

SAFETY DATA SHEET**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
Proper shipping name	Acetic acid. Ethanoic acid; Ethylic acid; Methanecarboxylic acid; Eisessig; Acetic acid, glacial
Product code	0000001037
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 uses - Professional
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
Water treatment chemicals - Industrial
Water treatment chemicals - Professional

1.3 Details of the supplier of the safety data sheet

Supplier	BP Chemicals Ltd Saltend Hull HU12 8DS United Kingdom Tel: +44 (0) 1482 896251
E-mail address	MSDSadvice@bp.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

Classification according to Directive 67/548/EEC [DSD]

R10
C; R35

See Section 16 for the full text of the R phrases or 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	Flammable liquid and vapour. Causes severe skin burns and eye damage.

Precautionary statements

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SECTION 2: Hazards identification

Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use explosion-proof electrical/ventilating/lighting/material-handling equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Wear protective gloves/clothing and eye/face protection.
Response	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. 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	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	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.

SECTION 3: Composition/information on ingredients

Substance/mixture	Mono-constituent substance				
				<u>Classification</u>	
Product/ingredient name	Identifiers	%	67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	Type
Acetic acid	EC: 200-580-7 CAS: 64-19-7	> 99	R10 C; R35	Flam. Liq. 3, H226 Skin Corr. 1A, H314	[A]

See Section 16 for the full text of the R-phrases declared above.
 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.

SECTION 4: First aid measures

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of any immediate medical attention and special treatment needed

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

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

Unsuitable extinguishing media Do not use water jet.

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. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. 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 materials for containment and cleaning up

Small spill Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. 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 Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. 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.

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 (see Section 8). 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). TWA: 25 mg/m ³ 8 hour(s). Issued/Revised: 7/1991 TWA: 10 ppm 8 hour(s). Issued/Revised: 7/1991
Acetic acid	ACGIH TLV (United States). STEL: 37 mg/m ³ 15 minute(s). Issued/Revised: 9/1994 STEL: 15 ppm 15 minute(s). Issued/Revised: 9/1994 TWA: 25 mg/m ³ 8 hour(s). Issued/Revised: 9/1994 TWA: 10 ppm 8 hour(s). Issued/Revised: 9/1994

For information and guidance, the ACGIH values are included. For further information on these please consult your supplier. 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 European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Derived No Effect Level

Product/ingredient name	Type	Exposure	Value	Population	Effects	
Acetic acid.	DNEL	Short term Inhalation	-	25 mg/m ³	Workers	Local
	DNEL	Long term Inhalation	-	25 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	-	25 mg/m ³	Consumers	Local
	DNEL	Long term Inhalation	-	25 mg/m ³	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

SECTION 8: Exposure controls/personal protection

8.2 Exposure controls

Appropriate engineering controls

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.
 All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.
 Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.
 The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection

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

Recommended: Gas filter suitable for gases and vapours. Filter type: A

Eye/face protection

Recommended: Chemical splash goggles.
 Face shield.

Skin protection

Hand protection

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

Recommended: Butyl rubber gloves.

Skin and body

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.
 Use of protective clothing is good industrial practice.
 Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
 Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

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.

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 [Strong]
Odour threshold	Not available.
pH	2.4 [Conc. (% w/w): 6.006%]

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SECTION 9: Physical and chemical properties

Melting point/freezing point	May start to solidify at the following temperature: 16.64°C (62°F)
Initial boiling point and boiling range	117.9°C (244.2°F)
Flash point	Closed cup: 39°C (102.2°F) [Pensky-Martens.]
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable. Endpoint waived according to REACH Annex VII, IX or XI
Upper/lower flammability or explosive limits	Lower: 4% Upper: 19.9%
Vapour pressure	2.079 kPa (15.635 mm Hg) at 25°C
Vapour density	2.1 [Air = 1]
Relative density	Not available.
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	Not applicable. Endpoint waived according to REACH Annex VII, IX or XI
Viscosity	Kinematic: 1.011 mm ² /s (1.011 cSt) at 25°C
Explosive properties	Not applicable. Endpoint waived according to REACH Annex VII, IX or XI
Oxidising properties	Not applicable. Endpoint waived according to REACH Annex VII, IX or XI

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.	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
	LC50 Inhalation Vapour	not guideline -	Rat	>16000 ppm	4 hours	-
	LC50 Inhalation Vapour	not guideline -	Mouse	5620 ppm	1 hours	-
	RD50 Inhalation Vapour	not guideline -	Mouse - Male	277 ppm	1 hours	-

Irritation/Corrosion

Product/ingredient name	Test authority / Test number	Species	Route / Result	Test concentration	Remarks

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SECTION 11: Toxicological information						
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.))

