

SAFETY DATA SHEET

INEOS Acetyls

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

1.1 Product identifier

Product name	Acetic Acid
Other means of identification	Acetic Acid Chemically Pure
	Acetic acid. Ethanoic acid; Ethylic acid; Methanecarboxylic acid; Eisessig; Acetic acid, glacial
Proper shipping name	Acetic acid.
SDS no.	0000001037
Historic SDS no.	11001(BP), 0000000794, 5130
EC number	200-580-7
CAS number	64-19-7
REACH Registration number	01-2119475328-30-0000
Product type	Liquid.

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

Identified uses	
Manufacture of the substance or use as an intermediate or a process chemical or extraction agent. Distribution of substance Formulation and (re)packing of substances and mixtures Use in agrochemicals - Consumer Use in agrochemicals - Professional Use in cleaning agents - Consumer Use in cleaning agents - Industrial Use in cleaning agents - Professional Use as laboratory reagent - Industrial Use as laboratory reagent - Professional Use in oil and gas field drilling and production operations pH adjustment - Consumer Use in water treatment agents - Industrial Use in water treatment agents - Professional Hydraulic fracturing in oil and gas operations - Industrial	

Use of the substance/mixture	Industrial applications 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

Supplier	INEOS Acetyls UK Limited Saltend Hull HU12 8DS United Kingdom Tel: +44 (0) 1482 896251
E-mail address	reach.acetyls.uk@ineos.com

1.4 Emergency telephone number

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

2.1 Classification of the substance or mixture

Product definition Mono-constituent substance

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

Flam. Liq. 3, H226

Skin Corr. 1A, H314

Eye Dam. 1, H318

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

H226 - Flammable liquid and vapour.

H314 - Causes severe skin burns and eye damage.

Precautionary statements

Prevention

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.

P260 - Do not breathe vapour or spray.

P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.

Response

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

Not applicable.

Disposal

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

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

Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant fastenings

Not applicable.

Tactile warning of danger

Not applicable.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

No.

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

No.

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SECTION 3: Composition/information on ingredients**3.1 Substances**

Product definition	Mono-constituent substance			
Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Acetic acid.	EC: 200-580-7 CAS: 64-19-7 Index: 607-002-00-6	>99	Flam. Liq. 3, H226 Skin Corr. 1A, H314 Eye Dam. 1, H318	[A]

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

Type

[A] Constituent

[B] Impurity

[C] Stabilising additive

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. Chemical burns must be treated promptly by a physician. Get medical attention immediately.
Skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Drench contaminated clothing with water before removing. This is necessary to avoid the risk of sparks from static electricity that could ignite contaminated clothing. Contaminated clothing is a fire hazard. Contaminated leather, particularly footwear, must be discarded. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
Inhalation	If inhaled, remove to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention immediately.
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. Chemical burns must be treated promptly by a physician. Get medical attention immediately. If swallowed, rinse mouth with water (only if the person is conscious). If affected person is conscious, give plenty of water to drink.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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	May give off gas, vapour or dust that is very irritating or corrosive to the respiratory system.
Ingestion	Causes burns to mouth, throat and stomach.
Skin contact	Causes severe burns.
Eye contact	Causes serious eye damage.

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

Inhalation	May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs. Vapour, mist or fume may irritate the nose, mouth and respiratory tract.
Ingestion	If swallowed, may irritate the mouth, throat and digestive system. If swallowed, may cause abdominal pain, stomach cramps, nausea, vomiting, diarrhoea, dizziness and drowsiness.
Skin contact	Causes skin burns.
Eye contact	Vapour, mist or fume may cause eye irritation. Exposure to vapour, mist or fume may cause stinging, redness and watering of the eyes.

4.3 Indication of any immediate medical attention and special treatment needed

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SECTION 4: First aid measures

Notes to physician Treatment should in general be symptomatic and directed to relieving any effects.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Use dry chemical, CO₂, alcohol-resistant foam or water spray (fog).

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 Flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Vapours can form explosive mixtures with air. Vapours are heavier than air and can spread along the ground or float on water surfaces to remote ignition sources. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Hazardous combustion products Combustion products may include the following:
carbon oxides (CO, CO₂) (carbon monoxide, carbon dioxide)

5.3 Advice for firefighters

Special precautions for fire-fighters DO NOT FIGHT FIRE WHEN IT REACHES MATERIAL. Withdraw from fire and let it burn. 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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 Immediately contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Eliminate all ignition sources. 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. No flares, smoking or flames in hazard area. Do not breathe 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).

6.3 Methods and material for containment and cleaning up

Small spill Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres.

Large spill Eliminate all ignition sources. 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. Dike spill area and do not allow product to reach sewage system and surface or ground water. 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. Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilt product. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres. Dispose of via a licensed waste disposal contractor.

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SECTION 6: Accidental release measures

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

Protective measures

Put on appropriate personal protective equipment. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Do not reuse container. Empty containers retain product residue and can be hazardous.

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 segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Keep away from heat and direct sunlight. Eliminate all ignition sources. Separate from oxidising materials. 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. Protect from freezing.

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

Acetic acid.

EU OEL (Europe).

STEL: 20 ppm 15 minutes. Issued/Revised: 2/2017

STEL: 50 mg/m³ 15 minutes. Issued/Revised: 2/2017

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

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. 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.

Derived No Effect Level

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SECTION 8: Exposure controls/personal protection

Product/ingredient name	Type	Exposure	Value	Population	Effects	
Acetic acid.	DNEL	Short term Inhalation	-	25 mg/m³	Workers	Local
	DNEL	Long term Inhalation	-	25 mg/m³	Workers	Local
	DNEL	Short term Inhalation	-	25 mg/m³	Consumers	Local
	DNEL	Long term Inhalation	-	25 mg/m³	Consumers	Local

Predicted No Effect Concentration

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
Acetic acid.	PNEC	Fresh water sediment	11.36 mg/kg dwt	Equilibrium Partitioning
	PNEC	Marine water sediment	1.136 mg/kg dwt	Equilibrium Partitioning
	PNEC	Marine	0.3058 mg/l	Assessment Factors
	PNEC	Fresh water	3.058 mg/l	Assessment Factors
	PNEC	Intermittent release	30.58 mg/l	Assessment Factors
	PNEC	Soil	0.478 mg/kg dwt	Equilibrium Partitioning
	PNEC	Sewage Treatment Plant	85 mg/l	Assessment Factors

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

If local exhaust ventilation or other methods of ventilation are not possible or are insufficient, wear suitable respiratory protective devices. Wear suitable respiratory protective devices if there is a risk of exposure limits being exceeded. The choice of suitable respiratory device will depend upon a risk assessment of the workplace environment and the task being carried out. If required, the respiratory device must be certified as safe in defined explosive atmospheres (EX Label). Respiratory protective devices must be checked to ensure they fit correctly each time they are worn. Please consult European standard EN 529 for further guidance on the selection, use, care and maintenance of respiratory protective devices.

Suitable breathing apparatus (independent of ambient atmosphere) must be worn if any of the following situations apply.

