

Hysol R

In accordance with Industrial Safety and Health Act

MSDS Approval Number

AA00907-0000000147

Section 1. Chemical product and company identification

Product name Hysol R
Code 452238-KR01
SDS no. 452238
Supplier BP Korea Ltd.
19F., 302, Teheran-ro, Gangnam-gu, Seoul, 06210
Republic of Korea

Tel: +82 -1577-1904

EMERGENCY TELEPHONE NUMBER Carechem: +65 3158 1074 (24/7)

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

Use of the substance/mixture Metalworking fluid - soluble.
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Section 2. Hazards identification

GHS Classification  SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
REPRODUCTIVE TOXICITY - Category 1B

GHS label elements, including precautionary statements

Symbol



Signal word Danger

Hazard statements  H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H360 - May damage fertility or the unborn child.

Precautionary statements

Prevention

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves, protective clothing and eye or face protection.
P264 - Wash hands thoroughly after handling.

Response

 P308 + P313 - IF exposed or concerned: Get medical attention.
P362 + P364 - Take off contaminated clothing and wash it before reuse.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P332 + P313 - If skin irritation occurs: Get medical attention.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical attention.

Storage

P405 - Store locked up.

Disposal

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

Section 2. Hazards identification

Other hazards which do not result in classification Defatting to the skin.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Highly refined mineral oil, emulsifiers and additives.

Hazardous ingredients

Ingredient name	Synonym	CAS number	%
Distillates (petroleum), hydrotreated heavy naphthenic	Baseoil - unspecified; Distillates, petroleum, hydrotreated heavy naphthenic; Hydrotreated heavy naphthenic distillate, solvent extract, petroleum; Mineral oil, petroleum distillates, hydrotreated heavy naphthenic; Mineral oil, petroleum distillates, hydrotreated (severe) heavy naphthenic; Distillates (petroleum), hydro-treated heavy naphthenic; Hydrotreated heavy naphthenic distillate solvent extract (petroleum); OILS, MINERAL, HEAVY NAPHTHENIC, HYDROTREATED; OILS, NAPHTHENIC, HYDROGENATED; SEVERELY SOLVENT REFINED HEAVY PARAFFINIC DISTILLATES; HYDROTREATED LIGHT PETROLEUM DISTILLATE	64742-52-5	35
Monoethanolamine with distilled tall oil Amine carbamate	-	-	9.0275
2,2',2''-nitrilotriethanol	carbonic acid, compound with 2-aminoethanol (1:2); ethanol, 2-amino-, reaction products with carbon dioxide	174125-97-4	4.13
	Ethanol, 2,2',2''-nitrilotris-; TRIETHANOLAMINE; 2,2', 2''-Trihydroxyethylamine; Tris(2-hydroxyethyl)amine; trolamine; Ethanol, 2,2',2''-nitrilotri-; ETHANOL, 2,2',2''-NITRILOTRIS-; TRIS (BETA-HYDROXYETHYL) AMINE; NITRILOTRIETHANOL; 2,2',2''-NITRILOTRIS (ETHANOL); Trihydroxytriethylamine	102-71-6	3.36551