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.

Aspiration hazard

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

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

Potential acute health effects

- Inhalation** May give off gas, vapor 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

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SECTION 11: Toxicological information

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

Potential chronic health effects

General No known significant effects or critical hazards.

Other chronic toxicity data 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 lachrymation (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.

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.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test authority / Test number	Species	Type / Result	Exposure	Effects	Remarks	
Acetic acid.	OECD	202	Daphnia	Acute EC50 >300.82 mg/l Nominal Fresh water	48 hours	Mobility	Based on Acetate ion
	ISO	10253	Algae	Acute EC50 >300.82 mg/l Nominal Marine water	72 hours	(growth rate)	Based on Acetate ion
	OECD	203	Fish	Acute LC50 >300.82 mg/l Nominal Fresh water	96 hours	Mortality	Based on Acetate ion
	not guideline	-	Micro-organism	Acute NOEC 850 mg/l Nominal Fresh water	16 hours	-	-
	ISO	10253	Algae	Acute NOEC 300.82 mg/l Nominal Marine water	72 hours	(growth rate)	Based on Acetate ion

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

The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Hazardous waste

Yes.

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. Vapor 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.

SECTION 14: Transport information

	ADR/RID	ADN/ADNR	IMDG	IATA
14.1 UN number	UN 2789	UN 2789	UN 2789	UN 2789
14.2 UN proper shipping name	Acetic acid, glacial or Acetic acid solution, more than 80 per cent acid, by mass acid solution	Acetic acid, glacial or Acetic acid solution, more than 80 per cent acid, by mass acid solution	Acetic acid, glacial or Acetic acid solution, more than 80 per cent acid, by mass acid solution	Acetic acid, glacial or Acetic acid solution, more than 80 per cent acid, by mass acid solution
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.
14.6 Special precautions for user	Not available.	Not available.	Not available.	Not available.
Additional information	Hazard identification number 83 Tunnel code D/E	Remarks Table C Danger: 8 + 3	Emergency schedules (EmS) F-E, S-C	-

UK Emergency Action Code: 2P

ADR/RID Classification code: CF1

ADN/ADNR Classification code: CF1

14.7 Transport in bulk according to Annex II of MARPOL 73/78 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

Substances of very high concern

None of the components are listed.

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SECTION 15: Regulatory information

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	Not applicable.
Other regulations	
REACH Status	The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.
United States inventory (TSCA 8b)	All components are listed or exempted.
Australia inventory (AICS)	All components are listed or exempted.
Canada inventory	All components are listed or exempted.
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.
15.2 Chemical Safety Assessment	Complete.

SECTION 16: Other information

Abbreviations and acronyms	ADN/ADNR = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor CAS = Chemical Abstracts Service CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] CSA = Chemical Safety Assessment CSR = Chemical Safety Report DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level DPD = Dangerous Preparations Directive [1999/45/EC] DSD = Dangerous Substances Directive [67/548/EEC] EINECS = European Inventory of Existing Commercial chemical Substances ES = Exposure Scenario EUH statement = CLP-specific Hazard statement EWC = European Waste Catalogue GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) OECD = Organisation for Economic Co-operation and Development PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail RRN = REACH Registration Number SADT = Self-Accelerating Decomposition Temperature SVHC = Substances of Very High Concern STOT-RE = Specific Target Organ Toxicity - Repeated Exposure STOT-SE = Specific Target Organ Toxicity - Single Exposure TWA = Time weighted average UN = United Nations UVCB = Complex hydrocarbon substance VOC = Volatile Organic Compound vPvB = Very Persistent and Very Bioaccumulative
Full text of abbreviated H statements	H226 Flammable liquid and vapour. H314 Causes severe skin burns and eye damage.
Full text of classifications [CLP/GHS]	Flam. Liq. 3, H226 FLAMMABLE LIQUIDS - Category 3 Skin Corr. 1A, H314 SKIN CORROSION/IRRITATION - Category 1A
Full text of abbreviated R phrases	R10- Flammable. R35- Causes severe burns.
Full text of classifications [DSD/DPD]	C - Corrosive
History	
Date of issue/ Date of revision	11/02/2011.
Date of previous issue	No previous validation.
Prepared by	Product Stewardship

Product name Acetic Acid	Product code 000001037	Page: 10/33
Version 1	Date of issue 11 February 2011	Format United Kingdom (UK) (United Kingdom)
		Language ENGLISH

SECTION 16: Other information

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. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from 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.

