

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Revision Date 16-Feb-2024

Revision Number 4

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

| Product Description: | Phenol, ultrapure |
|---------------------------|--|
| Cat No. : | J64011 |
| Synonyms | Hydroxybenzene; Phenylic acid; Carbolic acid |
| Index No | 604-001-00-2 |
| CAS No | 108-95-2 |
| Molecular Formula | OHC6H5 |
| REACH registration number | - |

1.2. Relevant identified uses of the substance or mixture and uses advised against

| Recommended Use | Laboratory chemicals. |
|--------------------------------|---|
| Sector of use | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Product category | PC21 - Laboratory chemicals |
| Process categories | PROC15 - Use as a laboratory reagent |
| Environmental release category | ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) |
| Uses advised against | No Information available |

1.3. Details of the supplier of the safety data sheet

Company

Avocado Research Chemicals Ltd. (Part of Thermo Fisher Scientific) Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608

E-mail address

begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Phenol, ultrapure

Based on available data, the classification criteria are not met

Health hazards

Acute oral toxicity Acute dermal toxicity Acute Inhalation Toxicity - Dusts and Mists Skin Corrosion/Irritation Serious Eye Damage/Eye Irritation Germ Cell Mutagenicity Specific target organ toxicity - (repeated exposure)

Environmental hazards Based on available data, the classification criteria are not met Category 3 (H301) Category 3 (H311) Category 3 (H331) Category 1 B (H314) Category 1 (H318) Category 2 (H341) Category 2 (H373)

Full text of Hazard Statements: see section 16



Signal Word

Danger

Hazard Statements

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

H301 + H311 + H331 - Toxic if swallowed, in contact with skin or if inhaled

Precautionary Statements

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

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

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxicity to Soil Dwelling Organisms

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

| Component | CAS No | EC No | Weight % | CLP Classification - According to |
|-----------|--------|-------|----------|---------------------------------------|
| | | | | GB-CLP Regulations UK SI 2019/720 and |

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| | | | | UK SI 2020/1567 |
|--------|----------|-------------------|-----|---|
| Phenol | 108-95-2 | EEC No. 203-632-7 | 100 | Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) Skin Corr. 1B (H314) |
| | | | | Eye Dam. 1 (H318) Muta. 2 (H341) STOT RE 2 (H373) |

| Component | Specific concentration limits (SCL's) | M-Factor | Component notes |
|-----------|--|----------|-----------------|
| Phenol | Eye Irrit. 2 (H319) :: 1%<=C<3% | - | - |
| | Skin Corr. 1B (H314) :: C>=3% | | |
| | Skin Irrit. 2 (H315) :: 1%<=C<3% | | |

| REACH registration number | - |
|---------------------------|---|

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

| General Advice | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. | | | | |
|-------------------------------------|--|--|--|--|--|
| Eye Contact | In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. | | | | |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required. | | | | |
| Ingestion | Do NOT induce vomiting. Call a physician or poison control center immediately. | | | | |
| Inhalation | Remove to fresh air. If not breathing, give artificial respiration. 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. Immediate medical attention is required. | | | | |
| Self-Protection of the First Aider | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. | | | | |
| 4.2. Most important symptoms and | effects, both acute and delayed | | | | |
| | Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation | | | | |
| 4.3. Indication of any immediate me | edical attention and special treatment needed | | | | |
| Notes to Physician | Treat symptomatically. | | | | |
| | SECTION 5: FIREFIGHTING MEASURES | | | | |

5.1. Extinguishing media

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

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Extinguishing media which must not be used for safety reasons No information available.

5.2. Special hazards arising from the substance or mixture

The product causes burns of eyes, skin and mucous membranes.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂).

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Evacuate personnel to safe areas. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid dust formation.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not ingest. If swallowed then seek immediate medical assistance. Do not breathe (dust, vapor, mist, gas). Avoid dust formation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Store under an inert atmosphere. Protect from moisture. Keep container tightly closed in a dry and well-ventilated place.

