SAFETY DATA SHEET

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

1.1 Product identifier

Product name **Hysol MB 50**

Product code 465450-FR01

SDS # 465450

Product type Liquid.

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

1.3 Details of the supplier of the safety data sheet

Supplier

ECOTIP
Orce Nikolov 202-3/1
1000 Skopje, Macedonia
Macedonia

+386 (0) 15136242

E-mail address MSDSadvice@bp.com

1.4 Emergency telephone number

EMERGENCY TELEPHONE NUMBER Carechem: +44 (0) 1235 239 670 (24/7)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Irrit. 2, H315
Eye Irrit. 2, H319
Repr. 1B, H360FD
Aquatic Chronic 3, H412

Additional information CLP: Not classified as hazardous when diluted below 30%.

See Section 16 for the full text of the H statements declared above.

See sections 11 and 12 for more detailed information on health effects and symptoms and environmental hazards.

2.2 Label elements

Hazard pictograms

Signal word Danger

Hazard statements

H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H360FD - May damage fertility. May damage the unborn child.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P201 - Obtain special instructions before use.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.
P273 - Avoid release to the environment.
P264 - Wash hands thoroughly after handling.

SECTION 2: Hazards identification

Response
P308 + P313 - IF exposed or concerned: Get medical attention.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P362 + P364 - Take off contaminated clothing and wash it before reuse.
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
Not applicable.

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

Hazardous ingredients
Boric acid

Supplemental label elements
Not applicable.

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
Restricted to professional users.

Special packaging requirements

Containers to be fitted with child-resistant fastenings
Not applicable.

Tactile warning of danger
Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Product meets the criteria for endocrine disrupting properties according to Regulation (EC) No. 1907/2006.
This substance/mixture does not contain any components that are considered to have endocrine disrupting properties.

Other hazards which do not result in classification
Defatting to the skin.
This product contains complex ionic mixtures within the fluid matrix which are an intrinsic part of the product and cannot be separated from the fluid matrix. Toxicology testing has shown the ionic-mixture containing products exhibit skin and eye irritation properties that are notably attenuated when compared to the individual acid and base components.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product definition
Mixture

Highly refined base oil (IP 346 DMSO extract <3%), emulsifiers and additives.

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
2-Amino-2-methylpropanol	REACH #: 01-2119475788-16 EC: 204-709-8 CAS: 124-68-5 Index: 603-070-00-6	≤10	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 3, H412	-	[1]
dicyclohexylamine	REACH #: 01-2119493354-33 EC: 202-980-7 CAS: 101-83-7 Index: 612-066-00-3	≤10	Acute Tox. 3, H301 Acute Tox. 3, H311 Skin Corr. 1B, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	ATE [Oral] = 100 mg/kg ATE [Dermal] = 300 mg/kg M [Acute] = 1 M [Chronic] = 1	[1]
Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate	CAS: 39464-69-2	≤3	Skin Irrit. 2, H315 Eye Dam. 1, H318	-	[1]
2-aminobutan-1-ol	REACH #: 01-2119492338-28 EC: 202-488-2	≤3	Acute Tox. 4, H302 Skin Corr. 1, H314 Eye Dam. 1, H318	ATE [Oral] = 500 mg/kg M [Acute] = 1	[1]

SECTION 3: Composition/information on ingredients

	CAS: 96-20-8		Aquatic Acute 1, H400 Aquatic Chronic 3, H412		
neodecanoic acid	REACH #: 01-2119449554-33 EC: 248-093-9 CAS: 26896-20-8	≤3	Acute Tox. 4, H302	ATE [Oral] = 500 mg/kg	[1]
Boric acid	REACH #: 01-2119486683-25 EC: 233-139-2 CAS: 10043-35-3 Index: 005-007-00-2	≤3	Repr. 1B, H360FD	-	[1] [2]
undecanedioic acid	REACH #: 01-2119983505-29 EC: 217-440-6 CAS: 1852-04-6	≤3	Eye Irrit. 2, H319	-	[1]
Amines, tallow alkyl, ethoxylated	EC: 500-153-8 CAS: 61791-26-2	≤1	Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	ATE [Oral] = 500 mg/kg M [Acute] = 1 M [Chronic] = 1	[1]

See Section 16 for the full text of the H statements declared above.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with carcinogenic, mutagenic or reproductive toxicity properties

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

SECTION 4: First aid measures

4.1 Description of 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 Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention.

Inhalation If inhaled, remove to fresh air. Get medical attention immediately. 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.

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 immediately.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Potential acute health effects

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.

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

Inhalation Overexposure to the inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.

Ingestion Ingestion of large quantities may cause nausea and diarrhoea.

Skin contact Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.

Eye contact Potential risk of transient stinging or redness if accidental eye contact occurs.

4.3 Indication of any immediate medical attention and special treatment needed

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.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use foam or all-purpose dry chemical to extinguish.

