Phenol

Version 20.1	Revision Date: 30.12.2022	Date of last issue: 30.12.2022 Date of first issue: 20.01.2010

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	:	Phenol
Substance name	:	phenol
EC-No.	:	203-632-7

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

Use of the Substance/Mixture	:	Raw material in chemical industry, Manufacture, Formulation, Distribution, Intermediate, Use in rubber production and processing, Use in polymer production, Use in polymer processing, Use in rubber production and processing, Phenolic resin processing (uses of downstream users of phenolic resins), Use as binders and release agents, Use in coatings, Laboratory use, Use in agrochemicals, Leather treatment products

1.3 Details of the supplier of the safety data sheet

	:	Borealis UK Ltd One St Peters Square, M2 3DE Manchester, United Kingdom Telephone: +44 (0) 1625 537390
E-mail address	:	sds@borealisgroup.com

1.4 Emergency telephone number

+44 (0) 1235 239 670 (NCEC Carechem 24)

In an emergency, call NHS 111 or contact a doctor.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Acute toxicity, Category 3	H301: Toxic if swallowed.
Acute toxicity, Category 3	H331: Toxic if inhaled.
Acute toxicity, Category 3	H311: Toxic in contact with skin.
Skin corrosion, Sub-category 1B	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Germ cell mutagenicity, Category 2	H341: Suspected of causing genetic defects.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms :

Signal word : Danger

Hazard statements : 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.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P273 Avoid release to the environment.
P262 Do not get in eyes, on skin, or on clothing.
P281 Use personal protective equipment as required.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P309 + P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/ physician.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Additional Labelling

After contact with skin, wash immediately with plenty of polyethylene glycol (in disposable cloths) and with plenty of water.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : phenol

EC-No. : 203-632-7

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
phenol	108-95-2 203-632-7	>= 95 - <= 100

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Plan first aid action before beginning work with this product.
First aider needs to protect himself.
Move the victim to fresh air.
Keep at rest.
Remove contaminated clothing and shoes.
If unconscious, place in recovery position and seek medical advice.
Keep available:
Eye wash bottle with pure water and disposable cloths in polyethylene glycol at the workplace and in vehicles.
In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

If inhaled : Remove from exposure.
Keep warm and at rest and provide fresh air.
Give oxygen or artificial respiration if needed.
Immediate medical attention is required.

In case of skin contact : Take off all contaminated clothing immediately.
Wash off with polyethylene glycol (in disposable cloths) and with plenty of water.
Keep on washing until medical assistance is obtained and skin is not white.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Continue rinsing eyes during transport to hospital.

If swallowed : Rinse mouth.
Drink plenty of water.
Do NOT induce vomiting.
Immediate medical attention is required.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Symptoms of poisoning:
Vomiting
Convulsions
Irregular cardiac activity

Unconsciousness
Breathing difficulties
Death.

Inhalation:
Irritation
Shortness of breath
Lung oedema

Skin contact:
Skin disorders
Corrosion
Dermatitis
Necrosis
Death.

Ingestion:
Severe irritation
corrosive effects
acute lethal effects

Risks : Symptoms may be delayed.
Toxic if swallowed, in contact with skin or if inhaled.
Causes serious eye damage.
Suspected of causing genetic defects.
May cause damage to organs through prolonged or repeated exposure.
Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : There is no specific antidote available.
After contact with skin, wash immediately with plenty of polyethylene glycol (in disposable cloths) and with plenty of water.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
If ingested, irrigate the stomach using activated charcoal in addition.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Dry powder Carbon dioxide (CO2) Alcohol-resistant foam Water mist
Unsuitable extinguishing media	:	High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Flammable. Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Burning produces noxious and toxic fumes. See chapter 10.

5.3 Advice for firefighters

Special protective equipment for firefighters	:	Wear self-contained breathing apparatus and protective suit.
Further information	:	Keep people away from and upwind of spill/leak. Keep away from heat and sources of ignition. Observe the risk of explosion. Cool containers/tanks with water spray. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition.
Keep people away from and upwind of spill/leak.
Do not breathe vapours.
Avoid breathing dust.
Avoid all contact with the product.

Use personal protective equipment.
Ensure adequate ventilation.
Attempt to stop leakage without personal risk.

6.2 Environmental precautions

Should not be released into the environment.
Prevent product from entering drains.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Allow to solidify, use mechanical handling equipment.
Shovel into suitable container for disposal.
Large molten masses:
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Clean thoroughly.