Product name Acetic Acid

Product code 0000001037

Page: 11/33

Version 1 **Date of issue** 11 February 2011

Format United
Kingdom
(UK)
(United Kingdom)

Language ENGLISH



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	Acetic Acid Distribution of Substance - Industrial
List of use descriptors	Identified use name: Distribution of substance Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15 Sector of end use: SU01, SU02a, SU02b, SU03, SU04, SU05, SU06a, SU06b, SU07 Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02

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

Concentration of substance in product:	Covers daily exposures up to 8 hours (unless stated differently).
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.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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.

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

Exposure estimation and reference to its source - Environment

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

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.
Exposure estimation: Not available.

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	Acetic Acid Formulation and (Re)packaging of Substances and Mixtures - Industrial
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 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

Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at STP.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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).

Acetic Acid

Acetic Acid Formulation and (Re)packaging of
Substances and Mixtures - Industrial

Date of issue/Date of revision ES Revision date)

14/33

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

Exposure estimation and reference to its source - Environment

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

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.
Exposure estimation: Not available.

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	Acetic Acid Manufacture of Substance - Industrial
List of use descriptors	Identified use name: Manufacture of the substance or use as an intermediate or a process chemical or extraction agent. 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, ERC04, ERC06a

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

Concentration of substance in product:	Covers daily exposures up to 8 hours (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at STP.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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 (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

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:	Not available.

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.
Exposure estimation:	Not available.

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	Acetic Acid Use of Substance in Agrochemicals - Professional
List of use descriptors	Identified use name: Use in Agrochemicals uses - 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

Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at STP.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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 operation for more than 4 hours. Wear suitable gloves tested to EN374.

Mixing in containers: Ensure material transfers are under containment or extract ventilation. Avoid carrying out operation for more than 4 hours. Wear suitable gloves tested to EN374.

Spraying/fogging by manual application: 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 (professional use) Avoid carrying out operation 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 operation 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.

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 operation for more than 4 hours.

Acetic Acid

Acetic Acid Use of Substance in Agrochemicals -
Professional

Date of issue/Date of revision ES Revision date)

18/33

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

Exposure estimation and reference to its source - Environment

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

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.
Exposure estimation: Not available.

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	Acetic Acid Use of Substance 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

Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at STP.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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

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 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).

Acetic Acid

Acetic Acid Use of Substance in Cleaning Agents - Industrial

Date of issue/Date of revision ES Revision date)

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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

Exposure estimation and reference to its source - Environment

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

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.
Exposure estimation: Not available.

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	Acetic Acid Use of Substance 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

Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at STP.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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

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 (5 to 10 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 (5 to 10 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 (5 to 10 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 (5 to 10 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 operation for more than 4 hours. Wear suitable gloves tested to EN374.

Acetic Acid

Acetic Acid Use of Substance in Cleaning Agents - Professional

Date of issue/Date of revision ES Revision date)

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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 operation 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

Exposure estimation and reference to its source - Environment

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

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.
Exposure estimation: Not available.

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	Acetic Acid Use of Substance in Laboratory Reagents - 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

Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at STP.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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

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

Exposure estimation and reference to its source - Environment

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

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.
Exposure estimation:	Not available.

Section 4: Guidance to check compliance with the exposure scenario

Environment	No exposure estimation and risk characterization required
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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	Acetic Acid Use of Substance in Laboratory Reagents - 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

Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at STP.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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

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 10 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

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:	Not available.

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.
Exposure estimation:	Not available.

Section 4: Guidance to check compliance with the exposure scenario

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Environment

No exposure estimation and risk characterization required

Health

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



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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	Acetic Acid Use of Substance in Oil Field Drilling- Industrial
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

Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at STP.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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

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.

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

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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

Exposure estimation and reference to its source - Environment

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

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.
Exposure estimation:	Not available.

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.



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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	Acetic Acid Use of Substance in Water Treatment - Industrial
List of use descriptors	Identified use name: Water treatment chemicals - 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

Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at STP.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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

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.

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Section 3: Exposure estimation

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

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.



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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	Acetic Acid Use of Substance in Water Treatment - Professional
List of use descriptors	Identified use name: Water treatment chemicals - 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

Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at STP.
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management:	Not applicable.
Other operational conditions affecting worker 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

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 operation 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.

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Section 3: Exposure estimation

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

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.