Unsuitable extinguishing media

Do not use water jet. The use of a water jet may cause the fire to spread by splashing the burning product.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture

In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products

Combustion products may include the following:
carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide)
nitrogen oxides (NO, NO_2 etc.)
phosphorus oxides

5.3 Advice for firefighters

Special precautions 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. This material is harmful to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

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. Floors may be slippery; use care to avoid falling. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment.

For emergency responders

Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

6.2 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). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and material for containment and cleaning up

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.

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.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 5 for firefighting measures.
See Section 8 for information on appropriate personal protective equipment.
See Section 12 for environmental precautions.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment. 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. Avoid contact of spilt material and runoff with soil and surface waterways. 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. Do not reuse container. Empty containers retain product residue and can be hazardous. 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.

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. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Protect from freezing. Store locked up. Keep away from heat and direct sunlight. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Store and use only in equipment/containers designed for use with this product. 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

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values

Europe

No exposure limit value known.

Whilst specific OELs for certain components may be shown in this section, other components may be present in any mist, vapour or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Recommended monitoring procedures

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Biological exposure indices

Product/ingredient name	Exposure indices

No exposure indices known.

Derived No Effect Level

Product/ingredient name	Type	Exposure		Value	Population	Effects
2-Amino-2-methylpropanol	DNEL	Long term Inhalation	-	6.5 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	-	7.3 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	-	1.6 mg/m³	General population	Systemic
	DNEL	Long term Dermal	-	37 mg/kg bw/day	General population	Systemic

SECTION 8: Exposure controls/personal protection

	DNEL	Long term Oral	-	0.46 mg/kg bw/ day	General population	Systemic
dicyclohexylamine	DNEL	Long term Inhalation	-	0.353 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	-	0.1 mg/kg bw/ day	Workers	Systemic
2-aminobutan-1-ol	DNEL	Long term Inhalation	-	1.4 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	-	1.31 mg/kg bw/ day	Workers	Systemic
	DNEL	Long term Inhalation	-	0.34 mg/m³	General population	Systemic
	DNEL	Long term Dermal	-	0.66 mg/kg bw/ day	General population	Systemic
	DNEL	Long term Oral	-	0.1 mg/kg bw/ day	General population	Systemic
undecanedioic acid	DNEL	Long term Inhalation	-	70 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	-	10 mg/kg bw/ day	Workers	Systemic
	DNEL	Long term Inhalation	-	17.4 mg/m³	General population	Systemic
	DNEL	Long term Dermal	-	5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	-	5 mg/kg bw/day	General population	Systemic

PNECs

Product/ingredient name	Result
2-amino-2-methylpropanol	**Fresh water** 0.188 mg/l **Marine water** 0.019 mg/l **Sewage Treatment Plant** 10 mg/l **Fresh water sediment** 0.71 mg/kg dwt **Marine water sediment** 0.071 mg/kg dwt **Soil** 0.03 mg/kg dwt
dicyclohexylamine	**Fresh water** 0.002 mg/l **Marine water** 0 mg/l **Sewage Treatment Plant** 21 mg/l **Fresh water sediment** 0.075 mg/kg dwt **Marine water sediment** 0.007 mg/kg dwt **Soil** 0.014 mg/kg dwt
2-aminobutan-1-ol	**Fresh water** 0.001 mg/l **Sewage Treatment Plant** 10 mg/l **Fresh water sediment**

SECTION 8: Exposure controls/personal protection

	3.59 µg/kg dwt **Marine water sediment** 0.359 µg/kg dwt **Soil** 0.18 µg/kg dwt
undecanedioic acid	**Fresh water** 0.039 mg/l **Marine water** 0.004 mg/l **Sewage Treatment Plant** 10 mg/l **Fresh water sediment** 0.064 mg/kg dwt **Marine water sediment** 0.006 mg/kg dwt **Soil** 0.047 mg/kg dwt

8.2 Exposure controls

Appropriate engineering controls

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.
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.
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.

Individual protection measures

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. Ensure that eyewash stations and safety showers are close to the workstation location.

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.
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/face protection

Safety glasses with side shields.

Skin protection

Hand protection

General Information:

Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. The correct choice of protective gloves depends upon the chemicals being handled, and the conditions of work and use. Most gloves provide protection for only a limited time before they must be discarded and replaced (even the best chemically resistant gloves will break down after repeated chemical exposures).

Gloves should be chosen in consultation with the supplier / manufacturer and taking account of a full assessment of the working conditions.

Wear suitable gloves.

SECTION 8: Exposure controls/personal protection

Recommended: Nitrile gloves.
Breakthrough time:

Breakthrough time data are generated by glove manufacturers under laboratory test conditions and represent how long a glove can be expected to provide effective permeation resistance. It is important when following breakthrough time recommendations that actual workplace conditions are taken into account. Always consult with your glove supplier for up-to-date technical information on breakthrough times for the recommended glove type.
Our recommendations on the selection of gloves are as follows:

Continuous contact:

Gloves with a minimum breakthrough time of 240 minutes, or >480 minutes if suitable gloves can be obtained.
If suitable gloves are not available to offer that level of protection, gloves with shorter breakthrough times may be acceptable as long as appropriate glove maintenance and replacement regimes are determined and adhered to.

