizing agents, calcium hypochlorite, halogens, halogenated compounds, copper, copper alloys, iron, peroxymonosulfuric acid, sodium nitrate, 1,3-butadiene, boron trifluoride diethyl ether. Hot phenol attacks aluminium, lead, magnesium, zinc.

Poisons Schedule (SUSMP) 6

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits

Phenol: 8hr TWA = 4 mg/m ^{3} (1 ppm), Sk

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

`Sk' (skin) Notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Appropriate engineering controls

Engineering controls	Ensure that eyewash stations and safety showers are close to the workstation location. Apply technical measures to comply with the occupational exposure limits. If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as personal protective equipment

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

Eye/face protection	Tight sealing safety goggles. If splashes are likely to occur:. Face protection shield.
Skin and body protection	Wear a full-body chemical resistant suit (eg. Microchem 3000) with air-hood meeting the requirements of AS/NZS1715 and AS/NZS 1716. Rubber boots.
Hand protection	Elbow-length impervious gloves.
Respiratory protection	Wear a full-body chemical resistant suit (eg. Microchem 3000) with air-hood meeting the requirements of AS/NZS1715 and AS/NZS 1716.
Environmental exposure controls	No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	Colourless
Odor	Characteristic
Odor threshold	No information available

Property	**Values**	**Remarks • Method**
pH	<6	None known
pH (as aqueous solution)	No data available	None known
Melting point / freezing point	40.9°C	None known
Boiling point / boiling range	181.8°C	None known
Flash point	79°C	CC (closed cup)
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	10% (V) (in air)	
Lower flammability or explosive limits	1.36% (V) (in air)	

Vapor pressure	0.047 kPa @20°C	None known
Vapor density	3.2 (air=1)	None known
Relative density	1.06	None known
Water solubility	Miscible in water	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	715°C	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	3.437 mPa.s @50°C	None known

Other information

10. STABILITY AND REACTIVITY

Reactivity

Reactivity Explosible with air in a vaporous/gaseous state when heated.

Chemical stability

Stability Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Yes.

Possibility of hazardous reactions

Possibility of hazardous reactions Phenol will attack some forms of plastic, rubber, coatings and metals. Hot liquid phenol will quickly attack aluminium, magnesium, lead, zinc, metals. Slowly turns pink or red when exposed to air or light. Vapours can form an explosive mixture with air.

Conditions to avoid

Conditions to avoid Heat, flames and sparks. UV-radiation/sunlight.

Incompatible materials

Incompatible materials Strong oxidizing agents, calcium hypochlorite, halogens, halogenated compounds, copper, copper alloys, iron, peroxymonosulfuric acid, sodium nitrate, 1,3-butadiene, boron trifluoride diethyl ether. Hot phenol attacks aluminium, lead, magnesium, zinc.

Hazardous decomposition products

Hazardous decomposition products Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information No adverse health effects expected if the chemical is handled in accordance with this Safety Data Sheet and the chemical label. Symptoms or effects that may arise if the chemical is mishandled and overexposure occurs are:

Inhalation May cause irritation. Toxic if inhaled.

Eye contact Causes serious eye damage.

Skin contact Causes burns. Toxic in contact with skin. May be fatal if absorbed through skin.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Toxic if swallowed. Large exposures may be fatal.

Symptoms Irritation/Corrosion. May cause redness and tearing of the eyes. Erythema (skin redness). Burning. Coughing and/ or wheezing. Difficulty in breathing.

Numerical measures of toxicity - Product Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Phenol	= 340 mg/kg (Rat) = 317 mg/kg (Rat)	= 630 mg/kg (Rabbit)	= 316 mg/m³ (Rat) 4 h

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Causes burns.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity Suspected of causing genetic defects.

