PROCHEMICAL GROUP s.r.o.
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SECTION 1: Identification of the substance/mixture and of the company/undertaking 1.1. Product identifier

Substance name:	Phenol synthetic, technical
Synonyms:	➢ Phenol ➢ Hydroxybenzene ➢ Benzene, hydroxy- ➢ Carbolic acid
EC Name:	Phenol
Index No: (Annex VI to Regulation (EC) No 1272/2008)	604-001-00-2
EC No:	203-632-7
CAS No:	108-95-2
REACH Registration No: (assigned under Article 20(3) of Regulation (EC) No 1907/2006)	01-2119882293-32-0000

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

Identified uses:	Phenol is used in production of other chemicals (INDUSTRIAL USE) and in manufacture of phenolic resins (INDUSTRIAL USE). The Use Descriptors for phenol are listed as follows: Sectors of end use (SU): SU3; SU10; SU11; SU12. Process category (PROC): PROC1; PROC2; PROC3; PROC8b. Market sector by type of chemical product: PC13; PC32. Environmental release category (ERC): ERC6a; ERC6c; ERC6d. For details on Use Descriptors, refer Section 16 of this eSDS.
Uses advised against:	Phenol shall not be available to general public/consumers as such. Phenol shall not be used in contradiction to all relevant national/regional restrictions applied to this substance, including, but not limited to, those prescribed by REACH regulation.
Exposure scenario(s):	For detailed information on exposure assessment, please, refer Annex I to this eSDS.

1.3. Details of the supplier of the safety data sheet

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SECTION 2: Hazards identification 2.1. Classification of the substance or mixture

2.1.1 Classification according to the criteria of Regulation (EC) No 1272/2008 (CLP Regulation) (Annex VI, table 3.1):

for physical-chemical properties:	➢ Not classified.
for health hazards:	➢ Acute toxicity - oral: Acute Tox. Category 3; H301: Toxic if swallowed. ➢ Acute toxicity - dermal: Acute Tox. Category 3; H311: Toxic in contact with skin. ➢ Acute toxicity - inhalation: Acute Tox. Category 3; H331: Toxic if inhaled. ➢ Skin corrosion/irritation: Skin Corr. Category 1B; H314: Causes severe skin burns and eye damage. ➢ Germ cell mutagenicity: Muta. Category 2; H341: Suspected of causing genetic defects. ➢ Specific target organ toxicity – repeated: STOT Rep. Exp. Category 2; H373: May cause damage to organs through prolonged or repeated exposure.
for environmental hazards:	➢ Not classified.

2.1.2 Classification according to the DSD/DPD criteria of Annex I of Directive 67/548/EEC and as reported in Regulation (EC) No 1272/2008 (Annex VI, table 3.2):

for physical-chemical properties:	➢ Not classified.
for health hazards:	➢ T; R23/24/25 Toxic; Toxic by inhalation, in contact with skin and if swallowed. ➢ Xn; R48/20/21/22 Harmful; Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. ➢ C; R34 Corrosive; Causes burns. ➢ Muta. Cat. 3; R68 Possible risk of irreversible effects.
for environmental hazards:	➢ Not classified.

2.2. Label elements

2.2.1 Labelling according to the GHS criteria of Regulation (EC) No 1272/2008 (CLP Regulation):

Signal word:	Danger		
Hazard pictograms:	GHS05: Corrosion 	GHS06:skullandcrossbones 	GHS08: health hazard 
Hazard statements:	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:** P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P260: Do not breathe dust/fume/gas/mist/vapours/spray. P261: Avoid breathing dust/fume/gas/mist/vapours/spray. P264: Wash hands and open skin areas thoroughly after handling. P270: Do no 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 NOTinduce 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): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313: IF exposed or concerned: Get medical advice/attention. P310: Immediately call a POISON CENTER or doctor/physician. P321: Specific treatment (see information on this label). P322: Specific measures (see information on this label). P330: Rinse mouth. P361: Remove/Take off immediately all contaminated clothing. P363: Wash contaminated clothing before reuse. ➢ **Storage:** P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. ➢ **Disposal:** P501: Dispose of contents/container in accordance with local/ regional/ national/ international regulation.

2.2.2 Labelling according to the DSD/DPD criteria of Annex I of Directive 67/548/EEC and as reported in Regulation (EC) No 1272/2008 (CLP Regulation):

Indication of danger:	T – toxic. C-corrosive.
R-phrases:	R23/24/25 - toxic by inhalation, in contact with skin and if swallowed. R34 - causes burns. R48/20/21/22 - harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. R68 - possible risk of irreversible effects.

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S-phrases:	S1/2 - keep locked up and out of reach of children. S24/25 - avoid contact with skin and eyes. S26 - in case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28 - After contact with skin, wash immediately with plenty of water. S36/37/39 - wear suitable protective clothing, gloves and eye/face protection. S45 - in case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3. Other hazards

Physical Chemical Hazards:	**Fire and Explosion Hazards:** ➢ Combustible. ➢ When heated, vapours may form explosive mixtures with air: indoors, outdoors and sewers explosion hazard. ➢ Containers may explode when heated. ➢ Fire may produce irritating, corrosive and/or toxic gases. ➢ Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. **Chemical Hazards:** ➢ Reacts with oxidants causing fire and explosion hazard. ➢ Contact with metals may evolve flammable hydrogen gas.
Human Health Hazards:	**Health Hazards:** ➢ Toxic. Inhalation, ingestion or skin contact with the substance may cause severe injury or death. ➢ Effects of contact or inhalation may be delayed. **Eye and Skin Contact:** ➢ Easily absorbed. Serious skin burns. Numbness. Convulsion. Collapse. Coma. Death. ➢ Eye Contact: Pain. Redness. Permanent loss of vision. Severe deep burns. ➢ Contact with molten substance may cause severe burns to skin and eyes. **Inhalation:** ➢ Sore throat. Burning sensation. Cough.

	Dizziness.Headache.Nausea. Vomiting. Shortness of breath. Labouredbreathing.Unconsciousness. Symptoms may bedelayed. **Ingestion:** ➢ Corrosive. Abdominal pain. Convulsions. Diarrhoea. Shock or collapse. Sore throat. Smoky, greenish-dark urine.

