

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

### 1.1 Product identifier

<b>Product name</b>	Alusol SL 41 XBB
<b>UFI:</b>	XJY2-S0TY-F00K-WC6T
<b>Product code</b>	470578-FR01
<b>SDS #</b>	470578
<b>Product type</b>	Liquid.

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

Identified uses
Handling and dilution of metal working fluid concentrates-Industrial
Use of lubricants in high energy open processes-Industrial
Use of lubricants in high energy open processes-Professional

<b>Use of the substance/ mixture</b>	Metalworking fluid - soluble. For specific application advice see appropriate Technical Data Sheet or consult our company representative.
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### 1.3 Details of the supplier of the safety data sheet

<b>Supplier</b>	Castrol Holdings Europe B.V., d'Arcyweg 76, 3198NA Europoort Rotterdam
	Castrol Germany GmbH, Überseeallee 1, 20457 Hamburg
	+49 (0) 800 863 73 70
<b>E-mail address</b>	MSDSadvice@bp.com

### 1.4 Emergency telephone number

<b>EMERGENCY TELEPHONE NUMBER</b>	Carechem: +44 (0) 1235 239 670 (24/7)
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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

<b>Product definition</b>	Mixture
<b><u>Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]</u></b>	
Skin Irrit. 2, H315	
Eye Irrit. 2, H319	

**Additional information** CLP: Not classified as hazardous when diluted below 50%

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

<b>UFI:</b>	XJY2-S0TY-F00K-WC6T
<b>Hazard pictograms</b>	



<b>Signal word</b>	Warning
<b>Hazard statements</b>	H315 - Causes skin irritation. H319 - Causes serious eye irritation.

### Precautionary statements

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## SECTION 2: Hazards identification

<b>Prevention</b>	P280 - Wear protective gloves. Wear eye or face protection. P264 - Wash hands thoroughly after handling.
<b>Response</b>	P362 + P364 - Take off contaminated clothing and wash it before reuse. P302 + P352 - IF ON SKIN: Wash with plenty of soap and water. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
<b>Storage</b>	Not applicable.
<b>Disposal</b>	Not applicable.
<b>Hazardous ingredients</b>	Not applicable.
<b>Supplemental label elements</b>	Not applicable.

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

<b>Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles</b>	Not applicable.
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### Special packaging requirements

<b>Containers to be fitted with child-resistant fastenings</b>	Not applicable.
<b>Tactile warning of danger</b>	Not applicable.


### 2.3 Other hazards

<b>Results of PBT and vPvB assessment</b>	Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.
<b>Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII</b>	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
<b>Other hazards which do not result in classification</b>	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
 cyclohexylamine	REACH #: 01-2119493354-33 EC: 202-980-7 CAS: 101-83-7 Index: 612-066-00-3	≤5	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] [2]
Tall oil	REACH #: 01-2119490104-45 EC: 232-304-6 CAS: 8002-26-4	≤5	Not classified.	-	[2]
carbonic acid, compound with 2-aminoethanol (1:2)	REACH #: 01-2119976326-28 EC: 244-600-2 CAS: 21829-52-7	≤5	Acute Tox. 4, H302	ATE [Oral] = 500 mg/kg	[1]
2,2',2"-nitrilotriethanol	REACH #: 01-2119486482-31 EC: 203-049-8 CAS: 102-71-6	≤3	Not classified.	-	[2]
Reaction products of alcohols, C11-14-iso, C13 rich and	REACH #: 01-2120770936-40	≤3	Skin Irrit. 2, H315 Eye Dam. 1, H318	-	[1]

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## SECTION 3: Composition/information on ingredients

phosphorus pentoxide	EC: 947-922-8 CAS: -		Aquatic Chronic 2, H411		
Poly(oxy-1,2-ethanediyl), α-(carboxymethyl)-ω-[(9Z)-9-octadecen-1-yloxy]-2-aminoethanol	CAS: 57635-48-0	≤3	Eye Dam. 1, H318	-	[1]
	REACH #: 01-2119486455-28 EC: 205-483-3 CAS: 141-43-5 Index: 603-030-00-8	≤3	Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Chronic 3, H412	ATE [Oral] = 500 mg/kg ATE [Dermal] = 1100 mg/kg ATE [Inhalation (vapours)] = 11 mg/l STOT SE 3, H335: C ≥ 5%	[1] [2]

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

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

## 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. 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 if symptoms occur.