Section 3. Composition/information on ingredients

N,N'-Methylenebismorpholine	N,N'-methylenedimorpholine; N, N'-methylenebismorpholine; Morpholine, 4,4'-methylenebis-; N,N-Methylenebismorpholine; Morpholine, 4,4'-methylenedi-; MBM; N,N'-Methylenedimorpholine; formaldehyde released from N,N'-Methylenebismorpholine; N, N'methylenebismorpholine; Bismorpholino methane; 4,4'-Methylenedimorpholine	5625-90-1	2.76
Alcohols, C16-18, ethoxylated propoxylated	(C16-18) Alkyl alcohol ethoxylate propoxylate; Alcohols, C16-18, ethoxylated propoxylated (5 - 15 EO units, < 6 PO units); Alcohols, C16-18-, ethoxylated propoxylated; C16-18-Alkyl alcohol ethoxylate propoxylate; Ethoxylated propoxylated alcohols(C16-18); Polyoxyalkylene (C2-4,8) monoalkyl(or alkenyl) (C1-24) ether (n1-150); Ethoxylated propoxylated alcohols (C=16-18); FATTY ALCOHOL, C16-18 PROPOXYLATED, ETHOXYLATED	68002-96-0	2.2
Boric acid	Boric acid (H3BO3); Orthoboric acid; boric acid, other than natural boric acid of heading N° 2528; boric acid, crude natural, containing not more than 85 per cent of H3BO3 calculated on the dry weight; product consisting of ammonium nitrate, magnesium nitrate, mixture of diammonium phosphate and ammonium sulphate and boric acid; E 284; boracic acid; orthoboric acid; borofax; TRIHYDROXYBORANE; BORON TRIHYDROXIDE; Boracic acid; trioxoboric acid; Trihydroxidoboron	10043-35-3	2
Alcohols, C16-18 and C18-unsatd., ethoxylated	Alcohols, C16-18 and C18-unsaturated, ethoxylated; C16-18 and C18-Unsaturated	68920-66-1	2

Section 3. Composition/information on ingredients

2-[2-(2-butoxyethoxy)ethoxy]ethanol	alkylalcohol, ethoxylate; Ethoxylated alcohols (C16-18 and C18 unsaturated); Polyoxyalkylene (C2-4,8) monoalkyl(or alkenyl) (C1-24) ether (n1-150); Unsatd. (C=18) and (C=16-18) ethoxylated alcohols; Alcohols C16-18,18 unsaturated, ethoxylated; Alcohols, C16-18(even numbered) and C18 unsaturated, ethoxylated < 2.5 EO TEGBE; triethylene glycol monobutyl ether; butoxytriethylene glycol; 2-(2-(2-butoxyethoxy)ethoxy) ethanol; Ethanol, 2-[2-(2-butoxyethoxy)ethoxy]-; 2-[2-(2-butoxyethoxy) ethoxy] ethanol); Ethanol, 2-[-2-(2-butoxyethoxy)ethoxy]-; butyltrigol; Ethanol, 2-(2-(2-butoxyethoxy)ethoxy)-; triethylene glycol butyl ether; Butoxytriglycol	143-22-6	2
Monoethanolamine with alkyl ether carboxylic acid	-	-	1.90065
Monoethanolamine with alkyl ether carboxylic acid	-	-	1.04674
2-Aminoethanol with (Z)-docos-13-enoic acid	-	-	0.82654

Non-hazardous ingredients

Ingredient name	Synonym	CAS number	%
Trade secret.	Trade secret.	Trade secret.	18.01 - 18.07
Trade secret.	Trade secret.	Trade secret.	14.857
Trade secret.	Trade secret.	Trade secret.	0.67563
Trade secret.	Trade secret.	Trade secret.	0.175

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Eye contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.

Skin contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention. If skin irritation or rash occurs: Get medical advice/attention.

Section 4. First aid measures

Inhalation	If inhaled, remove to fresh air. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. Get medical attention.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Wash out mouth with water if person is conscious. Get medical attention.
<u>Indication of immediate medical attention and special treatment needed, if necessary</u>	
Specific treatments	No specific treatment.
Notes to physician	Treatment should in general be symptomatic and directed to relieving any effects. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Section 5. Firefighting measures

<u>Extinguishing media</u>	
Suitable	In case of fire, use water fog, alcohol resistant foam, dry chemical or carbon dioxide extinguisher or spray.
Not suitable	Do not use water jet.
Specific hazards arising from the chemical	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	Combustion products may include the following: carbon oxides (CO, CO ₂) (carbon monoxide, carbon dioxide) nitrogen oxides (NO, NO ₂ etc.)
Special protective equipment for fire-fighters	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
Special protective actions for fire-fighters	No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.
Environmental precautions	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
<u>Methods and material for containment and cleaning up</u>	
Small spill	Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