SECTION 3: Composition/information on ingredients

3.1. Substances

Mainconstituent(s):

Chemicalname	CASNo	ECNo	Weight %content
Phenol	108-95-2	203-632-7	≥99.99%

Stabilizer(s): None

Other Hazardous

Components/ Impurities: None

SECTION 4: First aid measures 4.1. Description of first aid measures

General notes:	➢ Toxic. Inhalation, ingestion or skin contact with the substance may cause severe injury or death. ➢ Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. ➢ Ensure that medical personnel are aware of the substance involved and take precautions to protect themselves. ➢ Wear protective gloves when administering first aid. ➢ Do not use mouth-to-mouth method if victim ingested or inhaled the substance. Give artificial respiration with the aid of a proper respiratory medical device. ➢ Remove and isolate contaminated clothing and shoes. ➢ In all cases of exposure to phenol the person should be transferred to a hospital as soon as
	possible.

Following inhalation:	➢ Move affected person to fresh air. ➢ Immediately call emergency medical service. ➢ Give artificial respiration if victim is not breathing. ➢ Administer oxygen if breathing is difficult. ➢ Keep victim warm and at rest.
Following skin contact:	➢ In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. ➢ For minor skin contact, avoid spreading substance on unaffected skin. ➢ Move affected person to fresh air. ➢ Immediately call emergency medical service. ➢ Give artificial respiration if victim is not breathing. ➢ Administer oxygen if breathing is difficult. ➢ Keep victim warm and at rest.
Following eye contact:	➢ In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. ➢ Move affected person to fresh air. ➢ Immediately call emergency medical service. ➢ Give artificial respiration if victim is not breathing. ➢ Administer oxygen if breathing is difficult. ➢ Keep victim warm and at rest.
Following ingestion:	➢ Important: never give anything by mouth to an unconscious person! ➢ Rinse mouth. ➢ Do not induce vomiting. ➢ Move affected person to fresh air. ➢ Immediately call emergency medical service. ➢ Give artificial respiration if victim is not breathing. ➢ Administer oxygen if breathing is difficult. ➢ Keep victim warm and at rest.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation:	➢ Toxic. Inhalation, ingestion or skin contact with thesubstancemay cause severe injury ordeath. ➢ Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. ➢ Inhalation of vapour may cause lung oedema.

	➢ The substance and the vapour is corrosive to the respiratory tract.
Skin/Eye contact:	➢ Toxic. Inhalation, ingestion or skin contact with the substance may cause severe injury or death. ➢ Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. ➢ The substance and the vapour is corrosive to the eyes and the skin. ➢ Repeated or prolonged contact with skin may cause dermatitis.
Ingestion:	➢ Toxic. Inhalation, ingestion or skin contact with the substance may cause severe injury or death. ➢ Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

4.3. Indication of any immediate medical attention and special treatment needed

Acute exposure:	➢ For special medical treatment and/or advice immediatelyreferto medicalprofessionals.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:	➢ Water spray, alcohol-resistant foam, dry chemical, carbon dioxide.
Unsuitable extinguishing media:	➢ Do not use water jet (straight streams) to extinguish.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products:	➢ Gives off toxic and irritant fumes, also when burning.
Fire and Explosion Hazards:	➢ Combustible. ➢ Heating of containers will cause pressure rise with risk of bursting and subsequent explosion.

Unusual fire and explosion hazards:	➢ When heated, vapours may form explosive mixtures with air: indoors, outdoors and sewers explosion hazard.

5.3. Advice for firefighters

Special fire fightingprocedures:	➢ To fight fire use foam, dry chemical, carbon dioxide, water spray. ➢ Use water spray to knock down fire fumes if possible.
	➢ Keep containers cool with water. ➢ Do not get water inside containers ➢ Avoid unnecessary run-off of extinguishing media, which may cause pollution.
Personal protection:	➢ Self-Contained Breathing Apparatus (SCBA) with appropriate chemical protection suit. ➢ Fire fighter's clothing conforming to European standard EN469.
First aid:	➢ If substance has got into eyes, wash out with water for at least 15 minutes and seek immediate medical attention. ➢ Remove contaminated clothing immediately and wash affected skin with soap and plenty of water ➢ Persons who have been in contact with the substance or have inhaled fumes should get immediate medical attention. Pass on all available product information. ➢ In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing adhering to skin. Get immediate medical attention.

SECTION 6: Accidental release measures 6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel:

Protective equipment:	➢ Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

Emergency procedures:	➢ Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). ➢ Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. ➢ Stop leaks if possible. ➢ Contain spillage by any means available. ➢ Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. ➢ Prevent entry into waterways, sewers, basements or confined areas. ➢ If substance has entered a water course or sewer, inform the responsible authority.

6.1.1 For emergency responders:

Emergency Response in case of Spill and Leak:	➢ Evacuate and restrict persons not wearing protective equipment from area of spill or leak until cleanup is complete. Remove all ignition sources. ➢ It may be necessary to contain and dispose of this chemical as a hazardous waste. ➢ If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact the responsible authority in your country/region for specific recommendations. ➢ If employees are required to clean up spills, they must be properly trained and equipped.
Public Safety Hazard:	➢ Minimize number of personnel in risk area.

6.2. Environmental precautions

Accidental Spills andReleases:	➢ Do not wash away into sewer. ➢ Keep away from drains, surface and ground water. Do not let this chemical enter the environment. ➢ If substance has entered a water course or sewer, inform the responsible authority.

6.3. Methods and material for containment and cleaning up

For containment:	➢ Prevent further leakage or spillage if safe to do so. ➢ It may be necessary to contain and dispose of this chemical as a hazardous waste.

For cleaning up:	➢ Evacuate and restrict persons not wearing protective equipment from area of spill or leak until cleanup is complete. Remove all ignition sources. ➢ It may be necessary to contain and dispose of this chemical as a hazardous waste. ➢ If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact the responsible authority in your country/region for specific recommendations. ➢ If employees are required to clean up spills, they must be properly trained and equipped.

6.4. Reference to other sections

Other information:	➢ For more information, refer to Sections 8 and 13 of this Safety Data Sheet.

SECTION 7: Handling and storage 7.1. Precautions for safe handling 7.1.1 Protective measures

Training:	➢ Any person who comes into contact with the substance needs to be trained in proper handling and safety per applicable federal, state and local laws and regulations. ➢ Employers must advise employees of all areas and operations where exposure to the substance might occur. ➢ All workers who may be potentially exposed to this substance shall be kept informed of the hazards, relevant symptoms, effects of overexposure to, and proper precautions concerning safe use and handling of this chemical. ➢ The hazard information shall be readily available to workers at all places of employment where this substance is manufactured, used, transported or stored.
Measures to prevent fire:	➢ Normal measures for preventive fire protection when handling combustible substances. Keep sparks, flames, and other sources of ignition away. No smoking. Take measures to prevent the build up of electrostatic charge.
Measures to prevent aerosol and dust generation:	➢ Avoid formation of dusts, aerosols and mists. ➢ Avoid inhalation of aerosols and mist. ➢ Avoid any contact with skin and eyes. ➢ Use in a well ventilated area.