Short-term / splash protection:

Recommended breakthrough times as above.
It is recognised that for short-term, transient exposures, gloves with shorter breakthrough times may commonly be used. Therefore, appropriate maintenance and replacement regimes must be determined and rigorously followed.

Glove Thickness:

For general applications, we recommend gloves with a thickness typically greater than 0.35 mm.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.
Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

• Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.

• Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.

Skin and body

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.

Refer to standards:

Respiratory protection: EN 529
Gloves: EN 420, EN 374
Eye protection: EN 166
Filtering half-mask: EN 149
Filtering half-mask with valve: EN 405
Half-mask: EN 140 plus filter
Full-face mask: EN 136 plus filter
Particulate filters: EN 143
Gas/combined filters: EN 14387

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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Colour	Yellow. [Light]
Odour	Unfragranced
Odour threshold	Not available.
pH	9.65 [Conc. (% w/w): 5%]
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Closed cup: >100°C (>212°F) [Estimated. Water content interferes with flash point determination.]
Evaporation rate	Not available.
Flammability	Not available.
Lower and upper explosion limit	Not available.
Vapour pressure	<0.01 kPa
Vapour density	Not available.
	Not available.
Density and/or Relative density	<1000 kg/m³ (<1 g/cm³) at 15°C

Solubility(ies)

Media	Result
water	Emulsifies in water.

Partition coefficient n-octanol/ water (log value)	Not applicable.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Kinematic viscosity	Kinematic: 70 mm^2/s (70 cSt) at 40°C
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
10.2 Chemical stability	The product is stable.
10.3 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.
10.4 Conditions to avoid	Avoid excessive heat.
10.5 Incompatible materials	Reactive or incompatible with the following materials: oxidising materials. Slightly reactive or incompatible with the following materials: acids.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity

Product/ingredient name	Result
2-amino-2-methylpropanol	**Rat - Oral - LD50** 2900 mg/kg OECD 401 **Rabbit - Dermal - LD50** >2000 mg/kg OECD 402
dicyclohexylamine	**Rat - Oral - LD50** 200 mg/kg **Rabbit - Dermal - LD50** 200 to 316 mg/kg **Rat - Inhalation - LC50 Vapour** >1.4 mg/l [6 hours]
Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate	**Rat - Oral - LD50** >2000 mg/kg
2-aminobutan-1-ol	**Rat - Oral - LD50** 1800 mg/kg OECD 401
boric acid	**Rat - Oral - LD50** 3000 to 4000 mg/kg **Rabbit - Dermal - LD50** >2000 mg/kg
undecanedioic acid	**Rat - Oral - LD50** >5000 mg/kg **Rabbit - Dermal - LD50** >6000 mg/kg
Amines, tallow alkyl, ethoxylated	**Rat - Oral - LD50** 500 mg/kg Equivalent to OECD

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Hysol MB 50	N/A	5081.9	N/A	N/A	N/A
dicyclohexylamine	100	300	N/A	N/A	N/A
2-aminobutan-1-ol	500	N/A	N/A	N/A	N/A
neodecanoic acid	500	N/A	N/A	N/A	N/A
Amines, tallow alkyl, ethoxylated	500	N/A	N/A	N/A	N/A

Skin corrosion/irritation

Product/ingredient name	Result
2-amino-2-methylpropanol	**Rabbit - Skin - Irritant**
dicyclohexylamine	**Rabbit - Skin - Corrosive**
Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate	**Rabbit - Skin - Irritant**
2-aminobutan-1-ol	**Rabbit - Skin - Corrosive**
undecanedioic acid	**Rabbit - Skin - Not irritant** OECD 404

SECTION 11: Toxicological information

Amines, tallow alkyl, ethoxylated	**Rabbit - Skin - Not irritant**

Serious eye damage/eye irritation

Product/ingredient name	Result
2-amino-2-methylpropanol	**Rabbit - Eyes - Severe irritant**
dicyclohexylamine	**Rabbit - Eyes - Severe irritant**
Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate	**Rabbit - Eyes - Severe irritant**
undecanedioic acid	**Rabbit - Eyes - Irritant** OECD 405
Amines, tallow alkyl, ethoxylated	**Rabbit - Eyes - Severe irritant**

Respiratory corrosion/irritation

Not available.