#### 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 if symptoms occur.

#### 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

In case of fire, use water fog, alcohol resistant foam, dry chemical or carbon dioxide extinguisher or spray.

#### 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.

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## SECTION 5: Firefighting measures

### 5.2 Special hazards arising from the substance or mixture

<b>Hazards from the substance or mixture</b>	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous combustion products</b>	Combustion products may include the following: carbon oxides (CO, CO <sub>2</sub> ) (carbon monoxide, carbon dioxide) metal oxide/oxides nitrogen oxides (NO, NO <sub>2</sub> etc.) phosphorus oxides

### 5.3 Advice for firefighters

<b>Special precautions for fire-fighters</b>	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.
<b>Special protective equipment for fire-fighters</b>	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

<b>For non-emergency personnel</b>	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.
<b>For emergency responders</b>	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).

### 6.3 Methods and material for containment and cleaning up

<b>Small spill</b>	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.
<b>Large spill</b>	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

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 7.1 Precautions for safe handling

<b>Protective measures</b>	Put on appropriate personal protective equipment. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid contact of spilt material and runoff with soil and surface waterways. 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
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## SECTION 7: Handling and storage

### Advice on general occupational hygiene

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.

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. 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.

### Not suitable Germany - Storage code

Prolonged exposure to elevated temperature  
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### 7.3 Specific end use(s)

#### Recommendations


See section 1.2 and Exposure scenarios in annex, if applicable.

## SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
 cyclohexylamine	<b>TRGS 900 OEL (Germany). Absorbed through skin.</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 7/2013 TWA: 0.7 ppm 8 hours. Issued/Revised: 7/2013 PEAK: 10 mg/m <sup>3</sup> 15 minutes. Issued/Revised: 7/2013 PEAK: 1.4 ppm 15 minutes. Issued/Revised: 7/2013
Tall oil	<b>DFG MAC-values list (Germany). Skin sensitiser.</b>
2,2',2"-nitrilotriethanol	<b>TRGS 900 OEL (Germany).</b> PEAK: 1 mg/m <sup>3</sup> 15 minutes. Issued/Revised: 5/2018 Form: Inhalable fraction TWA: 1 mg/m <sup>3</sup> 8 hours. Issued/Revised: 5/2018 Form: Inhalable fraction
2-aminoethanol	<b>TRGS 900 OEL (Germany). Absorbed through skin. Skin sensitiser.</b> TWA: 0.5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 5/2016 PEAK: 0.5 mg/m <sup>3</sup> 15 minutes. Issued/Revised: 5/2016 TWA: 0.2 ppm 8 hours. Issued/Revised: 5/2016 PEAK: 0.2 ppm 15 minutes. Issued/Revised: 5/2016


### 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
 cyclohexylamine	DNEL	Long term Inhalation	-	Workers	Systemic
	DNEL	Long term Dermal	-	Workers	Systemic

### Predicted No Effect Concentration

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**SECTION 8: Exposure controls/personal protection**

Product/ingredient name	Compartment Detail	Value	Method Detail
cyclohexylamine	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	-

**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.  
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.

## SECTION 8: Exposure controls/personal protection

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

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

### 9.1 Information on basic physical and chemical properties

<b>Physical state</b>	Liquid.
<b>Colour</b>	Yellow. [Light]
<b>Odour</b>	<input checked="" type="checkbox"/> nfragranced
<b>Odour threshold</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flammability</b>	Not available.