Measures to protect the environment:	➢ Do not wash away into sewer. ➢ Keep away from drains, surface and ground water. Do not let this chemical enter the environment. ➢ If substance has entered a watercourse or sewer, inform the responsible authority.

7.1.2 Advice on general occupational hygiene:

Handling:	➢ Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink, or smoke during work. Wash hands before eating, after handling the substance,
	before breaks and at the end of workday. ➢ Avoid any contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:	➢ Store in cool place. Keep container tightly closed in a dry and well-ventilated place. ➢ Keep away from heat, sparks, and flames. ➢ Store separated from incompatible substances.
Packaging materials:	➢ Containers, which are opened, must be carefully resealed and kept upright to prevent leakage.
Requirements for storage rooms and vessels:	➢ Store in an area without drain or sewer access.
Further information on storage conditions:	➢ Store separated from food and feedstuffs.

7.3. Specific end use(s)

Fire/Explosion prevention:	➢ No open flames. No contact with hot surfaces. ➢ Standard measures for preventive fire protection when handling combustible substances.
Recommendations:	➢ For detailed information on exposure scenarios, please, refer Annex I to this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection 8.1. Control parameters

8.1.1. National Occupational Exposure limit values

Substance: CAS No.	➢ Phenol ➢ 108-95-2

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Country	**Limit value–8hours**		**Limit value-Shortter m(15minutes)**		**Legalbasis**
	ppm	**mg/m³**	**ppm**	**mg/m³**	
European Union	2	7.8	-	-	Indicative Occupational ExposureLimits(IOELVs)/ DIR2000/39/CE
Austria	2	7.8	-	-	Maximum Workplace Concentrations("MaximaleArbeitsplatzkonzentrationen" –MAK)
Belgium	2	7.8	-	-	Occupational exposure limits (Valeurslimitesd'exposition professionnelle – VLEP/Grenswaarden voor beroepsmatige blootstelling–GWBB)
Bulgaria	No dataavailable				
Cyprus	No dataavailable				
CzechRepublic	No dataavailable				
Denmark	1	4	2	8	No dataavailable
Estonia	No dataavailable				
Finland	No dataavailable				
France	2	7.8	4	15.6	Occupational exposure limit valuesforoccupational exposure to chemical agents inFrance
Germany	2	8	4	16	Occupational Limit Values(Arbeitsplatzgrenzwerte – AGW)
Greece	No dataavailable				
Hungary	-	7.8	-	7.8	Hungarian decree No. 25/2000 (IX.30) ontheChemical Safety of Workplaces issued bytheMinistry of Social Affairs andHealth
Ireland	No dataavailable				
Italy	2	7.8	-	-	No dataavailable

Latvia	No dataavailable				
Lithuania	No dataavailable				
Luxembourg	No dataavailable				
Malta	No dataavailable				
Netherlands	-	8	-	-	Limit values/The Netherlands: Dutch LegalPublicLimitValues
Poland	-	7.8	-	-	The Interdepartmental Commission forMaximumAdmissible Concentrations and IntensitiesforAgents Harmful to Health in theWorkingEnvironment
Portugal	No dataavailable				
Romania	No dataavailable				
Slovakia	No dataavailable				
Slovenia	No dataavailable				
Spain	2	8	-	-	Spanish legislation on chemical agents(RoyalDecree 374/2001 transposing Directive98/24/EC).
Sweden	No dataavailable				
UnitedKing dom	2	-	-	-	Workplace Exposure Limits(WELs)

Source:
Based on GESTIS International Limit values Database available at http://www.dguv.de/ifa/en/gestis/limit_values/index.jsp

NOTE:
All currently adopted by the national/regional competent authority levels on safe exposure to this chemical shall apply.

8.1.2. International Occupational Exposure limit values

Substance: CAS No.	➢ Phenol ➢ 108-95-2

Country/ Organization	**Limit value – 8 hours**	**Limit value - Short term** **(15 minutes)**	**Specific Notations**

	ppm	mg/m³	ppm	mg/m³	
ACGIH	5	-	-	-	Skin; A4 (Not Classifiable as a Human Carcinogen)
Switzerland	5	19	5	19	Swiss occupational exposure limit values
USA-NIOSH	5	19	15,6	60	Recommended Exposure Limit (REL)
USA-OSHA	5	19	-	-	Permissible Exposure Limits (PELs)

NOTE:
All currently adopted by the national/regional competent authority levels on safe exposure to this chemical shall apply.

8.1.3. The Derived No Effect Levels (DNELs)/ Derived Minimal Effect Levels (DMELs) and Predicted No Effect Concentrations (PNECs)

8.1.3.1. DNEL/DMEL from the CSR in accordance with REACH regulation

Substance: CAS No.	➢ Phenol ➢ 108-95-2

Routeofexposure	**Workers**				**Consumers**			
	Acuteeffectlocal	**Acuteeffectssystemic**	**Chroniceffectslocal**	**Chroniceffectssystemic**	**Acute effectslocal**	**Acuteeffectssystemic**	**Chroniceffectslocal**	**Chroniceffectssystemic**
Oral	Notrequired				No DNEL/DMEL isproposed			
Inhalation	Workplaceexposure:DNEL/DMEL: 7.8 mg/m3 (2 ppm) -8-hTWA				No DNEL/DMEL isproposed			
Dermal	No DNEL/DMEL isproposed				No DNEL/DMEL isproposed			

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NOTE:
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8.1.3.2. PNECs from the CSR in accordance with REACH regulation:

Substance: CAS No.	➢ Phenol ➢ 108-95-2

Environmental protection target	**PNEC**
Fresh water:	➢ PNEC = 7.7 µg/L
Freshwater sediments:	➢ No PNEC is proposed
Marine water:	➢ PNEC = 7.7 µg/L
Marine sediments:	➢ No PNEC is proposed
Food chain:	➢ No PNEC is proposed
Microorganisms in sewage treatment:	➢ No PNEC is proposed
Soil:	➢ PNEC = 136 µg/L
Air:	➢ No PNEC is proposed

NOTE:
These values are not legally binding and referred here for recommendation purpose only. All currently adopted by the national/regional competent authority levels on safe exposure to this chemical shall apply.