Respiratory or skin sensitization

Product/ingredient name	Result
2-amino-2-methylpropanol	**Guinea pig - skin** OECD 406 Result: Not sensitising
2-aminobutan-1-ol	**Guinea pig - skin** Result: Not sensitising
undecanedioic acid	**Guinea pig - skin** OECD 406 Result: Not sensitising

Germ cell mutagenicity

Product/ingredient name	Result
2-amino-2-methylpropanol	**In vitro - Bacteria** OECD 471 Result: Negative **In vitro - Mammalian-Human** OECD 476 Result: Negative **In vivo - Mammalian-Human** OECD 474 Result: Negative
dicyclohexylamine	**In vitro - Bacteria** Bacterial Reverse Mutation Test Result: Negative **In vitro - Mammal - species unspecified** Result: Negative **In vitro - Mammal - species unspecified** Mammalian Erythrocyte Micronucleus Test Result: Negative **In vivo - Mammal - species unspecified** Genetic Toxicology: Rodent Dominant Lethal Test Result: Negative
2-aminobutan-1-ol	**In vitro - Bacteria**

SECTION 11: Toxicological information

	Bacterial Reverse Mutation Test Result: Negative **In vitro - Mammal - species unspecified** In vitro Mammalian Cell Gene Mutation Test Result: Negative **In vivo - Mammal - species unspecified** Mammalian Erythrocyte Micronucleus Test Result: Negative
undecanedioic acid	**In vitro - Bacteria** Bacterial Reverse Mutation Test Result: Negative **In vitro - Mammal - species unspecified** Result: Negative **In vivo - Mammal - species unspecified** Result: Negative

Carcinogenicity

Not available.

Reproductive toxicity

Product/ingredient name	Result
2-amino-2-methylpropanol	**Rat - Oral** OECD 443 Maternal toxicity: Negative Fertility effects: Negative Developmental: Negative
dicyclohexylamine	**Rat - Oral** OECD 421 Maternal toxicity: Positive Fertility effects: Negative Developmental: Negative
2-aminobutan-1-ol	**Rat - Oral** OECD 422 Maternal toxicity: Positive Fertility effects: Negative Developmental: Negative

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

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

Potential acute health effects

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

SECTION 11: Toxicological information

Inhalation No specific data.

Ingestion No specific data.

Skin contact Adverse symptoms may include the following:
irritation
redness
dryness
cracking

Eye contact 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

Inhalation Overexposure to the inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.

Ingestion Ingestion of large quantities may cause nausea and diarrhoea.

Skin contact Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.

Eye contact Potential risk of transient stinging or redness if accidental eye contact occurs.

Potential chronic health effects

Not available.

Conclusion/Summary [Product] Not available.

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Developmental effects May damage the unborn child.

Fertility effects May damage fertility.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

Conclusion/Summary [Product] This substance/mixture does not contain any components that are considered to have endocrine disrupting properties.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result
2-amino-2-methylpropanol	**Acute - ErC50** OECD 201 Algae >100 mg/l [72 hours] **Acute - LC50** OECD 202 Daphnia >100 mg/l [48 hours] **Acute - LC50** OECD 203 Fish >100 mg/l [96 hours] **Chronic - NOEC** OECD 201 Algae 6.6 mg/l [72 hours]
dicyclohexylamine	**Acute - ErC50** OECD 201 Algae 1 mg/l [72 hours] **Acute - EC50**

SECTION 12: Ecological information

	DIN 38412 Part 11 Daphnia 43 mg/l [48 hours] **Acute - LC50** OECD 203 Fish 62 mg/l [96 hours] **Acute - EC50** DIN 38412 Part 8 Micro-organism 201 mg/l [17 hours] **Chronic - NOEC** OECD 201 Daphnia 2 mg/l [72 hours] **Chronic - NOEC** OECD 211 Fish 0.016 mg/l [21 days]
Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate	**Acute - LC50** Fish >100 mg/l [96 hours]
2-aminobutan-1-ol	**Acute - ErC50** OECD 201 Algae 0.91 mg/l [72 hours] **Acute - ErC50** OECD 202 Daphnia 115 mg/l [48 hours] **Acute - LC50** OECD 203 Fish 270 mg/l [96 hours] **Acute - EC50** OECD 209 Micro-organism 329.2 mg/l [3 hours] **Chronic - EC50** OECD 201 Algae 0.05 mg/l [72 hours]
undecanedioic acid	**Acute - EL50** ISO 10253 Algae 38.7 mg/l [72 hours] **Acute - EC50** OECD 202 Daphnia >100 mg/l [48 hours] **Acute - LC50** OECD 203 Fish >100 mg/l [96 hours] **Acute - EC20** ISO 8192 Micro-organism

SECTION 12: Ecological information

	>1000 mg/l [3 hours] **Chronic - NOEC** ISO 10253 Algae 3 mg/l [72 hours]
Amines, tallow alkyl, ethoxylated	**Acute - EC50** Daphnia 5.2 mg/l [48 hours] **Acute - LC50** Fish 0.11 to 1 mg/l [96 hours]

Environmental hazards Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability

Expected to be biodegradable.

Product/ingredient name	Result
2-amino-2-methylpropanol	OECD 301F 89.3% [28 days] - Readily
dicyclohexylamine	OECD 301D 96% [20 days] - Readily
Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate	OECD 302 98% [28 days] - Readily
2-aminobutan-1-ol	OECD 301F 93% [28 days] - Readily
undecanedioic acid	OECD 301D 71% [28 days] - Readily
Amines, tallow alkyl, ethoxylated	OECD 302B 70% [28 days] - Readily

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
dicyclohexylamine	-	-	Readily

12.3 Bioaccumulative potential

Not available.