Large spill

Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilt product. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. Avoid contact of spilt material and runoff with soil and surface waterways. Avoid prolonged or repeated contact with skin. During metal working, solid particles from workpieces or tools will contaminate the fluid and may cause abrasions of the skin. Where such abrasions result in a penetration of the skin, first aid treatment should be applied as soon as reasonably possible. The presence of certain metals in the workpiece or tool, such as chromium, cobalt and nickel, can contaminate the metalworking fluid and as a result may induce allergic skin reactions. Evaporation of water from soluble cutting fluids during use may lead to an increase in concentration which may result in the development of skin conditions due to irritation and defatting. It is important to monitor fluid strength on a regular basis with a refractometer and maintain it at the recommended concentration. Lubricants from other sources and other contaminants should be minimised. Swarf and other debris should be removed. To maintain optimum performance and minimise bacterial spoilage, machine tool coolant systems should be cleaned on a regular basis.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. Contaminated work clothing should not be allowed out of the workplace. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store between the following temperatures: 5 to 40°C (41 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Not suitable

Prolonged exposure to elevated temperature

Section 8. Exposure controls/personal protection

Control parameters

Ingredient name	Exposure limits
Distillates (petroleum), hydrotreated heavy naphthenic	ACGIH TLV (United States). [Mineral Oil, pure, highly and severely refined] TWA: 5 mg/m ³ 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction
Boric acid	ACGIH TLV (United States). [Borate compounds, Inorganic] STEL: 6 mg/m ³ 15 minutes. Issued/Revised: 1/2005 Form: Inhalable fraction TWA: 2 mg/m ³ 8 hours. Issued/Revised: 1/2005 Form: Inhalable fraction
2-aminoethanol	Ministry of Employment and Labor (Republic of Korea). STEL: 6 ppm 15 minutes. Issued/Revised: 3/1997 TWA: 3 ppm 8 hours. Issued/Revised: 3/1997

Biological exposure indices

No exposure indices known.

Other ingredients including trade secret: not applicable

Recommended monitoring procedures

Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.

Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Personal protective equipment

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. For protection against metal working fluids, respiratory protection that is classified as "resistant to oil" (class R) or oil proof (class P) should be selected where appropriate. Depending on the level of airborne contaminants, an air-purifying, half-mask respirator (with HEPA filter) including disposable (P- or R-series) (for oil mists less than 50mg/m³), or any powered, air-purifying respirator equipped with hood or helmet and HEPA filter (for oil mists less than 125 mg/m³). Where organic vapours are a potential hazard during metalworking operations, a combination particulate and organic vapour filter may be necessary.

Section 8. Exposure controls/personal protection

The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Eye protection

✓ Avoid contact with eyes. Chemical splash goggles.

Hand protection

Wear suitable gloves. Undiluted fluid: Wear chemical resistant gloves.

Recommended: nitrile gloves.

Diluted fluid: Wear protective gloves if prolonged or repeated contact is likely. Recommended: nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Skin protection

Use of protective clothing is good industrial practice.

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Appropriate techniques should be used to remove potentially contaminated clothing.

Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state

Liquid.

Colour

Yellow.

Odour

Not available.

Odour threshold

Not available.

pH

9.2 [Conc. (% w/w): 5%]

Melting/freezing point

Not available.

Boiling point, initial boiling point, and boiling range

Not available.

Flash point

Closed cup: >100°C (>212°F) [Estimated. Water content interferes with flash point determination.]

Unmeasurable Water content interferes with flash point determination.

Evaporation rate

Not available.

Flammability (solid, gas)

Not available.

Not applicable. Based on - Physical state

Lower and upper explosive (flammable) limits

Not available.