6.4 Reference to other sections

For personal protection see section 8.
For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Handle only in a place equipped with local exhaust (or other appropriate exhaust). Avoid inhalation of vapour or mist. Avoid contact with skin, eyes and clothing. Handle with extreme care. Ensure adequate ventilation.
Advice on protection against fire and explosion	:	Keep away from sources of ignition - No smoking.
Hygiene measures	:	Avoid contact with skin and eyes. Take off immediately all contaminated clothing. When using do not eat, drink or smoke. Keep away from food, drink and animal feedingstuffs. Clear up spills immediately and dispose of waste safely. Wash hands before breaks and immediately after handling the product. Use a high fat protective cream after cleaning skin.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep container tightly closed and in a well-ventilated place. Protect from sunlight.
Further information on storage conditions	:	Keep locked up or in an area accessible only to qualified or authorised persons. Take precautionary measures against static discharges. To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded. Ensure that eye flushing systems and safety showers are located close to the working place.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs. Keep away from incompatible materials. See chapter 10.
Storage class (TRGS 510)	:	6.1A,Combustible substances, toxic
Further information on storage stability	:	Recommended storage temperature 15 - 25 °C (solid) 55 - 60 °C (liquid)
Packaging material	:	Suitable material: Stainless steel Unsuitable material: Aluminium, Lead, Copper, Copper alloys, Zinc, Unlined steel, Plastics, Rubber products

7.3 Specific end use(s)

Specific use(s)	:	Reserved for industrial and professional use.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
phenol	108-95-2	TWA	2 ppm 7,8 mg/m3	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			

		STEL	4 ppm 16 mg/m3	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
phenol	108-95-2	TWA	2 ppm 8 mg/m3	2009/161/EU
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	4 ppm 16 mg/m3	2009/161/EU
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
phenol	108-95-2	TWA	2 ppm 7,8 mg/m3	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		STEL	4 ppm 16 mg/m3	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
phenol	108-95-2	TWA	2 ppm 8 mg/m3	2009/161/EU
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	4 ppm 16 mg/m3	2009/161/EU
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			

Derived No Effect Level (DNEL):

Substance name	End Use	Exposure routes	Potential health effects	Value
phenol	Workers	Inhalation	Long-term systemic effects	8 mg/m3
			Acute local effects	16 mg/m3
	Workers	Skin contact	Long-term systemic effects	1,23 mg/kg bw/d
	Consumers	Inhalation	Long-term systemic effects	1,32 mg/m3
	Consumer use	Dermal	Long-term systemic	0,4 mg/kg

			effects	bw/day
	Consumer use	Oral	Long-term systemic effects	0,4 mg/kg bw/day
phenol	Workers	Inhalation	Long-term systemic effects	8 mg/m3
			Acute local effects	16 mg/m3
	Workers	Skin contact	Long-term systemic effects	1,23 mg/kg bw/d
	Consumers	Inhalation	Long-term systemic effects	1,32 mg/m3
	Consumer use	Dermal	Long-term systemic effects	0,4 mg/kg bw/day
	Consumer use	Oral	Long-term systemic effects	0,4 mg/kg bw/day

Predicted No Effect Concentration (PNEC):

Substance name	Environmental Compartment	Value
phenol	Fresh water	0,008 mg/l
	Marine water	0,001 mg/l
	Fresh water sediment	0,091 mg/kg dwt
	Marine sediment	0,009 mg/kg dwt
	Soil	0,136 mg/kg dwt
	Intermittent use/release	0,031 mg/l
	Sewage treatment plant	2,1 mg/l
phenol	Fresh water	0,008 mg/l
	Marine water	0,001 mg/l
	Fresh water sediment	0,091 mg/kg dwt
	Marine sediment	0,009 mg/kg dwt
	Soil	0,136 mg/kg dwt
	Intermittent use/release	0,031 mg/l
	Sewage treatment plant	2,1 mg/l

8.2 Exposure controls

Engineering measures

Minimise exposure using measures such as closed systems, dedicated facilities and suitable general / local exhaust ventilation.
Ensure safe systems of work or equivalent arrangements are in place to manage risks.
Regularly inspect, test and maintain all control measures.

Personal protective equipment

Eye protection : Wear goggles (DIN EN 58211) and if needed face-shield.