Product/ingredient name	$LogP_{ow}$	BCF	Potential
2-amino-2-methylpropanol	-0.63	-	Low
dicyclohexylamine	2.724	-	Low
2-aminobutan-1-ol	-0.45	<100	Low
neodecanoic acid	2.1	-	Low
boric acid	-1.09	-	Low
undecanedioic acid	2.8	-	Low

12.4 Mobility in soil

Soil/water partition coefficient

Product/ingredient name	logKoc	Koc
2-amino-2-methylpropanol	0.96	9.07417
dicyclohexylamine	2.54	347.622
2-aminobutan-1-ol	1.22	16.4346
undecanedioic acid	2.6	400.032

Results of PMT and vPvM assessment

SECTION 12: Ecological information

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
2-amino-2-methylpropanol	No	No	No	No	No	No	No
dicyclohexylamine	No	No	No	No	No	No	No
Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate	No	No	No	No	No	No	No
2-aminobutan-1-ol	No	No	No	No	No	No	No
neodecanoic acid	No	No	No	No	No	No	No
boric acid	No	No	No	No	No	No	No
undecanedioic acid	No	No	No	No	No	No	No
Amines, tallow alkyl, ethoxylated	No	No	No	No	No	No	No

Mobility Liquid. Emulsifies in water.

Conclusion/Summary The product does not meet the criteria to be considered as a PMT or vPvM.

12.5 Results of PBT and vPvB assessment

Regulation (EC) No. 1907/2006 [REACH]

Product/ingredient name	PBT	P	B	T	vPvB	vP	
2-amino-2-methylpropanol	No	N/A	N/A	No	N/A	N/A	N/A
dicyclohexylamine	No	N/A	N/A	No	N/A	N/A	N/A
Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate	No	N/A	N/A	No	N/A	N/A	N/A
2-aminobutan-1-ol	No	N/A	No	No	No	N/A	No
neodecanoic acid	No	N/A	N/A	No	N/A	N/A	N/A
boric acid	No	No	No	No	No	No	No
undecanedioic acid	No	N/A	N/A	No	N/A	N/A	N/A
Amines, tallow alkyl, ethoxylated	No	N/A	N/A	No	N/A	N/A	N/A

Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	
2-amino-2-methylpropanol	No	No	No	No	No	No	No
dicyclohexylamine	No	No	No	No	No	No	No
Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate	No	No	No	No	No	No	No
2-aminobutan-1-ol	No	No	No	No	No	No	No
neodecanoic acid	No	No	No	No	No	No	No
boric acid	No	No	No	No	No	No	No
undecanedioic acid	No	No	No	No	No	No	No
Amines, tallow alkyl, ethoxylated	No	No	No	No	No	No	No

Conclusion/Summary Regulation (EC) No. 1272/2008 [CLP] The product does not meet the criteria to be considered as a PBT or vPvB.

12.6 Endocrine disrupting properties

No known significant effects or critical hazards.

Not available.

Conclusion/Summary [Product] This substance/mixture does not contain any components that are considered to have endocrine disrupting properties.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal

Undiluted fluid Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations. 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

SECTION 13: Disposal considerations

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.

Hazardous waste Yes.

European waste catalogue (EWC)

Waste code	Waste designation
12 01 07* 12 01 09*	mineral-based machining oils free of halogens (except emulsions and solutions) machining emulsions and solutions free of halogens

However, deviation from the intended use and/or the presence of any potential contaminants may require an alternative waste disposal code to be assigned by the end user.

Packaging

Methods of disposal Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.

Waste code	European waste catalogue (EWC)
15 01 10*	packaging containing residues of or contaminated by hazardous substances

Special 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. Empty containers represent a fire hazard as they may contain flammable product residues and vapour. Never weld, solder or braze empty containers. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

References Commission 2014/955/EU
Directive 2008/98/EC

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

14.6 Special precautions for user Not available.

14.7 Maritime transport in bulk according to IMO instruments Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

SECTION 15: Regulatory information

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
Boric acid	Toxic to reproduction	Recommended	ED/69/2013	7/1/2015

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Product/ingredient name	%	Designation [Usage]
Hysol MB 50	≥90	3 30
boric acid	≤3	30
octamethylcyclotetrasiloxane	≤0.1	70
decamethylcyclopentasiloxane	≤0.1	70
dodecamethylcyclohexasiloxane	≤0.1	70

Labelling Restricted to professional users.

Other regulations

REACH Status The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.

United States inventory (TSCA 8b) All components are active or exempted.

Australia inventory (AIIC) At least one component is not listed.

Canada inventory All components are listed or exempted.

China inventory (IECSC) All components are listed or exempted.

Japan inventory (CSCL) All components are listed or exempted.

Korea inventory (KECI) All components are listed or exempted.