Section 9. Physical and chemical properties

Vapour pressure	Ingredient name	Vapour Pressure at 20 °C			Vapour pressure at 50 °C		
		mm Hg	kPa	Method	mm Hg	kPa	Method
	Distillates (petroleum), hydrotreated heavy naphthenic	<0.07501	<0.01	ASTM D 5191			
	Water	17.5	2.3				
	2,2',2"-nitrilotriethanol	<0.0075	<0.001				
	Boric acid	0.00000074	0.000000099	EU A.4			
	2-[2-(2-butoxyethoxy)ethoxy]ethanol	0.0075	0.001				

Solubility(ies)

Media	Result
water	Soluble

Vapour density	Not available.
Relative density	Not available.
Density	>1000 kg/m ³ (>1 g/cm ³) at 15°C
Partition coefficient: n-octanol/water	Not applicable.

Auto-ignition temperature	Ingredient name	°C	°F	Method
	2,2',2"-nitrilotriethanol	324	615.2	
	2-[2-(2-butoxyethoxy)ethoxy]ethanol	202	395.6	DIN 51794

Decomposition temperature	Not available.
Viscosity	Not available.
Molecular weight	Not applicable as it is a mixture
<u>Particle characteristics</u>	
Median particle size	Not applicable.

Section 10. Stability and reactivity

Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.
Conditions to avoid	Avoid excessive heat.
Incompatible materials	Reactive or incompatible with the following materials: oxidising materials. Slightly reactive or incompatible with the following materials: acids.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on likely routes of exposure Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Acute toxicity

- Inhalation** Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** Irritating to mouth, throat and stomach.
- Skin contact** Causes skin irritation. Defatting to the skin.
- Eye contact** Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

- Inhalation** No specific data.
- Ingestion** Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Skin** Adverse symptoms may include the following:
irritation
redness
dryness
cracking
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Eyes** Adverse symptoms may include the following:
pain or irritation
watering
redness

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

Product/ingredient name	Test	Species	Result	Exposure	Remarks
Amine carbamate	LD50 Dermal	Rabbit	2504 mg/kg	-	-
	LD50 Oral	Rat - Female	1089 mg/kg	-	-
	LD50 Inhalation Vapour	Rat	1300 mg/m ³	6 hours	-
N,N'-Methylenebismorpholine	LD50 Oral	Rat	500 to 2000 mg/kg	-	-
Alcohols, C16-18, ethoxylated propoxylated	LD50 Oral	Rat	>5000 mg/kg	-	Based on studies with similar substances.
Boric acid	LD50 Dermal	Rabbit	>2000 mg/kg	-	-
	LD50 Oral	Rat	3000 to 4000 mg/kg	-	-

Irritation/Corrosion

Product/ingredient name	Test authority / Test number	Species	Route / Result	Conc.	Remarks
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Section 11. Toxicological information

Amine carbamate	OECD	405	Rabbit	Eyes - Not irritant -	-
	OECD	404	Rabbit	Skin - Not irritant -	-
	OECD	405	Rabbit	Eyes - Not irritant -	Based on studies with similar substances.
Alcohols, C16-18, ethoxylated propoxylated	OECD	404	Rabbit	Skin - Not irritant -	Based on studies with similar substances.

Skin corrosion or irritation Not available for product and all ingredients.

Serious eye damage/eye irritation Not available for product and all ingredients.

Respiratory Irritation Not available for product and all ingredients.

Sensitisation

Respiratory Sensitisation Not available for product and all ingredients.

Skin Sensitisation

Product/ingredient name	Route of exposure	Species	Result	Remarks
Amine carbamate	skin	Guinea pig	Not sensitising	-

CMR - ISHA Article 42 Public Notice No 2016-41 Occupational Exposure Limits

Product/ingredient name	CAS number	Classification
Not available for product and all ingredients.		

Carcinogenicity

Not available for product and all ingredients.

Germ cell mutagenicity

Product/ingredient name	Test	Experiment	Result	Remarks
Amine carbamate	OECD 471	Experiment: In vitro Subject: Bacteria	Negative	-
	OECD 473	Experiment: In vitro Subject:	Negative	-
	OECD 474	Mammalian-Animal Experiment: In vivo Subject: Mammalian-Animal	Negative	-

Reproductive toxicity

Product/ingredient name	Test detail	Species	Exposure	Developmental toxin	Maternal toxicity	Fertility	Remarks
Amine carbamate	OECD 416	Rat	Oral -	Negative	Negative	Negative	-

Teratogenicity May damage the unborn child.

