1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: PHENOL 90% SOLUTION

Recommended Use of the Chemical Chemical intermediate.

Supplier: Ixom Operations Pty Ltd
ABN: 51 600 546 512
Street Address: Level 8, 1 Nicholson Street
East Melbourne Victoria 3002
Australia

Telephone Number: +61 3 9906 3000
Emergency Telephone: 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

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

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:
Flammable liquids - Category 4
Acute Oral Toxicity - Category 3
Acute Dermal Toxicity - Category 3
Acute Inhalation Toxicity - Category 3
Skin Corrosion - Sub-category 1B
Eye Damage - Category 1
Mutagenicity - Category 2
Specific target organ toxicity (repeated exposure) - Category 2

SIGNAL WORD: DANGER

Hazard Statement(s):
H227 Combustible liquid.
H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H341 Suspected of causing genetic defects.
H373 May cause damage to organs through prolonged or repeated exposure.
Precautionary Statement(s):

Prevention:
P102 Keep out of reach of children.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, sparks, open flames, hot surfaces. No smoking.
P260 Do not breathe dust / fume / gas / mist / vapours / spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves / protective clothing / eye protection / face protection.
P281 Use personal protective equipment as required.

Response:
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P361 Take off immediately all contaminated clothing.
P363 Wash contaminated clothing before re-use.
P321 Specific treatment (see First Aid Measures on Safety Data Sheet).
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P314 Get medical advice/attention if you feel unwell.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P370+P378 In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish.

Storage:
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:
P501 Dispose of contents and container in accordance with local, regional, national, international regulations.

Poisons Schedule (SUSMP): S6 Poison.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS Number</th>
<th>Proportion</th>
<th>Hazard Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>90%</td>
<td>H301 H311 H331 H314 H341 H373</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>10%</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.
Inhalation:
Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

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.

Eye Contact:
If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes. Do NOT use PEG (polyethylene glycol) 400 in the eye. Transport to a doctor or hospital quickly.

Ingestion:
Immediately rinse mouth with water and spit out. If swallowed, do NOT induce vomiting. Give a glass of water. Never give anything by the mouth to an unconscious patient. Get to a doctor or hospital quickly.

Indication of immediate medical attention and special treatment needed:
Treat symptomatically. Can cause corneal burns. Delayed pulmonary oedema may result. Liver and kidney damage are possible complications.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:
Fine water spray, normal foam, dry agent (carbon dioxide, dry chemical powder).

Hazchem or Emergency Action Code: 2X

Specific hazards arising from the chemical:
Combustible liquid. On burning will emit toxic fumes, including those of oxides of carbon.

Special protective equipment and precautions for fire-fighters:
Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/Environmental precautions:
Shut off all possible sources of ignition. Clear area of all unprotected personnel. If contamination of sewers or waterways has occurred advise local emergency services.

Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:
Slippery when split. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation. 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.
7. HANDLING AND STORAGE

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 S6 and must be stored, maintained and used in accordance with the relevant regulations.

Precautions for safe handling:
Avoid all contact. Use away from sources of heat and ignition. Keep out of reach of children. When using do not eat, drink or smoke. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities:
Store in a dark area. Store in a well ventilated area. Recommended storage temperature: 2°C to 8°C. Store away from foodstuffs. Store away from sources of heat or ignition. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for leaks.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters: No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for constituent(s):

Phenol: 8hr TWA = 4 mg/m³ (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:
Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Workplace Exposure Standards. Keep containers closed when not in use.

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 (PPE):
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.
Wear a full-body chemical resistant suit (eg. Microchem 3000) with air-hood meeting the requirements of AS/NZS 1715 and AS/NZS 1716, elbow-length impervious gloves, and long rubber boots. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state:</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour:</td>
<td>Colourless to Yellowish or Pinkish</td>
</tr>
<tr>
<td>Odour:</td>
<td>Distinctive, Strong Acidic</td>
</tr>
<tr>
<td>Odour Threshold:</td>
<td>0.1-1 ppm</td>
</tr>
<tr>
<td>Solubility:</td>
<td>Miscible in water.</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>1.06 @25°C</td>
</tr>
<tr>
<td>Relative Vapour Density (air=1):</td>
<td>3.2 (phenol)</td>
</tr>
<tr>
<td>Vapour Pressure (20 °C):</td>
<td>0.047 kPa (phenol)</td>
</tr>
<tr>
<td>Flash Point (°C):</td>
<td>79 (phenol)</td>
</tr>
<tr>
<td>Flammability Limits (%):</td>
<td>1.36 - 10 vol% in air (phenol)</td>
</tr>
<tr>
<td>Autoignition Temperature (°C):</td>
<td>715 (phenol)</td>
</tr>
<tr>
<td>Boiling Point/Range (°C):</td>
<td>ca. 106 @750 mmHg</td>
</tr>
<tr>
<td>pH:</td>
<td>6</td>
</tr>
<tr>
<td>Freezing Point/Range (°C):</td>
<td>9-16</td>
</tr>
</tbody>
</table>