Philippines inventory (PICCS) At least one component is not listed.

Taiwan Chemical Substances Inventory (TCSI) All components are listed or exempted.

Explosive precursors Not applicable.

Ozone depleting substances (EU 2024/590)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

15.2 Chemical safety assessment A Chemical Safety Assessment has been carried out for one or more of the substances within this mixture. A Chemical Safety Assessment has not been carried out for the mixture itself.

SECTION 16: Other information

Abbreviations and acronyms

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
CSA = Chemical Safety Assessment
CSR = Chemical Safety Report
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EINECS = European Inventory of Existing Commercial chemical Substances
ES = Exposure Scenario
EUH statement = CLP-specific Hazard statement
EWC = European Waste Catalogue
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient

SECTION 16: Other information

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
OECD = Organisation for Economic Co-operation and Development
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SADT = Self-Accelerating Decomposition Temperature
SVHC = Substances of Very High Concern
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
STOT-SE = Specific Target Organ Toxicity - Single Exposure
TWA = Time weighted average
UN = United Nations
UVCB = Complex hydrocarbon substance
VOC = Volatile Organic Compound
vPvB = Very Persistent and Very Bioaccumulative
Varies = may contain one or more of the following 64741-88-4 / RRN 01-2119488706-23, 64741-89-5 / RRN 01-2119487067-30, 64741-95-3 / RRN 01-2119487081-40, 64741-96-4/ RRN 01-2119483621-38, 64742-01-4 / RRN 01-2119488707-21, 64742-44-5 / RRN 01-2119985177-24, 64742-45-6, 64742-52-5 / RRN 01-2119467170-45, 64742-53-6 / RRN 01-2119480375-34, 64742-54-7 / RRN 01-2119484627-25, 64742-55-8 / RRN 01-2119487077-29, 64742-56-9 / RRN 01-2119480132-48, 64742-57-0 / RRN 01-2119489287-22, 64742-58-1, 64742-62-7 / RRN 01-2119480472-38, 64742-63-8, 64742-65-0 / RRN 01-2119471299-27, 64742-70-7 / RRN 01-2119487080-42, 72623-85-9 / RRN 01-2119555262-43, 72623-86-0 / RRN 01-2119474878-16, 72623-87-1 / RRN 01-2119474889-13

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Skin Irrit. 2, H315	Expert judgment
Eye Irrit. 2, H319	Expert judgment
Repr. 1B, H360FD	Calculation method
Aquatic Chronic 3, H412	Expert judgment

Full text of classifications [CLP/GHS]

Acute Tox. 3	ACUTE TOXICITY - Category 3
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Repr. 1B	REPRODUCTIVE TOXICITY - Category 1B
Skin Corr. 1	SKIN CORROSION/IRRITATION - Category 1
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2

Europe

Full text of abbreviated H statements

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H360FD	May damage fertility. May damage the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 3	ACUTE TOXICITY - Category 3
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Repr. 1B	REPRODUCTIVE TOXICITY - Category 1B
Skin Corr. 1	SKIN CORROSION/IRRITATION - Category 1

SECTION 16: Other information

Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2

History

Date of issue/ Date of revision	29/09/2025.
Date of previous issue	06/03/2025.
Prepared by	Product Stewardship

Indicates information that has changed from previously issued version.

Notice to reader

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SECTION 16: Other information

SECTION 16: Other information

PNECs

Result	Product/ingredient name
Fresh water 0.188 mg/l	2-amino-2-methylpropanol
Marine water 0.019 mg/l	
Sewage Treatment Plant 10 mg/l	
Fresh water sediment 0.71 mg/kg dwt	
Marine water sediment 0.071 mg/kg dwt	
Soil 0.03 mg/kg dwt	
Fresh water 0.002 mg/l	dicyclohexylamine
Marine water 0 mg/l	
Sewage Treatment Plant 21 mg/l	Boric acid
Fresh water sediment 0.075 mg/kg dwt	
Marine water sediment 0.007 mg/kg dwt	
Soil 0.014 mg/kg dwt	
Fresh water 0.001 mg/l	2-aminobutan-1-ol
Sewage Treatment Plant 10 mg/l	
Fresh water sediment 3.59 µg/kg dwt	
Marine water sediment 0.359 µg/kg dwt	
Soil 0.18 µg/kg dwt	
Fresh water 0.039 mg/l	undecanedioic acid
Marine water 0.004 mg/l	
Sewage Treatment Plant 10 mg/l	
Fresh water sediment 0.064 mg/kg dwt	
Marine water sediment 0.006 mg/kg dwt	
Soil 0.047 mg/kg dwt	