- When the workplace atmosphere is considered to be immediately dangerous to life and health.
- When there is a risk of the workplace atmosphere being oxygen deficient.
- When the workplace atmosphere is uncontrolled.
- When the workplace atmosphere is unknown.
- When there is a risk of loss of consciousness or asphyxiation
- When entry into a confined space is required.
- When there is a risk of gases being released that could be a fire or explosion hazard.
- When the concentration of contaminants in the atmosphere exceeds the level of protection (maximum allowed concentration) given by a filtering device
- When the contaminants have a low odour that would not be tasted or smelt by the wearer of a filtering device if the filter became exhausted or saturated.
- When there is a risk of hydrogen sulphide exposure limits being exceeded.

If there is a requirement for the use of a respiratory protective device, but the use of breathing apparatus (independent of ambient atmosphere) is not required, then a suitable filtering device must be worn.

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product.

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SECTION 8: Exposure controls/personal protection

Eye/face protection

Skin protection

Hand protection

Recommended: Use only with adequate ventilation. Do not breathe vapour or mist. If ventilation is inadequate, use certified respirator that will protect against organic vapour. If operating conditions cause high vapour concentrations or the TLV is exceeded, use supplied-air respirator.

Recommended: Chemical splash goggles. Face shield.

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 chemical resistant gloves.

Do not re-use gloves.

Protective gloves will deteriorate over time due to physical and chemical damage. Inspect and replace gloves on a regular basis.

Protective gloves must give suitable protection against mechanical risks (i.e. abrasion, blade cut and puncture).

The frequency of replacement will depend upon the circumstances of use.

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.

SECTION 8: Exposure controls/personal protection

• 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

Recommended: Butyl rubber gloves.

Wear suitable protective clothing.

Footwear highly resistant to chemicals.

When there is a risk of ignition wear inherently fire resistant protective clothes and gloves.

Refer to standard: ISO 11612

When there is a risk of ignition from static electricity, wear anti-static protective clothing. For greatest effectiveness against static electricity, overalls, boots and gloves should all be anti-static.

Refer to standard: EN 1149

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination.

When the risk of skin exposure is high (from experience this could apply to the following tasks: cleaning work, maintenance and service, filling and transfer, taking samples and cleaning up spillages) then a chemical protective suit and boots will be required.

Work clothing / overalls should be laundered on a regular basis. Laundering of contaminated work clothing should only be done by professional cleaners who have been told about the hazards of the contamination. Always keep contaminated work clothing away from uncontaminated work clothing and uncontaminated personal clothes.

Recommended: Hard hat.

Chemical resistant boots.

Chemical resistant apron

Full chemical protective suit with a hood.

Chemical protective suit consisting of a jacket and trousers. The jacket should be buttoned up to the neck, sleeves sealed at the gloves, and trouser legs worn outside the boots. These precautions are required to prevent the clothing from accidentally trapping product against the skin.

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

Clear Colourless.

Odour

Vinegar Pungent. [Strong]

Odour threshold

0.48 ppm

pH

2.4 [Conc. (% w/w): 6.006%]

Melting point/freezing point

May start to solidify at the following temperature: 16.64°C (62°F)

Initial boiling point and boiling range

116.8 to 118.8°C (242.2 to 245.8°F)

Flash point

Closed cup: 39°C (102.2°F) [Pensky-Martens.]

Evaporation rate

0.97

Flammability (solid, gas)

Not applicable. Based on Physical state.

Upper/lower flammability or explosive limits

Lower: 4%

Upper: 19.9%

Vapour pressure

2.1 kPa (15.635 mm Hg) [25°C (77°F)]

Vapour density

2.1 [Air = 1]

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SECTION 9: Physical and chemical properties

Relative density	1.07
Density	1044.6 kg/m ³ (1.045 g/cm ³) at 25°C
Solubility(ies)	Miscible in water. (100%)
Partition coefficient: n-octanol/water	-0.17
Auto-ignition temperature	463°C (865.4°F)
Decomposition temperature	460 to 595°C (860 to 1103°F)
Viscosity	Kinematic: 1.011 mm ² /s (1.011 cSt) at 25°C
Explosive properties	Not considered explosive based on structural and oxygen balance considerations.
Oxidising properties	Not considered oxidizing based on structural considerations.
Remarks	Boiling Point typical value: 117.4 °C to 117.9 °C (243.3 °F to 244.2 °F)

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	Keep away from heat, sparks and flame. This product should be stored away from oxidising materials and strong bases.
10.5 Incompatible materials	Reactive with metals, oxidising materials, reducing agents, alkalis and alcohols
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 toxicological effects**Acute toxicity

Product/ingredient name	Result / Route	Test authority / Number	Species	Dose	Exposure	Remarks
Acetic acid.	LC50 Inhalation Vapour	not guideline -	Mouse	5620 ppm	1 hours	-
	LC50 Inhalation Vapour	not guideline -	Rat	>16000 ppm	4 hours	-
	LD50 Oral	not guideline -	Mouse	4960 mg/kg	-	Based on sodium acetate
	LD50 Oral	not guideline -	Rat	3530 mg/kg	-	-
	LD50 Oral	not guideline -	Rat	3310 mg/kg	-	Based on sodium acetate
	RD50 Inhalation Vapour	not guideline -	Mouse - Male	277 ppm	1 hours	-

Irritation/Corrosion

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SECTION 11: Toxicological information

Product/ingredient name	Test authority / Test number	Species	Route / Result	Test concentration	Remarks
Acetic acid.	Equivalent to OECD	404	Rabbit	Skin - Slightly irritating to the skin.	3.3 % -
	Equivalent to OECD	404	Rabbit	Skin - Slightly irritating to the skin.	10 % -
	Equivalent to OECD	405	Rabbit	Eyes - Irritant	0.1 ml, 10 % -
	Equivalent to OECD	405	Rabbit	Eyes - Severe irritant	0.01 ml, 10 % -
	Equivalent to EPA	OPP 81-4	Rabbit	Eyes - Cornea opacity	0.1 ml, 5 % -

Skin Corrosive to the skin.

Eyes Corrosive to eyes.

GERM CELL MUTAGENICITY

Product/ingredient name	Test authority / Test number	Cell	Type	Result	Remarks
Acetic acid.	OECD 476	-	Experiment: In vitro	Subject: Mammal - species unspecified	Negative Based on Acetic anhydride
	OECD 473	-	Experiment: In vitro	Subject: Mammal - species unspecified	Negative -
	OECD 471	-	Experiment: In vitro	Subject: Non-mammalian species	Negative -
	OECD 474	-	Experiment: In vivo	Subject: Unspecified	Negative Based on Acetic anhydride

Conclusion/Summary Not classified. Based on available data, the classification criteria are not met.

Reproductive toxicity

Product/ingredient name	Test authority / Test number		Species	Route	Exposure	Developmental	Maternal toxicity	Fertility	Remarks
Acetic acid.	EU	B.31	Rabbit	Oral	13 days	Negative	-	-	no effects observed (Based on Vinegar (5 % Acetic acid.))
	EU	B.31	Rat	Oral	10 days	Negative	-	-	no effects observed (Based on Vinegar (5 % Acetic acid.))
	EU	B.31	Mouse	Oral	10 days	Negative	-	-	no effects observed (Based on Vinegar (5 % Acetic acid.))