## SECTION 9: Physical and chemical properties

<b>Lower and upper explosion limit</b>	Not available.																																																
<b>Flash point</b>	Closed cup: >100°C (>212°F) [Estimated. Water content interferes with flash point determination.]																																																
<b>Auto-ignition temperature</b>	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>°C</th> <th>°F</th> <th>Method</th> </tr> </thead> <tbody> <tr> <td>Cyclohexylamine</td> <td>255</td> <td>491</td> <td></td> </tr> <tr> <td>2,2',2"-nitrotriethanol</td> <td>324</td> <td>615.2</td> <td></td> </tr> <tr> <td>2-aminoethanol</td> <td>410</td> <td>770</td> <td></td> </tr> </tbody> </table>	Ingredient name	°C	°F	Method	Cyclohexylamine	255	491		2,2',2"-nitrotriethanol	324	615.2		2-aminoethanol	410	770																																	
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2,2',2"-nitrotriethanol	324	615.2																																															
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<b>Decomposition temperature</b>	Not available.																																																
<b>pH</b>	9.6 [Conc. (% w/w): 5%]																																																
<b>Kinematic viscosity</b>	Kinematic: 113 mm <sup>2</sup> /s (113 cSt) at 40°C																																																
<b>Solubility</b>	<table border="1"> <thead> <tr> <th>Media</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>water</td> <td>Soluble</td> </tr> </tbody> </table>	Media	Result	water	Soluble																																												
Media	Result																																																
water	Soluble																																																
<b>Partition coefficient n-octanol/water (log value)</b>	Not applicable.																																																
<b>Vapour pressure</b>	<table border="1"> <thead> <tr> <th rowspan="2">Ingredient name</th> <th colspan="3">Vapour Pressure at 20°C</th> <th colspan="3">Vapour pressure at 50°C</th> </tr> <tr> <th>mm Hg</th> <th>kPa</th> <th>Method</th> <th>mm Hg</th> <th>kPa</th> <th>Method</th> </tr> </thead> <tbody> <tr> <td>Distillates (petroleum), hydrotreated heavy naphthenic</td> <td>&lt;0.08</td> <td>&lt;0.011</td> <td>ASTM D 5191</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Water</td> <td>23.8</td> <td>3.2</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>dicyclohexylamine</td> <td>0.056</td> <td>0.0075</td> <td>EU A.4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2,2',2"-nitrotriethanol</td> <td>&lt;0.0075</td> <td>&lt;0.001</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2-aminoethanol</td> <td>0.4</td> <td>0.053</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	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	<0.08	<0.011	ASTM D 5191				Water	23.8	3.2					dicyclohexylamine	0.056	0.0075	EU A.4				2,2',2"-nitrotriethanol	<0.0075	<0.001					2-aminoethanol	0.4	0.053				
Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C																																													
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Distillates (petroleum), hydrotreated heavy naphthenic	<0.08	<0.011	ASTM D 5191																																														
Water	23.8	3.2																																															
dicyclohexylamine	0.056	0.0075	EU A.4																																														
2,2',2"-nitrotriethanol	<0.0075	<0.001																																															
2-aminoethanol	0.4	0.053																																															
<b>Density and/or Relative density</b>	<1000 kg/m <sup>3</sup> (<1 g/cm <sup>3</sup> ) at 20°C																																																
<b>Relative vapour density</b>	Not available.																																																
<b>Particle characteristics</b>																																																	
<b>Median particle size</b>	Not applicable.																																																
<b>9.2 Other information</b>																																																	
<b>Evaporation rate</b>	Not available.																																																
<b>Explosive properties</b>	Not available.																																																
<b>Oxidising properties</b>	Not available.																																																

## SECTION 10: Stability and reactivity

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

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Alusol SL 41 XBB	8851.9	75932.1	N/A	759.3	N/A
Amine carbamate	500	N/A	N/A	N/A	N/A
2-aminoethanol	500	1100	N/A	11	N/A

#### Information on likely routes of exposure

Routes of entry anticipated: Dermal, Inhalation, Eyes.