Rat - Oral - LD50 2900 mg/kg OECD 401	2-amino-2-methylpropanol
Rabbit - Dermal - LD50 >2000 mg/kg OECD 402	
Rat - Oral - LD50 200 mg/kg	dicyclohexylamine
Rabbit - Dermal - LD50 200 to 316 mg/kg	
Rat - Inhalation - LC50 Vapour >1.4 mg/l [6 hours]	
Rat - Oral - LD50 >2000 mg/kg	Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate
Rat - Oral - LD50 1800 mg/kg OECD 401	2-aminobutan-1-ol
Rat - Oral - LD50 3000 to 4000 mg/kg	boric acid
Rabbit - Dermal - LD50 >2000 mg/kg	
Rat - Oral - LD50 >5000 mg/kg	undecanedioic acid
Rabbit - Dermal - LD50 >6000 mg/kg	
Rat - Oral - LD50 500 mg/kg Equivalent to OECD	Amines, tallow alkyl, ethoxylated

Flammability

Density and/or Relative density

Density and/or Relative density

Partition coefficient n-octanol/ water (log value)

Kinematic viscosity

Conclusion/Summary [Product]

Skin corrosion/irritation

Result	Product/ingredient name
Rabbit - Skin - Irritant	2-amino-2-methylpropanol
Rabbit - Skin - Corrosive	dicyclohexylamine
Rabbit - Skin - Irritant	Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate
Rabbit - Skin - Corrosive	2-aminobutan-1-ol
Rabbit - Skin - Not irritant OECD 404	undecanedioic acid
Rabbit - Skin - Not irritant	Amines, tallow alkyl, ethoxylated

Not available.

Conclusion/Summary [Product]

Serious eye damage/eye irritation

Result	Product/ingredient name
Rabbit - Eyes - Severe irritant	2-amino-2-methylpropanol
Rabbit - Eyes - Severe irritant	dicyclohexylamine
Rabbit - Eyes - Severe irritant	Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate
Rabbit - Eyes - Irritant OECD 405	undecanedioic acid
Rabbit - Eyes - Severe irritant	Amines, tallow alkyl, ethoxylated

Conclusion/Summary [Product] Not available.

Respiratory corrosion/irritation

Not available.

Conclusion/Summary [Product] Not available.

Respiratory or skin sensitization

Result	Product/ingredient name
Guinea pig - skin OECD 406 Result: Not sensitising	2-amino-2-methylpropanol
Guinea pig - skin Result: Not sensitising	2-aminobutan-1-ol
Guinea pig - skin OECD 406 Result: Not sensitising	undecanedioic acid

Skin

Conclusion/Summary [Product] Not available.

Respiratory

Conclusion/Summary [Product] Not available.

Germ cell mutagenicity

Result	Product/ingredient name
In vitro - Bacteria OECD 471 Result: Negative	2-amino-2-methylpropanol
In vitro - Mammalian-Human OECD 476 Result: Negative	
In vivo - Mammalian-Human OECD 474 Result: Negative	
In vitro - Bacteria Bacterial Reverse Mutation Test Result: Negative	dicyclohexylamine
In vitro - Mammal - species unspecified Result: Negative	
In vitro - Mammal - species unspecified Mammalian Erythrocyte Micronucleus Test Result: Negative	
In vivo - Mammal - species unspecified Genetic Toxicology: Rodent Dominant Lethal Test Result: Negative	
In vitro - Bacteria Bacterial Reverse Mutation Test Result: Negative	2-aminobutan-1-ol
In vitro - Mammal - species unspecified In vitro Mammalian Cell Gene Mutation Test Result: Negative	
In vivo - Mammal - species unspecified Mammalian Erythrocyte Micronucleus Test Result: Negative	

undecanedioic acid

In vitro - Bacteria
Bacterial Reverse Mutation Test
Result: Negative

In vitro - Mammal - species unspecified
Result: Negative

In vivo - Mammal - species unspecified
Result: Negative

Conclusion/Summary [Product] Not available.

Carcinogenicity

Not available.

Conclusion/Summary [Product] Not available.

Reproductive toxicity

Result	Product/ingredient name
Rat - Oral OECD 443 Maternal toxicity: Negative Fertility effects: Negative Developmental: Negative	2-amino-2-methylpropanol
Rat - Oral OECD 421 Maternal toxicity: Positive Fertility effects: Negative Developmental: Negative	dicyclohexylamine
Rat - Oral OECD 422 Maternal toxicity: Positive Fertility effects: Negative Developmental: Negative	2-aminobutan-1-ol

Conclusion/Summary [Product] Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

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

Result	Product/ingredient name
Acute - ErC50 OECD 201 Algae >100 mg/l [72 hours]	2-amino-2-methylpropanol
Acute - LC50 OECD 202 Daphnia >100 mg/l [48 hours]	
Acute - LC50 OECD 203 Fish >100 mg/l [96 hours]	

Chronic - NOEC

OECD 201
Algae
6.6 mg/l [72 hours]

Acute - ErC50
OECD 201
Algae
1 mg/l [72 hours]

dicyclohexylamine

Acute - EC50
DIN 38412 Part 11
Daphnia
43 mg/l [48 hours]

Acute - LC50
OECD 203
Fish
62 mg/l [96 hours]

Acute - EC50
DIN 38412 Part 8
Micro-organism
201 mg/l [17 hours]