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SECTION 11: Toxicological information

Conclusion/Summary	Development: Not classified. Based on available data, the classification criteria are not met. Assessment was by using a weight of evidence approach. Fertility: Not classified. Based on available data, the classification criteria are not met. Assessment was by using a weight of evidence approach. Effects on or via lactation: Not classified. Based on available data, the classification criteria are not met. Assessment was by using a weight of evidence approach.
Conclusion/Summary	Not classified. Based on available data, the classification criteria are not met.
Information on likely routes of exposure	Routes of entry anticipated: Oral, Dermal, Inhalation.
Potential acute health effects	
Inhalation	May give off gas, vapour or dust that is very irritating or corrosive to the respiratory system.
Ingestion	Causes burns to mouth, throat and stomach.
Skin contact	Causes severe burns.
Eye contact	Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	
Inhalation	Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	Adverse symptoms may include the following: stomach pains
Skin contact	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Eye contact	Adverse symptoms may include the following: pain watering redness
Delayed and immediate effects as well as chronic effects from short and long-term exposure	
Inhalation	May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs. Vapour, mist or fume may irritate the nose, mouth and respiratory tract.
Ingestion	If swallowed, may irritate the mouth, throat and digestive system. If swallowed, may cause abdominal pain, stomach cramps, nausea, vomiting, diarrhoea, dizziness and drowsiness.
Skin contact	Causes skin burns.
Eye contact	Vapour, mist or fume may cause eye irritation. Exposure to vapour, mist or fume may cause stinging, redness and watering of the eyes.
Potential chronic health effects	
General	No known significant effects or critical hazards.
Carcinogenicity	Not classified. Based on available data, the classification criteria are not met.
Mutagenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Other information	Acetic Acid: Humans unacclimatized to acetic acid vapors experience extreme eye and nasal irritation at concentrations above 25 ppm. Air concentrations of 50 ppm are considered intolerable, causing intense lacrymation (eye weeping), nose, and throat irritation. Repeated exposures to high concentrations in man can cause eye conjunctival lesions, blackening of the hands, hyperkeratosis (thickening) of the skin, teeth erosion, congestion and edema of the pharynx, bronchial constriction, and respiratory tract irritation.

SECTION 12: Ecological information**12.1 Toxicity**

Product/ingredient name	Test authority / Test number	Species	Type / Result	Exposure	Effects	Remarks
Acetic acid.	ISO 10253	Algae	Acute EC50 >300.82 mg/l Nominal Marine water	72 hours	(growth rate)	Based on Acetate ion
	OECD 202	Daphnia	Acute EC50 >300.82 mg/l Nominal Fresh water	48 hours	Mobility	Based on Acetate ion
	OECD 203	Fish	Acute LC50 >300.82 mg/l Nominal Fresh water	96 hours	Mortality	Based on Acetate ion
Product name Acetic Acid Version 5.1 Date of issue 10th February 2021				Product code 0000001037 Format United Kingdom (UK) (United Kingdom) Page: 11/49 Language ENGLISH		

SECTION 12: Ecological information

ISO	10253	Algae	Acute NOEC 300.82 mg/l Nominal Marine water	72 hours	(growth rate)	Based on Acetate ion
not guideline	-	Micro- organism	Acute NOEC 850 mg/l Nominal Fresh water	16 hours	-	-

Conclusion/Summary Not classified as dangerous.
Environmental hazards Not classified as dangerous

12.2 Persistence and degradability

Readily biodegradable

Product/ingredient name	Test authority / Test number	Result - Exposure	Remarks
Acetic acid.	not guideline	96 % - Readily - 20 days	-
	not guideline	50 % - 26.7 days	Phototransformation in Air
	not guideline	50 % - 2 days	Biodegradation in Soil

12.3 Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

Product/ingredient name	LogP _{ow}	BCF	Potential
Acetic acid.	-0.17	3.16	low

12.4 Mobility in soil**Soil/water partition
coefficient (K_{oc})**

Not available.

Mobility

This product may move with surface or groundwater flows because its water solubility is: 100% Miscible in water.

12.5 Results of PBT and vPvB assessment

PBT No.
vPvB No.

12.6 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**

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

Hazardous waste

Yes.

European waste catalogue (EWC)

Waste code	Waste designation
07 01 04*	other organic solvents, washing liquids and mother liquors

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.

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. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. 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. Empty packages may contain some remaining product. Hazard

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SECTION 13: Disposal considerations

warning labels are a guide to the safe handling of empty packaging and should not be removed.

ReferencesCommission 2014/955/EU
Directive 2008/98/EC**SECTION 14: Transport information**

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN2789	UN2789	UN2789	UN2789
14.2 UN proper shipping name	ACETIC ACID, GLACIAL	ACETIC ACID, GLACIAL	ACETIC ACID, GLACIAL	ACETIC ACID, GLACIAL
14.3 Transport hazard class(es)	8 (3) 	8 (3) 	8 (3) 	8 (3) 
14.4 Packing group	II	II	II	II
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	Hazard identification number 83 Limited quantity 1 L Tunnel code (D/E)	Remarks Table C Danger: 8 + 3	Emergency schedules F-E,S-C	Quantity limitation Passenger and Cargo Aircraft: 1 L. Packaging instructions: 851. Cargo Aircraft Only: 30 L. Packaging instructions: 855. Limited Quantities - Passenger Aircraft: 0.5 L. Packaging instructions: Y840.

14.6 Special precautions for user Not available.**UK Emergency Action Code:** •2P**ADR/RID Classification code:** CF1**ADN Classification code:** CF1

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

Proper shipping name	Acetic acid.
Ship type	3
Pollution category	Z

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.

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 listed or exempted.

Australia inventory (AICS)

All components are listed or exempted.

Canada inventory

All components are listed or exempted.

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SECTION 15: Regulatory information

China inventory (IECSC)	All components are listed or exempted.
Japan inventory (ENCS)	All components are listed or exempted.
Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	All components are listed or exempted.
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.

[Seveso Directive](#)

This product is controlled under the Seveso Directive.

[Danger criteria](#)

Category
P5c

15.2 Chemical safety assessment

Complete.

SECTION 16: Other information

Abbreviations and acronyms	<p>ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway</p> <p>ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road</p> <p>ATE = Acute Toxicity Estimate</p> <p>BCF = Bioconcentration Factor</p> <p>CAS = Chemical Abstracts Service</p> <p>CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]</p> <p>CSA = Chemical Safety Assessment</p> <p>CSR = Chemical Safety Report</p> <p>DMEL = Derived Minimal Effect Level</p> <p>DNEL = Derived No Effect Level</p> <p>EINECS = European Inventory of Existing Commercial chemical Substances</p> <p>ES = Exposure Scenario</p> <p>EUH statement = CLP-specific Hazard statement</p> <p>EWC = European Waste Catalogue</p> <p>GHS = Globally Harmonized System of Classification and Labelling of Chemicals</p> <p>IATA = International Air Transport Association</p> <p>IBC = Intermediate Bulk Container</p> <p>IMDG = International Maritime Dangerous Goods</p> <p>LogPow = logarithm of the octanol/water partition coefficient</p> <p>MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)</p> <p>OECD = Organisation for Economic Co-operation and Development</p> <p>PBT = Persistent, Bioaccumulative and Toxic</p> <p>PNEC = Predicted No Effect Concentration</p> <p>REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]</p> <p>RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail</p> <p>RRN = REACH Registration Number</p> <p>SADT = Self-Accelerating Decomposition Temperature</p> <p>SVHC = Substances of Very High Concern</p> <p>STOT-RE = Specific Target Organ Toxicity - Repeated Exposure</p> <p>STOT-SE = Specific Target Organ Toxicity - Single Exposure</p> <p>TWA = Time weighted average</p> <p>UN = United Nations</p> <p>UVCB = Complex hydrocarbon substance</p>
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SECTION 16: Other information