Technical Rules for Hazardous Substances (TRGS) 510 Class 6.1C Storage Class (LGK) (Germany)

7.3. Specific end use(s)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): EU - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC UK - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. IRE - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

| Component | The United Kingdom | European Union | Ireland |
|-----------|-----------------------------------|------------------------------------|-----------------------------------|
| Phenol | STEL: 4 ppm 15 min | TWA: 2 ppm (8h) | TWA: 2 ppm 8 hr. |
| | STEL: 16 mg/m ³ 15 min | TWA: 8 mg/m ³ (8h) | TWA: 8 mg/m ³ 8 hr. |
| | TWA: 2 ppm 8 hr | STEL: 4 ppm (15min) | STEL: 4 ppm 15 min |
| | TWA: 7.8 mg/m ³ 8 hr | STEL: 16 mg/m ³ (15min) | STEL: 16 mg/m ³ 15 min |
| | Skin | Skin | Skin |

Biological limit values

List source(s):

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL) See table for values

| Component | Acute effects local (Dermal) | Acute effects systemic (Dermal) | Chronic effects local (Dermal) | Chronic effects systemic (Dermal) |
|----------------------------|---------------------------------|------------------------------------|-----------------------------------|-----------------------------------|
| Phenol 108-95-2 (100) | | | | DNEL = 1.23mg/kg bw/day |

| Component | Acute effects local (Inhalation) | Acute effects systemic (Inhalation) | Chronic effects local (Inhalation) | Chronic effects systemic (Inhalation) |
|-------------------------|-------------------------------------|--|---------------------------------------|---------------------------------------|
| Phenol 108-95-2(100) | DNEL = 16mg/m ³ | | | DNEL = 8mg/m ³ |

Predicted No Effect Concentration (PNEC)

See values below.

| Component | Fresh water | Fresh water | | Microorganisms in | , |
|----------------|-------------|-------------|------------------|-------------------|--------------------|
| | | sediment | | sewage treatment | |
| Phenol | PNEC = | PNEC = | PNEC = 0.031mg/L | PNEC = 2.1mg/L | PNEC = |
| 108-95-2 (100) | 0.0077mg/L | 0.0915mg/kg | | | 0.136mg/kg soil dw |
| | | sediment dw | | | |

| Component | Marine water | Marine water sediment | Marine water intermittent | Food chain | Air |
|----------------|--------------|--------------------------|------------------------------|------------|-----|
| Phenol | PNEC = | PNEC = | | | |
| 108-95-2 (100) | 0.00077mg/L | 0.00915mg/kg | | | |
| | - | sediment dw | | | |

8.2. Exposure controls

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

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| Eye | Prote | ction |
|-----|-------|-------|
|-----|-------|-------|

Goggles (European standard - EN 166)

Hand Protection Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments |
|-------------------|-------------------|-----------------|-------------|-----------------------|
| Disposable gloves | See manufacturers | - | EN 374 | (minimum requirement) |
| | recommendations | | | |

Skin and body protection Long sleeved clothing.

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

| Respiratory Protection | When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly |
|---------------------------------|---|
| Large scale/emergency use | In case of insufficient ventilation, wear suitable respiratory equipment |
| Small scale/Laboratory use | Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. When RPE is used a face piece Fit Test should be conducted |
| Environmental exposure controls | Prevent product from entering drains. Do not allow material to contaminate ground water |

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| Physical State | Solid | |
|--|---|-----------------------------------|
| Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits | White No information available No data available 40.50 °C / 104.9 °F No data available No information available No information available No data available | Solid |
| Flash Point Autoignition Temperature Decomposition Temperature pH | 79 °C / 174.2 °F No data available No data available | Method - No information available |
| Viscosity Water Solubility Solubility in other solvents Partition Coefficient (n-octanol/wate | Not applicable No information available No information available er) | Solid |
| Component Phenol Vapor Pressure Density / Specific Gravity Bulk Density Vapor Density Particle characteristics | log Pow 1.5 No data available 1.0600 No data available Not applicable No data available | Solid |

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9.2. Other information

Molecular Formula Molecular Weight Explosive Properties Evaporation Rate OHC6H5 94.11 explosive air/vapour mixtures possible Not applicable - Solid

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Yes

10.2. Chemical stability

Hygroscopic, Light sensitive.

10.3. Possibility of hazardous reactions

Hazardous PolymerizationNo information available.Hazardous ReactionsNone under normal processing.