Hand protection

Material	:	thick PVC
Break through time	:	> 480 min
Material	:	Neoprene
Break through time	:	140 min
Material	:	polyvinylchloride (PVC)
Break through time	:	75 min
Remarks	:	The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
Skin and body protection	:	Wear suitable protective clothing. Safety shoes according to EN 345-347. If splashes are likely to occur: Complete suit protecting against chemicals
Respiratory protection	:	In case of insufficient ventilation, wear suitable respiratory equipment. Respirator with combination filter for vapour/particulate (EN 141)
Filter type	:	ABEK-P3-filter
Protective measures	:	Avoid exposure - obtain special instructions before use. Ensure that eye flushing systems and safety showers are located close to the working place. Provide specific activity training to operators to minimise exposures. Consider the need for risk based health surveillance. Identify and implement corrective actions.

Environmental exposure controls

General advice	:	Should not be released into the environment. Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	solid solid (< 40,9 °C) liquid (> 40,9 °C)
Colour	:	colourless (liquid), white (solid) Change in colour if exposed to air and light:, pink, red
Odour	:	pungent
Odour Threshold	:	0,006 - 6 ppm
pH	:	4 - 5 (20 °C) Concentration: 10 g/l
Melting point	:	40,9 °C
Boiling point	:	181,9 °C (1.013 hPa)
Flash point	:	81 °C Method: ISO 2719
Upper explosion limit / Upper flammability limit	:	9,0 %(V)
Lower explosion limit / Lower flammability limit	:	1,3 %(V)
Vapour pressure	:	0,2 hPa (20 °C) 3 hPa (50 °C)
Relative vapour density	:	3,2 (20 °C) (Air = 1.0)

Density	:	1,07 g/cm³ (20 °C) 1,13 g/cm³ (25 °C) Method: DIN 51757
Solubility(ies)		
Water solubility	:	84 g/l (20 °C) 87 g/l (25 °C) completely miscible (68 °C)
Solubility in other solvents	:	Soluble in most organic solvents. Solvent: Fat solubility
Auto-ignition temperature	:	595 °C Method: DIN 51794
Viscosity		
Viscosity, dynamic	:	3,437 mPa.s (50 °C)
Explosive properties	:	Not explosive
Oxidizing properties	:	Not oxidizing

9.2 Other information

Molecular weight	:	94,11 g/mol
Particle size	:	3 - 10 mm
Self-ignition	:	715 °C 1.013 hPa

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

May attack many plastics, rubbers and coatings.
hygroscopic

10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid : Exposure to air.
Exposure to sunlight.
Keep away from heat and sources of ignition.
No decomposition if used as directed.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents
Aldehydes
Isocyanates
Nitrites
Nitride
Friedel-Crafts catalysts
Metals
Vapours may form explosive mixtures with air.

10.6 Hazardous decomposition products

Heating or fire can release toxic and corrosive gases.
Under fire conditions:
Carbon monoxide
Carbon dioxide (CO_2)

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Toxic if swallowed, in contact with skin or if inhaled.

Components:

phenol:

Acute oral toxicity : LD50 (Rat): 340 mg/kg
Method: OECD Test Guideline 401

LDLo (Humans): 140 mg/kg

Acute inhalation toxicity	:	LC50 (Rat): > 900 mg/m3 Exposure time: 8 h Test atmosphere: dust/mist Symptoms: Irritation of mucous membranes, Shortness of breath, Respiratory disorders Remarks: Toxic. Danger of serious damage to health by prolonged exposure.
Acute dermal toxicity	:	LD50 (Rat): 660 mg/kg Method: OECD Test Guideline 402

Skin corrosion/irritation

Causes severe burns.

Components:

phenol:

Remarks	:	Exposure quickly causes a strong corrosive action upon all body tissue. Possible risk of irreversible effects.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

phenol:

Species	:	Rabbit
Exposure time	:	72 h
Method	:	OECD Test Guideline 405
Result	:	Corrosive

Respiratory or skin sensitisation

Skin sensitisation

Based on available data, the classification criteria are not met.

Respiratory sensitisation

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Suspected of causing genetic defects.

Components:

phenol:

Genotoxicity in vitro	:	Test Type: Ames test Method: OECD Test Guideline 471 Result: negative Test Type: Chromosome aberration test in vitro Result: positive Test Type: In vitro gene mutation study in mammalian cells Method: OECD Test Guideline 476 Result: positive
Genotoxicity in vivo	:	Test Type: in vivo assay Method: Mutagenicity (micronucleus test) Result: weak positive
Germ cell mutagenicity-Assessment	:	In vitro tests showed mutagenic effects, Suspected of causing genetic defects.