Developmental effects No known significant effects or critical hazards.

Fertility effects May damage fertility.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
Toluene	Category 3	-	Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available for product and all ingredients.

Potential chronic health effects

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Aspiration hazard

Not available for product and all ingredients.

Other information Not available.

Section 12. Ecological information

Ecotoxicity No known significant effects or critical hazards.

Product/ingredient name	Species	Test/Result	Exposure	Effects	Remarks
Amine carbamate	Daphnia	Acute EC50 32 mg/l	48 hours	-	-
	Fish	Acute EC50 >100 mg/l	96 hours	-	-
	Algae	Acute ErC50 39 mg/l	72 hours	-	-
	Algae	Chronic NOEC 6.25 mg/l	72 hours	-	-
N,N'-Methylenebismorpholine	Algae	Acute EC50 10 mg/l	72 hours	-	-
	Daphnia	Acute EC50 24 mg/l	48 hours	-	-
	Fish	Acute LC50 >100 mg/l	96 hours	-	-
	Algae	Chronic NOEC 2.1 mg/l	72 hours	-	-
Alcohols, C16-18, ethoxylated propoxylated	Daphnia	Chronic NOEC 5 mg/l	-	-	-
	Daphnia	Acute EC50 >10 mg/l	48 hours	-	Based on studies with similar substances.
	Algae	Acute ErL50 >10	72 hours	-	Based on

Section 12. Ecological information

		mg/l			studies with similar substances.
	Fish	Acute LL50 >100 mg/l	96 hours	-	Based on studies with similar substances.
	Algae	Chronic EC10 0.1 to 1 mg/l	72 hours	-	Based on studies with similar substances.
Alcohols, C16-18 and C18-unsatd., ethoxylated	Algae - Pseudokirchneriella subcapitata	Acute EL50 >10 mg/l	72 hours	-	-
	Daphnia	Acute EL50 51 mg/l	48 hours	-	-
	Fish	Acute LL50 108 mg/l	96 hours	-	-
	Daphnia	Chronic EC20 0.0724 mg/l	21 days	-	QSAR Estimated.
	Fish - Pimephales promelas	Chronic EC20 0.314 mg/l	30 days	-	QSAR Estimated.
	Algae - Desmodesmus subspicatus	Chronic ErL20 0.195 mg/l	72 hours	-	QSAR Estimated.

Persistence/degradability

Not expected to be rapidly degradable.

Product/ingredient name	Test	Result	Remarks
Amine carbamate	OECD 301D	100 % - Readily - 28 days	-
Alcohols, C16-18, ethoxylated propoxylated	OECD 301B	>60 % - Readily - 28 days	-

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Amine carbamate	-1.78	-	Low
2,2',2"-nitrilotriethanol	-1	-	Low
Boric acid	-1.09	-	Low
2-[2-(2-butoxyethoxy)ethoxy]ethanol	0.51	-	Low
Alcohols, C16-18 and C18-unsatd., ethoxylated	4.2	-	High

Mobility in soil Liquid. Soluble in water.

Bioaccumulative potential Not available.

Other adverse effects No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Diluted Fluid The spent diluted fluid comprises a relatively stable emulsion. Dispose of via an authorised person/ licensed waste disposal contractor or by other suitable waste treatment techniques (e.g. emulsion splitting, coagulation and filtration) approved by the local authority. Spent fluid should never be disposed of down the drain. The aqueous phase should not be discharged into sewage systems unless provided for by local regulations; the non-aqueous phase should be disposed of as undiluted fluid. Note that separated aqueous solutions or effluents may contain metal salts as well as traces of oil and must be checked for conformity in these respects against consents given by the authorities before disposal. Further treatment may be required.