8.2. Exposure controls

Appropriate engineering controls:	➢ Engineering controls should be sufficient to reduce exposures to this chemical to the lowest level achievable. ➢ **Hazard communication:** The transmittal of hazard information to workers is to be accomplished by such means as container labelling and other forms of warning, material safety data sheets, and employee training. ➢ **Housekeeping and Hygiene Facilities:** The workplace should be kept clean, orderly, and in a sanitary condition. Adequate washing facilities shall be provided and maintained in a sanitary condition. Comply with principles of good industrial hygiene and safety practice. Do not eat, drink, or smoke during work. Wash hands before eating, before breaks and at the end of workday.

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Personal Protection	➢ **Eye/face protection:** If there is a potential that this chemical can come in contact with eye or skin, appropriate eye and skin protective equipment shall be provided and used. Appropriate eye and face protection may be necessary to prevent
	contact with this substance. Suitable protective clothing and eye protection should be in accordance with national, or regional standards and regulations. ➢ **Skin protection:** Handle with appropriate gloves. Gloves must be inspected prior to use. Use proper glove removal method –without touching glove's outer surface – to avoid skin contact with this product. ➢ **Respiratory protection:** Personal Protective Equipment/ Respiratory Protection: should be used in accordance with company and applicable national regulatory requirements. Respiratory protection should be used to supplement the engineering controls and work practices. Persons should not be assigned to tasks requiring the use of respirators unless it has been determined they are physically able to perform the work and are trained to use the equipment. ➢ **Chemical Protective Clothing:** The level of protection selected should be based on the potential substance concentration and likelihood of contact/ exposure. Suitable protective clothing and eye protection should be in accordance with national, or regional standards and regulations. All protective clothing shall be well aired and inspected for physical defects before re-use. Take off contaminated clothing and wash before re-use.

8.3. Environmental Exposure controls

Measures to prevent exposure:	➢ Apply all necessary Risk Management Measures to ensure compliance with relevant national or regional legislation requirements. ➢ Engineering controls and good work practices; ➢ Regular monitoring for leak detection; ➢ Hazard communication; ➢ Housekeeping and Hygiene Facilities.
Waste-related Measures:	➢ The transportation, storage, treatment, and disposal of the waste material must be
	conducted in compliance with local regulations for hazardous wastes. Disposal can occur only in properly permitted facilities. Check state and local regulation of any additional requirements for disposal conditions.

SECTION 9: Physical and chemical properties 9.1. Information on basic physical and chemical properties

Appearance:	Colourless crystalline solid substance.
Odour:	Characteristic odour.
Odour threshold:	No data available.
pH:	No data available
Melting point/freezing point:	40.9°C
Initial boiling point and boiling range:	181.8°C
Flash point:	79°C (closed cup)
Evaporation rate:	No data available.
Flammability:	Not flammable.
Upper/lower flammability or explosive limits:	Upper: 8.6%; lower: 1.7%, by volume in air (IARC, 1999)
Vapour pressure:	0.323 mm Hg; 43 Pa /QSAR estimated at 25 °C/
Vapour density:	No data available.
Relative density:	1.06 g/cm3 (at 20°C)
Solubility(ies) (Water):	➢ 82.8 g/L /Experimental data at 25°C/ ➢ 26 -46 g/L /QSAR estimated at 25°C/ ➢ Above 65.3°C phenol and water are miscible in all proportions
Partition coefficient: noctanol/water:	➢ Log Kow =1.51 /QSAR estimated/ ➢ Log Kow =1.46 /Experimental data/
Auto-ignition temperature:	715°C
Decomposition temperature:	No data available.

Viscosity:	No data available.
Explosive properties:	Not explosive.
Oxidising properties:	Not oxidizing.

9.2. Other information

Henry's law constant (HLC):	5.61 x 10-7 atm-m3/mole (0.06 Pa-m3/mole) /QSAR estimate at 25 °C/
Conversion factors):	mg/m3 = 3.85 × ppm (IARC, 1999).

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity Hazards:	Reacts with strong oxidant.

10.2. Chemical stability

Stability/ Shelf-life:	➢ Stable under recommended storage conditions. ➢ No hazardous reaction when handled and stored according to provisions. ➢ On exposure to air and light phenol assumes a pink to red discoloration.

10.3. Possibility of hazardous reactions

Special precautions:	➢ Materials to avoid: incompatible materials. ➢ Conditions to avoid: Heat, flames and sparks.

10.4. Conditions to avoid

Conditions contributing to instability:	Heat, flames and sparks.

10.5. Incompatible materials

Incompatibilities:	Materials to avoid: strong oxidizers.

10.6. Hazardous decomposition products

Hazardous decomposition products:	Gives off toxic and irritant fumes when heated or burning.

SECTION 11: Toxicological information 11.1. Information on toxicological effects

Toxicokinetics (absorption, metabolism, distribution and elimination):	➢ Phenol is rapidly absorbed by humans and animals following inhalation, oral or dermal exposure routes (IARC 1999, OECD, 2004; EU, 2006, ATSDR, 2008). It is rapidly distributed in the body and is extensively metabolised to its sulfate and glucuronide conjugates in all species and after exposures via all routes. Metabolism occurs in liver, gut and kidney. Phenol does not retain in the body and is excreted, mainly in the urine principally as sulfate and as glucuronide metabolites.
Acute toxicity:	➢ LD50 (oral, rats)= 317 mg/kg bw. ➢ LD50 (oral, mice)= 270 mg/kg bw.
	➢ LD50 (oral, cats)= 100 mg/kg bw. ➢ LD50 (oral, dogs)= 500 mg/kg bw. ➢ LD50 (dermal, rats)= 669 mg/kg bw. ➢ LD50 (dermal, rabbits)= 850 mg/kg bw. ➢ Phenol has harmonized at EU level classifications and it is classified T; R23/24/25 Toxic; Toxic by inhalation, in contact with skin and if swallowed, in accordance with Directive 67/548/EEC and Acute Toxicity, Hazard Category 3, H301: Toxic if swallowed, H311: Toxic in contact with skin, H331: Toxic if inhaled, in accordance with the GHS criteria of Regulation (EC) No 1272/2008.
Skin corrosion/irritation:	➢ **Experimental animals:** The experimental data on acute dermal toxicity of phenol in animals report skin corrosion (extensive epidermal necrosis) after both, occlusive and non-occlusive applications. ➢ **Humans:** Phenol is easily absorbed via the skin. Dermal exposure to high concentrations of phenol may result in serious skin burns, numbness, convulsion, collapse, coma, death (ICSC: 0070, 2005).
Serious eye damage/irritation:	➢ Exposure of eyes to phenol may result in pain, redness, permanent loss of vision, severe deep burns (ICSC: 0070, 2005).