Carcinogenicity This material has been classified by the International Agency for Research on Cancer (IARC) as a Group 3 agent. Group 3 - The agent is not classifiable as to its carcinogenicity to humans. Data available is insufficient for an assessment to be made.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity Keep out of waterways. Harmful to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Phenol	EC50: =46.42mg/L (96h, Pseudokirchneriella subcapitata) EC50: 0.0188 - 0.1044mg/L (96h, Pseudokirchneriella subcapitata) EC50: 187 -	LC50: 11.9 - 50.5mg/L (96h, Pimephales promelas) LC50: 20.5 - 25.6mg/L (96h, Pimephales promelas) LC50: =32mg/L (96h,	-	EC50: 4.24 - 10.7mg/L (48h, Daphnia magna) EC50: 10.2 - 15.5mg/L (48h, Daphnia magna)

	279mg/L (72h, Desmodesmus subspicatus)	Pimephales promelas) LC50: 5.449 - 6.789mg/L (96h, Oncorhynchus mykiss) LC50: 7.5 - 14mg/L (96h, Oncorhynchus mykiss) LC50: 4.23 - 7.49mg/L (96h, Oncorhynchus mykiss) LC50: =27.8mg/L (96h, Brachydanio rerio) LC50: =0.00175mg/L (96h, Cyprinus carpio) LC50: 33.9 - 43.3mg/L (96h, Oryzias latipes) LC50: 23.4 - 36.6mg/L (96h, Oryzias latipes) LC50: 5.0 - 12.0mg/L (96h, Oncorhynchus mykiss) LC50: =13.5mg/L (96h, Lepomis macrochirus) LC50: 11.9 - 25.3mg/L (96h, Lepomis macrochirus) LC50: =11.5mg/L (96h, Lepomis macrochirus) LC50: 34.09 - 47.64mg/L (96h, Poecilia reticulata) LC50: =31mg/L (96h, Poecilia reticulata)		

Persistence and degradability

Persistence and degradability Readily biodegradable.

Bioaccumulative potential

Bioaccumulation No information available.

Mobility

Mobility in soil No information available.

Other adverse effects

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

ADG
Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

UN number	2312
Proper shipping name	PHENOL, MOLTEN
Hazard class	6.1
Packing group	II
Hazchem code	•3X

IATA
Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.
TRANSPORT PROHIBITED under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in Passenger and Cargo Aircraft, and Cargo Aircraft Only.

UN number	2312
UN proper shipping name	PHENOL, MOLTEN
Transport hazard class(es)	6.1
Packing group	II

IMDG
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN number	2312
UN proper shipping name	PHENOL, MOLTEN
Transport hazard class(es)	6.1
Packing group	II
IMDG EMS Fire	F-A
IMDG EMS Spill	S-A

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia
Classified as a hazardous chemical in accordance with the criteria of Safe Work Australia - Globally Harmonized System (GHS).

Classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG).

See section 8 for national exposure control parameters

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
Classified as a scheduled poison according to the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
Poisons Schedule (SUSMP) 6

National pollutant inventory
Subject to reporting requirement

Chemical name	National pollutant inventory
Phenol - 108-95-2	10 tonne/yr Threshold category 1

International Inventories
AIIC This material is listed on the Australian Inventory of Industrial Chemicals.

NZIoC This material is listed on the New Zealand Inventory of Chemicals.

Legend:
AIIC- Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

16. OTHER INFORMATION

Supplier Safety Data Sheet 03/ 2020

Reason(s) For Issue: Change in First Aid Measures

Issuing Date: 23-Oct-2023

This Safety Data Sheet has been prepared by Ixom Operations Pty Ltd (Toxicology and SDS Services).

Revision Note:
The symbol (*) in the margin of this SDS indicates that this line has been revised.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

Key literature references and sources for data used to compile the SDS

EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian Industrial Chemicals Introduction Scheme (AICIS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
RTECS (Registry of Toxic Effects of Chemical Substances)
World Health Organization

Disclaimer
This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot

anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.

End of Safety Data Sheet