Disposal precautions

This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	IMDG	IATA
A. UN number	Not regulated.	Not regulated.
B. UN proper shipping name	-	-
C. Transport hazard class(es)	-	-
D. Packing group	-	-
E. Environmental hazards	No.	No.
F. Additional information	-	-

Special precautions for user Not available.

Section 15. Regulatory information

Regulation according to ISHA

ISHA article 117 (Harmful substances prohibited from manufacture) None of the components are listed.

ISHA article 118 (Harmful substances requiring permission) None of the components are listed.

Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:

Section 15. Regulatory information

Distillates (petroleum), hydrotreated heavy naphthenic
Boric acid
2-aminoethanol

ISHA Enforcement Regs Annex 19 (Exposure standards established for harmful factors)

The following components are listed: toluene, ethylene oxide, ethylene oxide

ISHA Enforcement Regs Annex 21 (Harmful factors subject to Work Environment Measurement)

None of the components are listed.

ISHA Enforcement Regs Annex 22 (Harmful Factors Subject to Special Health Check-up)

The following components are listed: metal working fluids: oil mist, mineral

Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control)

None of the components are listed.

Regulation according to Chemicals Control Act

Article 20 Toxic Chemicals (K-Reach Article 20)

Toxic

Article 18 Prohibited (K- Reach Article 27)

None of the components are listed.

Article 20 Restricted (K- Reach Article 27)

None of the components are listed.

CCA Article 11 (TRI)

The following components are listed: Boron and its compounds

CCA Article 39 (Accident Precaution Chemicals)

The following components are listed: boric acid

Dangerous Materials Safety Management Act

Not regulated.

Wastes regulation

Designated Waste

Regulation according to other foreign laws

Australia inventory (AIIIC)

All components are listed or exempted.

Canada inventory

At least one component is not listed.

China inventory (IECSC)

All components are listed or exempted.

REACH Status

For the REACH status of this product please consult your company contact, as identified in Section 1.

Japan inventory (CSCL)

At least one component is not listed.

Korea inventory (KECI)

All components are listed or exempted.

Philippines inventory (PICCS)

At least one component is not listed.

Taiwan inventory (TCSI)

All components are listed or exempted.

United States inventory (TSCA 8b)

At least one component is not listed.

Section 16. Other information

History

Source of Information

Sources of key data used to compile the Safety Data Sheet: Hazard assessment review data, toxicological reviews, and product physical properties; component supplier hazard communication data; and other publically available resources.

Date first prepared

12/03/2024

Number of revisions and date of last revision

3 01/05/2024.

Prepared by

Product Stewardship

Key to abbreviations

AMP = Acceptable Maximum Peak

ACGIH = American Conference of Governmental Industrial Hygienists, an agency that promulgates exposure standards.

ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail

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CAS Number = Chemical Abstracts Service Registry Number

HAZCHEM Code = Emergency action code of numbers and letters which gives information to emergency services. Its use is required by the ADG Code for Dangerous Goods in bulk.

ICAO = International Civil Aviation Organization.

IATA = International Air Transport Association, the organization promulgating rules governing shipment of goods by air.

IMDG = International Maritime Organization Rules, rules governing shipment of goods by water.

IP 346 = A chemical screening assay for dermal toxicity. The European Commission has recommended that Method IP 346 be used as the basis for labelling certain lubricant oil base stocks for carcinogenicity. The EU Commission has stipulated that the classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346. (See Note L, European Commission Directive 67/548/EEC as amended and adapted.) DMSO is a solvent.

NOHSC = National Occupational Health & Safety Commission, Australia

REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]

TWA = Time weighted average

STEL = Short term exposure limit

UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.

TCCA = Toxic Chemical Control Act

GHS = Global Harmonized System

ISHA = Industrial Safety and Health Act

Varies = may contain one or more of the following 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1

✔ Indicates information that has changed from previously issued version.

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It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from

Section 16. Other information

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