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Respiratory irritation:	➢ Symptoms of acute toxicity via inhalation exposure may include sore throat, burning sensation, cough, dizziness, headache, nausea, vomiting, shortness of breath, laboured breathing, unconsciousness (ICSC: 0070, 2005).
Respiratory or skin sensitization:	➢ **Skin sensitisation:** not considered to be a skin sensitizer. ➢ **Respiratory sensitisation:** not considered to be a respiratory sensitizer.
Germ cell mutagenicity:	➢ Phenol has harmonized at EU level classification and it is classified as Mutagenicity - Genetic Toxicity: Muta. Cat. 3; R68 Possible risk of irreversible effects, in accordance with Directive 67/548/EEC and Mutagen Category 2; H341: Suspected of causing genetic defects, in accordance with the GHS criteria of Regulation (EC) No 1272/2008.
	Overall, phenol is regarded as a somatic cell mutagen (EU RAR, 2006).
Carcinogenicity:	➢ IARC evaluation (IARC, 1999): *There is inadequate evidence in humans for the carcinogenicity of phenol. There is inadequate evidence in experimental animals for the carcinogenicity of phenol. Overall evaluation: Phenol is not classifiable as to its carcinogenicity to humans (Group 3).* Moreover, the American Conference of Governmental Industrial Hygienists (ACGIH) classifies phenol as being A4: Not classifiable as a human carcinogen substance (ACGIH, 2010). Overall, phenol is not considered as being carcinogen
Reproductive toxicity:	➢ Effects on fertility: there is no evidence for a toxic effect of phenol on fertility, in the absence of maternal systemic toxicity. ➢ Developmental toxicity: there is no evidence for a toxic effect of phenol on fetal development, in the absence of maternal systemic toxicity.

STOT-single exposure:	➢ Phenol (and its vapour) is corrosive to the eyes, skin and respiratory tract. Exposure to high concentrations of phenol may cause effects on the central nervous system, heart and kidneys.
STOT- repeated exposure:	➢ Phenol has harmonized at EU level classifications and it is classified as "harmful" and labelled with "Xn", R-phrases: "Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed" (R 48/20/21/22), in accordance with Directive 67/548/EEC, and Specific target organ toxicity – repeated (STOT Rep. Exp. 2); H372: Causes damage to organs, in accordance with the GHS criteria of Regulation (EC) No 1272/2008. In general, the main target organs for phenol toxicity are reported to be liver and kidney. Phenol may also affect respiratory and cardiovascular systems.

SECTION 12: Ecological information 12.1. Toxicity

12.1.1. Aquatic Environment

Acute (short-term) toxicity:	➢ Fish: LC50 (96-hr, QSAR, experimental data) =19 mg/L to 200 mg/L. ➢ Crustacea: LC50 (48-hr, QSAR, experimental data) =17 mg/L to 172 mg/L. ➢ Algae/aquatic plants (Green Algae): EC50 (96-hr, QSAR) =36 - 45 mg/L. ➢ Other organisms: No data available
Chronic (long-term) toxicity:	➢ Fish: NOEC (QSAR) =2.03 mg/L to 17.98 mg/L. ➢ Crustacea: NOEC (QSAR) =1.77 mg/L -8.64 mg/L. ➢ Algae/aquatic plants (Green Algae): NOEC (QSAR) =11.91 mg/L to 30.95 mg/L. ➢ Other organisms: No data available

12.1.2. Terrestrial Environment

Acute (short-term) toxicity:	➢ Soil macro-organisms: LC50 (14-day, QSAR, earthworm) =138.32 mg/L (ppm) ➢ Terrestrial plants: No data available ➢ Soil micro-organisms: No data available ➢ Other terrestrial organisms: No data available

Chronic (long-term) toxicity:	➢ Soil macro-organisms: No data available ➢ Terrestrial plants: No data available ➢ Soil micro-organisms: No data available ➢ Other terrestrial organisms: No data available ➢ No direct or indirect exposure of the soil compartment to phenol is expected.

12.2. Persistence and degradability

Hydrolysis:	➢ Phenol is a solid substance which contains functional groups with weak potential for dissociation. Based on the dissociation constant data of phenol (pKa = 9.91), this substance is not likely to dissociate significantly in water under normal environmental conditions.
Phototransformation/photolysis:	➢ Half life of 0.32 days is estimated for reaction of phenol with hydroxyl radicals in the atmosphere at 25o C [AOPWIN Program, v.1.92]. Overall QSARs estimated half-life for degradation of phenol in air based upon AOPWIN Model is 9.761
	hours. Based on the data on photochemical degradation of phenol in the air, it is considered to rapidly degrade in the atmosphere via photooxidation process.
Biodegradation:	➢ The QSAR models predict timeframe within days for primary biodegradation of phenol and weeks for its ultimate degradation. Overall ready biodegradability prediction provided by a number of BIOWIN (v.4.10) models suggests that phenol is ready biodegradable in the environment.

12.3. Bioaccumulative potential

Aquatic bioaccumulation:	BCF/BAF (QSAR estimated) = 2.42 L/kg to 4.27 L/kg.
Terrestrial bioaccumulation:	No data available.

12.4. Mobility in soil

Known or predicted distribution to environmental compartments:	➢ QSAR modeling predicts that phenol will volatize very slowly from surface water with estimated DT50 = 71 days (river) and 779 days (lake). Once in air, phenol will react with hydroxyl radicals with halflife of 3.8 hours. The value for soil organic carbon-water partition coefficient (logKoc = 1.9 -2.3) suggests that phenol is not likely to adsorb onto soil and sediment and taking into account its high biodegradability, it is not likely to persist in these environmental media. The data on environmental distribution of phenol obtained from the level III fugacity model confirms that phenol will degrade fast and depending on various emission scenarios, most of phenol will be removed from the environment by both biotic and abiotic mechanisms.
Surface tension:	No data available.
Adsorption/Desorption:	log Koc (QSAR estimated) =1.9 L/kg to 2.3 L/kg.

12.5. Results of PBT and vPvB assessment

Persistence Assessment:	Phenol meets the Persistence criteria for sediment (fresh- or estuarine water sediment).
Bioaccumulation Assessment:	Phenol does not meet the criteria for Bioaccumulation.
Toxicity Assessment:	Phenol meets the PBT criteria for toxicity
Conclusions on PBT or vPvB Properties:	Phenol is considered persistent in sediment and toxic substance and it is not considered bioaccumulative substance. Therefore, phenol is not a PBT or vPvB substance.