VOC = Volatile Organic Compound
 vPvB = Very Persistent and Very Bioaccumulative
 Varies = may contain one or more of the following 101316-69-2 / RRN 01-2119486948-13, 101316-70-5, 101316-71-6, 101316-72-7 / RRN 01-2119489969-06, 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, 64741-97-5 / RRN 01-2119480374-36, 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, 64742-64-9, 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, 74869-22-0 / RRN 01-2119495601-36, 90669-74-2 / RRN 01-2119970171-43

Full text of abbreviated H statements

H226 Flammable liquid and vapour.
 H314 Causes severe skin burns and eye damage.
 H318 Causes serious eye damage.

Full text of classifications [CLP/GHS]

Eye Dam. 1, H318 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
 Flam. Liq. 3, H226 FLAMMABLE LIQUIDS - Category 3
 Skin Corr. 1A, H314 SKIN CORROSION/IRRITATION - Category 1A

History

Date of issue/ Date of revision 05/12/2018.

Date of previous issue 19/04/2018.

Prepared by Product Stewardship

✔ Indicates information that has changed from previously issued version.

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from us.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. We shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. .

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Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Use in cleaning agents - Consumer
List of use descriptors	Identified use name: Use in cleaning agents - Consumer Substance supplied to that use in form of: In a mixture Sector of end use: SU21 Subsequent service life relevant for that use: No. Environmental Release Category: ERC08d Market sector by type of chemical product: PC03, PC04, PC08, PC09a, PC09b, PC09c, PC24, PC35, PC38

Processes and activities covered by the exposure scenario	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air-care products.
Assessment Method	See Section 3

Section 2: Operational conditions and risk management measures

Section 2.1: Control of consumer exposure

Concentration of substance in mixture or article	Unless otherwise stated., Covers concentrations up to 10%
Physical state:	Liquid, Vapour pressure 2079
Amounts used:	For each use event, covers use amounts up to 13800g
Frequency and duration of use:	Covers use up to 4 times per day Covers exposure up to 8 hours per event
Other given operational conditions affecting consumers exposure:	Covers use at ambient temperatures. Covers use in room size of 20 m ³ Covers use under typical household ventilation.
Contributing scenarios: Operational conditions and risk management measures	
Product category(ies) 3: Air care products Air care, instant action (aerosol sprays) Operations Conditions (consumer): Covers concentrations up to 10% Covers frequent use. Covers use up to 4 time/ on day of use For each use event, covers use amounts up to 0.1g Covers indoor use. Covers exposure up to 0.25 hours per event Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.	
Product category(ies) 3: Air care products Air care, continuous action (solid and liquid) Operations Conditions (consumer): Covers concentrations up to 10% Covers frequent use. Covers use up to 1 time/ on day of use For each use event, covers use amounts up to 0.48g Covers indoor use. Covers exposure up to 8 hours per event Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.	
Product category(ies) 4: Anti-freeze and de-icing products Washing car window Operations Conditions (consumer): Covers concentrations up to 1% Covers use up to 365 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 0.5g Covers use in a one car garage (34 m ³) under typical ventilation. Covers use in room size of 34m ³ Covers exposure up to 0.02 hours per event Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.	
Product category(ies) 4: Anti-freeze and de-icing products Pouring into radiator Operations Conditions (consumer): Covers concentrations up to 10% Covers use up to 365 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 2000g Covers use in a one car garage (34 m ³) under typical ventilation. Covers use in room size of 34m ³ Covers exposure up to 0.17 hours per event Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.	

Acetic Acid

Use in cleaning agents - Consumer

Product category(ies) 4: Anti-freeze and de-icing products Lock de-icer
Operations Conditions (consumer): Covers concentrations up to 10% Covers use up to 365 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 4 g Covers use in a one car garage (34 m³) under typical ventilation. Covers use in room size of 34 m³ Covers exposure up to 0.25 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 8: Biocidal products Laundry and dish-washing products
Operations Conditions (consumer): Covers concentrations up to 5% Covers use up to 365 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 15g Covers use in room size of 20 m³ Covers exposure up to 0.50 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 8: Biocidal products Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Operations Conditions (consumer): Covers concentrations up to 5% Covers use up to 128 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 27 g Covers use in room size of 20 m³ Covers exposure up to 0.33 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 8: Biocidal products Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Operations Conditions (consumer): Covers concentrations up to 1.5% Covers use up to 128 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 35 g Covers use in room size of 20 cm² Covers exposure up to 0.17 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 9a: Coatings and paints, thinners, paint removers Waterborne latex wall paint
Operations Conditions (consumer): Covers concentrations up to 1.5% Covers use up to 4 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 2760 g Covers use in room size of 20 m³ Covers exposure up to 2.20 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 9a: Coatings and paints, thinners, paint removers Solvent rich, high solid, water borne paint
Operations Conditions (consumer): Covers concentrations up to 10% Covers use up to 6 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 744 g Covers use in room size of 20 m³ Covers exposure up to 2.2 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 9a: Coatings and paints, thinners, paint removers Aerosol spray can
Operations Conditions (consumer): Covers concentrations up to 0.5% Covers use up to 2 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 215 g Covers use in a one car garage (34 m³) under typical ventilation. Covers use in room size of 34 m³ Covers exposure up to 0.33 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 9a: Coatings and paints, thinners, paint removers Removers (paint-, glue-, wall paper-, sealant-remover)
Operations Conditions (consumer): Covers concentrations up to 10% Covers use up to 3 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 491 g Covers use in room size of 20 m³ Covers exposure up to 2.00 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 9b: Fillers, putties, plasters, modelling clay Fillers and putty
Operations Conditions (consumer): Covers concentrations up to 2% Covers use up to 12 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 85 g Covers use in room size of 20 m³ Covers exposure up to 4.00 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 9b: Fillers, putties, plasters, modelling clay Plasters and floor equalisers
Operations Conditions (consumer): Covers concentrations up to 0.6% Covers use up to 12 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 13800 g Covers use in room size of 20 m³ Covers exposure up to 2.00 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 9b: Fillers, putties, plasters, modelling clay Modelling clay
Operations Conditions (consumer): Covers concentrations up to 1% Covers use up to 365 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 13800g Covers use in room size of 20 m³
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 9c: Finger paints Finger paints

Operations Conditions (consumer): Covers concentrations up to 1% Covers use up to 365 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 13800g Covers use in room size of 20 m³
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 24: Lubricants, greases, release products Liquids

Operations Conditions (consumer): Covers concentrations up to 10% Covers use up to 4 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 2200 g Covers use in a one car garage (34 m³) under typical ventilation. Covers use in room size of 34 m³ Covers exposure up to 0.17 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 24: Lubricants, greases, release products Pastes