Carcinogenicity

Based on available data, the classification criteria are not met.

Components:

phenol:

Remarks	:	Animal testing did not show any carcinogenic effects. IARC: (International Agency for Research on Cancer) Group 3: Not classifiable as to its carcinogenicity to humans

Reproductive toxicity

Based on available data, the classification criteria are not met.

Components:

phenol:

Effects on fertility	:	Remarks: No known effect.

STOT - single exposure

Based on available data, the classification criteria are not met.

STOT - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

phenol:

Species	:	Rat
NOAEL	:	300 mg/kg, bw/d
Application Route	:	Oral
Remarks	:	Systemic effects Subchronic toxicity
Remarks	:	Prolonged exposure may cause chronic effects: disorder of nervous system, injuries to liver and kidneys. Repeated skin contact: dermatitis, disorder of pigmentation.

Aspiration toxicity

Based on available data, the classification criteria are not met.

Experience with human exposure

Components:

phenol:

General Information	:	Absorbs rapidly into the body by inhalation, skin contact and oral intake.

Further information

Product:

Remarks	:	Symptoms may be delayed.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

Components:

phenol:

Toxicity to fish : Remarks: Toxic to aquatic life with long lasting effects.

LC50 (Oncorhynchus mykiss (rainbow trout)): 8,9 mg/l
Exposure time: 96 h
Test substance: phenol

Toxicity to daphnia and other aquatic invertebrates : EC50 (Ceriodaphnia dubia (water flea)): 3,1 mg/l
Exposure time: 48 h
Test substance: phenol

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 61,1 mg/l
Exposure time: 96 h
Test substance: phenol

EC50 (Entomoneis cf punctulata (diatom)): 76 mg/l
Exposure time: 72 h
Test substance: phenol

EC50 (Lemna minor (duckweed)): 61,82 mg/l
Exposure time: 7 d
Test substance: phenol

Toxicity to fish (Chronic toxicity) : NOEC: 0,077 mg/l
Exposure time: 60 d
Species: Cirrhina mrigala
Test substance: phenol

Toxicity to daphnia and other aquatic invertebrates : EC10: 0,46 mg/l
Exposure time: 16 d

(Chronic toxicity)	Species: Daphnia magna (Water flea) Test substance: phenol

12.2 Persistence and degradability

Components:

phenol:

Biodegradability	:	Inoculum: activated sludge Result: Readily biodegradable. Biodegradation: 62 % Method: OECD Test Guideline 301C Test substance: phenol Test Type: anaerobic Inoculum: activated sludge Result: Readily biodegradable. Biodegradation: 80,1 % Method: ECETOC method Test substance: phenol Inoculum: Water Result: Readily biodegradable. Biodegradation: 86 - 96 % Test substance: phenol
Chemical Oxygen Demand (COD)	:	2.300 mg/g Test substance: phenol
ThOD	:	2,26 mg/l Test substance: phenol
Photodegradation	:	Test substance: phenol Remarks: Estimated atmospheric lifetime: 14h Photodegradable.

12.3 Bioaccumulative potential

Components:

phenol:

Bioaccumulation	:	Species: Danio rerio (zebra fish)

Bioconcentration factor (BCF): 17,5
Elimination: yes
Test substance: phenol
Method: OECD Test Guideline 305E
Remarks: Bioaccumulation not expected.

12.4 Mobility in soil

Components:

phenol:

Mobility : Medium: Air
Remarks: 1%

: Medium: Water
Remarks: 98.5%, The product evaporates slowly., The product is soluble in water.

: Medium: Soil
Remarks: 0.5%, High mobility

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

Product:

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : Should not be released into the environment.
Prevent product from entering drains.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	:	Dispose of as hazardous waste in compliance with local and national regulations. Where possible recycling is preferred to disposal or incineration. European waste code: 07 01 99 (wastes not otherwise specified (basic organic chemicals))
Contaminated packaging	:	Dispose of as hazardous waste in compliance with local and national regulations. Reuse or recycle if not contaminated.