#### Potential acute health effects

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

#### Symptoms related to the physical, chemical and toxicological characteristics

<b>Inhalation</b>	No specific data.
<b>Ingestion</b>	No specific data.
<b>Skin contact</b>	Adverse symptoms may include the following: irritation redness dryness cracking
<b>Eye contact</b>	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

<b>Inhalation</b>	Overexposure to the inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.
<b>Ingestion</b>	Ingestion of large quantities may cause nausea and diarrhoea.
<b>Skin contact</b>	Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.
<b>Eye contact</b>	Potential risk of transient stinging or redness if accidental eye contact occurs.

#### Potential chronic health effects

<b>General</b>	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	No known significant effects or critical hazards.
<b>Mutagenicity</b>	No known significant effects or critical hazards.
<b>Developmental effects</b>	No known significant effects or critical hazards.
<b>Fertility effects</b>	No known significant effects or critical hazards.

### 11.2 Information on other hazards

#### 11.2.1 Endocrine disrupting properties

Not available.

**Remarks - Endocrine disruptor - Health** Not available.

#### 11.2.2 Other information

Not available.

## SECTION 12: Ecological information

### 12.1 Toxicity

**Environmental hazards** Not classified as dangerous

### 12.2 Persistence and degradability

Not expected to be rapidly degradable.

### 12.3 Bioaccumulative potential

Not available.

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## SECTION 12: Ecological information

### 12.4 Mobility in soil

Soil/water partition coefficient (K <sub>oc</sub> )	Not available.
Mobility	Liquid. Soluble in water.

### 12.5 Results of PBT and vPvB assessment

Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.

12.6 Endocrine disrupting properties	Not available.
Remarks - Endocrine disruptor - Environment	Not available.
12.7 Other adverse effects	No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

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

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	-	-	-	-

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**SECTION 14: Transport information**

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

None of the components are listed.

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** Not applicable.

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 (AIC)**

At least one component is not listed.

**Canada inventory**

At least one component is not listed in DSL but all such components are listed in NDSL.

**China inventory (IECSC)**

All components are listed or exempted.

**Japan inventory (CSCL)**

All components are listed or exempted.

**Korea inventory (KECI)**

At least one component is not listed.

**Philippines inventory (PICCS)**

At least one component is not listed.

**Taiwan Chemical Substances Inventory (TCSI)**

All components are listed or exempted.

Ozone depleting substances (1005/2009/EU)

Not listed.

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

Not listed.

Persistent Organic Pollutants

Not listed.

EU - Water framework directive - Priority substances

None of the components are listed.

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## SECTION 15: Regulatory information

### Seveso Directive

This product is not controlled under the Seveso Directive.

### National regulations

#### Hazardous incident ordinance

**Hazard class for water** 1 (classified according AwSV)

**Prohibited Chemicals Regulation (ChemVerbotsV)** When placed on the market in Germany, this product is not subject to the Prohibited Chemicals Regulation (ChemVerbotsV).

**Occupational restrictions** Observe employment restrictions in the following:  
Gesetz zum Schutz der arbeitenden Jugend (Jugendarbeitsschutzgesetz – JArbSchG)  
Gesetz zum Schutz von Müttern bei der Arbeit, in der Ausbildung und im Studium (Mutterschutzgesetz – MuSchG)

### 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  
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

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**SECTION 16: Other information**

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

Classification	Justification
Skin Irrit. 2, H315 Eye Irrit. 2, H319	Expert judgment Expert judgment

**Full text of abbreviated H statements**

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	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 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

**History**

<b>Date of issue/ Date of revision</b>	01/03/2024.
<b>Date of previous issue</b>	11/12/2023.
<b>Prepared by</b>	Product Stewardship

✔ Indicates information that has changed from previously issued version.