Operations Conditions (consumer): Covers concentrations up to 10% Covers use up to 10 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 34 g Covers use in a one car garage (34 m³) under typical ventilation. Covers use in room size of 34 m³
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 24: Lubricants, greases, release products Sprays

Operations Conditions (consumer): Covers concentrations up to 0.7% Covers use up to 6 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 73 g Covers use in room size of 20 m³ Covers exposure up to 0.17 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 35: Washing and cleaning products Laundry and dish-washing products

Operations Conditions (consumer): Covers concentrations up to 5% Covers use up to 365 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 15 g Covers use in room size of 20 m³ Covers exposure up to 1 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 35: Washing and cleaning products Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Operations Conditions (consumer): Covers concentrations up to 5% Covers use up to 128 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 27 g Covers use in room size of 20 m³ Covers exposure up to 0.33 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 35: Washing and cleaning products Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Operations Conditions (consumer): Covers concentrations up to 1.5% Covers use up to 128 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 35 g Covers use in room size of 20 m³ Covers exposure up to 0.17 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 38: Welding and soldering products, flux products

Operations Conditions (consumer): Covers concentrations up to 10% Covers use up to 365 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 12 g Covers use in room size of 20 m³ Covers exposure up to 1.00 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3 Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment):	No exposure estimation and risk characterization required
Exposure estimation and reference to its source	Not available.

Exposure estimation and reference to its source - Consumers**Exposure assessment (human):**

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Exposure estimation and reference to its source

Not available.

Section 4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**Environment**

No exposure estimation and risk characterization required

Health

Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Use in agrochemicals - Consumer
List of use descriptors	Identified use name: Use in agrochemicals - Consumer Sector of end use: SU21 Subsequent service life relevant for that use: No. Environmental Release Category: ERC08a, ERC08d Market sector by type of chemical product: PC12, PC27

Processes and activities covered by the exposure scenario	Covers the consumer use in agrochemicals in liquid and solid forms.
Assessment Method	See Section 3

Section 2: Operational conditions and risk management measures

Section 2.1: Control of consumer exposure

Contributing scenarios: Operational conditions and risk management measures

Product category(ies) 12: Fertilizers Lawn and garden preparations
 Conditions of use: Concentration of the substance in the mixture: 0.1 g/g. Negligible release to air expected: Yes.

Product category(ies) 27: Plant protection products
 Conditions of use: Concentration of the substance in the mixture: 0.1 g/ g. Inhalation exposure: Yes. Spray: No.
 Frequency of use over a year: Frequent. Covers use up to 1 time/on day of use. Covers use up to: 0 g/event. Covers exposure up to 2.00 hours per event. Place of use: Indoor. Inhalation factor: 1.

Section 2.2: Control of environmental exposure

Particular considerations on the waste treatment operations: No (low risk) (ERC based assessment demonstrating control of risk with default conditions. Low risk assumed for waste life stage. Waste disposal according to national/ local legislation is sufficient.)

Amounts used:	≤0.002 tonnes/day
Fraction of EU tonnage used in region	10%
Other conditions affecting environmental exposure:	Controlled application of sewage sludge to agricultural soil.

Section 3 Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment):	No exposure estimation and risk characterization required
Exposure estimation and reference to its source	Not available.

Exposure estimation and reference to its source - Consumers

Exposure assessment (human):	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.
Exposure estimation and reference to its source	Not available.

Section 4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Acetic Acid

Use in agrochemicals - Consumer

Environment
Health

No exposure estimation and risk characterization required
Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	pH adjustment - Consumer
List of use descriptors	Identified use name: pH adjustment - Consumer Substance supplied to that use in form of: As such Sector of end use: SU21 Subsequent service life relevant for that use: No. Environmental Release Category: ERC09a Market sector by type of chemical product: PC34

Assessment Method	See Section 3
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Section 2: Operational conditions and risk management measures

Section 2.1: Control of consumer exposure

Contributing scenarios: Operational conditions and risk management measures

Product category(ies) 34: pH adjustment of textile dyes:
 Conditions of use: Concentration of the substance in the mixture: 0.1 g/g. Inhalation exposure: Yes. Spray: No.
 Frequency of use over a year: Occasional. For each use event, covers use amounts up to: 20 g. 1 hours per event.
 Place of use: Indoor. Inhalation factor: 1.

Section 2.2: Control of environmental exposure

Particular considerations on the waste treatment operations: No (low risk) (ERC based assessment demonstrating control of risk with default conditions. Low risk assumed for waste life stage. Waste disposal according to national/ local legislation is sufficient.)

Amounts used:	≤ 0.002 tonnes/day
Fraction of EU tonnage used in region	10%
Other conditions affecting environmental exposure:	Controlled application of sewage sludge to agricultural soil.

Section 3 Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment):	No exposure estimation and risk characterization required
Exposure estimation and reference to its source	Not available.

Exposure estimation and reference to its source - Consumers

Exposure assessment (human):	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.
Exposure estimation and reference to its source	Not available.

Section 4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment
Health

No exposure estimation and risk characterization required
Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Distribution
List of use descriptors	<p>Identified use name: Distribution of substance</p> <p>Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15</p> <p>Substance supplied to that use in form of: As such</p> <p>Sector of end use: SU01, SU02a, SU02b, SU03, SU04, SU05, SU06a, SU06b, SU07</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC01, ERC02</p>

Processes and activities covered by the exposure scenario	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
Concentration of substance in product:	Covers daily exposures up to 8 hours
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours
Human factors not influenced by risk management:	Not applicable.
Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General exposures (closed systems) Use in contained batch processes: Handle substance within a closed system. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 1 hour.

General exposures (closed systems) Batch process With sample collection: Provide extract ventilation to points where emissions occur.

Process sampling: Sample via a closed loop or other system to avoid exposure.

Laboratory activities: Handle in a fume cupboard or under extract ventilation.

Bulk transfers closed systems: Clear transfer lines prior to de-coupling. Provide extract ventilation to points where emissions occur. or If above technical/organisational control measures are not feasible, then adopt following PPE Wear a respirator conforming to EN140 with type A filter or better. and Wear suitable gloves tested to EN374.

Bulk transfers open systems: Provide extract ventilation to points where emissions occur. or If above technical/organisational control measures are not feasible, then adopt following PPE Wear a respirator conforming to EN140 with type A filter or better. and Wear suitable gloves tested to EN374.

Drum and small package filling: Provide extract ventilation to points where emissions occur.

Equipment cleaning and maintenance: Drain down and flush system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.

Acetic Acid

Distribution

Storage With occasional controlled exposure: Store substance within a closed system. Locate bulk storage outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): No exposure estimation and risk characterization required

Exposure estimation and reference to its source - Workers

Exposure assessment (human): When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment No exposure estimation and risk characterization required

Health Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Formulation and (re)packing of substances and mixtures
List of use descriptors	Identified use name: Formulation and (re)packing of substances and mixtures Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15 Substance supplied to that use in form of: As such Sector of end use: SU03, SU10 Subsequent service life relevant for that use: No. Environmental Release Category: ERC02

Processes and activities covered by the exposure scenario	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours
Human factors not influenced by risk management:	Not applicable.
Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General exposures (closed systems): Handle substance within a closed system.