12.6. Other adverse effects

Other adverse effects:	No data available.

12.7. Additional information

Conclusion on the environmental hazard assessment:	Phenol is not classified as a substance hazardous to the aquatic environment.

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SECTION 13: Disposal considerations 13.1. Waste treatment methods

Product/ Packaging disposal:	This substance, when discarded or disposed of, is a hazardous waste. The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with local regulations for hazardous wastes. Disposal can occur only in properly permitted facilities. Contact a licensed professional waste disposal service to dispose of this substance. Check state and local regulation of any additional requirements for disposal conditions.
Sewage disposal-relevant information:	Waste should not be disposed of by release to sewers
Other disposal recommendations:	Disposal of containers: Please, refer your local/national/regional requirements on disposal.

SECTION 14: Transport information 14.1. UN number

UN No:	1671

14.2. UN proper shipping name

UN Proper Shipping Name:	PHENOL, SOLID

14.3. Transport hazard class(es)

Hazard Class or Division:	6.1

14.4. Packing group

UN Packing Group:	II

14.5. Environmental hazards

Environmental Hazards:	Phenol is not classified as a substance hazardous to the aquatic environment.

14.6. Special precautions for user

Note:	A number of restrictions may apply to materials subject to local/national/regional classifications requirements. Please refer to the appropriate regulation for specific details regarding classification requirements and restrictions.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Transportation in bulk:	A number of restrictions may apply to materials subject to bulk transportation. Please, refer relevant regulation for specific information on bulk transportation requirements.

SECTION 15: Regulatory information 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Export and Import of Dangerous Chemicals (Regulation (EC) No 689/2008) Information:	This substance is not listed in the Annex I of Regulation (EC) No 689/2008.
CLP Regulation (EC) No 1272/2008:	This substance is listed in Annex VI (tables 3.1 and 3.2) to CLP regulation.
REACH Regulation (EC) No 1907/2006:	Registration requirement (Article 5, REACH regulation): This substance is registered in accordance with provisions of REACH regulation. For registration number, please refer section 1.1 of this eSDS.

15.2. Chemical safety assessment

CSA:	Chemical Safety Assessment has been carried out for this chemical in accordance with provisions of REACH regulation.

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SECTION 16: Other information

Use Descriptors:	➢ SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites. ➢ SU 10: Formulation [mixing] of preparations and/or repackaging (excluding alloys). ➢ SU 11: Manufacture of rubber products ➢ SU 12: Manufacture of plastics products, including compounding and conversion ➢ PROC 1: Use in closed process, no likelihood of exposure. ➢ PROC 2: Use in closed, continuous process with occasional controlled exposure. ➢ PROC 3: Use in closed batch process (synthesis or formulation). ➢ PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. ➢ PC 19: Intermediate ➢ PC 32: Polymer preparations and compounds ➢ ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates). ➢ ERC 6c: Industrial use of monomers for manufacture of thermoplastics ➢ ERC 6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Abbreviations and acronyms:

ACGIH	The American Conference of Governmental IndustrialHygienists
BAF	Bio AccumulationFactor
BCF	Bio ConcentrationFactor
CASNo	Chemical Abstracts Servicenumber
CLP	Classification Labelling Packaging Regulation ; Regulation (EC)No1272/2008
CSA	Chemical SafetyAssessment
CSR	Chemical SafetyReport
DMEL	Derived Minimal EffectLevel
DNEL	Derived No EffectLevel
DPD	Dangerous Preparation Directive1999/45/EEC
EC	EuropeanCommission
EC50	Half maximal effectiveconcentration

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ECHA	European ChemicalsAgency
EC-Number	EINECS and ELINCS Number (see also EINECS andELINCS)
EINECS	European Inventory of Existing CommercialSubstances
ELINCS	European List of notified ChemicalSubstances
ES	ExposureScenario
e-SDS	Extended Safety Data Sheet (SDS with ESattached)
EU	EuropeanUnion
GHS	Globally HarmonizedSystem
IUPAC	International Union for Pure AppliedChemistry
LC50	Lethal concentration, 50%
LD50	Median LethalDose
OSHAPEL	Occupational Safety and Health Administration PermissibleExposureLevel
PBT	Persistent, Bioaccumulative and Toxicsubstance
PNEC(s)	Predicted No EffectConcentration(s)
PPE	Personal ProtectionEquipment
QSAR	Qualitative Structure ActivityRelationship
SAR	Structure ActivityRelationship
REACH	Registration, Evaluation, Authorisation and Restriction ofChemicalsRegulation (EC) No1907/2006
RMM	Risk ManagementMeasure
STOT	Specific Target OrganToxicity
(STOT)RE	RepeatedExposure
(STOT)SE	SingleExposure
TLV	Threshold limitvalue
TWA	Time-WeightedAverage
UN	UnitedNations
vPvB	Very Persistent and VeryBioaccumulative

Key Literature References and Sources for data:

ACGIH (2010) American Conference of Governmental Industrial Hygienists TLVs and BEIs.ThresholdLimit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.Cincinnati,OH2010.

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EU Risk Assessment report on phenol (EU RAR,2006).

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Hazardous Substances Data Bank (HSDB) –US National Library of Medicine database of peerreviewedscientificdataonchemicals,availableathttp://toxnet.nlm.nih.gov/cgibin/sis/htmlgen?HSDB.

IARC (1999) Phenol. IARC Summary & Evaluation, Volume 71,1999.

ICSC: 0070 PHENOL, International Programme on Chemical Safety (IPCS), Prepared in the contextofcooperation between the International Programme on Chemical Safety and the Commission oftheEuropean Communities IPCS, CEC2005.

NTP (1980) BIOASSAY OF PHENOL FOR POSSIBLE CARCINOGENICITY. U.S. DEPARTMENT OFHEALTHANDHUMANSERVICESPublicHealthServiceNationalInstitutesofHealth,NIHPublication No. 80-1759 August1980.

SPARCon-linecalculator;September2009releasew4.5.