**Notice to reader**

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## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

<b>Product definition</b>	Mixture
<b>Code</b>	470578-FR01
<b>Product name</b>	Alusol SL 41 XBB

### Section 1: Title

<b>Short title of the exposure scenario</b>	Use of lubricants in high energy open processes - Industrial
<b>List of use descriptors</b>	<p><b>Identified use name:</b> Use of lubricants in high energy open processes-Industrial</p> <p><b>Process Category:</b> PROC01, PROC02, PROC08b, PROC17</p> <p><b>Sector of end use:</b> SU03</p> <p><b>Subsequent service life relevant for that use:</b> No.</p> <p><b>Environmental Release Category:</b> ERC04</p> <p><b>Specific Environmental Release Category:</b> ATIEL-ATC SPERC 4.Fi.v1</p>

<b>Processes and activities covered by the exposure scenario</b>	Covers use of lubricants in high energy open processes, e.g. In high speed machinery such as metal rolling/forming or metal working fluids for machining and grinding. Includes associated product storage, material transfers, sampling and maintenance activities.
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### Section 2 Operational conditions and risk management measures

#### Section 2.1 Control of worker exposure

##### Product characteristics:

<b>Physical state:</b>	Liquid, vapour pressure < 0.5 kPa
<b>Concentration of substance in product:</b>	Covers use of substance/product up to 100 % (unless stated differently)
<b>Frequency and duration of use:</b>	Covers daily exposures up to 8 hours
<b>Other conditions affecting workers exposure:</b>	Assumes use at not more than 20°C above ambient temperature. Assumes a good basic standard of occupational hygiene is implemented

#### Contributing scenarios: Operational conditions and risk management measures

General measures applicable to all activities:

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product also via contamination on hands.

Filling of equipment from drums or containers:  
No specific measures identified.

Metal machining operations:  
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Operation and lubrication of high energy open equipment:  
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Automated metal rolling/forming Use in contained systems Operation is carried out at elevated temperature (> 20°C above ambient temperature):  
No other specific measures identified.

Semi-automated metal rolling/forming Open systems Operation is carried out at elevated temperature (> 20°C above ambient temperature):  
Provide extract ventilation to points where emissions occur.

Equipment cleaning and maintenance:  
Drain down system prior to equipment break-in or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Retain drain-downs in sealed storage pending disposal or for subsequent recycle.  
Storage:

**Alusol SL 41 XBB**

**Use of lubricants in high energy open processes - Industrial**

Store substance within a closed system.

### Section 2.2: Control of environmental exposure

No exposure scenario is presented because the product is not classified for the Environment

### Section 3: Exposure estimation and reference to its source

#### Exposure estimation and reference to its source - Environment

**Exposure assessment (environment):** Used ECETOC TRA model (May 2010 release).

#### Exposure estimation and reference to its source - Workers

**Exposure assessment (human):** The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

### Section 4: Guidance to check compliance with the exposure scenario

#### Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see [www.ATIEL.org/REACH\\_GES](http://www.ATIEL.org/REACH_GES)

#### Health

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

<b>Product definition</b>	Mixture
<b>Code</b>	470578-FR01
<b>Product name</b>	Alusol SL 41 XBB

### Section 1: Title

<b>Short title of the exposure scenario</b>	Handling and dilution of metal working fluid concentrates - Industrial
<b>List of use descriptors</b>	<p><b>Identified use name:</b> Handling and dilution of metal working fluid concentrates-Industrial</p> <p><b>Process Category:</b> PROC01, PROC02, PROC08b, PROC05</p> <p><b>Sector of end use:</b> SU03</p> <p><b>Subsequent service life relevant for that use:</b> No.</p> <p><b>Environmental Release Category:</b> ERC02</p> <p><b>Specific Environmental Release Category:</b> ATIEL-ATC SPERC 2.Ei.v1</p>

<b>Processes and activities covered by the exposure scenario</b>	Handling and dilution of metal working fluid concentrates. Includes associated product storage, material transfers, sampling and maintenance activities.
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## Section 2 Operational conditions and risk management measures

### Section 2.1 Control of worker exposure

#### Product characteristics:

<b>Physical state:</b>	Liquid, vapour pressure < 0.5 kPa
<b>Concentration of substance in product:</b>	Covers use of substance/product up to 100 % (unless stated differently)
<b>Frequency and duration of use:</b>	Covers daily exposures up to 8 hours
<b>Other conditions affecting workers exposure:</b>	Assumes use at not more than 20°C above ambient temperature. Assumes a good basic standard of occupational hygiene is implemented

#### Contributing scenarios: Operational conditions and risk management measures

General measures applicable to all activities:  
 Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product also via contamination on hands.