General exposures (closed systems) With sample collection With occasional controlled exposure: Handle substance within a closed system. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

General exposures (closed systems) Use in contained batch processes: Handle substance within a closed system. Provide extract ventilation to points where emissions occur.

General exposures (open systems) Batch process With sample collection With potential for aerosol generation : Provide extract ventilation to points where emissions occur.

Batch processes at elevated temperatures: Ensure material transfers are under containment or extract ventilation. Avoid carrying out activities involving exposure for more than 1 hour.

Process sampling: Sample via a closed loop or other system to avoid exposure.

Laboratory activities: Handle in a fume cupboard or under extract ventilation.

Bulk transfers: Ensure material transfers are under containment or extract ventilation.

Mixing operations (open systems) With potential for aerosol generation : Provide extract ventilation to points where emissions occur.

Manual Transfer from/pouring from containers: Provide extract ventilation to points where emissions occur.

Drum/batch transfers: Provide extract ventilation to points where emissions occur.

Production of preparation or articles by tableting, compression, extrusion or pelletisation: Provide extract ventilation to points where emissions occur.

Drum and small package filling: Ensure material transfers are under containment or extract ventilation.

Equipment cleaning and maintenance: Drain down and flush system prior to equipment break-in or maintenance.
Wear suitable gloves tested to EN374.

Storage Product sampling: Locate bulk storage outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): No exposure estimation and risk characterization required

Exposure estimation and reference to its source - Workers

Exposure assessment (human): When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment No exposure estimation and risk characterization required

Health Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Manufacture
List of use descriptors	<p>Identified use name: Manufacture of the substance or use as an intermediate or a process chemical or extraction agent.</p> <p>Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15</p> <p>Sector of end use: SU03, SU08, SU09</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC01</p>

Processes and activities covered by the exposure scenario	Manufacture of the substance or use as an intermediate or a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
Concentration of substance in product:	Covers daily exposures up to 8 hours
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours
Human factors not influenced by risk management:	Not applicable.
Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General exposures (closed systems): Handle substance within a closed system.

General exposures (closed systems) With sample collection With occasional controlled exposure: Handle substance within a closed system. Ensure material transfers are under containment or extract ventilation.

General exposures (closed systems) Use in contained batch processes: Handle substance within a closed system. Ensure material transfers are under containment or extract ventilation.

General exposures (open systems) Batch process With sample collection: Ensure material transfers are under containment or extract ventilation.

Process sampling: Ensure material transfers are under containment or extract ventilation.

Laboratory activities: Handle in a fume cupboard or under extract ventilation.

Bulk transfers open systems With potential for aerosol generation : Ensure material transfers are under containment or extract ventilation.

Bulk transfers closed systems: Ensure material transfers are under containment or extract ventilation.

Equipment cleaning and maintenance: Drain down and flush system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.

Storage Product sampling: Store substance within a closed system. Provide a good standard of general ventilation

Acetic Acid

Manufacture

(not less than 3 to 5 air changes per hour).

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment):

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

Exposure estimation and reference to its source - Workers

Exposure assessment (human):

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment

No exposure estimation and risk characterization required

Health

Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Use in agrochemicals - Professional
List of use descriptors	Identified use name: Use in agrochemicals - Professional Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15 Sector of end use: SU03, SU10 Subsequent service life relevant for that use: No. Environmental Release Category: ERC01

Processes and activities covered by the exposure scenario	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours
Human factors not influenced by risk management:	Not applicable.
Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

Transfer from/pouring from containers: Use drum pumps or carefully pour from container. Avoid carrying out activities involving exposure for more than 4 hours. Wear suitable gloves tested to EN374.

Mixing in containers: Ensure operation is undertaken outdoors. Avoid carrying out activities involving exposure for more than 1 hour. Wear suitable gloves tested to EN374.

Spraying or fogging: Limit the substance content in the product to 5%. Avoid carrying out activities involving exposure for more than 1 hour. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear a respirator conforming to EN140 with type A filter or better.

Spraying/fogging by machine application: Limit the substance content in the product to 5%. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20. Avoid carrying out activities involving exposure for more than 4 hours. Wear suitable gloves tested to EN374.

Ad hoc manual application via trigger sprays, dipping, etc.: Limit the substance content in the product to 5%. Avoid carrying out activities involving exposure for more than 1 hour.

Clean-down and maintenance of equipment Non-dedicated facility: Drain down system prior to equipment break-in or maintenance. Limit the substance content in the product to 5%. Avoid carrying out activities involving exposure for more than 4 hours. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Disposal of waste Non-dedicated facility: Limit the substance content in the product to 5%. Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 1 hour.

Acetic Acid

Use in agrochemicals - Professional

Storage: Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Store substance within a closed system.

Storage Product sampling: Store substance within a closed system. Ensure operation is undertaken outdoors. Avoid carrying out activities involving exposure for more than 4 hours.

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): No exposure estimation and risk characterization required

Exposure estimation and reference to its source - Workers

Exposure assessment (human): When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment No exposure estimation and risk characterization required

Health Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Use in cleaning agents - Industrial
List of use descriptors	Identified use name: Use in cleaning agents - Industrial Process Category: PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC10, PROC13 Sector of end use: SU03, SU05, SU06a, SU06b Subsequent service life relevant for that use: No. Environmental Release Category: ERC04

Processes and activities covered by the exposure scenario	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
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Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
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Amounts used:	Not applicable.
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Frequency and duration of use:	Covers daily exposures up to 8 hours
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Human factors not influenced by risk management:	Not applicable.
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Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented
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Contributing scenarios: Operational conditions and risk management measures

Bulk transfers: Ensure material transfers are under containment or extract ventilation.

Automated process with (semi) closed systems Use in contained systems: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Automated process with (semi) closed systems Use in contained systems Drum/batch transfers Use in contained systems: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 1 hour.

Application of cleaning products in closed systems: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Filling/preparation of equipment from drums or containers. Dedicated facility: Ensure material transfers are under containment or extract ventilation.

Use in contained batch processes Treatment by heating: Ensure material transfers are under containment or extract ventilation. Avoid carrying out operation for more than 4 hours.

Degreasing small objects in cleaning station: Provide extract ventilation to points where emissions occur.

Cleaning with low-pressure washers: Limit the substance content in the product to 5%. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours.

Cleaning with high-pressure washers: Limit the substance content in the product to 5%. Provide a good standard of

Acetic Acid

Use in cleaning agents - Industrial

general ventilation (not less than 3 to 5 air changes per hour). or Ensure operation is undertaken outdoors. Avoid carrying out activities involving exposure for more than 1 hour. Wear suitable gloves tested to EN374.

Manual Surfaces Cleaning No spraying: Limit the substance content in the product to 5%. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours.

Equipment cleaning and maintenance: Drain down and flush system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.