Chronic - NOEC
OECD 201
Daphnia
2 mg/l [72 hours]

Chronic - NOEC
OECD 211
Fish
0.016 mg/l [21 days]

Acute - LC50
Fish
>100 mg/l [96 hours]

Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate

Acute - ErC50
OECD 201
Algae
0.91 mg/l [72 hours]

2-aminobutan-1-ol

Acute - ErC50
OECD 202
Daphnia
115 mg/l [48 hours]

Acute - LC50
OECD 203
Fish
270 mg/l [96 hours]

Acute - EC50
OECD 209
Micro-organism
329.2 mg/l [3 hours]

Chronic - EC50
OECD 201
Algae
0.05 mg/l [72 hours]

Acute - EL50
ISO 10253
Algae
38.7 mg/l [72 hours]

undecanedioic acid

Acute - EC50
OECD 202
Daphnia
>100 mg/l [48 hours]

Acute - LC50

OECD 203
Fish
>100 mg/l [96 hours]

Acute - EC20
ISO 8192
Micro-organism
>1000 mg/l [3 hours]

Chronic - NOEC
ISO 10253
Algae
3 mg/l [72 hours]

Acute - EC50
Daphnia
5.2 mg/l [48 hours]

Amines, tallow alkyl, ethoxylated

Acute - LC50
Fish
0.11 to 1 mg/l [96 hours]

Result	Product/ingredient name
OECD 301F 89.3% [28 days] - Readily	2-amino-2-methylpropanol
OECD 301D 96% [20 days] - Readily	dicyclohexylamine
OECD 302 98% [28 days] - Readily	Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate
OECD 301F 93% [28 days] - Readily	2-aminobutan-1-ol
OECD 301D 71% [28 days] - Readily	undecanedioic acid
OECD 302B 70% [28 days] - Readily	Amines, tallow alkyl, ethoxylated

Biodegradability	Photolysis	Aquatic half-life	Product/ingredient name
Readily	-	-	dicyclohexylamine

Soil/water partition coefficient

Koc	logKoc	Product/ingredient name
9.07417	0.96	2-amino-2-methylpropanol
347.622	2.54	dicyclohexylamine
16.4346	1.22	2-aminobutan-1-ol
400.032	2.6	undecanedioic acid

Results of PMT and vPvM assessment

vM	vP	vPvM	T	M	P	PMT	Product/ingredient name
No	No	No	No	No	No	No	2-amino-2-methylpropanol
No	No	No	No	No	No	No	dicyclohexylamine
No	No	No	No	No	No	No	Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate
No	No	No	No	No	No	No	2-aminobutan-1-ol
No	No	No	No	No	No	No	neodecanoic acid
No	No	No	No	No	No	No	boric acid
No	No	No	No	No	No	No	undecanedioic acid
No	No	No	No	No	No	No	Amines, tallow alkyl, ethoxylated

Liquid. Emulsifies in water.

Mobility

The product does not meet the criteria to be considered as a PMT or vPvM.

Conclusion/Summary

Regulation (EC) No. 1907/2006 [REACH]

	vP	vPvB	T	B	P	PBT	Product/ingredient name
boric acid				Toxic to reproduction		Recommended	ED/69/2013 7/1/2015
N/A	N/A	N/A	No	N/A	N/A	No	2-amino-2-methylpropanol
N/A	N/A	N/A	No	N/A	N/A	No	dicyclohexylamine
N/A	N/A	N/A	No	N/A	N/A	No	Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate
No	N/A	No	No	No	N/A	No	2-aminobutan-1-ol
N/A	N/A	N/A	No	N/A	N/A	No	neodecanoic acid
No	No	No	No	No	No	No	boric acid
N/A	N/A	N/A	No	N/A	N/A	No	undecanedioic acid
N/A	N/A	N/A	No	N/A	N/A	No	Amines, tallow alkyl, ethoxylated

Regulation (EC) No. 1272/2008 [CLP]

	vP	vPvB	T	B	P	PBT	Product/ingredient name
No	No	No	No	No	No	No	2-amino-2-methylpropanol
No	No	No	No	No	No	No	dicyclohexylamine
No	No	No	No	No	No	No	Poly(oxy-1,2-ethanediyl), α-(9Z)-9-octadecen-1-yl-ω-hydroxy-, phosphate
No	No	No	No	No	No	No	2-aminobutan-1-ol
No	No	No	No	No	No	No	neodecanoic acid
No	No	No	No	No	No	No	boric acid
No	No	No	No	No	No	No	undecanedioic acid
No	No	No	No	No	No	No	Amines, tallow alkyl, ethoxylated

Conclusion/Summary Regulation (EC) No. 1272/2008 [CLP]

The product does not meet the criteria to be considered as a PBT or vPvB.

Not available.

Conclusion/Summary [Product]

This substance/mixture does not contain any components that are considered to have endocrine disrupting properties.

12.7 Other adverse effects

No known significant effects or critical hazards.