SECTION 14: Transport information

14.1 UN number

ADR	:	UN 2312
RID	:	UN 2312
IMDG	:	UN 2312

14.2 UN proper shipping name

ADR	:	PHENOL, MOLTEN
RID	:	PHENOL, MOLTEN
IMDG	:	PHENOL, MOLTEN

14.3 Transport hazard class(es)

ADR	:	6.1
RID	:	6.1
IMDG	:	6.1

14.4 Packing group

ADR

Packing group	:	II

Classification Code	:	T1
Hazard Identification Number	:	60
Labels	:	6.1
Tunnel restriction code	:	(D/E)

RID

Packing group	:	II
Classification Code	:	T1
Hazard Identification Number	:	60
Labels	:	6.1

IMDG

Packing group	:	II
Labels	:	6.1
EmS Code	:	F-A, S-A

14.5 Environmental hazards

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

14.6 Special precautions for user

Remarks : Other UN-Number: 1671 (PHENOL, SOLID)

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Ship type	:	2
Pollution category	:	Y

SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Category		Quantity 1	Quantity 2
H2	ACUTE TOXIC	50 t	200 t
E2	ENVIRONMENTAL HAZARDS	200 t	500 t

Other regulations:

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 Dir 94/33/EC on the protection of young people at work.
Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers.

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of other abbreviations

2009/161/EU	:	Europe. COMMISSION DIRECTIVE 2009/161/EU establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
GB EH40	:	UK. EH40 WEL - Workplace Exposure Limits
2009/161/EU / TWA	:	Limit Value - eight hours
2009/161/EU / STEL	:	Short term exposure limit
GB EH40 / TWA	:	Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL	:	Short-term exposure limit (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European

Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice	:	Provide adequate information, instruction and training for operators. Regular trainings of all employees which are involved in the transport of dangerous goods (according to chapter 1.3 ADR).
Other information	:	Issued according to Regulation (EC) No 1907/2006, Annex II, and its amendments. Changes since the last version are highlighted in the margin. This version replaces all previous versions.
Sources of key data used to compile the Safety Data	:	REACH Registration Dossier Phenol. P&D-REACH Consortium, 2021

Phenol

Sheet	International Chemical Safety Card, Phenol, October 2001 (http://www.inchem.org/documents/icsc/icsc/eics0070.htm) IPCS Environmental Health Criteria 161, WHO, 1994 (www.inchem.org/documents/ehc/ehc/ehc161.htm) Environment Guide 71; Environmental properties of chemicals, Finnish Environment Institute, Helsinki 2000

Disclaimer

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication; however we do not assume any liability whatsoever for the accuracy and completeness of such information.

Borealis makes no warranties which extend beyond the description contained herein. Nothing herein shall constitute any warranty of merchantability or fitness for a particular purpose.

It is the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.

No liability can be accepted in respect of the use of Borealis' products in conjunction with other materials. The information contained herein relates exclusively to our products when not used in conjunction with any third party materials.

Annex: Exposure Scenarios

Table of Contents

Identified uses:

Use: Manufacture of substance, Manufacture

Main User Groups	:	**SU3:** Industrial uses
Process categories	:	**PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions **PROC2:** Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions **PROC3:** Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition **PROC4:** Chemical production where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes **PROC6:** Calendering operations **PROC7:** Industrial spraying **PROC8a:** Transfer of substance or mixture (charging/discharging) at non dedicated-facilities **PROC8b:** Transfer of substance or mixture (charging/discharging) at dedicated facilities **PROC9:** Transfer of substance or mixture into small containers (dedicated filling line, including weighing) **PROC10:** Roller application or brushing **PROC13:** Treatment of articles by dipping and pouring **PROC14:** Tabletting, compression, extrusion, pelettisation, granulation **PROC15:** Use as laboratory reagent **PROC28:** Manual maintenance (cleaning and repair) of machinery
Environmental Release Categories	:	**ERC1:** Manufacture of the substance

Additional information available from:

Phenol

https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-1-Manufacture.pdf

Use: Formulation & (re)packing of substances and mixtures, Distribution of substance, Formulation or re-packing

Main User Groups	:	**SU3:** Industrial uses
Chemical product category	:	**PC1:** Adhesives, sealants **PC3:** Air care products **PC4:** Anti-freeze and de-icing products **PC8:** Biocidal products **PC9a:** Coatings and paints, thinners, paint removers **PC9b:** Fillers, putties, plasters, modelling clay **PC12:** Fertilizers **PC15:** Non-metal surface treatment products **PC21:** Laboratory chemicals **PC23:** Leather treatment products **PC24:** Lubricants, greases, release products **PC27:** Plant protection products **PC29:** Pharmaceuticals **PC30:** Photo-chemicals **PC31:** Polishes and wax blends **PC32:** Polymer preparations and compounds **PC35:** Washing and cleaning products **PC38:** Welding and soldering products, flux products
Process categories	:	**PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions **PROC3:** Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition **PROC5:** Mixing or blending in batch processes **PROC6:** Calendering operations **PROC7:** Industrial spraying **PROC8a:** Transfer of substance or mixture (charging/discharging) at non dedicated-facilities **PROC8b:** Transfer of substance or mixture (charging/discharging) at dedicated facilities **PROC9:** Transfer of substance or mixture into small containers (dedicated filling line, including weighing) **PROC10:** Roller application or brushing