Storage With occasional controlled exposure: Locate bulk storage outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): No exposure estimation and risk characterization required

Exposure estimation and reference to its source - Workers

Exposure assessment (human): When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment No exposure estimation and risk characterization required

Health Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Use in cleaning agents - Professional
List of use descriptors	Identified use name: Use in cleaning agents - Professional Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC10, PROC11, PROC13 Sector of end use: SU22 Subsequent service life relevant for that use: No. Environmental Release Category: ERC08a, ERC08d

Processes and activities covered by the exposure scenario	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
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Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
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Amounts used:	Not applicable.
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Frequency and duration of use:	Covers daily exposures up to 8 hours
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Human factors not influenced by risk management:	Not applicable.
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Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented
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Contributing scenarios: Operational conditions and risk management measures

Filling/preparation of equipment from drums or containers. Dedicated facility: Limit the substance content in the product to 25%. Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) Wear suitable gloves tested to EN374.

Automated process with (semi) closed systems Use in contained systems: Limit the substance content in the product to 25%. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear suitable gloves tested to EN374.

Automated process with (semi) closed systems Use in contained systems Drum/batch transfers: Limit the substance content in the product to 25%. Avoid carrying out operation for more than 4 hours. Wear suitable gloves tested to EN374.

Semi-automated process. (e.g.: semi-automatic application of floor care and maintenance products): Limit the substance content in the product to 25%. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) Wear suitable gloves tested to EN374.

Filling/preparation of equipment from drums or containers. Outdoor: Limit the substance content in the product to 25%. Ensure operation is undertaken outdoors. Avoid carrying out activities involving exposure for more than 1 hour. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Manual Cleaning Surfaces Dipping, immersion and pouring: Limit the substance content in the product to 5%. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) Wear suitable gloves tested to EN374.

Cleaning with low-pressure washers Rolling, Brushing No spraying: Limit the substance content in the product to 5%. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) Wear suitable gloves tested to EN374.

Cleaning with high-pressure washers Spraying Indoor: Limit the substance content in the product to 5%. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) Wear suitable gloves tested to EN374. Wear a respirator conforming to EN140 with type A filter or better.

Cleaning with high-pressure washers Spraying Outdoor: Limit the substance content in the product to 5%. Ensure operation is undertaken outdoors. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear a respirator conforming to EN140 with type A filter or better.

Manual Surfaces Cleaning Spraying: Limit the substance content in the product to 5%. Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours. Wear suitable gloves tested to EN374.

Ad hoc manual application via trigger sprays, dipping, etc. Rolling, Brushing: Limit the substance content in the product to 5%. Provide extract ventilation to points where emissions occur.

Ad hoc manual application via trigger sprays, dipping, etc. Rolling, Brushing: Limit the substance content in the product to 5%. Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours. Wear suitable gloves tested to EN374.

Application of cleaning products in closed systems Outdoor: Limit the substance content in the product to 5%. Ensure operation is undertaken outdoors.

Cleaning of medical devices: Limit the substance content in the product to 25%. Provide extract ventilation to points where emissions occur.

Equipment cleaning and maintenance: Limit the substance content in the product to 25%. Drain down and flush 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). Wear suitable gloves tested to EN374.

Storage With occasional controlled exposure: Limit the substance content in the product to 25%. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Ensure operation is undertaken outdoors.

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): No exposure estimation and risk characterization required

Exposure estimation and reference to its source - Workers

Exposure assessment (human): When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment No exposure estimation and risk characterization required

Health Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Use as laboratory reagent - Industrial
List of use descriptors	Identified use name: Use as laboratory reagent - Industrial Process Category: PROC10, PROC15 Sector of end use: SU03, SU10 Subsequent service life relevant for that use: No. Environmental Release Category: ERC04

Processes and activities covered by the exposure scenario	Use of the substance within laboratory settings, including material transfers and equipment cleaning.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
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Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
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Amounts used:	Not applicable.
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Frequency and duration of use:	Covers daily exposures up to 8 hours
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Human factors not influenced by risk management:	Not applicable.
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Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented
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Contributing scenarios: Operational conditions and risk management measures

Laboratory activities Small scale Handling small quantities (<1000ml) for more than 4 hours/days - inside fume cupboard: Handle in a fume cupboard or under extract ventilation.

Cleaning Rolling, Brushing Vessel and container cleaning Cleaning equipment, glassware etc under general ventilation for 15 min - 1 hour/day: Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) Avoid carrying out activities involving exposure for more than 1 hour. Wear suitable gloves tested to EN374.

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): No exposure estimation and risk characterization required

Exposure estimation and reference to its source - Workers

Exposure assessment (human): When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment No exposure estimation and risk characterization required

Health Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Use as laboratory reagent - Professional
List of use descriptors	Identified use name: Use as laboratory reagent - Professional Process Category: PROC10, PROC15 Sector of end use: SU22 Subsequent service life relevant for that use: No. Environmental Release Category: ERC08a

Processes and activities covered by the exposure scenario	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
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Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
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Amounts used:	Not applicable.
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Frequency and duration of use:	Covers daily exposures up to 8 hours
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Human factors not influenced by risk management:	Not applicable.
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Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented
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Contributing scenarios: Operational conditions and risk management measures

Laboratory activities Small scale Fume-cupboard Activity Handling small quantities (<1000ml) for more than 4 hours/ days - inside fume cupboard: Handle in a fume cupboard or under extract ventilation. Provide extract ventilation to points where emissions occur.

Cleaning Rolling, Brushing Vessel and container cleaning Cleaning equipment, glassware etc under general ventilation for 15 min - 1 hour/day: Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour) Avoid carrying out activities involving exposure for more than 1 hour. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment):

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

Exposure estimation and reference to its source - Workers

Exposure assessment (human):

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment

No exposure estimation and risk characterization required

Health

Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Use in oil and gas field drilling and production operations
List of use descriptors	Identified use name: Use in oil and gas field drilling and production operations Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15 Sector of end use: SU03, SU10 Subsequent service life relevant for that use: No. Environmental Release Category: ERC01

Processes and activities covered by the exposure scenario	Manufacture of the substance or use as an intermediate or a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
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Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
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Amounts used:	Not applicable.
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Frequency and duration of use:	Covers daily exposures up to 8 hours
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Human factors not influenced by risk management:	Not applicable.
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Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented
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Contributing scenarios: Operational conditions and risk management measures

Bulk transfers: Ensure material transfers are under containment or extract ventilation.

Filling/preparation of equipment from drums or containers.: Use drum pumps. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear suitable gloves tested to EN374.

Drill floor operations: Limit the substance content in the product to 25%. Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours.

Drill floor operations: Limit the substance content in the product to 25%. Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear suitable gloves tested to EN374.

Operation of solids filtering equipment - vapour exposures: Ensure material transfers are under containment or extract ventilation.

Operation of solids filtering equipment - aerosol exposures: Ensure material transfers are under containment or extract ventilation.

Operation of solids filtering equipment: Ensure material transfers are under containment or extract ventilation.

Treatment and disposal of filtered solids: Ensure material transfers are under containment or extract ventilation.

Acetic Acid

Use in oil and gas field drilling and production operations

Process sampling: Use a sampling system designed to control exposure. Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 15 minutes.

General exposures (closed systems): Handle substance within a closed system.

Pouring from small containers: Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 15 minutes. Wear suitable gloves tested to EN374.

General exposures (open systems): Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours. Wear suitable gloves tested to EN374.

Equipment cleaning and maintenance: Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 1 hour. Wear suitable gloves tested to EN374.

Batch process: Handle substance within a closed system.