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Document History:

Disclaimer:

The information contained herein is accurate and is based on the present state of our knowledge. Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s). All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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Annex I

Exposure Scenarios addressing uses carried out by workers

Intermediate in production of other substances –INDUSTRIAL USE[ES1]	
Free shorttitle:	Intermediate in production of other substances - INDUSTRIALUSE
Systematic title based onusedescriptor	Sectors ofUse: SU 3: Industrial uses: Uses of substances as such or in preparationsatindustrialsites SU 10: Formulation [mixing] of preparations and/orrepackaging(excludingalloys) Productcategory:PC 19:Intermediate
Processes, tasksactivitiescovered	PROC1: Use in closed process, no likelihood ofexposure PROC2: Use in closed, continuous process with occasionalcontrolledexposure PROC3: Use in closed batch process (synthesis orformulation)PROC8b: Transfer of substance or preparation (charging/discharging)from/to
AssessmentMethod	Qualitative Risk Assessment (Tier I RiskAssessment):
2. Operational conditions and risk managementmeasures	
EU Occupational Exposure Limitvalues: • Phenol: 7.8 mg/m3 (2 ppm) -8-hTWA. Note:*OELscurrentlyadoptedbythenational/regionalcompetentauthorityshallapply*. ***DNEL/DMEL from theCSR:*** • Phenol: 7.8 mg/m3 (2 ppm) -8-hTWA. Note:Allcurrentlyadoptedbythenational/regionalcompetentauthoritylevelsonsafeexposuretothisc hemical shallapply.	
Environmental ReleaseCharacterization: ERC6a:Industrialuseresultinginmanufactureofanothersubstance(useofintermediates)	
2.1 Control of workersexposure	
Productcharacteristic:	Physical state: corrosive and toxic solidsubstance.

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Risk management measuresrelatedto the design ofproduct:	• Avoid any skin and eye contact. • Avoid inhalation to vapour and mists/ aerosols.
	• Use Personal Protective Equipment as required. • Use in a well ventilated area • Keep sparks, flames, and other sources of ignitionaway.No smoking. Take measures to prevent the build upofelectrostaticcharge. • Handle in accordance with good industrial hygieneandsafety practice. Do not eat, drink, or smoke duringwork.Wash hands before eating, after handling thesubstance,before breaks and at the end ofworkday.
Amountsused:	Not specificallydefined
Frequency and	8-hour work shift, Not specificallydefined
Human factors not influencedbyriskmanagement	Respiration volume under conditions of use: Heavywork,respiration volume = 30 m3/8hday; Light work, respirationvolume= 10 m3/8h-day - Default values (ECHA Guidance onCSAChapter R.15, Section R8.4.2)
Other given operationalconditionsaffecting workersexposure	Appropriate Local Exhaust Ventilation relevant to industrialworkenvironment
Technical conditions andmeasuresat process level (source) topreventrelease:	Occupational exposure may arise at operations where thesubstanceis used, including storage, loading/unloading areas, leaks intheconveyor systems, loading mixers, maintenance andcleaningoperations.
Technical conditions andmeasuresto control dispersion fromsourcetowards theworker:	• Engineering controls and good work practices; • Regular monitoring for leakdetection; • Use of RespiratoryProtection; • Protective clothing andequipment; • Hazard communication; • Housekeeping and HygieneFacilities.

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2.2 Control of environmental exposure	
Product characteristics	Physical state: corrosive and toxic solid substance.
Amounts used	Not specifically defined
Frequency and duration of use	Not specifically defined
Technical conditions and measures at process level (source) to prevent release	• Engineering controls and good work practices; • Regular monitoring for leak detection; • Hazard communication; • Housekeeping and Hygiene Facilities.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	**Emissions related measures:** Apply all necessary RMM to ensure compliance with relevant national or regional legislation requirements. **Waste related measures:** This substance, when discarded or disposed of, is a hazardous waste. The transportation, storage, treatment, and disposal of the waste material must be conducted in compliance with local regulations for hazardous wastes. Disposal can occur only in properly permitted facilities. Check state and local regulation of any additional requirements for disposal conditions.
3. Exposure estimation and reference to its source	
Workers exposure:	Occupational exposure may arise at operations where the substance is used, including storage, loading/unloading areas, leaks in the convey or systems, loading mixers, maintenance and cleaning operations.
4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES	

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Workers exposure:	Use in industrial process. Applying all necessary RMM to reduce exposure to this substance and ensure compliance with relevant occupational exposure limits. Phenol is classified as corrosive and toxic substance. Based on the data summarised in the health effects assessment part of the CSR, phenol has the following health hazards: ➢ Phenol is easily absorbed by humans following inhalation, dermal or oral exposure. ➢ Phenol is acutely toxic substance. It is classified as T; R23/24/25 Toxic; Toxic by inhalation, in contact with skin and if swallowed, in accordance with Directive 67/548/EEC and Acute Toxicity, Hazard Category 3, H301: Toxic if swallowed, H311: Toxic in contact with skin, H331: Toxic if inhaled, in accordance with the GHS criteria of Regulation (EC) No 1272/2008.

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	➢ Phenol is corrosive to skin and eyes substance. It is classified as C; R34 Corrosive; Causes burns, in accordance with Directive 67/548/EEC and Skin Corrosion, Hazard Category 1B, H314: Causes severe skin burns and eye damage, in accordance with the GHS criteria of Regulation (EC) No 1272/2008. ➢ Phenol is toxic on repeated exposure. It is classified as "harmful" and labelled with "Xn", R-phrases: "Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed" (R 48/20/21/22), in accordance with Directive 67/548/EEC, and Specific target organ toxicity – repeated (STOT Rep. Exp. 2); H372: Causes damage to organs, in accordance with the GHS criteria of Regulation (EC) No 1272/2008. ➢ Phenol is regarded as somatic cell mutagen and it is classified as Mutagenicity - Genetic Toxicity: Muta. Cat. 3; R68 Possible risk of irreversible effects, in accordance with Directive 67/548/EEC and Mutagen Category 2; H341: Suspected of causing genetic defects, in accordance with the GHS criteria of Regulation (EC) No 1272/2008. Therefore, all risk management measures applicable to occupational exposure to phenol must be applied to protect workers health. Phenol shall not be available to general public/consumers as such. Phenol shall not be used in contradiction to all relevant national/regional restrictions applied to this substance, including, but not limited to, those prescribed by REACH regulation

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2.