PROC13: Treatment of articles by dipping and pouring
PROC14: Tabletting, compression, extrusion, pelettisation, granulation

Environmental Release Categories : **ERC2:** Formulation into mixture

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-2-Formulation-or-repacking.pdf

Use: Use as an intermediate, Use at industrial sites

Main User Groups : **SU3:** Industrial uses
Sectors of end-use : **SU8, SU9:** Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals
Chemical product category : **PC21:** Laboratory chemicals
PC29: Pharmaceuticals
PC30: Photo-chemicals
PC35: Washing and cleaning products
PC39: Cosmetics, personal care products
PC0: Other

Process categories : **PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC5: Mixing or blending in batch processes
PROC6: Calendering operations
PROC7: Industrial spraying
PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities
PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities
PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring
PROC14: Tabletting, compression, extrusion, pelettisation, granulation
PROC28: Manual maintenance (cleaning and repair) of

machinery

Environmental Release Categories : **ERC6a:** Use of intermediate

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-3-Use-at-industrial-site-Use-as-Intermediate.pdf

Use: Use in polymer production, Use at industrial sites

Main User Groups	:	**SU3:** Industrial uses
Sectors of end-use	:	**SU12:** Manufacture of plastics products, including compounding and conversion
Chemical product category	:	**PC32:** Polymer preparations and compounds
Process categories	:	**PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions **PROC2:** Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions **PROC3:** Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition **PROC4:** Chemical production where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes **PROC6:** Calendering operations **PROC8a:** Transfer of substance or mixture (charging/discharging) at non dedicated-facilities **PROC8b:** Transfer of substance or mixture (charging/discharging) at dedicated facilities **PROC9:** Transfer of substance or mixture into small containers (dedicated filling line, including weighing) **PROC10:** Roller application or brushing **PROC13:** Treatment of articles by dipping and pouring **PROC14:** Tabletting, compression, extrusion, pelettisation, granulation **PROC15:** Use as laboratory reagent **PROC28:** Manual maintenance (cleaning and repair) of machinery

Environmental Release Categories	:	**ERC6c:** Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-4-Use-at-industrial-site-Polymer-manufacturing.pdf

Use: Use in polymer processing, Use at industrial sites

Main User Groups	:	**SU3:** Industrial uses
Sectors of end-use	:	**SU12:** Manufacture of plastics products, including compounding and conversion
Chemical product category	:	**PC32:** Polymer preparations and compounds
Process categories	:	**PROC5:** Mixing or blending in batch processes **PROC6:** Calendering operations **PROC8a:** Transfer of substance or mixture (charging/discharging) at non dedicated-facilities **PROC28:** Manual maintenance (cleaning and repair) of machinery
Environmental Release Categories	:	**ERC6c:** Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-5-Use-at-industrial-site-Polymer-Processing.pdf

Use: Use in rubber production and processing, Use at industrial sites

Main User Groups	:	**SU3:** Industrial uses
Sectors of end-use	:	**SU11:** Manufacture of rubber products
Process categories	:	**PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions **PROC2:** Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions **PROC3:** Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure

or processes with equivalent containment condition
PROC4: Chemical production where opportunity for exposure arises
PROC5: Mixing or blending in batch processes
PROC6: Calendering operations
PROC7: Industrial spraying
PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities
PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities
PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring
PROC14: Tabletting, compression, extrusion, pelettisation, granulation
PROC28: Manual maintenance (cleaning and repair) of machinery

Environmental Release Categories : **ERC6d:** Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-6-Use-at-industrial-site-Rubber-production-and-processing.pdf

Use: Phenolic resin processing (uses of downstream users of phenolic resins), Use at industrial sites

Main User Groups : **SU3:** Industrial uses
Sectors of end-use : **SU8, SU12:** Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of plastics products, including compounding and conversion
Chemical product category : **PC32:** Polymer preparations and compounds