Filling of equipment from drums or containers:  
 Avoid carrying out activities involving exposure for more than 4 hours per day.

Process sampling:  
 Avoid carrying out activities involving exposure for more than 4 hours per day.

Equipment cleaning and maintenance:  
 Drain down system prior to equipment break-in or maintenance. Avoid carrying out activities involving exposure for more than 4 hours per day. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Storage:  
 Store substance within a closed system.



## Section 2.2: Control of environmental exposure

No exposure scenario is presented because the product is not classified for the Environment

## Section 3: Exposure estimation and reference to its source

### Exposure estimation and reference to its source - Environment

#### Exposure assessment (environment):

No exposure scenario is presented because the product is not classified for the Environment

### Exposure estimation and reference to its source - Workers

#### Exposure assessment (human):

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

## Section 4: Guidance to check compliance with the exposure scenario

### Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see [www.ATIEL.org/REACH\\_GES](http://www.ATIEL.org/REACH_GES)

### Health

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the extended Safety Data Sheet (eSDS)

Professional

### Identification of the substance or mixture

<b>Product definition</b>	Mixture
<b>Code</b>	470578-FR01
<b>Product name</b>	Alusol SL 41 XBB

### Section 1: Title

<b>Short title of the exposure scenario</b>	Use of lubricants in high energy open processes - Professional
<b>List of use descriptors</b>	<p><b>Identified use name:</b> Use of lubricants in high energy open processes-Professional</p> <p><b>Process Category:</b> PROC01, PROC02, PROC08a, PROC17</p> <p><b>Sector of end use:</b> SU22</p> <p><b>Subsequent service life relevant for that use:</b> No.</p> <p><b>Environmental Release Category:</b> ERC08a</p> <p><b>Specific Environmental Release Category:</b> ATIEL-ATC SpERC 8.7c.v1</p>

<b>Processes and activities covered by the exposure scenario</b>	Covers use of lubricants in high energy open processes, e.g. In high speed machinery such as metal rolling/forming or metal working fluids for machining and grinding. Includes associated product storage, material transfers, sampling and maintenance activities.
--	--

### Section 2 Operational conditions and risk management measures

#### Section 2.1 Control of worker exposure

##### Product characteristics:

<b>Physical state:</b>	Liquid, vapour pressure < 0.5 kPa
<b>Concentration of substance in product:</b>	Covers use of substance/product up to 100 % (unless stated differently)
<b>Frequency and duration of use:</b>	Covers daily exposures up to 8 hours
<b>Other conditions affecting workers exposure:</b>	Assumes use at not more than 20°C above ambient temperature. Assumes a good basic standard of occupational hygiene is implemented

#### Contributing scenarios: Operational conditions and risk management measures

General measures applicable to all activities:

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product also via contamination on hands.

Filling of equipment from drums or containers:

Avoid carrying out activities involving exposure for more than 1 hour per day.

Metal machining operations:

Provide extract ventilation to points where emissions occur.

Operation and lubrication of high energy open equipment:

Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours per day. Wear a respirator conforming to EN140 with type A filter or better. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training.

Equipment cleaning and maintenance:

Drain down system prior to equipment break-in or maintenance. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out activities involving exposure for more than 4 hours per day. Wear a respirator conforming to EN140 with type A filter or better. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Storage:

Store substance within a closed system.

## Section 2.2: Control of environmental exposure

No exposure scenario is presented because the product is not classified for the Environment

## Section 3: Exposure estimation and reference to its source

### Exposure estimation and reference to its source - Environment

#### Exposure assessment (environment):

No exposure scenario is presented because the product is not classified for the Environment

### Exposure estimation and reference to its source - Workers

#### Exposure assessment (human):

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

## Section 4: Guidance to check compliance with the exposure scenario

### Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see [www.ATIEL.org/REACH\\_GES](http://www.ATIEL.org/REACH_GES)

### Health

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.