Use in production (formulation) of phenolic resins–INDUSTRIAL USE[ES1]	
Free shorttitle:	Useinproduction(formulation)ofphenolicresins-
Systematic title based onusedescriptor	INDUSTRIALUSESectors ofUse: SU 3: Industrial uses: Uses of substances as such or in preparationsatindustrialsites SU 10: Formulation [mixing] of preparations and/orre-packaging(excludingalloys) SU 11: Manufacture of rubberproducts SU 12: Manufacture of plastics products, including compoundingandconversion Productcategory:PC 19:Intermediate PC 32: Polymer preparations andcompounds
Processes, tasksactivitiescovered	PROC1: Use in closed process, no likelihood ofexposure PROC2: Use in closed, continuous process with occasionalcontrolledexposure PROC3: Use in closed batch process (synthesis orformulation)PROC8b: Transfer of substance or preparation (charging/discharging)from/to vessels/large containers at dedicatedfacilities
AssessmentMethod	Qualitative Risk Assessment (Tier I RiskAssessment):

2. Operational conditions and risk managementmeasures

EU Occupational Exposure Limitvalues:

- Phenol: 7.8 mg/m3 (2 ppm) -8-hTWA.

Note:*OELscurrentlyadoptedbythenational/regionalcompetentauthorityshallapply*.

DNEL/DMEL from theCSR:

- Phenol: 7.8 mg/m3 (2 ppm) -8-hTWA.

Note:Allcurrentlyadoptedbythenational/regionalcompetentauthoritylevelsonsafeexposuretothisc hemical shallapply.

Environmental ReleaseCharacterization:
ERC6a:Industrialuseresultinginmanufactureofanothersubstance(useofintermediates)ERC 6c: Industrial use of monomers for manufacture ofthermoplastics
ERC6d:Industrialuseofprocessregulatorsforpolymerisationprocessesinproductionofresins,rubber s,polymers

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2.1 Control of workersexposure	
Productcharacteristic:	Physical state: corrosive and toxic solidsubstance.

Risk management measuresrelatedto the design ofproduct:	• Avoid any skin and eye contact. • Avoid inhalation to vapour and mists/ aerosols. • Use Personal Protective Equipment as required. • Use in a well ventilated area • Keep sparks, flames, and other sources of ignitionaway.No smoking. Take measures to prevent the build upofelectrostaticcharge. • Handle in accordance with good industrial hygieneandsafety practice. Do not eat, drink, or smoke duringwork.Wash hands before eating, after handling thesubstance,before breaks and at the end ofworkday.
Amountsused:	Not specificallydefined
Frequency and durationofuse/exposure	8-hour work shift, Not specificallydefined
Human factors not influencedbyriskmanagement	Respiration volume under conditions of use: Heavywork,respiration volume = 30 m3/8h-day; Light work, respirationvolume= 10 m3/8h-day - Default values (ECHA Guidance onCSAChapter R.15, Section
Other given operationalconditionsaffecting	R8.4.2) Appropriate Local Exhaust Ventilation relevant to industrialworkenvironment
Technical conditions andmeasuresat process level (source) topreventrelease:	Occupational exposure may arise at operations where thesubstanceis used, including storage, loading/unloading areas, leaks intheconveyor systems, loading mixers, maintenance andcleaningoperations.
Technical conditions andmeasuresto control dispersion fromsourcetowards theworker:	• Engineering controls and good work practices; • Regular monitoring for leakdetection; • Use of RespiratoryProtection; • Protective clothing andequipment; • Hazard communication; • Housekeeping and HygieneFacilities.
2.2 Control of environmentalexposure	
Productcharacteristics	Physical state: corrosive and toxic solidsubstance.
Amountsused	Not specificallydefined
Frequency and duration ofuse	Not specificallydefined 365 d/y Assuming continuous industrialprocess.

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Technical conditions andmeasuresat process level (source) topreventrelease	• Engineering controls and good work practices; • Regular monitoring for leakdetection; • Hazard communication; • Housekeeping and HygieneFacilities.
Technical onsite conditionsandmeasures to reduce orlimitdischarges, air emissionsandreleases tosoil	Emissions relatedmeasures: Apply all necessary RMM to ensure compliance withrelevantnational or regional legislationrequirements. Waste relatedmeasures: This substance, when discarded or disposed of, is ahazardouswaste.Thetransportation,storage,treatment, anddisposalofthe waste material must be conducted in compliance with local regulations for hazardous wastes. Disposal can occur only in properly permitted facilities. Check state and local regulation of any additional requirements for disposal conditions.

3. Exposure estimation and reference to itssource	
Workersexposure:	Occupational exposure may arise at operations where thesubstanceis used, including storage, loading/unloading areas, leaks intheconveyor systems, loading mixers, maintenance andcleaningoperations.
4. Guidance to DU to evaluate whether he works inside the boundaries set by theES	

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Workersexposure:	Use in industrial process. Applying all necessary RMM toreduceexposure to this substance and ensure compliance withrelevantoccupational exposurelimits. Phenol is classified as corrosive and toxic substance. Based onthedata summarised in the health effects assessment part of thisCSR,phenol has the following healthhazards: ➢ Phenoliseasilyabsorbedbyhumansfollowinginhalation,dermal or oralexposure. ➢ Phenol is acutely toxic substance. It is classified asT;R23/24/25Toxic;Toxicbyinhalation,incontactwithskinand if swallowed, in accordance with Directive67/548/EEC and Acute Toxicity, Hazard Category 3,H301: Toxic if swallowed, H311: Toxic in contact withskin, H331: Toxic if inhaled, in accordance with theGHScriteria of Regulation (EC) No 1272/2008. ➢ Phenol is corrosive to skin and eyes substance. Itisclassified as C; R34 Corrosive; Causes burns, inaccordance with Directive 67/548/EEC and SkinCorrosion, Hazard Category 1B, H314: Causes severeskinburns and eye damage, in accordance with the GHScriteriaof Regulation (EC) No1272/2008. Phenolistoxiconrepeatedexposure.Itisclassifiedas“harmful” and labelled with “Xn”, R-phrases:“Harmful:danger of serious

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	damage to health by prolongedexposurethrough inhalation, in contact with skin and ifswallowed"(R 48/20/21/22), in accordance with Directive67/548/EEC, and Specific target organ toxicity –repeated(STOT Rep. Exp. 2); H372: Causes damage to organs,inaccordance with the GHS criteria of Regulation (EC)No1272/2008. ➢ Phenol is regarded as somatic cell mutagen and itisclassified as Mutagenicity - Genetic Toxicity: Muta. Cat.3;R68 Possible risk of irreversible effects, in accordancewithDirective 67/548/EEC and Mutagen Category 2;H341:Suspected of causing genetic defects, in accordancewiththe GHS criteria of Regulation (EC) No1272/2008. Therefore, all risk management measures applicable to occupational exposure to phenol must be applied to protect workers health. Phenol shall not be available to general public/consumers as such. Phenol shall not be used in contradiction to all relevant national/regional restrictions applied to this substance, including, but not limited to, those prescribed by REACH regulation.