Batch process Product sampling: Handle substance within a closed system. Provide extract ventilation to points where emissions occur.

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): No exposure estimation and risk characterization required

Exposure estimation and reference to its source - Workers

Exposure assessment (human): When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment No exposure estimation and risk characterization required

Health Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Water treatment chemicals - Industrial
List of use descriptors	Identified use name: Use in water treatment agents - Industrial Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15 Sector of end use: SU03, SU08, SU09 Subsequent service life relevant for that use: No. Environmental Release Category: ERC01

Processes and activities covered by the exposure scenario	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
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Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
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Amounts used:	Not applicable.
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Frequency and duration of use:	Covers daily exposures up to 8 hours
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Human factors not influenced by risk management:	Not applicable.
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Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented
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Contributing scenarios: Operational conditions and risk management measures

Bulk transfers With occasional controlled exposure: Avoid carrying out operation for more than 4 hours.

Drum/batch transfers Dedicated facility: Use drum pumps. Avoid spillage when withdrawing pump. Avoid carrying out operation for more than 4 hours. Wear suitable gloves tested to EN374.

General exposures (closed systems) Batch process: Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 1 hour.

General exposures (open systems): Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours. Wear suitable gloves tested to EN374.

Pouring from small containers Treatment by dipping and pouring: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Provide extract ventilation to points where emissions occur. Wear suitable gloves tested to EN374.

Equipment maintenance: Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain or remove substance from equipment prior to break-in or maintenance. Wear suitable gloves tested to EN374.

Storage: Store substance within a closed system.

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): No exposure estimation and risk characterization required

Exposure estimation and reference to its source - Workers

Exposure assessment (human): When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment No exposure estimation and risk characterization required

Health Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Water treatment chemicals - Professional
List of use descriptors	Identified use name: Use in water treatment agents - Professional Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15 Sector of end use: SU03, SU08, SU09 Subsequent service life relevant for that use: No. Environmental Release Category: ERC01

Processes and activities covered by the exposure scenario	Covers the use of the substance for the treatment of water in open and closed systems.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
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Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
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Amounts used:	Not applicable.
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Frequency and duration of use:	Covers daily exposures up to 8 hours
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Human factors not influenced by risk management:	Not applicable.
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Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented
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Contributing scenarios: Operational conditions and risk management measures

Drum/batch transfers Dedicated facility: Use drum pumps. Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear suitable gloves tested to EN374.

General exposures (closed systems) Batch process: Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 1 hour.

General exposures (open systems): Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 1 hour. Wear suitable gloves tested to EN374.

Pouring from small containers Treatment by dipping and pouring: Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Equipment maintenance Non-dedicated facility: Drain down and flush system prior to equipment break-in or maintenance. Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Storage: Handle substance within a closed system.

Section 2.2: Control of environmental exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): No exposure estimation and risk characterization required

Exposure estimation and reference to its source - Workers

Exposure assessment (human): When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Section 4: Guidance to check compliance with the exposure scenario

Environment No exposure estimation and risk characterization required

Health Confirm that RMMs and OCs are as described or of equivalent efficiency.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mono-constituent substance
Code	0000001037
Product name	Acetic Acid

Section 1: Title

Short title of the exposure scenario	Hydraulic fracturing in oil and gas operations - Industrial
List of use descriptors	Identified use name: Hydraulic fracturing in oil and gas operations - Industrial Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b Sector of end use: SU02a, SU02b Subsequent service life relevant for that use: No. Environmental Release Category: ERC04

Additional information	Exploration and Production of Hydrocarbons Using High-Volume Hydraulic Fracturing
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Concentration of substance in product:	As such
Frequency and duration of use:	<8 hours
Other conditions affecting workers exposure:	Process temperature (for liquid): ≤40°C
Area of use:	Indoor (Unless otherwise stated.)

Contributing scenarios: Operational conditions and risk management measures

Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Technical and organisational conditions and measures

General ventilation: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Containment: closed systems (minimal contact during routine operations)

Local exhaust ventilation: No.

Occupational Health and Safety Management System Advanced.

Conditions and measures related to personal protection, hygiene and health evaluation

Dermal protection No.

Respiratory protection: No.

Other conditions affecting workers exposure

Skin surface potentially exposed: one hand face only (240 cm²)

Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Technical and organisational conditions and measures

General ventilation: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Containment: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Local exhaust ventilation: No.

Occupational Health and Safety Management System: Advanced.

Conditions and measures related to personal protection, hygiene and health evaluation

Dermal protection: No.

Respiratory protection: Yes. Wear respiratory protection with APF of 10.

Other conditions affecting workers exposure

Skin surface potentially exposed: two hands face (480 cm²)

Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Technical and organisational conditions and measures

General ventilation: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Containment: Closed, batch process with occasional controlled exposure

Local exhaust ventilation: No.

Occupational Health and Safety Management System: Advanced.

Conditions and measures related to personal protection, hygiene and health evaluation

Acetic Acid

Hydraulic fracturing in oil and gas operations - Industrial

Dermal protection: No.
 Respiratory protection: Yes. Wear respiratory protection with APF of 10.
 Other conditions affecting workers exposure
 Skin surface potentially exposed: one hand face only (240 cm²).

Chemical production where opportunity for exposure arises
 Technical and organisational conditions and measures
 Containment: Semi-closed process with occasional controlled exposure
 Occupational Health and Safety Management System: Advanced.
 Conditions and measures related to personal protection, hygiene and health evaluation
 Dermal protection: No.
 Respiratory protection: Yes. Wear respiratory protection with APF of 10.
 Other conditions affecting workers exposure
 Place of use: Outdoor
 Skin surface potentially exposed: Two hands face (480 cm²).

Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 Technical and organisational conditions and measures
 Containment: No.
 Occupational Health and Safety Management System: Advanced.
 Conditions and measures related to personal protection, hygiene and health evaluation
 Dermal protection: No.
 Respiratory protection: Yes. Wear respiratory protection with APF of 20.
 Other conditions affecting workers exposure
 Place of use: Outdoor
 Skin surface potentially exposed: Two hands (960 cm²).

Transfer of substance or mixture (charging and discharging) at dedicated facilities
 Technical and organisational conditions and measures
 Containment: Semi-closed process with occasional controlled exposure
 Occupational Health and Safety Management System: Advanced.
 Conditions and measures related to personal protection, hygiene and health evaluation
 Dermal protection: No.
 Respiratory protection: Yes. Wear respiratory protection with APF of 10.
 Other conditions affecting workers exposure
 Place of use: Outdoor
 Skin surface potentially exposed: Two hands (960 cm²).

Section 2.2: Control of environmental exposure

Amounts used:	≤ 22.2 tonnes/day
EU tonnage of risk determining substance per year:	3000.0
Fraction of EU tonnage used in region	100%
Annual site tonnage	≤89
Conditions and measures related to sewage treatment plant:	Controlled application of sewage sludge to agricultural soil.
Estimated substance removal from wastewater via on-site sewage treatment	100%
Assumed on-site sewage treatment plant flow	≥ 2E3 (m³/d)

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): Not available.

Exposure estimation and reference to its source - Workers

Exposure assessment (human): Not available.

Section 4: Guidance to check compliance with the exposure scenario

Environment

Not available.

Health

Not available.