10.4. Conditions to avoid

Avoid dust formation. Incompatible products. Exposure to moisture. Exposure to light. Keep away from open flames, hot surfaces and sources of ignition. Exposure to moist air or water.

10.5. Incompatible materials

Acids. Bases. Strong oxidizing agents. Halogens. Lead. Metals.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

| (a) acute toxicity; | |
|---------------------|------------|
| Oral | Category 3 |
| Dermal | Category 3 |
| Inhalation | Category 3 |

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-----------|------------------------|---------------------------|--|
| Phenol | LD50 = 340 mg/kg (Rat) | LD50 = 630 mg/kg (Rabbit) | LC50 = 316 mg/m ³ (Rat) 4 h |
| | | | |

| (b) skin corrosion/irritation; | Category 1 B |
|---|--|
| (c) serious eye damage/irritation; | Category 1 |
| (d) respiratory or skin sensitization; Respiratory Skin | Based on available data, the classification criteria are not met Based on available data, the classification criteria are not met |
| (e) germ cell mutagenicity; | Category 2 |
| (f) carcinogenicity; | Based on available data, the classification criteria are not met |
| | |

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| | | | 1 1 | |
|---|-------------------------|-----------------------------|--|---------------------|
| Component | EU | UK | Germany | IARC |
| Phenol | | | Cat. 3B | |
| (g) reproductive toxicity; | | le data, the classification | | |
| (h) STOT-single exposure; | Based on availab | le data, the classification | n criteria are not met | |
| (i) STOT-repeated exposure; | Category 2 | | | |
| Target Organs | Kidney, Liver, Ski | in, Central nervous syste | em (CNS). | |
| (j) aspiration hazard; | Not applicable Solid | | | |
| Symptoms / effects,both acute and delayed | Possible perforati | ion of stomach or esoph | astric lavage or emesis is co agus should be investigated elicate tissue and danger of | I. Ingestion causes |
| 11.2. Information on other hazards | | | | |

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity **Ecotoxicity effects**

Contains a substance which is:. The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component | Freshwater Fish | Water Flea | Freshwater Algae |
|-----------|---|---|--|
| Phenol | 4-7 mg/L LC50 96 h 32 mg/L LC50 96 h | EC50: 10.2 - 15.5 mg/L, 48h (Daphnia magna) EC50: 4.24 - 10.7 mg/L, 48h Static (Daphnia magna) | EC50: 187 - 279 mg/L, 72h static (Desmodesmus subspicatus) EC50: 0.0188 - 0.1044 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: = 46.42 mg/L, 96h (Pseudokirchneriella subcapitata) |

| Component | Microtox | M-Factor |
|-----------|--------------------------|----------|
| Phenol | EC50 21 - 36 mg/L 30 min | |
| | EC50 = 23.28 mg/L 5 min | |
| | EC50 = 25.61 mg/L 15 min | |
| | EC50 = 28.8 mg/L 5 min | |
| | EC50 = 31.6 mg/L 15 min | |

12.2. Persistence and degradability

Persistence is unlikely. Persistence **Degradation in sewage**

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential

treatment plant

Bioaccumulation is unlikely

| | Component | log Pow | Bioconcentration factor (BCF) |
|--|-----------|---------|-------------------------------|
|--|-----------|---------|-------------------------------|

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| Phenol | 1.5 | 17.5 dimensionless |
|---|--|--|
| | | 647 dimensionless |
| 12.4. Mobility in soil | The product is water soluble, and may spread environment due to its water solubility. Highly | |
| 12.5. Results of PBT and vPvB assessment | Substance is not considered persistent, bioact and very bioaccumulative (vPvB). | cumulative and toxic (PBT) / very persistent |
| <u>12.6. Endocrine disrupting</u> properties Endocrine Disruptor Information | This product does not contain any known or s | uspected endocrine disruptors |
| <u>12.7. Other adverse effects</u> Persistent Organic Pollutant Ozone Depletion Potential | This product does not contain any known or so This product does not contain any known or so | uspected substance |
| SE | CTION 13: DISPOSAL CONSIDER | CATIONS |
| | | |