**10. STABILITY AND REACTIVITY**

- **Reactivity:** Explosible with air in a vaporous/gaseous state when heated.
- **Chemical stability:** Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
- **Possibility of hazardous reactions:** None known.
- **Conditions to avoid:** Avoid exposure to heat, sources of ignition, and open flame. Avoid exposure to direct sunlight.
- **Incompatible materials:** Incompatible with some synthetic materials. Incompatible with strong oxidising agents.
- **Hazardous decomposition products:** Oxides of carbon.

**11. TOXICOLOGICAL INFORMATION**

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

- **Ingestion:** Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract. Collapse and possible death may occur.
- **Eye contact:** A severe eye irritant. Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury.
Safety Data Sheet

Skin contact: Contact with skin will result in severe irritation. Corrosive to skin - may cause skin burns. Component/s of this material can be absorbed through the skin with resultant toxic effects.

Inhalation: Vapour and processing fumes may cause irritation to mucous membranes of the respiratory tract, headache and nausea. Breathing in high concentrations can produce central nervous system depression, which can lead to loss of co-ordination, impaired judgement and if exposure is prolonged, unconsciousness.

Acute toxicity: No LD50 data available for the product. However, for the major constituent:
Oral LD50 (rat): 317 mg/kg
Dermal LD50 (rat): 669 mg/kg
Inhalation LC50 (rat): 316 mg/m³/4hr

Skin corrosion/irritation: Corrosive (human). Corrosive (rabbit).
Serious eye damage/irritation: Severe irritant (rabbit).
Respiratory or skin sensitisation: Not a skin sensitiser (human). Not a skin sensitiser (guinea pig).

Chronic effects: Available evidence from animal studies indicate that repeated or prolonged exposure to this material could result in effects on the central nervous system, kidneys, liver, pancreas, and spleen.

Mutagenicity: Suspected of causing genetic defects.
Carcinogenicity: Phenol 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.
Specific Target Organ Toxicity (STOT) - single exposure: No information available.
Specific Target Organ Toxicity (STOT) - repeated exposure: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity Avoid contaminating waterways.
Persistence/degradability: The material is biodegradable.
Bioaccumulative potential: No information available.
Mobility in soil: No information available.

13. DISPOSAL CONSIDERATIONS

Disposal methods: Refer to Waste Management Authority. Dispose of contents and container in accordance with local, regional, national, international regulations.

14. TRANSPORT INFORMATION
Safety Data Sheet

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

UN No: 2821
Transport Hazard Class: 6.1 Toxic
Packing Group: II
Proper Shipping Name or Technical Name: PHENOL SOLUTION
Hazchem or Emergency Action Code: 2X

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

UN No: 2821
Transport Hazard Class: 6.1 Toxic
Packing Group: II
Proper Shipping Name or Technical Name: PHENOL SOLUTION
IMDG EMS Fire: F-A
IMDG EMS Spill: S-A

Air Transport
Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN No: 2821
Transport Hazard Class: 6.1 Toxic
Packing Group: II
Proper Shipping Name or Technical Name: PHENOL SOLUTION

15. REGULATORY INFORMATION

Classification:
This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:
Flammable liquids - Category 4
Acute Oral Toxicity - Category 3
Acute Dermal Toxicity - Category 3
Acute Inhalation Toxicity - Category 3
Skin Corrosion - Sub-category 1B
Eye Damage - Category 1
Mutagenicity - Category 2
Specific target organ toxicity (repeated exposure) - Category 2
Hazard Statement(s):
H227 Combustible liquid.
H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H341 Suspected of causing genetic defects.
H373 May cause damage to organs through prolonged or repeated exposure.

Poisons Schedule (SUSMP): S6 Poison.

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Supplier Safety Data Sheet; 02/2016.

This safety data sheet has been prepared by Ixom Operations Pty Ltd (Toxicology & SDS Services).

Reason(s) for Issue:
5 Yearly Revised Primary SDS

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.