Process categories : **PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3: Manufacture or formulation in the chemical industry

in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4: Chemical production where opportunity for exposure arises
PROC5: Mixing or blending in batch processes
PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities
PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities
PROC14: Tabletting, compression, extrusion, pelettisation, granulation
PROC15: Use as laboratory reagent

Environmental Release Categories : **ERC4:** Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-7-Use-at-industrial-site-Phenolic-Resin-processing-DU-uses-of-Phenolic-Resins-25.pdf

Use: Use as binders and release agents, Use at industrial sites

Main User Groups : **SU3:** Industrial uses
Process categories : **PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4: Chemical production where opportunity for exposure arises
PROC5: Mixing or blending in batch processes
PROC6: Calendering operations
PROC7: Industrial spraying
PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities
PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities
PROC9: Transfer of substance or mixture into small

containers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring
PROC28: Manual maintenance (cleaning and repair) of machinery

Environmental Release Categories : **ERC5:** Use at industrial site leading to inclusion into/onto article

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-8-Use-at-industrial-site-Use-as-binder-or-release-agent.pdf

Use: Use in coatings, Use at industrial sites

Main User Groups : **SU3:** Industrial uses
Chemical product category : **PC9a:** Coatings and paints, thinners, paint removers

Process categories : **PROC5:** Mixing or blending in batch processes
PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring

Environmental Release Categories : **ERC4:** Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-9-Use-at-industrial-site-Uses-in-coatings.pdf

Use: Use in laboratories, Use at industrial sites

Main User Groups : **SU3:** Industrial uses
Sectors of end-use : **SU8, SU9, SU24:** Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals, Scientific research and development
Chemical product category : **PC1:** Adhesives, sealants
PC3: Air care products
PC4: Anti-freeze and de-icing products

PC8: Biocidal products
PC9a: Coatings and paints, thinners, paint removers
PC9b: Fillers, putties, plasters, modelling clay
PC9c: Finger paints
PC12: Fertilizers
PC15: Non-metal surface treatment products
PC21: Laboratory chemicals
PC24: Lubricants, greases, release products
PC27: Plant protection products
PC29: Pharmaceuticals
PC30: Photo-chemicals
PC31: Polishes and wax blends
PC32: Polymer preparations and compounds
PC35: Washing and cleaning products
PC38: Welding and soldering products, flux products
PC39: Cosmetics, personal care products
PC40: Extraction agents
PC0: Other

Process categories	:	**PROC8a:** Transfer of substance or mixture (charging/discharging) at non dedicated-facilities **PROC10:** Roller application or brushing **PROC15:** Use as laboratory reagent **PROC19:** Manual activities involving hand contact **PROC28:** Manual maintenance (cleaning and repair) of machinery
Environmental Release Categories	:	**ERC4:** Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-10-Use-at-industrial-site-Use-in-laboratories.pdf

Use: Formulation & (re)packing of substances and mixtures, Leather treatment products, Use at industrial sites

Main User Groups	:	**SU3:** Industrial uses
Chemical product category	:	**PC23:** Leather treatment products
Process categories	:	**PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent

containment conditions
PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC5: Mixing or blending in batch processes
PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities
PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities

Environmental Release Categories : **ERC6a:** Use of intermediate

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-11-Use-at-industrial-site-DoU-Formulation-Leather-treatment.pdf

Use: Use in agrochemicals, Use at industrial sites

Main User Groups : **SU3:** Industrial uses
Sectors of end-use : **SU9:** Manufacture of fine chemicals
Chemical product category : **PC12:** Fertilizers
PC0: Other

Process categories : **PROC4:** Chemical production where opportunity for exposure arises
PROC5: Mixing or blending in batch processes
PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities
PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities
PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC14: Tabletting, compression, extrusion, pelettisation, granulation
PROC15: Use as laboratory reagent

Environmental Release Categories : **ERC6a:** Use of intermediate

Additional information available from:

https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-12-Use-at-industrial-site-Agrochemical-uses.pdf

Use: Phenolic resin processing (uses of downstream users of phenolic resins), Use at industrial sites

Main User Groups	:	**SU3:** Industrial uses
Process categories	:	**PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions **PROC2:** Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions **PROC3:** Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition **PROC4:** Chemical production where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes **PROC8b:** Transfer of substance or mixture (charging/discharging) at dedicated facilities **PROC14:** Tabletting, compression, extrusion, pelettisation, granulation **PROC15:** Use as laboratory reagent
Environmental Release Categories	:	**ERC4:** Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-13-Use-at-industrial-site-Phenolic-Resin-processing-DU-uses-of-Phenolic-Resins-1.pdf

Use: Use in polymer production, Widespread use by professional workers

Main User Groups	:	**SU22:** Professional uses
Process categories	:	**PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions **PROC2:** Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with

equivalent containment conditions
PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities
PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities
PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC14: Tabletting, compression, extrusion, pelettisation, granulation

Environmental Release Categories : **ERC8c:** Widespread use leading to inclusion into/onto article (indoor)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-14-Widespread-use-by-professional-workers-Polymer-manufacturing.pdf

Use: Use in polymer processing, Widespread use by professional workers

Main User Groups : **SU22:** Professional uses
Process categories : **PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities
PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities
PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Environmental Release Categories : **ERC8c:** Widespread use leading to inclusion into/onto article (indoor)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-15-Widespread-use-by-professional-workers-Polymer-processing.pdf

Phenol

Use: Phenolic resin processing (uses of downstream users of phenolic resins), Widespread use by professional workers

Main User Groups	:	**SU22:** Professional uses
Process categories	:	**PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions **PROC2:** Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions **PROC3:** Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition **PROC4:** Chemical production where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes **PROC8a:** Transfer of substance or mixture (charging/discharging) at non dedicated-facilities **PROC8b:** Transfer of substance or mixture (charging/discharging) at dedicated facilities **PROC11:** Non-industrial spraying **PROC14:** Tabletting, compression, extrusion, pelettisation, granulation **PROC15:** Use as laboratory reagent
Environmental Release Categories	:	**ERC8a:** Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-16-Widespread-use-by-professional-workers-Phenolic-resins-processing-DU-uses-of-phenolic-resins.pdf

Use: Use in laboratories, Widespread use by professional workers

Main User Groups	:	**SU22:** Professional uses
Process categories	:	**PROC10:** Roller application or brushing **PROC15:** Use as laboratory reagent
Environmental Release Categories	:	**ERC8a:** Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

Additional information available from:

Phenol

https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-17-Widespread-use-by-professional-workers-Use-in-laboratories.pdf

Use: Use in coatings, Widespread use by professional workers

Main User Groups	:	**SU22:** Professional uses
Process categories	:	**PROC5:** Mixing or blending in batch processes **PROC8a:** Transfer of substance or mixture (charging/discharging) at non dedicated-facilities **PROC10:** Roller application or brushing **PROC13:** Treatment of articles by dipping and pouring
Environmental Release Categories	:	**ERC8b:** Widespread use of reactive processing aid (no inclusion into or onto article, indoor)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-18-Widespread-use-by-professional-workers-Use-in-coatings.pdf

Use: Use in binder and release agents, Widespread use by professional workers

Main User Groups	:	**SU22:** Professional uses
Process categories	:	**PROC1:** Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions **PROC2:** Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions **PROC3:** Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition **PROC4:** Chemical production where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes **PROC6:** Calendering operations **PROC8a:** Transfer of substance or mixture (charging/discharging) at non dedicated-facilities **PROC8b:** Transfer of substance or mixture (charging/discharging) at dedicated facilities **PROC9:** Transfer of substance or mixture into small

containers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC14: Tabletting, compression, extrusion, pelettisation, granulation

Environmental Release Categories : **ERC8b:** Widespread use of reactive processing aid (no inclusion into or onto article, indoor)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-19-Widespread-use-by-professional-workers-Use-as-binders-and-release-agents.pdf

Use: Use in agrochemicals, Widespread use by professional workers

Main User Groups : **SU22:** Professional uses
Chemical product category : **PC12:** Fertilizers
PC0: Other

Process categories : **PROC4:** Chemical production where opportunity for exposure arises
PROC5: Mixing or blending in batch processes
PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities
PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities

Environmental Release Categories : **ERC8b:** Widespread use of reactive processing aid (no inclusion into or onto article, indoor)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-20-Widespread-use-by-professional-workers-Agrochemical-uses.pdf

Use: Consumer, Service life - consumers

Main User Groups : **SU21:** Consumer uses
Article categories : **AC 0:** Other Articles

Environmental Release Categories : **ERC10a, ERC11a:** Widespread use of articles with low release (outdoor), Widespread use of articles with low release

Phenol

(indoor)

Additional information available from:
https://www.borealisgroup.com/storage/Base-Chemicals/Phenol/Exposure-Scenarios/ES-21-Service-life-consumers-Paper-phenolic-circuit-board-and-phenol-resin-impregnated-paper.pdf