13.1. Waste treatment methods

| Waste from Residues/Unused Products | Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations. |
|--|---|
| Contaminated Packaging | Dispose of this container to hazardous or special waste collection point. |
| European Waste Catalogue (EWC) | According to the European Waste Catalog, Waste Codes are not product specific, but application specific. |
| Other Information | Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. |

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

| <u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u> | UN1671 PHENOL, SOLID 6.1 II |
|--|--------------------------------------|
| ADR <u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u> | UN1671 PHENOL, SOLID 6.1 II |
| IATA 14.1. UN number 14.2. UN proper shipping name | UN1671 PHENOL, SOLID |

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14.3. Transport hazard class(es)

14.4. Packing group

| 14.5. Environmental hazards | Dangerous for the environment Product is a marine pollutant according to the criteria set by IMDG/IMO |
|--|--|
| 14.6. Special precautions for user | No special precautions required. |
| 14.7. Maritime transport in bulk according to IMO instruments | Not applicable, packaged goods |

SECTION 15: REGULATORY INFORMATION

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

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International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

| Component | CAS No | EINECS | ELINCS | NLP | IECSC | TCSI | KECL | ENCS | ISHL |
|-----------|----------|-----------|---------|--------------------------------|-------|------|------|-------|-------|
| Phenol | 108-95-2 | 203-632-7 | - | - | X | Х | Х | X | X |
| | | | | | | | | | |
| Component | CAS No | TSCA | notific | ventory ation - Inactive | DSL | NDSL | AICS | NZIoC | PICCS |

Legend: X - Listed '-' - Not Listed

Phenol

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

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ACTIVE

Authorisation/Restrictions according to EU REACH

108-95-2

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|-----------|----------|---|--|---|
| Phenol | 108-95-2 | - | Use restricted. See item 75. (see link for restriction details) | - |

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

| Component | CAS No | Seveso III Directive (2012/18/EC) - | Seveso III Directive (2012/18/EC) - |
|-----------|----------|--|---|
| | | Qualifying Quantities for Major Accident | Qualifying Quantities for Safety Report |
| | | Notification | Requirements |
| Phenol | 108-95-2 | Not applicable | Not applicable |

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

See table for values

| Component | Germany - Water Classification (AwSV) | Germany - TA-Luft Class |
|-----------|---------------------------------------|--|
| Phenol | WGK2 | Class I : 20 mg/m ³ (Massenkonzentration) |

| Component | France - INRS (Tables of occupational diseases) |
|-----------|--|
| Phenol | Tableaux des maladies professionnelles (TMP) - RG 14 |

| Component | Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81) | Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC) | Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure |
|-------------------------|--|---|--|
| Phenol 108-95-2(100) | Prohibited and Restricted Substances | | |

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H301 - Toxic if swallowed

- H311 Toxic in contact with skin
- H331 Toxic if inhaled
- H314 Causes severe skin burns and eye damage

H318 - Causes serious eye damage

CAS - Chemical Abstracts Service

- H341 Suspected of causing genetic defects
- H373 May cause damage to organs through prolonged or repeated exposure

Legend

| | Inventory |
|---|---|
| EINECS/ELINCS - European Inventory of Existing Commercial Chemical | DSL/NDSL - Canadian Domestic Substances List/Non-Domestic |
| Substances/EU List of Notified Chemical Substances | Substances List |
| PICCS - Philippines Inventory of Chemicals and Chemical Substances | ENCS - Japanese Existing and New Chemical Substances |
| IECSC - Chinese Inventory of Existing Chemical Substances | AICS - Australian Inventory of Chemical Substances |
| KECL - Korean Existing and Evaluated Chemical Substances | NZIOC - New Zealand Inventory of Chemicals |
| - | · |
| | |

WEL - Workplace Exposure Limit ACGIH - American Conference of Governmental Industrial Hygienists DNEL - Derived No Effect Level RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

 $\ensuremath{\text{OECD}}$ - Organisation for Economic Co-operation and Development $\ensuremath{\text{BCF}}$ - Bioconcentration factor

Key literature references and sources for data

TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

TSCA - United States Toxic Substances Control Act Section 8(b)

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

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https://echa.europa.eu/information-on-chemicals Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

| Prepared By | Health, Safety and Environmental Department |
|------------------|--|
| Revision Date | 16-Feb-2024 |
| Revision Summary | New emergency telephone response service provider. |

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet