

MATERIAL SAFETY DATA SHEET

ACETIC ACID 80%

Release 27.01.2015

Review: 20.01.2021

VERSION PL: 5.0



This MSDA is accordant with Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

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

1.1. Product identifier

ACETIC ACID 80%
EU index no. 607-002-00-6 CAS
no. 64-19-7
EC no. (EINECS) 200-580-7

1.2. Relevant identified uses of the substance or mixture and uses advised against Identified uses: Raw material in the textile and chemical industry
Uses advised against: not specified

1.3. Data of the supplier of the MSDS

Distributor:

TOMCHEM Sp. z o.o.
95-050 Konstancin Łódzki ul.
Niesięcin 5A
tel. 42 683-11-83
tel./fax.: 42-636-43-18

E-mail address of the person responsible for the material safety data sheet: info@spin-doradztwo.pl.

1.4. Emergency phone number 112 (general emergency phone), 998 (fire department), 999 (medical emergency);

SECTION 2: Identification of hazards

2.1. Classification of the substance / mixture

Acc. to the Ordinance 1272/2008:

Flam. Liq. 3; H226 Skin

Corr. 1B; H314

Hazard for human health

Causes severe skin burns and eye damage.

Hazards for the environment

No

Physical and chemical hazards

Flammable liquid and vapors.

2.2. Label elements

Pictograph:



Warnings: Hazard

Hazard statement:

H226 - Flammable liquid and vapors.

H314 - Causes severe skin burns and eye damage.

Precautionary statements:

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

P260 - Do not breathe the mist/vapors/spray liquid.

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

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P301+P330+P331 - IF SWALLOWED: rinse the mouth. DO NOT induce vomits.

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.

P501 Dispose of contents/container to a suitable waste disposal facility in accordance with national regulations

2.3. Other hazards

Corrosive effect on metals.

Appendix XIII to the Regulation REACH - Criteria of identification of persistent, bioaccumulative and toxic substances (PBT) and very persistent and very bioaccumulative substances (vPvB) - not applicable

Substances with endocrine disrupting properties (according to the criteria of Commission Delegated Regulation (EU) 2017/2100, Commission Regulation (EU) 2018/605) - not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Product identifier	Content %	Hazard class and category codes	Hazard statement codes and supplementary phrases	- Specific threshold - M coefficient - Estimated Acute Toxicity (ATE)
Acetic acid* CAS: 64-19-7 EC: 200-580-7 Index no. 607-002-00-6 REACH no. 01-2119475328-30-0034	80	Flam. Liq. 3 Skin Corr. 1 A	H226 H314	Skin Corr. 1A; H314: C ≥90 % Skin Corr. 1B; H314: 25 % ≤ C <90 % Skin Irrit. 2; H315: 10 % ≤ C <25 % Eye Irrit. 2; H319: 10 % ≤ C < 25 %

Full text of H statements in section 16

*substance with a specific NDS value.

3.2. Mixtures

Not applicable.

SECTION 4: First aid measures

4.1. Description of first aid measures In case of skin contact:

Remove all soiled clothing, wash the skin with plenty of water. Apply a sterile dressing to the burned area. Do not use soap or any antacids. Consult a doctor.

Contact with eyes:

Flush eyes for several minutes (approx. 15 min.) with plenty of water, keep the eyelids wide open. Avoid heavy jets because of a risk of damage to the cornea, contact the doctor.

If inhaled:

In case of dizziness or nausea remove a victim to a fresh air; contact a doctor is the symptoms persist. If shortness of breath occurs, administer the oxygen.

If swallowed:

Give a large amount of water to drink. Do not induce vomiting (risk of perforation), contact a doctor immediately. Never administer anything into the mouth if a victim is unconscious.

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4.2. The most significant acute and delayed symptoms and effects of the exposure

Skin contact: chemical burns, hard-to-heal wounds.

Eye contact: chemical burns - risk of permanent eye damage.

Respiratory system: chemical burns of the mucous membranes of the nose, throat and further sections of the respiratory system.

Acetic acid vapors cause conjunctival congestion, eye pain and tearing, irritate the respiratory tract, cause coughing, burning throat, a feeling of shortness of breath and hemoptysis. Toxic pulmonary edema may occur.

Gastrointestinal tract chemical burns of the oral cavity, tongue, throat and other sections of the tract. Risk of perforation.

4.3. Recommendations regarding immediate doctor's aid and detailed procedure of treatment of a victim.

Decision on how to proceed is made by a doctor after assessment of the condition of the affected person.

SECTION 5: Firefighting

5.1. Extinguishing media

Suitable extinguishing media: dry extinguishing powders, carbon dioxide (snow extinguisher), sand or earth. Apply extinguishing methods adjusted to adjacent area.

Inappropriate extinguishing media: Heavy water stream.

5.2. Special hazards arising from the substance or mixture

Flammable liquid and vapors. In the event of fire, under the influence of high temperatures certain toxic decomposition products are released, including acetic acid vapors and carbon dioxide.

5.3. Advice for firefighters

Containers in a fire area must be cooled down with a water spray. If this is possible remove the containers from the hazard zone. In case of fire in an enclosed area use protective clothing and compressed air breathing apparatus. Do not enable penetration of the ground waters and the sewage system.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: notify the relevant services of the accident. Remove everyone, who is not involved into the rescue operation, from the emergency liquidation area. Liquidate all the ignition sources. Avoid direct contact with the product.

For persons providing aid: Assure required ventilation, apply the PPE. Do not breathe vapors.

6.2. Environment protection measures

Prevent from spreading and penetration of the sewage system and reservoirs; inform local authorities if it is impossible to assure safety.

6.3. Methods and materials for preventing the spread of contamination and for disposal Prevent the spread and dispose of by collecting on absorbent material (acid sodium carbonate, diatomaceous earth, crushed mica), place the contaminated material in properly labeled containers for disposal in accordance with applicable regulations.

6.4. References to other sections

Waste handling - see section 13 of the sheet.

Personal protective equipment - section 8 of the sheet.

SECTION 7: Handling and storage

7.1. Precautions regarding safe handling

Provide adequate ventilation. Avoid contact with eyes. Avoid contact with the skin. Avoid spilling. Avoid formation of vapors. When diluting, always add acid to water (never water to acid). Avoid sources of

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ignition, high temp., hot areas and open flames. Work in accordance with safety and hygiene rules: do not eat or drink, do not smoke in a workplace, wash hands after use, remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including information on any incompatibilities Store in a cool, dry, well-ventilated area (general room ventilation and exhaust ventilation) in a properly labeled closed original container. The floor of warehouses suitable for storing corrosive liquids should be easily washable and acid-resistant, with internal plumbing and a separate sewage system. Avoid direct sunlights and sources of heat. Avoid hot areas and open flames. Store away from light metals, strong oxidizers and strong alkalis.

7.3. Specific end use(s)

Uses according to section 1.2 - no additional recommendations See attached exposure scenario.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure standards for occupational hazards in accordance with Regulation of the Minister of Family, Labor and Social Policy dated 12 June 2018 on the highest permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws item 1286 as amended).

Ingredients for which exposure limits are binding:

Name and CAS number of the chemical (substance)	Maximum permissible concentration (in mg/m ³) as a function of exposure time during the work shift			Number of fibers (in cm) ³	Remarks: Notation of the substance: "skin"
	NDS	NDSch	NDSP		
Acetic acid [CAS: 64-19-7]	25	50	-	-	-

DNEL :

Fresh water: 3,058mg/l Sea

water: 0.3085mg/l

Occasional release: 30,58mg/l STP

(sewage treatment plant): 85 mg/l Fresh

water sediment: 11.36 mg/kg Seawater

sediment: 1,136mg/kg Soil: 0.47 mg/kg

8.2. Exposure controls

See Appendix to the Material Safety Data Sheet: exposure scenarios for identified uses.

Appropriate technical control measures: it is necessary to use general ventilation in the room.

Personal protective equipment - individual protective equipment:



Eyes / face protection:

Use protective goggles or a face shield (according to standard EN 166).

Skin protection:

Hands protection:

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Use chemical-resistant protective gloves made of natural rubber, PVC or equivalent according to EN-PN 374:2005.

Material of the gloves:

Selection of adjusted gloves depends on the material but also on a brand and quality assured by a manufacturer. Resistance of the material the gloves are made from may be determined after tests. Accurate gloves destroying time must be determined by a manufacturer.

Other:

Use protective work clothing (according to EN 344) - wash regularly.

Airways protection:

Avoid inhalation of product vapors. Under the conditions of exceeding the NDS (the highest permissible concentration) of the components in the working environment, use individual respiratory protection equipment - a mask or a half-mask complete with a filter and a type B or universal vapor absorber (class 2) according to EN 141.

Thermal hazards:

Not applicable.

Environment exposure control

Do not enable spreading in the environment and penetration of the sewage and water courses.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

a)	State:	Liquid
b)	Color	Clear
c)	Smell	Sharp, prickly
d)	Melting / solidification temperature (not applicable to gases)	16.4°C
e)	Boiling point or initial boiling point and boiling range	117-118°C
f)	Flammability of materials (applies to gases, liquids, solids)	Flammable substance
g)	Lower and upper explosive limits (not applicable to solids)	Lower: 4.7%, Upper: 17%
h)	Flash point (not applicable to gases, aerosols and solids)	<60°C
i)	Self-ignition temperature (applies to gases and liquids only)	463°C
j)	Decomposition temperature (applies only to self-reactive substances and mixtures, as well as organic peroxides and other substances and mixtures that can decompose)	Not applicable
k)	pH (not applicable to gases)	approx. 2,5 (10g/l)
l)	Kinematic viscosity (applies to liquids only)	No data
m)	Solubility	Totally soluble in water

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n)	Partition coefficient n-octanol/water (log ratio value)	-0,17 at 25°C
o)	Vapor pressure	20,79 hPa at 25°C
p)	Density or relative density (applies to liquids and solids only)	1,04 - 1,05g/cm ³
q)	Relative vapor density (applies to gases and liquids only)	2.07 (air = 1)
r)	Particle characteristics (applies to solids only)	Not applicable

9.2. Other information

No additional results of tests

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactive product, corrosive to many metals (reacts with the release of hydrogen), reacts with many organic compounds.

10.2. Chemical stability

The product is stable under normal conditions of handling, storage and transport.

10.3. Hazardous reactions

It reacts violently, possible explosion with strong oxidizers (potassium permanganate, chromium oxide, bromine pentafluoride, chlorine fluoride). Reacts violently with potassium hydroxide, phosphorus isocyanate. Reaction followed by heat release with aminoethanol, chlorosulfonic acid, ethylenediamine, oleum and sodium hydroxide. Mixture of the acetic acid and ammonium nitrate ignites when heated. Mixture of the acetic acid, acetic anhydride and perchloric acid is sensitive to shocks.

10.4. Conditions to be avoided

Avoid elevated temperatures, direct sunlight, hot surfaces and open flames. Keep away from humidity.

10.5. Incompatible materials

Oxidizing agents, chromic acid, sodium peroxide, nitric acid, acetaldehyde (polymerization), 2-aminoethanol, ammonium nitrate, perchloric acid, hydrogen peroxide, ethylenediamine, oleum, permanganates and alkali.

10.6. Hazardous products of decomposition

No decomposition under normal conditions of use and storage. Thermal decomposition products, see section 5.

SECTION 11: Toxicological Information

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

a)	Acute toxicity	On the basis of the available data the criteria of classification are not satisfied
b)	Caustic / skin irritation	It causes serious burns of the skin.
c)	Serious damage to eyes/eye irritation:	It causes serious eye damage.
d)	Skin / airways sensitizing:	On the basis of the available data the criteria of classification are not satisfied
e)	Mutagenic for reproductive cells:	On the basis of the available data the criteria of classification are not satisfied

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f)	Carcinogenicity:	On the basis of the available data the criteria of classification are not satisfied
g)	Reproductive toxicity	On the basis of the available data the criteria of classification are not satisfied
h)	Specific target organ toxicity - single exposure	On the basis of the available data the criteria of classification are not satisfied
i)	Specific target organ toxicity - repeated	On the basis of the available data the criteria of classification are not satisfied
j)	Hazards arising from aspiration	On the basis of the available data the criteria of classification are not satisfied

Toxicological data:

LD50 (rat, oral) - 3200 - 3530mg/kg LC50 (mouse, inhalation) - 13825mg/m³, 4h

11.2. Information on other hazards

Information on exposure hazards:

Skin contact: chemical burns, hard-to-heal wounds.

Eye contact: chemical burns - risk of permanent eye damage.

Respiratory system: chemical burns of the mucous membranes of the nose, throat and further sections of the respiratory system.

Acetic acid vapors cause conjunctival congestion, eye pain and tearing, irritate the respiratory tract, cause coughing, burning throat, a feeling of shortness of breath and hemoptysis. Toxic pulmonary edema may occur.

Gastrointestinal tract chemical burns of the oral cavity, tongue, throat and other sections of the tract. Risk of perforation.

Delayed direct and chronic effects of short-term and long-term exposure:

No data

Effects of interaction:

No data

SECTION 12: Ecological information

12.1. Toxicity

The substance is not classified as hazardous to the environment, however, lowering the pH has a very adverse effect on aquatic organisms.

Do not allow the product to enter drains or ground waters, sewage system and watercourses.

Fish: *L. indus* LC50: 410 mg/l (anhydrous substance).

Daphnia: *Daphnia magna* LC50: 47 mg/l/24h (anhydrous substance).

Bacteria: *Ps. Putida* EC50: 2850 mg/l (anhydrous substance).

Protozoa *E. sulcatum* EC5: 78/l (anhydrous substance).

12.2. Persistence and decomposition

Biodegradable product: 96% within 20 days

12.3. Bio-accumulation

It does not bioaccumulate: Log Ko/w: -0.17, BCF [statistical no.]: 3,16 (estimated value)

12.4. Mobility in a soil

Low adsorption potential: Ko/w (estimated value): 1.153l/kg

12.5. Results of assessment of the PBT and the vPvB properties

The substance does not meet the PBT and vPvB criteria.

12.6. Endocrine disrupting properties

A substance that does not disrupt the endocrine system.

12.7. Other harmful effects

No data

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SECTION 13: Wastes disposal

13.1. Methods of wastes utilization

Acid should be disposed of in accordance with local and state regulations. Disposal of waste and disposable packaging should be handled by specialized companies.

Bind the spilled product with universal binding agents (crushed mica, diatomaceous earth) and, like the rest of the product, destroy it in an adapted incineration plant or dispose of it as special waste. Neutralize small amounts with acidic sodium carbonate and rinse with plenty of water.

Store the residues in the original containers. Dispose acc. to regulations in force. Empty, cleaned packaging should be disposed of (including recycling) in accordance with applicable regulations.

Determine waste codes at the place of production in accordance with the Ordinance of the Minister of Climate dated 2 January 2020 on the waste catalog (Journal of Laws, item 10):

Community regulations:

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

SECTION 14: Transport information

14.1. UN number or ID number

ADR/RID/IMDG/IATA: UN 2790

14.2. Correct UN transport name

ADR/RID: ACETIC ACID in solution containing not less than 50% but not more than 80% acid, by weight IMDG: ACETIC ACID SOLUTION not less than 50% but not more than 80% acid, by mass

IATA: Acetic acid solution not less than 50% but not more than 80% acid, by mass

14.3. Transport hazard class

ADR/RID/IMDG/IATA: 8

14.4. Packages group

ADR/RID/IMDG/IATA: II

14.5. Hazards for the environment

ADR/RID/IMDG/IATA: no

14.6. Special precautions for users: not applicable

transport always in closed containers that are upright, labeled and secured.

14.7. Sea transport in bulk according to IMO instruments

No information

SECTION 15: Regulatory information

15.1. Specific legal regulations regarding the safety, the health and the environment protection for a substance or a mixture.

1. Regulation (EC) No. 1907/2006 dated 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), as amended.
2. Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No. 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
3. Regulation (EC) No. 1272/2008 of the European Parliament and of the Council dated 16 December 2008 (CLP) as amended.
4. Law dated 25 February 2011 on chemical substances and their mixtures (i.e. Journal of Laws 2019, item 1225).

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5. Law dated 28 May 2020 on amendments to the Law on chemical substances and their mixtures and some other laws (Journal of Laws 2020, item 1337).
6. Law of 14 December 2012 on waste (i.e. Journal of Laws 2019, item 701). (Journal of Laws, No. 2019, item 701).
7. Law dated 13 June 2013 on package and waste management (i.e. Journal of Laws of Laws 2019, item 542).
8. Regulation of the Minister of Climate of 2 January 2020 on the waste catalog (Journal of Laws 2020, item 10).
9. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.
10. Announcement of the Speaker of the Sejm of the Republic of Poland dated 20 December 2019 on the announcement of the consolidated text of the Law on Transportation of Hazardous Goods (Journal of Laws 2020, item 154).
11. ADR Agreement 2019 - Government Statement of 18 February 2019 on the entry into force of the amendments to Annexes A and B to the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), done at Geneva on 30 September 1957 (Journal Laws, item 769).
12. Ordinance of the Minister of Labor and Social Policy dated 12 June 2018 on permissible concentrations and strengths of compounds / substances harmful for health in the work environment (Journal of Laws, item 1286 as amended).
13. Ordinance of the Minister of Health dated 30 December 2004 on safety and hygiene of work related to existence of chemical agents at the work environment (i.e. (Journal of (Laws, No. 2016, item 1488).
14. Ordinance of the Minister of Health dated 9 December 2003 on substances which pose serious hazard for the environment (Journal of Laws No. 217, item 2172).

15.2. Assessment of the chemical safety

A chemical safety assessment was conducted for the substance.

Appendix XIV to the Regulation REACH – List of substances subject of the permit procedure: not applicable

SVHC - Substance of very high concern waiting for permit: Not applicable

Appendix XVII to the Regulation REACH – Restrictions concerning production, entering into the market and application of some of hazardous substances: not applicable

SECTION 16: Other Information**H statements:**

H226 Flammable liquid and vapors.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation

H319 Causes serious eye irritation

Description of applied abbreviations, acronyms and symbols:

Flam. Liq. 3 - flammable liquid cat.3

Skin Corr. 1B – Caustic for skin 1A

Skin Corr. 1B – Caustic for skin 1B.

Skin Irrit. 2 – skin irritating, cat. 2

Eye Irrit. 2- Eye irritation cat. 2

NDS - the highest permissible concentration

NDSP – The Highest Upper Limit Concentration

NDSch – The Highest Temporary Concentration

DNEL - derived dose level (concentration) at which no harmful changes are observed [mg/kg, mg/l].

PNEC - Predicted No Effect Concentration

LC50 - (lethal concentration) - median lethal concentration, a statistically determined concentration of a substance, after exposure to which 50 percent of the organisms (exposed to the substance) can be expected to die during the exposure or during a specified contractual post-exposure period.

LD50 - (lethal dose) - medial lethal dose, the statistically determined size of a single dose of a substance, after administration of which 50% of exposed test organisms can be expected to die.

EC50/10 (effective concentration) – medial effective concentration, statistically calculated concentration which induces, in an environmental medium, effect for 50% of tested organisms under defined conditions.

BCF - bioconcentration factor

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vPvB - very persistent and very bio-accumulative substance

PBT - persistent, bioaccumulative and toxic substances

ADR – European agreement on the road transport of hazardous goods.

RID – Regulations Concerning the International Carriage of Dangerous Goods by Rail

IMDG – International Maritime Dangerous Goods Code

IATA – Regulation on the transport of dangerous goods issued by the International Air Transport Association

Changes to the previous version:

Section:	Description:
Section 2	Change of an entry in accordance with Reg. 2020/878
Section 9	Change of an entry in accordance with Reg. 2020/878
Section 11	Change of an entry in accordance with Reg. 2020/878
Section 12	Change of an entry in accordance with Reg. 2020/878
Section 14	Change of an entry in accordance with Reg. 2020/878
Section 15	Regulatory change

Trainings:

Before commence of work with the product, an employee must take part in an obligatory OHS training since chemical agents are involved. Perform, document and familiarize employees with the results of risk assessment in the workplace with reference to the presence of chemical agents.

RESOURCES

Annex to Regulation (EU) 2020/878 dated 18 June 2020. Legal regulations referred to in section 15 of the MSDS.

Information of the Office for Chemical Substances.

Information contained in the MSDS concern exclusively the product named in the title. The data contained in the data sheet should be considered only as an aid to the safe use of the product: **ACETIC ACID 80%**. Since conditions of storage and transport are beyond our control, we cannot give legal guarantees. Each time follow statutory regulations as well as regulations stipulated by potential third parties. The MSDS does not comprise an assessment of hazard at job. The product should not be used for purposes other than those laid down in the Section 1 without prior consultation with **TOMCHEM F.H.U.**

Developed at SPIN-DORADZTWO www.spin-doradztwo.pl for **TOMCHEM F.H.U.**

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EXPOSURE SCENARIO**SN1 (employee)**

1. Title	Acetic acid production and use as an intermediate product
Application sector [SU]:	SU 3 - Industrial uses: uses of substances as such or in preparations in industrial facilities SU 8 - Mass large-scale production of chemicals SU 9 - Production of high-value chemicals
Process Categories [PROC]:	PROC1 - Use in closed processes, no potential for exposure. PROC2 - Use in closed batch processes with sporadic, controlled exposure. PROC3 - Use in closed batch processes (synthesis or formulation). PROC4 - Use in batch and other processes (synthesis) where the possibility of exposure arises. PROC8a - Transfer of substances or preparations (loading/unloading) to/from vessels/large containers in non-dedicated areas. PROC8b - Transfer of substances or preparations (loading/unloading) to/from vessels/large containers in rooms designated for this goal PROC15 - Use as a laboratory reagent.
Environmental Release Category [ERC]:	ERC1 - Substance production ERC4 - Industrial use of auxiliary substances in processes and products that will not become part of the product. ERC6a - Industrial use resulting in other substances (use of processing aids).
Covered processes, tasks, activities:	Acetic acid production or use as a chemical intermediate in production processes or as an extraction agent. Includes recycling/recovery, material transportation, storage, sampling, laboratory operations, maintenance and loading (including sea/barge, road, rail transportation for bulk transport).
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes daily exposure of up to 8 hours (unless, otherwise noted) [G2].
Quantities used	Specified without limits.
Frequency and duration of use/exposure	Includes daily exposure of up to 8 hours (unless, otherwise noted) [G2].
Human factors unaffected by risk management	No

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Other operating conditions affecting worker exposure	Use at a temperature of no more than 20 °C above ambient temperature is assumed, unless otherwise noted [G15]; Assuming that the correct basic occupational hygiene standards are applied [G1].
Scope of the Scenario	
General exposure (closed systems) [CS15].	Substance used in a closed system [E47].
General exposure (closed systems) [CS15]. Sampling [CS56] with periodic exposure monitoring [CS140].	Substance used in a closed system [E47]. Ensure material transfer in confinement or under ventilation hood [E66].
General exposure (closed systems) [CS15]. Includes periodic processes [CS37].	Substance used in a closed system [E47]. Ensure material transfer in confinement or under ventilation hood [E66].
General exposure (open systems) [CS16]. Periodic process [CS55]. Sample collection [CS56].	Ensure transfer of material in confinement or under ventilation hood [E66].
Sampling process [CS2].	Ensure transfer of material in confinement or under ventilation hood [E66].
Laboratory operations [CS36].	Carry out under the fume hood or under the ventilation hood [E83].
Large-volume shipments [CS14]. (open system) [CS108] with the possibility of aerosol formation [CS138].	Ensure transfer of material in confinement or under ventilation hood [E66].
Large-volume shipments [CS14]. (closed systems) [CS107].	Ensure that the material is transferred in containment or under the ventilation hood [E66].
Cleaning and maintenance of the equipment [CS39].	Rinse and dry before disassembly and maintenance [E55]. Wear appropriate gloves conforming to EN374 [PPE15] AND PERSONAL PROTECTIVE EQUIPMENT - SEE THE MATERIAL SAFETY DATA SHEET SECTION 8.
Storage [CS67] with sampling [CS137].	Store the substance in a closed system [E84]. Ensure a good level of general ventilation (no less than 3 to 5 air changes per hour) [E11].
2.2 Environmental exposure controls	
During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario.	
3. Exposure estimation	
3.1 Health	While maintaining risk management measures (RMMs) and observing the code of conduct (OC), DNELs as well as resulting indicators are not expected to be exceeded.
3.2 Environment protection	If recommended risk management measures (RMMs) and operating rules (OCs) are followed, exposures should not exceed the predicted PNECs and resulting risk level indicators.
4. Guidelines for exposure scenario compliance monitoring	
4.1 Health	Expected exposure should not exceed designated DN(M)ELs for workers when the risk management measures and

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	operational conditions recommended in Section 2 are applied [G22]. Where other risk management measures / operational conditions are applied, those applying them should make sure that the risks are managed to at least an equivalent level [G23].
4.2 Environment protection	No exposure and risk assessment required

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This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

SN2 (employee)

1. Title	Distribution of acetic acid
Application sector [SU]:	SU 3 - Industrial uses: uses of substances as such or in preparations in industrial facilities SU 8 - Mass large-scale production of chemicals SU 9 - Production of high-value chemicals
Process Categories [PROC]:	PROC1 - Use in closed processes, no potential for exposure. PROC2 - Use in closed batch processes with sporadic, controlled exposure. PROC3 - Use in closed batch processes (synthesis or formulation). PROC4 - Use in batch and other processes (synthesis) where the possibility of exposure arises. PROC8a - Transfer of substances or preparations (loading/unloading) to/from vessels/large containers in non-dedicated areas. PROC8b - Transfer of substances or a preparation (loading/unloading) to/from vessels/large containers in rooms not intended for this goal. PROC9 - Transfer of substances or preparations into small containers (dedicated filling line with weighing). PROC15 - Use as a laboratory reagent.
Environmental Release Category [ERC]:	ERC1 - Substance manufacture ERC2 - Formulation of preparations ERC3 - Formulation of materials ERC4 - Industrial use of auxiliary substances in processes and products that will not become part of the product. ERC5 - Industrial use consequent to the incorporation into or onto a material. ERC6a - Industrial use resulting in other substances (use of intermediates). ERC6b - Industrial use of reactive excipients. ERC6c - Industrial application of monomers for the production of thermoplastics. ERC6d - Industrial use of polymerization processing aids in the production of resins, rubber, polymers. ERC7 - Industrial use of substances in closed systems.
Covered processes, tasks, activities:	Loading (including sea, road, rail transport for bulk) and repackaging (including DPPL and packaging) of the substance, including its distribution and related laboratory activities.

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2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Assumes use at no more than 20°C above ambient temperature (unless otherwise noted) [G15]. Assumes use of correct basic work hygiene norms [G1]:
Concentration of the substance in the product	Includes daily exposure of up to 8 hours (unless, otherwise noted) [G2].
Quantities used	Specified without limits.
Frequency and duration of use/exposure	Includes daily exposure of up to 8 hours (unless, otherwise noted) [G2].
Human factors unaffected by risk management	Not applicable
Other operating conditions affecting worker exposure	Assumes use at no more than 20°C above ambient temperature (unless otherwise noted) [G15]; Assumes use of correct basic work hygiene norms [G1]:
Scope of the Scenario	
General exposure (closed systems) [CS15]. Includes periodic processes [CS37].	Substance used in a closed system [E47]. Ensure a good level of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Avoid conducting exposure activities for more than 1 hour [OC27].
General exposure (open systems) [CS16]. Periodic process [CS55]. Sample collection [CS56].	Connect ventilation to points where emissions may occur [E54].
Sampling process [CS2].	Process must take place in a closed loop or other system to avoid exposure [E8].
Large-volume shipments [CS14] (closed systems) [CS107].	Connect ventilation to points where emissions may occur [E54] or, if this is not technically possible, adopt the following PPE [PPE30] Use an EN140-compliant respirator with a type A filter or better [PPE22]. Wear appropriate protective gloves, tested to EN 374 [PPE15].
Large-volume shipments [CS14] (open systems) [CS108].	Connect ventilation to points where emissions may occur [E54] or, if this is not technically possible, adopt the following PPE [PPE30]. Use an EN140-compliant respirator with a type A filter or better [PPE22]. Wear appropriate protective gloves, tested according to EN 374 standard [PPE15].
DPPL and small package filling [CS6].	Provide ventilation over package openings when filling with material [E82].
Cleaning and maintenance of equipment [CS39].	Rinse and dry before disassembly and maintenance [E55]. Wear appropriate gloves conforming to EN374 [PPE15] and PPE - see the material safety data sheet Section 8.
Storage [CS67] with sampling [CS137].	Store the substance in a closed system [E84]. Store bulk in the open air [E2]. Ensure a good level of general ventilation (not less than 3 to 5 air changes per hour) [E11].
2.2 Environmental exposure controls	

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During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario.

3. Exposure assessment

3.1 Health	With risk management measures (RMMs) and adherence to operating rules (OCs), DNELs are not expected to be exceeded as well as resulting indicators
-------------------	--

3.2 Environment protection

No exposure and risk assessment required

4. Guidelines for exposure scenario compliance monitoring

4.1 Health	Expected exposure should not exceed the designated DN (M)EL for workers and consumers when the risk management measures and operational conditions recommended in Section 2 are applied [G22]. Where other risk management measures / operational conditions are applied, those applying them should make sure that the risks are managed at least at the equivalent level [G23].
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4.2 Environment protection

No exposure and risk assessment required

Exposure estimation

5.1 Employee exposures

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified.

Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg bw / 24h)	Inhalation (mg/m3)
-	-	-	25	-	25

6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
General exposure (closed systems) [CS15].	0.00	0.03	0.04
General exposure (closed systems) [CS15] Collection of	0.70	0.14	0.84

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sample [CS56].			
General exposure (closed systems) [CS15].	0.35	0.03	0.38
General exposure (open systems) [CS16].	0.20	0.07	0.27
Sampling process [CS2].	0.25	0.03	0.28
Laboratory activities [CS36].	0.10	0.00	0.10
Large-volume shipments [CS14]. (open system) [CS108)	0.15	0.69	0.84
Large-volume shipments [CS14]. (closed system) [CS107)	0.15	0.069	0.84
DPPL filling, l small packages [CS6].	0.50	0.07	0.57
Cleaning and equipment maintenance [CS39].	0.50	0.27	0.77
Storage [CS67].	0.70	0.14	0.84

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document: Worker Chemical Safety Assessment (CSA) Template. This scenario is based on Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7

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SN3 (employee)

1. Title	In the chemical industry as an intermediate - for the production of other chemical compounds
Application sector [SU]:	SU 3 - Industrial uses: uses of substances as such or in preparations in industrial facilities SU 8 - Mass large-scale production of chemicals SU 9 - Production of high-value chemicals
Process Categories [PROC]:	PROC1 - Use in closed processes, no potential for exposure. PROC2 - Use in closed batch processes with sporadic, controlled exposure. PROC3 - Use in closed batch processes (synthesis or formulation). PROC4 - Use in batch and other processes (synthesis) where the possibility of exposure arises. PROC8a - Transfer of substances or preparations (loading/unloading) to/from vessels/large containers in non-dedicated areas. PROC8b - Transfer of substance or a preparation (loading/unloading) to/from vessels/large containers in rooms intended for this purpose.
Environmental Release Category [ERC]:	ERC6a - Industrial use as a result of which other substances are created (use of intermediates).
Covered processes, tasks, activities:	Acetic acid production or use, as a chemical intermediate in production processes, as an extraction agent, as a metal surface preparation agent, as a pH adjuster. Includes recycling/recovery, material transport, storage, sampling, laboratory operations, maintenance and loading (including sea, road, rail transport for bulk)
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes daily exposure up to 8 hours (unless otherwise noted) [G2].
Quantities used	Specified without limits.
Frequency and duration of use/exposure	Includes daily exposure up to 8 hours (unless otherwise noted) [G2].
Human factors beyond control Risk management	No
Other operating conditions affecting worker exposure	It is assumed to be used at a temperature not higher than 20 °C than the ambient temperature, unless indicated otherwise [G15]; Assuming that the correct basic occupational hygiene standards are applied [G1].

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Scope of the Scenario	
General exposure (closed systems) [CS15].	Substance used in a closed system [E47].
General exposure (closed systems) [CS15]. Sampling [CS56]. Periodic exposure control [CS140].	Substance used in a closed system [E47]. Ensure that the material is moved in confinement or under ventilation hood [E66].
General exposure (closed systems) [CS15]. Includes periodic processes [CS37].	Substance used in a closed system [E47]. Ensure transfer of material in confinement or under ventilation hood [E66].
General exposure (open systems) [CS16]. Periodic process [CS55]. Sample collection [CS56].	Ensure that the material is moved in confinement or under ventilation hood [E66].
Sampling process [CS2].	Ensure transfer of material in confinement or under ventilation hood [E66].
Laboratory operations [CS36].	Carry out under the fume hood or under the ventilation hood [E83].
Large-volume shipments [CS14]. (open system) [CS108] with the possibility of aerosol formation [CS138].	Ensure transfer of material in confinement or under ventilation hood [E66].
Large-volume shipments [CS14]. (closed systems) [CS107].	Ensure transfer of material in confinement or under ventilation hood [E66].
Cleaning and maintenance of equipment [CS39].	Rinse and dry before disassembly and maintenance [E55]. Wear appropriate gloves conforming to EN374 [PPE15] and personal protective equipment - see the material safety data sheet Section 8.
Storage [CS67] with sampling [CS137].	Store the substance in a closed system [E84]. Provide a good level of general ventilation (not less than 3 to 5 air changes per hour) [E11].
2.2 Environmental exposure controls	
During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario.	
3. Exposure assessment	
3.1 Health	With risk management measures (RMMs) and adherence to operating rules (OCs), DNELs are not expected to be exceeded as well as resulting indicators.
3.2 Environment protection	If recommended risk management measures (RMMs) and operating conditions (OCs) are followed, exposures should not exceed the predicted PNECs and resulting risk level indicators.
4. Guidelines for exposure scenario compliance monitoring	
4.1 Health	Expected exposure should not exceed the designated DN(M)EL for workers and consumers when recommended in Section 2 risk management measures and operational conditions are applied [G22]. If other risk management measures /operating conditions are applied, those applying them should make sure

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	that risks are managed to the equivalent level at least [G23].
4.2 Environment protection	No exposure and risk assessment required

5. Exposure estimation

5.1 Employee exposures

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified.

Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg bw / 24h)	Inhalation (mg/m3)
-	-	-	25	-	25

6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
General exposure (closed systems) [CS15].	0.00	0.03	0.04
General exposure (closed systems) [CS15] Sampling [CS56].	0.10	0.01	0.11
General exposure (closed systems) [CS15].	0.25	0.00	0.25
General exposure (open systems) [CS16].	0.20	0.07	0.27
Sampling process [CS2].	0.15	0.07	0.22
Laboratory activities [CS36].	0.10	0.00	0.10
Large-volume shipments [CS14]. (open system)	0.15	0.07	0.22

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[CS108)			
Large-volume shipments [CS14]. (closed system) [CS107)	0.15	0.07	0.22
Cleaning and equipment maintenance [CS39].	0.50	0.27	0.77
Storage [CS67].	0.70	0.14	0.84

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7.

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This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

SN4 (employee)

1. Title	Production of acetic acid solutions and their distribution
Application sector [SU]:	SU 3 - Industrial uses: uses of substances as such or in preparations in industrial facilities SU 10 - Other uses
Process categories [PROC]:	PROC1 - Use in closed processes, no possibility of exposure PROC2 - Use in closed batch processes with sporadic, controlled exposure. PROC3 - Use in closed batch processes (synthesis or formulation). PROC4 - Use in batch and other processes (synthesis) where the possibility of exposure arises. PROC5 - Mixing in batch formulation processes of formulations or industrial products (multi-stage and/or significant contact). PROC8a - Transfer of substances or preparations (loading/unloading) to/from vessels/large containers in non-dedicated areas. PROC8b - Transfer of substances or a preparation (loading/unloading) to/from vessels/large containers in rooms not intended for this goal. PROC9 - Transfer of substances or preparations into small containers (dedicated filling line with weighing). PROC14 - Manufacture of preparations or products by tableting, pressing, extruding and granulating. PROC15 - Use as a laboratory reagent.
Environmental Release Category [ERC]:	ERC2 - Formulation of preparations
Covered processes, tasks, activities:	Formulation, packaging and repackaging of substances and their mixtures on a continuous or periodic basis, including storage and transfer of materials and mixtures in small and large (small- and large-scale) packaging, maintenance and laboratory operations.
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes substances up to 100% in the product (unless otherwise noted) [G13].
Quantities used	Specified without limits.
Frequency and duration of use	Includes daily exposure up to 8 hours (unless otherwise noted) [G2].
Human factors beyond control Risk management	No
Other operating conditions affecting worker exposure	It is assumed to be used at a temperature not exceeding 20 °C from the ambient temperature, unless specified otherwise [G15];

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	Assuming that the correct basic occupational hygiene standards are applied [G1].
Scope of the Scenario	
General exposure (closed systems) [CS15].	Substance used in a closed system [E47].
General exposure (closed systems) [CS15]. Sampling [CS56]. Periodic exposure monitoring [CS140].	Substance used in a closed system [E47]. Ensure a good level of general ventilation (not less than 3 to 5 air changes per hour) [E11].
General exposure (closed systems) [CS15]. Includes periodic processes [CS37].	Substance used in a closed system [E47]. Connect ventilation to points where emissions may occur [E54].
General exposure (open systems) [CS16]. Periodic process [CS55]. Sample collection [CS56]. Can be used as an aerosol [CS138].	Connect ventilation to points where emissions may occur [E54].
Periodic processes at elevated temperatures [CS136].	Ensure that the material is moved in confinement or under ventilation hood [E66]. Avoid conducting activities involving exposure for more than 1 hour [OC27].
Sampling process [CS2].	Provide in a closed loop or other system to avoid exposure [E8].
Laboratory operations [CS36].	Carry out under a fume cupboard or under a ventilation hood [E83].
Large-volume shipments [CS14].	Ensure material transfer in confinement or under ventilation hood [E66].
Mixing operation (open systems) [CS30]. Can be used as an aerosol [CS138].	Connect ventilation to points where emissions occur [E54].
User's manual [CS34]. Transmission from/to containers [CS22].	Connect ventilation to points where emissions may occur [E54].
Batch transfer in DPPL [CS8].	Connect ventilation to points where emissions may occur [E54].
Production or preparation of material for tableting, compression, extrusion and granulating [CS100]	Connect ventilation to points where emissions may occur [E54].
DPPL and small package filling [CS6].	Ensure material transfer in confinement or under ventilation hood [E66].
Cleaning and maintenance of equipment [CS39].	Rinse and dry before disassembly and maintenance [E55]. Wear appropriate gloves conforming to EN374 standard [PPE15] AND PERSONAL PROTECTIVE EQUIPMENT - SEE MATERIAL SAFETY DATA SHEET SECTION 8.
Production or preparation of the product by tableting, compression, squeezing and lumping.	No other special measures have been identified
Storage [CS67] Sampling [CS137].	Bulk outdoor storage [E2]. Provide a good level of general ventilation (not less than 3 to 5 air changes per hour) [E11].

2.2 Environmental exposure controls

During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of REACH (5.0) exposure assessment and

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risk characterization is not necessary, but an assessment of risk qualification has been carried out in Section 5 of this scenario.

3. Exposure estimation

3.1 Health	With risk management measures (RMMs) and adherence to operating rules (OCs), DNELs are not expected to be exceeded as well as resulting indicators.
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3.2 Environment protection	No exposure and risk assessment required
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4. Guidelines for exposure scenario compliance monitoring

4.1 Health	Expected exposure should not exceed the designated DN (M)EL for workers and consumers when the risk management measures and operational conditions recommended in Section 2 are applied [G22]. Where other risk management measures / operational conditions are applied, those applying them should make sure that the risks are managed at least at the equivalent level [G23].
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4.2 Environment protection	No exposure and risk assessment required
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5. Exposure estimation

5.1 Employee exposures

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified. Therefore, in accordance with REACH Annex

I (5.0) exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m ³)	Skin (mg/cm ²)	Inhalation (mg/m ³)	Skin (mg/kg bw / 24h)	Inhalation (mg/m ³)
-	-	-	25	-	25

6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
General exposure (closed systems) [CS15].	0.00	0.03	0.04
General exposure (closed systems) [CS15] Sampling [CS56].	0.70	0.14	0.84
General exposure (closed systems)	0.25	0.03	0.28

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[CS15]			
General exposure (open systems) [CS16].	0.20	0.07	0.27
Periodic processes at elevated temperatures [CS136].	0.60	0.00	0.60
Sampling process [CS2].	0.25	0.03	0.28
Laboratory activities [CS36].	0.10	0.00	0.10
Shipping (large-tonnage) [CS14].	0.15	0.07	0.22
Mixing operation (open systems) [CS30].	0.50	0.01	0.51
User's manual [CS34]. Transmission from/to containers [CS22].	0.50	0.01	0.51
DPPL batch transfer. [CS8].	0.15	0.07	0.22
Production or preparation of material for tableting, compression, extrusion and granulating [CS100]	0.50	0.03	0.53
DPPL filling, and small packages [CS6].	0.50	0.07	0.57
Cleaning and equipment maintenance [CS39].	0.50	0.27	0.77
Storage [CS67].	0.70	0.14	0.84

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7.

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SN5 (employee)

1. Title	Industrial agents for the tanning, textile, wood, paper and metal industries .
Application sector [SU]:	SU 3 - Industrial uses: uses of substances as such or in preparations in industrial facilities SU 5 - manufacture of textiles, leather, furs SU 6a - manufacture of wood and wood products SU 6b - manufacture of pulp, paper and paper products SU 14 - production of base metals SU 15 - manufacture of fabricated metal products, except machinery and equipment
Process Categories [PROC]:	PROC1 - Use in closed processes, no potential for exposure. PROC2 - Use in closed batch processes with sporadic, controlled exposure. PROC4 - Use in batch and other processes (synthesis) where the possibility of exposure arises. PROC8a - Transfer of substances or preparations (loading/unloading) to/from vessels/large containers in non-dedicated areas. PROC8b - Transfer of substances or a preparation (loading/unloading) to/from vessels/large containers in rooms not intended for this goal. PROC10 - Brush or roller application PROC13 - Treatment of industrial products by dipping or pouring
Environmental Release Category [ERC]:	ERC4 - Industrial application of processing aids in processes and products that will not become part of an article
Covered processes, tasks, activities:	Includes use as an ingredient in cleaning, tanning, bleaching, staining, pH adjusting products, metal surface treatments, including handling from storage, pouring / unloading from DPPLs and containers. Exposure during mixing/dilution at the preparation stage and cleanup activities (including spraying, brush painting, dipping, wiping, automatic and manual), related to cleaning and maintenance equipment.
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes substances up to 100% in the product (unless otherwise noted) [G13].
Quantities used	Specified without limits.
Frequency and duration of use	Includes daily exposure up to 8 hours (unless otherwise noted) [G2].
Human factors beyond control Risk management	No

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Other operating conditions affecting worker exposure	Use at a temperature of no more than 20°C above ambient temperature is assumed (unless otherwise noted) [G15]; Assuming the correct basic occupational hygiene standards are applied [G1].
Scope of the Scenario	
Large-volume shipments [CS14].	Ensure transfer of material in confinement or under ventilation hood [E66].
Semi-automatic process [CS93]. Use in said process [CS38].	Provide general ventilation at a good level (no less than 3 to 5 air changes per hour) [E11].
General exposures (closed systems); Semi-automatic process [CS93]. Use in said process [CS38]; Batch transfer in DPPL. [CS8]. Use in the said process [CS38].	Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) [E11]. Avoid conducting exposure activities for longer than 1 hour [OC27].
Use of cleaning agents in closed systems [CS101].	Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) [E11].
Filling equipment from DPPLs or other containers [CS45]. Dedicated installation [CS81].	Ensure transfer of material in confinement or under ventilation hood [E66].
Used in batch processes [CS37]. Operation by heating [OC129].	Ensure transfer of material in confinement or under ventilation hood [E66]. Avoid conducting activities involving exposure longer than 4 hours [OC28].
Used in batch processes [CS37]. Leather tanning, fabric bleaching/dyeing, pH adjustment, metal surface treatment. Open System	Ensure transfer of material in confinement or under ventilation hood [E66]. Avoid conducting exposure activities for more than 4 hours [OC28]. Connect ventilation to points where emissions may occur [E54]. Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) [E11]. Wear appropriate gloves tested in accordance with EN374 [PPE15] and personal protective equipment, - see the material safety data sheet Section 8.
Used in batch processes [CS37]. Leather tanning, fabric bleaching/dyeing, pH adjustment, metal surface treatment. Closed Systems.	Ensure transfer of material in confinement or under ventilation hood [E66]. Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) [E11]. Wear appropriate gloves tested in accordance with EN374 [PPE15] and personal protective equipment, see: material safety data sheet Section 8.
De-greasing of small objects at the treatment station [CS41].	Connect ventilation to points where emissions may occur [E54].
Cleaning with high-pressure cleaners [CS44].	Limit the substance content in the product to 5% [OC17]. Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) [E11]. Exposure activities longer than 4 hours should be avoided [OC28].
Hand cleaning [CS34] Surface cleaning [CS48] Cleaning [CS47]. Cleaning without spraying [CS60]	Limit the substance content in the product to 5% [OC17]. Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) or make sure actions are taken outside [E11 and E69]. Avoid conducting

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	exposure activities longer than 4 hours [OC28].
Cleaning and maintenance of equipment [CS39].	Rinse and dry before disassembly and maintenance [E55]. Wear appropriate gloves conforming to EN374 [PPE15] and PPE - see the material safety data sheet Section 8.
Storage [CS67] with sampling [CS137].	Store the substance in a closed system [E84]. Ensure a good level of general ventilation (not less than 3 to 5 air changes per hour) [E11].
2.2 Environmental exposure controls	
During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario	
3. Exposure assessment	
3.1 Health	While maintaining risk management measures (RMMs) and adhering to policies (OCs), DNELs as well as resulting indicators are not expected to be exceeded.
3.2 Environment protection	No exposure and risk assessment required
4. Guidelines for exposure scenario compliance monitoring	
4.1 Health	Expected exposure should not exceed the designated DN (M)EL for workers and consumers when the risk management measures and operational conditions recommended in Section 2 are applied [G22]. Where other risk management measures / operational conditions are applied, those applying them should make sure that the risks are managed to at least an equivalent level [G23].
4.2 Environment protection	No exposure and risk assessment required

5. Exposure estimation

5.1 Employee exposures

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified. Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg bw / 24h)	Inhalation (mg/m3)
-	-	-	25	-	25

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6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
Shipping (large-tonnage) [CS14].	0.50	0.01	0.51
Semi-automatic process [CS93]	0.70	0.14	0.84
Process - semi-automatic [CS93].	0.35	0.03	0.38
Use of cleaning agents in closed system [CS101].	0.70	0.14	0.84
Used in batch processes [CS37]. Leather tanning, fabric bleaching/dyeing, ph adjusting , metal surface treatment.	0.77	0.16	0.85
Preparation of equipment for DPPL and containers filling [CS45].	0.15	0.07	0.22
Substances used in the course of periodic processes [CS37].	0.60	0.07	0.67
De-greasing of small objects at the treatment station [CS41].	0.50	0.07	0.57
Cleaning with washers (low-pressure) [CS42].	0.42	0.55	0.97
Cleaning with washers (high-pressure) [CS44].	0.70	0.17	0.87
Manual cleaning [CS34].	0.42	0.55	0.97
Cleaning and equipment maintenance [CS39].	0.35	0.27	0.62
Storage [CS67].	0.70	0.14	0.84

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document : Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7.

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SN6 (employee)

1. Title	Professional cleaners and disinfectants
Application sector [SU]:	SU22 - Professional applications: public domain (administration, educational system, entertainment, services, crafts)
Process Categories [PROC]:	PROC1 - Use in closed processes, no possibility of exposure PROC2 - Use in closed batch processes with sporadic, controlled exposure PROC3 - Use in closed batch processes (synthesis or formulation) PROC4 - Use in batch and other processes (synthesis) during which the possibility of exposure arises PROC8a – Transfer of substances or a preparation (loading/unloading) to/from vessels/large containers in rooms not intended for this goal PROC8b - Transfer of substances or a preparation (loading/unloading) to/from vessels/large containers in rooms not intended for this goal PROC10 - Brush or roller application PROC11 - Non-industrial spray application PROC13 - Treatment of industrial products by soaking or flooding
Environmental Release Category [ERC]:	ERC8a – Widely dispersed application, in rooms, and as auxiliary substances in open systems ERC8d - Widely dispersed, off-premises use of auxiliaries in open systems
Covered processes, tasks, activities:	Includes use as an ingredient in cleaning products, including transfer from the composition, pouring/discharging from drums or containers. Exposure during mixing/dilution at the preparation stage and cleanup activities (including spraying, brush painting, dipping, wiping, automatic and manual), related to cleaning and maintenance equipment. .
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes substances up to 100% in the product (unless otherwise noted) [G13].
Quantities used	Specified without limits.
Frequency and duration of use/exposure	Includes daily exposure up to 8 hours (unless otherwise noted) [G2].
Human factors unaffected by risk management	No
Other operating conditions affecting worker exposure	Assumes use at temperatures no higher than 20°C from the ambient temperature (unless specified otherwise) [G15]; Assuming that the

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	correct basic occupational hygiene standards are applied [G1].
Scope of the Scenario	
Preparation of DPPL and container filling equipment [CS45]. Dedicated installation [CS81].	Product content limit of up to 5% [OC17]. Provide ventilation at a good level (10 to 15 air changes per hour) [E40]. Wear appropriate gloves that meet the standard EN374 [PPE15]
Semi-automatic process [CS93]. Use in said process [CS38].	Product content limit of up to 5% [OC17]. Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) [E11]. Wear appropriate gloves conforming to EN374 [PPE15]
Semi-automatic process [CS93]. Use in the listed process [CS38]; Batch shipment in DPPL [CS8].	Product content limit of up to 5% [OC17]. Exposure activities longer than 4 hours should be avoided [OC28]. Wear appropriate gloves conforming to EN374 standard [PPE15]
Semi-automatic processes (e.g.: semi-automatic use for floor care and maintenance) [CS76].	Product content limit of up to 5% [OC17]. Provide general ventilation at a good level (10 to 15 air changes per hour) [E40]. Wear appropriate gloves conforming to EN374 [PPE15] .
Filling equipment from DPPLs or other containers [CS45]. Outdoors [OC9]	Product content limit of up to 5% [OC17]. Ensure that actions are taken outdoors [E69]. [E69]. Avoid carrying out activities related to exposure for more than 1 hour [OC27]. Wear chemical-resistant gloves (tested according to EN 374 standard). Workers must be trained [PPE16].
Manipulation [CS34] Cleaning [CS47]. Surface cleaning [CS48] Soaking, dipping and pouring [CS4].	Limit the substance content in the product to 5% [OC17]. Provide general ventilation at a good level (10 to 15 air changes per hour) [E40]. Wear appropriate gloves that meet the standard EN374 [PPE15] and personal protective equipment - see: material safety data sheet Section 8.
Cleaning with low-pressure cleaners [CS42]. Application by roller. Application by brush [CS51]. Without spraying [CS60].	Limit the substance content in the product to 5% [OC17]. Provide general ventilation at a good level (10 to 15 air changes per hour) [E40]. Wear appropriate gloves that meet the standard EN374 [PPE15]
Cleaning with high-pressure cleaners [CS44] Spraying [CS10]. Indoors [OC8].	Limit the substance content in the product to 5% [OC17]. Provide general ventilation at a good level (10 to 15 air changes per hour) [E40]. Wear appropriate gloves that meet the standard

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	EN374 [PPE15]. Wear EN140-compliant masks with type A filters or better [PPE22].
Cleaning with high-pressure cleaners [CS44] Spraying [CS10]. (outside the room)	Limit the substance content in the product to 5% [OC17]. Ensure that actions are taken outdoors [E69]. [E69]. Wear chemical-resistant gloves (tested to EN374) Provide training for employees. [PPE16]. Wear masks according to EN 140 with a type A filter or better [PPE22].
Surface cleaning [CS48] Cleaning [CS47]. Spraying [CS10]	Ensure general ventilation at a good level (not less than 3 to 5 air changes per hour) or make sure activities are undertaken outdoors [E11 and E69]. Exposure activities longer than 4 hours should be avoided [OC28]. Wear appropriate gloves conforming to EN374 [PPE15] and personal protective equipment - see safety data sheet Section 8.
Ad hoc manual application in the form of sprays, etc. [CS27] Brush or roller application. [CS51]	Limit the substance content in the product to 5% [OC17]. Provide general ventilation at a good level (no less than 3 to 5 air changes per hour) or make sure activities are undertaken outdoors [E11 and E69]. Exposure activities longer than 4 hours should be avoided [OC28]. Wear appropriate gloves conforming to EN374 [PPE15] and PPE - see the material safety data sheet Section 8.
Use of cleaning agents in closed systems [CS101]. (outside the room)	Limit the substance content in the product to 5% [OC17]. Ensure that actions are taken outdoors [E69].
Cleaning of medical devices [CS74].	Product content limit of up to 5% [OC17]. Connect ventilation to points where emissions may occur [E54].
Cleaning and maintenance of equipment [CS39].	Product content limit of up to 5% [OC17]. Rinse and dry before disassembly and maintenance [E55]. Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) [E11]. Wear appropriate gloves conforming to EN374 [PPE15] and personal protective equipment - see: material safety data sheet Section 8.
Storage [CS67] with sampling [CS137].	Product content limit of up to 5% [OC17]. Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) or make sure actions are taken outside [E11 and E69].
2.2 Environmental exposure controls	

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During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario.

3. Exposure estimation

3.1 Health
With risk management measures (RMMs) and adherence to operating rules (OCs), DNELs are not expected to be exceeded as well as resulting indicators.

3.2 Environment protection
If recommended risk management measures (RMMs) and operating conditions (OCs) are followed, exposure (levels) should not exceed the predicted PNECs and resulting risk characterization indicators

4. Guidelines for exposure scenario compliance monitoring

4.1 Health
Expected exposure should not exceed the designated DN (M)EL for workers and consumers when the risk management measures and operational conditions recommended in Section 2 are applied [G22]. Where other risk management measures / operational conditions are applied, those applying them should make sure that risks are managed to at least an equivalent level [G23].

4.2 Environment protection
No exposure and risk assessment required

5. Exposure estimation

5.1 Employee exposures

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified. Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg bw / 24h)	Inhalation (mg/m3)
-	-	-	25	-	25

DN(M)ELs for consumers

Acute effects		Local effects		Long-term effects		
Skin (mg/kg body weight / 24 hours)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg body weight / 24 hours)	Oral (mg/kg body weight / day)	Inhalation (mg/m3)

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-	72	No data	25	72	72	25
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6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
Preparation of equipment for filling of DPPLs and containers [CS45].	0.90	0.08	0.98
Process (semi-automatic) [CS93].	0.84	0.02	0.86
Process - semi-automatic [CS93].	0.90	0.00	0.90
Semi-automatic processes (e.g.: semi automatic use for floor care and maintenance) [CS76].	0.90	0.08	0.98
Filling / preparing equipment with DPPL and containers [CS45]	0.84	0.08	0.92
Manual cleaning [CS34].	0.60	0.11	0.71
Cleaning with low-pressure washers [CS42].	0.60	0.11	0.71
Cleaning with washers (high-pressure) [CS44].	0.30	0.43	0.73
Cleaning with high-pressure cleaners [CS44].	0.70	0.21	0.91
Manual cleaning [CS34].	0.84	0.11	0.95
Applying, by the companies, of the substance by spraying, pouring, dipping, etc.[CS27]	0.40	0.03	0.43
Applying, by the companies, of the substance by spraying, pouring, dipping, etc.[CS27]	0.84	0.11	0.95
Applying of cleaning agents in	0.70	0.14	0.84

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closed systems [CS101].			
Medical device cleaning [CS74]	0.60	0.04	0.64
Cleaning and maintenance of equipment [CS39].	0.42	0.04	0.64
Storage [CS67].	0.84	0.08	0.92

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document : Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7.

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SN7 (consumer)

1. Title	Consumer cleaning products
Application sector [SU]:	Consumer applications: households (= general public = consumers)
Process categories [PROC]:	PC3, PC4, PC8, PC9, PC24, PC35, PC38. Note PC8 contained in the product will be washed off the surface during the next cleaning process
Environmental Release Category [ERC]:	ERC8a – Widely dispersed application, in rooms, and as auxiliary substances in open systems ERC8d - Widely distributed use, outdoors, of reactive processing aids in open systems
Covered processes, tasks, activities:	Includes general consumer exposures resulting from use of household items sold as laundry and cleaning products in the form of aerosols, coatings, de-icers, lubricants and air protection products
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
vapor pressure	Unless otherwise noted, covers concentrations up to 80% [ConsOC1].
Quantities used	Unless otherwise noted, includes frequency of use up to 4 times a day [ConsOC4]; includes exposure time up to 8 hours [ConsOC14].
Concentration of the substance in the product	Unless otherwise noted, includes use of quantities up to 13800g [ConsOC2]; covers the skin contact area up to 857.5 cm ² [ConsOC5]
Frequency and duration of use/exposure Other operational conditions affecting worker exposure	Unless otherwise noted, assumes use at ambient temperature [ConsOC15]; assumes use in a 20 m ² room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
PC3 Air protection products (aerosol)	
00	Unless otherwise noted, includes concentrations up to 50% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use and application up to 4 times/day [ConsOC4]; for each case, assumed amount used up to 0.1 g [ConsOC2]; includes use in a 20m ³ room [ConsOC11]; for each case, includes exposure up to 0.25 hrs / use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC3 Air protection products (solid and liquid)	
00	Unless otherwise noted, includes concentrations up to 10% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to 1 time per working day [ConsOC4]; includes skin contact area up to 35.70 cm ² [ConsOC5]; for

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	each case, assumed use up to 0.48g [ConsOC2]; includes use in a room size of 20m3 [ConsOC11]; for each case Includes exposure up to 8 hrs/use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC4 Anti-freeze and de-icing products (windshield washing)	
00	Unless otherwise noted, includes concentrations up to 1% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to 1 time per work day [ConsOC4]; for each case, assumed use up to 0.5g [ConsOC2]; use includes use in one garage (34m3) with typical ventilation [ConsOC10]; includes use in a 34m3 room [ConsOC11]; for each case (of use), includes exposure up to 0.02 hours/use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC4 Anti-freeze and de-icing products (in coolers)	
OC	Unless otherwise noted, includes concentrations up to 10% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 428.00 cm2 [ConsOC5]; for each case, assumed use up to 2,000g [ConsOC2]; use includes use in one garage (34m3) with typical ventilation [ConsOC10]; includes use in 34m3 room [ConsOC11]; for each case (of use), includes exposure up to 0.17hrs/use [ConsOC14]; 0.17h/use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC4 Anti-freeze and de-icing products (radiator de-icer)	
OC	Unless otherwise noted, includes concentrations up to 25% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to 1 time per work day [ConsOC4]; includes skin contact area up to 214.40 cm2 [ConsOC5]; for each case, assumed use up to 4g [ConsOC2]; use includes use in one garage (34m3) with typical ventilation [ConsOC10]; includes use in a 34m3 room [ConsOC11]; for each case (of use), includes exposure up to 0.25 hours/use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC8 Biocidal products (use of the substance only as a solvent) for washing and washing dishes	
OC	Unless otherwise noted, includes concentrations up to 5% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to 1 time per

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	working day [ConsOC4]; includes skin contact area up to 857.50 cm ² [ConsOC5]; for each case, assumed use up to 15g [ConsOC2]; includes use in a 20m ³ room [ConsOC11]; for each case, includes exposure up to 0.50 h./use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC8 Biocidal products (use of the substance only as a solvent) all cleaning products (for sanitation, cleaning floors, carpets, metals, glass, etc.).	
OC	Unless otherwise noted, includes concentrations up to 5% [ConsOC1]; includes use up to 128 days per year [ConsOC3]; includes use up to 1 time per work day [ConsOC4]; includes skin contact area up to 857.50 cm ² [ConsOC5]; for each case, assumed use up to 27g [ConsOC2]; use includes use in a room up to 20m ³ [ConsOC11]; for each case includes exposure up to 0,33h./use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC8_n: Biocidal products (use of substance only as solvent) - cleaning products in liquid form (all-purpose cleaners, sanitizers, agents for glass cleaning)	
OC	Unless otherwise noted, includes concentrations up to 1.5% [ConsOC1]; includes use up to 128 days per year [ConsOC3]; includes use up to 1 time per work day [ConsOC4]; includes skin contact area up to 428.00 cm ² [ConsOC5]; for each case (of use), assumed use up to 35g [ConsOC2]; use includes use in a room up to 20m ³ [ConsOC11]; for each case (of use), includes exposure up to 0.17hrs /use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC9a: Coatings and paints, thinners, paint removers - fillers, putties, thinners - latex water-based wall paints	
OC	Unless otherwise noted, includes concentrations up to 1.5% [ConsOC1]; includes use up to 4 days per year [ConsOC3]; includes use up to 1 time per work day [ConsOC4]; includes skin contact area up to 428.75 cm ² [ConsOC5]; for each case, assumed use up to 2760g [ConsOC2]; use includes use in a room up to 20m ³ [ConsOC11]; for each case (of use), includes exposure up to 2.2 hours/use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC9a: Coatings and paints, thinners, paint removers - fillers, putties, thinners - a very good high solids solvent, water-based paints	
OC	Unless otherwise noted, includes concentrations up to

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	12% [ConsOC1]; includes use up to 6 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 428.75 cm ² [ConsOC5]; for each case, assumed use up to 744g [ConsOC2]; includes use in a 20m ³ room [ConsOC11]; for each case, includes exposure up to 2.2hr / use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC9a: Coatings and paints, thinners, paint removers - fillers, putties, thinners - in aerosol form	
OC	Unless otherwise noted, includes concentrations up to 0.5% [ConsOC1]; includes use up to 2 days/year [ConsOC3]; includes use up to 1 time per work day [ConsOC4]; for each case, use up to 215g was assumed [ConsOC2]; includes use in one garage (34m ³) with typical ventilation [ConsOC10]; includes use in 34m ³ room size [ConsOC11]; for each case (of use), includes exposure up to 0.33 hr/use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC9a: Coatings and paints, thinners, paint removers - fillers, putties, thinners - removers for paints, adhesives, wall paper, sealants	
OC	Unless otherwise noted, includes concentrations up to 17% [ConsOC1]; includes use up to 3 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 857.50 cm ² [ConsOC5]; for each case, assumed use up to 491g [ConsOC2]; includes use in a room of 20m ³ [ConsOC11]; for each use case includes exposure up to 2.00 hours/use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC9b: Fillers, putties, plasters, modelin - Fillers and putty	
OC	Unless otherwise noted, includes concentration up to 2% [ConsOC1]; includes use up to 12 days a year [ConsOC3]; includes use up to once per workday [ConsOC4]; includes skin contact area up to 35.73 cm ² [ConsOC5]; for each case, assumed use up to 85g [ConsOC2]; includes use in a room of 20m ³ [ConsOC11]; for each use case; includes exposure up to 4 hours/use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined

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PC9b: Fillers, putties, plasters, modelin - Plasters and correctors	
OC	Unless otherwise noted, includes concentrations up to 0.6% [ConsOC1]; includes use up to 12 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 857.50 cm2 [ConsOC5]; for each case, the use of up to 13800g [ConsOC2] was assumed; includes use in a room of 20m3 [ConsOC11]; for each case; includes exposure up to 2 hours / use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC9b: Fillers, putties, plasters, modeling clay - Modeling clay	
OC	Unless otherwise noted, includes concentrations up to 1% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to 1 time per working day [ConsOC4]; includes skin contact area up to 254.40 cm2 [ConsOC5]; for each case, assumes ingestion of amounts up to 1g [ConsOC13]; includes use in a room size of 20m3 [ConsOC11];
RMM	There are no specific RMMs identified and OC has been determined
PC9c: Finger paints	
OC	Unless otherwise noted, includes concentrations up to 1% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 254.40 cm2 [ConsOC5]; for each use case, assumes ingestion of amounts up to 1.35g [ConsOC13]; includes use in a 20m3 room. [ConsOC11];
RMM	There are no specific RMMs identified and OC has been determined
PC24: Lubricants and release products - Liquids	
OC	Unless otherwise noted, includes concentrations up to 80% [ConsOC1]; includes use up to 4 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 468.00 cm2 [ConsOC5]; for each case, assumes the use of up to 2,200g [ConsOC2]; includes use in one garage (34m3) with typical ventilation [ConsOC10]; covers use in a 34m3 room [ConsOC11]; for each case covers exposure up to 0,17h hrs. / use [ConsOC14];
RMM	There are no specific RMMs identified and

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	OC has been determined
PC24: Lubricants and release products - Pastes	
OC	Unless otherwise noted, includes concentrations up to 20% [ConsOC1]; includes use up to 10 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 468.00 cm2 [ConsOC5]; for each case, assumes use of up to 34g [ConsOC2]; includes use in one garage (34m3) with typical ventilation [ConsOC10]; includes use in a room sized 34m3 [ConsOC11];
RMM	There are no specific RMMs identified and OC has been determined
PC24: Lubricants and release products - Sprays	
OC	Unless otherwise noted, includes concentrations up to 0.7% [ConsOC1]; includes use up to 6 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 428.75 cm2 [ConsOC5]; for each case, assumes use of up to 73g [ConsOC2]; includes use in a room of 20m3 [ConsOC11]; for each use case includes exposure up to 0.17hrs/use [ConsOC14]; /use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC35: Washing and cleaning products (including solvent-based products) - Washing and dishwashing products	
OC	Unless otherwise noted, includes concentrations up to 5% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 857.50 cm2 [ConsOC5]; for each use case, assumes use of up to 15g [ConsOC2]; includes use in a room size of 20m3 [ConsOC11]; for each case includes exposure up to 0.50 hr / use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC35: Washing and cleaning agents (including products based on solvents) - Liquid cleaners (all-purpose cleaners, cleaners for sanitary facilities, floors, glass, carpets, metal, cleaners)	
OC	Unless otherwise noted, includes concentrations up to 5% [ConsOC1]; includes use up to 128 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 857.50 cm2 [ConsOC5]; for each use case, assumes use of up to 27g [ConsOC2]; includes use in

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	a room of 20m3 [ConsOC11]; for each case, includes exposure to 0,33 h. /use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC35: Detergents and cleaning products (including solvent-based products) - Aerosol cleaners (all cleaners, sanitary items, products for glass cleaning)	
OC	Unless otherwise noted, includes concentrations up to 1.5% [ConsOC1]; includes use up to 128 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; includes skin contact area up to 428.00 cm2 [ConsOC5]; for each use case, assumes use of up to 35g [ConsOC2]; includes use in a room size of 20m3 [ConsOC11]; for each use case, includes exposure to 0,17 h. /use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC38: welding and soldering products (with flux coating or flux core), fluxes - NOTE, not applicable to TRA	
OC	Unless otherwise noted, includes concentrations up to 20% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to 1 time per workday [ConsOC4]; for each case, assumes use up to 12g [ConsOC2]; includes use in a room of 20m3 [ConsOC11]; for each use case, includes exposure to 1,00 h. /use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
2.2 Environmental exposure controls	
During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of REACH (5.0) exposure assessment and risk characterization is not necessary, but an assessment of risk qualification has been carried out in Section 5 of this scenario.	
3. Exposure assessment	
3.1 Health	While maintaining risk management measures (RMMs) and adhering to policies (OCs), DNELs as well as resulting indicators are not expected to be exceeded.
3.2 Environment protection	No exposure and risk assessment required
4. Guidelines for exposure scenario compliance monitoring	
4.1 Health	Expected exposure should not exceed the designated DN(M)EL for workers and consumers when the risk management measures and operational conditions recommended in Section 2 are applied [G22]. When other risk management measures /operating conditions are applied, those applying them should make sure that risk is managed at least

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	at the equivalent level [G23].
4.2 Environment protection	No exposure and risk assessment required

OC - procedure rules.

5. Exposure estimation**5.1 Employee exposure** - not applicable.**5.2 Consumer exposure** - Worker exposure estimates for acetic acid production activities were evaluated due to ECETOC TRAv2**5.3 Indirect human exposure via the environment (oral)** - not applicable.**5.4 Environmental exposure**

In the chemical safety assessment of the substance performed, no hazard was identified. Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for consumers

Acute effects			Local effects		Long-term effects		
Skin (mg/kg of the bw / day)	Inhalation (mg/m3)	Oral (mg/kg body weight / day)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg of the bw / day)	Oral (mg/kg body weight / day)	Inhalation (mg/m3)
-	72	-	No data	25	72	72	25

6.1 Risk characterization factors

Reference to use in order of scenario	RCR (skin, long-term mg/kg/day)	RCR (orally, long-term mg/kg/day)	RCR (annual inhalation in mg/m3)	RCR (general, long-term)
PC3 Air protection product	0.00	0.00	0.00	0.00
PC3 Product for air protection	0.00	0.00	0.00	0.00
PC4 Products for antifreeze and de-icing	0.00	0.00	0.00	0.00
PC4 Products for antifreeze and de-icing	0.10	0.00	0.00	0.10
PC4 Anti-freeze and de-icing products	0.12	0.00	0.01	0.13
PC8 Biocidal products (use of the substance only as a solvent)	0.00	0.00	0.00	0.00
PC8 Biocidal products (use of the substance only as	0.03	,00	0.00	0.03

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solvent				
PC8 Biocidal products (use of the substance only as a solvent)	0.01	0.00	0.00	0.01
PC9a: Coatings and paints, thinners, paint removers	0.00	0.00	0.00	0.00
PC9a: Coatings and paints, thinners, paint removers	0.00	0.00	0.00	0.00
PC9a: Coatings and paints, thinners, paint removers	0.00	0.00	0.00	0.0001
PC9a: Coatings and paints, thinners, paint removers	0.00	0.00	0.00	0.00
PC9b: Fillers, putties, plasters, modeling clay	0.00	0.00	0.00	0.00
PC9b: Fillers, putties, plasters, modeling clay	0.00	0.00	0.00	0.00
PC9b: Fillers, putties, plasters, modeling clay	0.00	0.00	0.00	0.00
PC9c: Paints applied by fingers	0.04	0.19	0.00	0.22
PC24: Lubricants and substance releasing products	0.01	0.00	0.00	0.01
PC24: Lubricants, greases and products releasing the substances	0.01	0.00	0.00	0.01
PC24: Lubricants and substance releasing products	0.01	0.00	0.00	0.01
PC24: Lubricants and substance releasing products	0.00	0.00	0.00	0.00
PC35: Washing and cleaning agents (including solvent-based products)	0.00	0.00	0.00	0.00
PC35: Washing and cleaning agents (including solvent-based	0.03	0.00	0.00	0.03

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products)				
PC35: Washing and cleaning agents (including products based on	0.01	0.00	0.00	0.01

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solvents)				
PC38: Welding and soldering products (with flux coating or flux core), fluxes	0.00	0.00	0.00	0.00

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document : Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7

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This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

SN8 (employee)

1. Title	In the drilling industry
Application sector [SU]:	SU 3 - Industrial uses: uses of substances as such or in preparations in industrial facilities SU 10 - Other uses
Process categories [PROC]:	PROC1 - Use in closed processes, no possibility of exposure PROC2 - Use in closed batch processes with sporadic, controlled exposure. PROC3 - Use in closed batch processes (synthesis or formulation). PROC4 - Use in batch and other processes (synthesis) where the possibility of exposure arises. PROC8a - Transfer of substances or preparations (loading/unloading) to/from vessels/large containers in non-dedicated areas. PROC8b - Transfer of substances or a preparation (loading/unloading) to/from vessels/large containers in rooms not intended for this goal. PROC15 - Use as a laboratory reagent.
Environmental Release Category [ERC]:	ERC1 - Substance production
Covered processes, tasks, activities:	Production of the substance or use in intermediate processes as a chemical extraction agent. Includes recycling/recovery of the plastic, transportation, storage, sampling, related laboratory activities, maintenance and loading (including maritime transport, road and rail - bulk transportation).
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes substances up to 100% in the product (unless, otherwise noted) [G13].
Quantities used	Specified without limits.
Frequency and duration of use/exposure	Includes daily exposure of up to 8 hours (unless, otherwise noted) [G2].
Human factors unaffected by risk management	No
Other operating conditions affecting worker exposure	Assumes use at no more than 20 °C above the ambient temperature, unless otherwise noted [G15]; Assuming there are applied correct basic work hygiene norms [G1]:
Scope of the Scenario	
High-volume shipping [CS14].	Ensure material transfer in confinement or under ventilation exhaust [E66].
Preparation of DPPL and container filling equipment [CS45].	Use the pump [E53]. Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) [E11]. Wear appropriate gloves conforming to the standard EN374 [PPE15]

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Ground drilling operation [CS116].	No other special measures have been identified
Spraying/steaming by hand; Outdoors	Product content limit of up to 5% [OC17]. Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) or make sure actions are taken outside [E11 and E69].
Ground drilling operation [CS116].	Product content limit of up to 5% [OC17]. Provide general ventilation at a good level (no less than 3 to 5 air changes per hour) or make sure that activities are undertaken outdoors [E11 and E69]. Wear appropriate gloves conforming to EN374 [PPE15] .
Operation of fixed filtration equipment - vapor formation [CS118].	Ensure material transfer in confinement or under a ventilation hood [E66].
Operation of fixed filtration equipment - aerosol formation [CS119].	Ensure material transfer in confinement or under a ventilation hood [E66].
Operation of fixed filtration equipment [CS117].	Ensure that the material is transferred in containment or under the ventilation hood [E66].
Separation and disposal of solids during filtration [CS121].	Ensure material transfer in confinement or under a ventilation hood [E66].
Sampling process [CS2].	Use a sampling system to control exposure [E89]. Ensure that operations are undertaken outdoors or use general ventilation at a good level (not less than 3 to 5 air changes per hour) [E69 or E11]. Avoid conducting exposure activities for more than 15 min. [OC26].
General exposure (closed systems) [CS15].	Substances used in the closed system [E47].
Pouring from small containers [CS9].	Ensure that activities are undertaken outdoors or ventilation is at an overall good level (not less than 3 to 5 air changes per hour) [E69 or E11]. Avoid carrying out activities involving exposure for longer than 15 minutes [OC26]. Wear appropriate gloves conforming to EN374 [PPE15] .
General exposure (open systems) [CS16].	Ensure that activities are undertaken outdoors or ventilation is at an overall good level (not less than 3 to 5 air changes per hour) [E69 or E11]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]. Wear adequate gloves conforming to EN374 [PPE15].
Cleaning and maintenance of equipment [CS39].	Rinse and dry before disassembly and maintenance [E55]. Wear appropriate gloves conforming to the standard EN374 [PPE15] and personal protective equipment - see safety data sheet section 8.
Periodic process [CS55].	Substances used in the closed system [E47].
Periodic process [CS55] Sampling [CS137].	Substance used in a closed system [E47]. Connect ventilation to points where emissions may occur [E54].
2.2 Environmental exposure controls	

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During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario.

3. Exposure assessment

3.1 Health	With risk management measures (RMMs) and adherence to operating rules (OCs), DNELs are not expected to be exceeded as well as resulting indicators.
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3.2 Environment protection	No exposure and risk assessment required
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4. Guidelines for exposure scenario compliance monitoring

4.1 Health	Expected exposure should not exceed the designated DN(M)EL for workers and consumers when recommended in Section 2 risk management measures and operational conditions are applied [G22]. Where other risk management measures / operational conditions are applied, those applying them should make sure that the risks are managed at least at the equivalent level [G23].
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4.2 Environment protection	No exposure and risk assessment required
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5 Exposure estimation

5.1 Employee exposures

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified. Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg bw / 24h)	Inhalation (mg/m3)
-	-	-	25	-	25

6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
High-volume shipping [CS14].	0.15	0.07	0.22
Preparation of equipment for DPPL and containers [CS45]	0.70	0.14	0.84
Drilling operation - substrate [CS116].	0.63	0.03	0.66

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Ground drilling operation [CS116].	0.84	0.14	0.98
Operation of fixed filtration equipment - vapor formation [CS118].	0.20	0.07	0.27
Operation of fixed filtration equipment - aerosol formation [CS119].	0.20	0.20	0.27
Operation of fixed filtration equipment [CS117].	0.50	0.01	0.51
Separation and disposal of solids during filtration [CS121].	0.25	0.00	0.25
Sampling process [CS2].	0.35	0.03	0.38
General exposure (closed systems) [CS15].	0.00	0.03	0.04
Pouring from small containers [CS9].	0.35	0.27	0.62
General exposure (open systems) [CS16].	0.84	0.14	0.98
Cleaning and maintenance of devices [CS39].	0.70	0.27	0.97
Periodic process [CS55].	0.00	0.00	0.00
Periodic process [CS55] Sampling [CS137].	0.25	0.01	0.26

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7.

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SN9 (employee)

1. Title	Professional agricultural chemicals
Application sector [SU]:	SU22 - Professional applications: public domain (administration, educational system, entertainment, services, crafts)
Process Categories [PROC]:	PROC1 - Use in closed processes, no possibility of exposure PROC2 - Use in closed batch processes with sporadic, controlled exposure PROC4 - Use in batch and other processes (synthesis) during which the possibility of exposure arises PROC8a – Transfer of substances or a preparation (loading/unloading) to/from vessels/large containers in rooms not intended for this goal PROC8b - Transfer of substances or a preparation (loading/unloading) to/from vessels/large containers in rooms not intended for this goal PROC11 - Non-industrial sputtering PROC13 - Treatment of industrial products by soaking or flooding
Environmental Release Category [ERC]:	ERC8d - Widely dispersed application, in rooms, and as of auxiliary substances in open systems
Covered processes, tasks, activities:	Used as an auxiliary substance for agrochemical activities for the company's needs in the form of spray, smoke or fog, including storage, equipment maintenance - its destruction and disposal.
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes substances up to 100% in the product (unless otherwise noted) [G13].
Quantities used	Specified without limits.
Frequency and duration of use/exposure	Includes daily exposure up to 8 hours (unless otherwise noted) [G2].
Human factors unaffected by risk management	No
Other operating conditions affecting worker exposure	Assumes use at no more than 20°C above ambient temperature (unless otherwise noted) [G15]; Assuming the correct basic occupational hygiene standards are applied [G1].
Scope of the Scenario	
Transport from/to DPPL [CS22].	Use a pump or pour carefully from a container [E64]. Avoid conducting exposure activities for more than 4 hours [OC28]. Wear appropriate gloves conforming to EN374 [PPE15] and personal protective equipment - see the material safety data sheet Section 8.
Mixing in containers [CS23].	Ensure that actions are taken outdoors [E69]. Avoid conducting activities involving exposure for longer than

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	one hour [OC27]. Wear appropriate gloves conforming to EN374 [PPE15] and personal protective equipment - see the material safety data sheet Section 8.
Spraying carried out by hand [CS24].	Limit the substance content in the product to 5% [OC17]. Avoid conducting exposure activities for more than 1 hour [OC27]. Wear chemical gloves (tested to EN 374) in conjunction with basic worker training [PPE16]. Wear EN140-compliant masks with type A filters or better. [PPE22]
Spraying carried out by machines [CS25].	Limit the substance content in the product to 5% [OC17]. Use in a ventilated cabin provided with filtered air under positive pressure and with a protection factor > 20 [E70]. Avoid conducting activities involving exposure for more than 4 hours [OC28]. Wear appropriate gloves conforming to EN374. [PPE15] and personal protective equipment - see the material safety data sheet Section 8.
In anticipation, manual application of the substance by spray, by dipping, etc. [CS27].	Limit the substance content in the product to 5% [OC17]. Avoid conducting exposure activities for more than 1 hour [OC27].
Cleaning and maintenance [CS26]. Non-dedicated room [CS82].	Clean the system of unnecessary equipment or secure it [E65]. Limit the substance content in the product to 5% [OC17]. Avoid conducting activities involving exposure for more than 4 hours [OC28]. Provide drainage with sealed storage pending disposal of substances [ENV4].
Waste disposal [CS28]. Non-dedicated room [CS82].	Limit the substance content in the product to 5% [OC17]. Ensure that activities are undertaken outdoors or in a room with a good level of general ventilation (not less than 3 to 5 air changes per hour) [E69 or E11]. Avoid carrying out activities associated with exposures of more than 1 hour [OC27].
Storage [CS67].	Ensure that activities are undertaken outdoors or in a room with a good level of general ventilation (not less than 3 to 5 air changes per hour) [E69 or E11]. Substances must be used in a closed system [E84].
Storage [CS67] with sampling [CS 137].	Use the substance in a closed system [E84]. Ensure that activities are undertaken outdoors [E69]. Avoid conducting exposure activities longer than 4 hours [OC28].

2.2 Environmental exposure controls

During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario.

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3. Exposure estimation	
3.1 Health	With risk management measures (RMMs) and adherence to operating rules (OCs), DNELs are not expected to be exceeded as well as resulting indicators.
3.2 Environment protection	No exposure and risk assessment required
4. Guidelines for exposure scenario compliance monitoring	
4.1 Health	Expected exposure should not exceed the designated DN (M)EM for workers and consumers when the risk management measures and operational conditions recommended in Section 2 are applied [G22]. Where other risk management measures / operational conditions are applied, those applying them should make sure that risks are managed to at least an equivalent level [G23].
4.2 Environment protection	No exposure and risk assessment required

5 Exposure estimation

5.1 Employee exposures

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified.

Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg bw / 24h)	Inhalation (mg/m3)
-	-	-	25	-	25

6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
Transport from/to DPPL [CS22].	0.60	0.14	0.74
Mixing in containers [CS23].	0.70	0.14	0.84
Spraying conducted manually [CS24].	0.60	0.21	0.81
Spraying carried out by machines [CS25]	0.30	0.43	0.73
While you wait - manual application of the substance by	0.40	0.27	0.67

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spraying, by immersion, etc. [CS27].			
Cleaning and maintenance [CS26]. Non-dedicated room [CS82].	0.24	0.27	0.51
Waste disposal [CS28]. Room - non-dedicated [CS82].	0.28	0.27	0.55
Storage [CS67].	0.00	0.00	0.00
Storage [CS67] with sampling [CS 137].	0.84	0.01	0.85

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document : Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7.

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SN10 (CONSUMER)

1. Title	Chemical and agricultural products for the consumer
Application sector [SU]:	Consumer applications: households (= general public = consumers)
Process categories [PROC]:	PC12, PC27, (PC22)
Environmental Release Category [ERC]:	ERC8a - Widely dispersed use, indoors, of auxiliary substances in open systems ERC8d - Widely distributed use, outdoors, of reactive substances in open systems
Covered processes, tasks, activities:	Includes consumer use of liquid and solid crop protection products.
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
vapor pressure	Unless otherwise noted, covers concentrations up to 15% [ConsOC1].
Concentration of the substance in the product	Unless otherwise noted, includes use of quantities up to 0g [ConsOC2]; includes skin contact area up to 857.5 cm ² [ConsOC5].
Quantities used	Unless otherwise noted, includes frequency of use up to 1 time per day [ConsOC4]; includes exposure time up to 2 hours per event [ConsOC14].
Frequency and duration of use/exposure	Unless otherwise noted, it is assumed to be used in the ambient temperature [ConsOC15]; assumed use in 20 m ² room; includes use with typical ventilation [ConsOC8].
Human factors unaffected by risk management	No
PC12 Fertilizers - garden preparations, for lawns	
OC	Unless otherwise noted, includes concentrations up to 15% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to once per day [ConsOC4]; includes skin contact area up to 857.50 cm ² [ConsOC5]; for each case (of use), allows ingestion up to 0.3 g [ConsOC13]; includes use in a 20m ³ room [ConsOC11]; for each case includes exposure up to 2.00 hours/use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
PC27 Plant protection products	
OC	Unless otherwise noted, includes concentrations up to 15% [ConsOC1]; includes use up to 365 days a year [ConsOC3]; includes use up to once per day [ConsOC4]; includes skin contact areas up to 857.50 cm ² [ConsOC5]; for each case ingestion of up to 0.3 g is admitted [ConsOC13];

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	[ConsOC13]; includes use in a 20m3 room [ConsOC11]; for each case includes exposure up to 2,00 h. /use [ConsOC14];
RMM	There are no specific RMMs identified and OC has been determined
2.2 Environmental exposure controls	
During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario	
3. Exposure assessment	
3.1 Health	While maintaining risk management measures (RMMs) and adhering to policies (OCs), DNEs as well as resulting indicators are not expected to be exceeded.
3.2 Environment protection	No exposure and risk assessment required
4. Guidelines for exposure scenario compliance monitoring	
4.1 Health	Expected exposure should not exceed the designated DN (M)EL for workers and consumers when the risk management measures and operational conditions recommended in Section 2 are applied [G22]. Where other risk management measures / operational conditions are applied, those applying them should make sure that risks are managed to at least an equivalent level [G23].
4.2 Environment protection	No exposure and risk assessment required

5. Exposure estimation

5.1 Employee exposure - not applicable.

5.2 Consumer exposure - Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified.

Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for consumers

Acute effects			Local effects		Long-term effects		
Skin (mg/kg of the bw / day)	Inhalation (mg/m3)	Oral (mg/kg body weight / day)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg of the bw / day)	Oral (mg/kg body weight / day)	Inhalation (mg/m3)
-	72	-	No data	25	72	72	25

6.1 Risk characterization factors

Reference to	RCR	RCR	RCR	RCR
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scenario	(skin, long-term in mg/kg/day)	(orally, long- term mg/kg/day)	(annual inhalation in mg/m3)	(general, long-term)
PC12 Fertilizers	0.30	0.63	0.00	0.92
PC27 Plant protection products	0.30	0.63	0.00	0.92

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document : Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7.

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SN11 (EMPLOYEE)

1. Title	Laboratory reagents - industrial
Application sector [SU]:	SU 3 - Industrial uses: uses of substances as such or in preparations in industrial facilities SU 10 - Other uses
Process categories [PROC]:	PROC10 - Application by brush or roller PROC15 - Used as laboratory reagents
Environmental Release Category [ERC]:	ERC4 - Industrial use of excipients in processes and products that will not become part of the product.
Covered processes, tasks, activities:	Use of substances in the laboratory including the transfer of material and equipment for cleaning.
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes substances up to 100% in the product (unless, otherwise noted) [G13].
Quantities used	Specified without limits.
Frequency and duration of use/exposure	Includes daily exposure of up to 8 hours (unless, otherwise noted) [G2].
Human factors unaffected by risk management	No
Other operating conditions affecting worker exposure	Assumes use at no more than 20 °C above the ambient temperature, unless otherwise noted [G15]; Assuming there are applied correct basic work hygiene norms [G1]:
Scope of the Scenario	
Laboratory operations [CS36]. Small scale [CS61]. Handling small quantities (< 1000ml) more than 4 hours per day - inside the fume hood.	Use under a fume hood or under a ventilation hood [E83].
Cleaning [CS47]. Roller or brush application [CS51]. Cleaning of containers and tanks [CS103]. Cleaning of equipment, glassware, etc. As a part of general ventilation for 15 min - 1 hr/day	Use general ventilation at a good level (10 to 15 air changes per hour) [E40]. Avoid conducting exposure activities for more than 1 hour [OC27]. Wear appropriate gloves conforming to EN374 [PPE15] and personal protective equipment - see: material safety data sheet Section 8.
2.2 Environmental exposure controls	
During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario	
3. Exposure estimation	
3.1 Health	While maintaining risk management measures (RMMs) and adhering to policies (OCs), DNELs as well as resulting indicators are not expected to be exceeded.
3.2 Environment protection	No exposure and risk assessment required
4. Guidelines for exposure scenario compliance monitoring	
4.1 Health	Expected exposure should not exceed the designated DN(M)EM for workers and consumers when the risk management measures and operational conditions recommended in Section 2 are applied [G22]. If other

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	risk management measures /operational conditions are applied, those applying them should ensure that risks are managed at the equivalent level at least [G23].
4.2 Environment protection	No exposure and risk assessment required

5. Exposure estimation

5.1 Employee exposures

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified.

Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg bw / 24h)	Inhalation (mg/m3)
-	-	-	25	-	25

6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
Laboratory operations [CS36].	0.10	0.00	0.10
Cleaning [CS47].	0.30	0.55	0.85

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7.

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SN12 (EMPLOYEE)

1. Title	Laboratory reagents - professional
Application sector [SU]:	SU 22 - Professional applications: public domain (administration, educational system, entertainment, services, craft)
Process categories [PROC]:	PROC10 - Application by brush or roller PROC15 - Used as laboratory reagents
Environmental Release Category [ERC]:	ERC8a - Widely dispersed use, indoors, of reactive substances in open systems
Covered processes, tasks, activities:	Use of small quantities in the laboratory, including transfer of material and cleaning of equipment.
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes substances up to 100% in the product (unless otherwise noted) [G13].
Quantities used	Specified without limits.
Frequency and duration of use/exposure	Includes daily exposure up to 8 hours (unless otherwise noted) [G2].
Human factors unaffected by risk management	No
Other operating conditions affecting worker exposure	It is assumed to be used at a temperature of no more than 20 °C above the ambient temperature, unless specified otherwise [G15];
Scope of the Scenario	
Laboratory operations [CS36]. Small scale [CS61]. Active vapor absorber [CS139]. Handling small quantities (< 1000ml) more than 4 hours per day - inside a fume hood.	Use under a fume cupboard or under a ventilation hood [E83]. Connect ventilation to points where emissions may occur [E54].
Cleaning [CS47]. Application by roller or brush [CS51]. Cleaning of containers and tanks [CS103]. Cleaning of equipment, glassware, etc. As a part of general ventilation for 15 min - 1 hr/day	Use general ventilation at a good level (10 to 15 air changes per hour) [E40]. Avoid conducting exposure activities for more than 1 hour [OC27]. Wear chemical-resistant gloves (tested to EN374) in combination with basic training for employees [PPE16].
2.2 Environmental exposure controls	
During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario.	
3. Exposure estimation	
3.1 Health	While maintaining risk management measures (RMMs) and adhering to policies (OCs), DNELs as well as resulting indicators are not expected to be exceeded.
3.2 Environment protection	If recommended risk management measures (RMMs) and operating conditions (OCs) are followed, exposures should not exceed the predicted PNECs as well as the resulting risk characterization indicators
4. Guidance to check compliance with exposure scenario	

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4.1 Health	Expected exposure should not exceed the designated DN(M)EL for workers and consumers when recommended in Section 2 risk management measures and operational conditions are applied [G22]. Where other risk management measures / operational conditions are applied, those applying them should make sure that risks are managed to at least an equivalent level [G23].
4.2 Environment protection	No exposure and risk assessment required

5. Exposure estimation

5.1 Employee exposures

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified.

Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg bw / 24h)	Inhalation (mg/m3)
-	-	-	25	-	25

6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
Laboratory operations [CS36].	0.20	0.00	0.20
Cleaning [CS47].	0.60	0.27	0.87

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7.

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SN13 (EMPLOYEE)

1. Title	Industrial water treatment
Application sector [SU]:	SU 3 - Industrial uses: uses of substances as such or in preparations in industrial facilities SU 10 - Other uses
Process categories [PROC]:	PROC1 - Use in closed processes, no possibility of exposure PROC2 - Use in closed batch processes with sporadic, controlled exposure. PROC3 - Use in closed batch processes (synthesis or formulation). PROC4 - Use in batch and other processes (synthesis) where the possibility of exposure arises. PROC8a - Transfer of substances or preparations (loading/unloading) to/from vessels/large containers in non-dedicated areas. PROC8b - Transfer of substances or a preparation (loading/unloading) to/from vessels/large containers in rooms not intended for this goal. PROC13 - Treatment of industrial products by soaking or flooding
Environmental Release Category [ERC]:	ERC1 - Substance production
Covered processes, tasks, activities:	Includes use of substances for water treatment in industrial plants, in open and closed systems. PH control
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes substances up to 100% in the product (unless, otherwise noted) [G13].
Quantities used	Specified without limits.
Frequency and duration of use/exposure	Includes daily exposure of up to 8 hours (unless, otherwise noted) [G2].
Human factors unaffected by risk management	No
Other operating conditions affecting worker exposure	Assumes use at a temperature of no more than 20 °C above ambient unless otherwise noted [G15]; Assuming correct, basic occupational hygiene standards are applied [G1].
Scope of the Scenario	
Bulk transport [CS14] Periodic exposure control [CS137]	Exposure activities longer than 4 hours should be avoided [OC28].
Batch transfer in DPPL [CS8]. Dedicated room [CS81]	Use the pump [E53]. Avoid spillage when disconnecting the pump [CH16]. Avoid conducting activities involving exposure for more than 4 hours [OC28]. Wear appropriate gloves conforming to EN374 [PPE15] and - see the material safety data sheet Section 8.

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General exposure (closed systems) [CS15]. Periodic process [CS55].	General ventilation at a good general level (not less than 3 to 5 air changes per hour) or make sure activities are undertaken outdoors [E11 and E69]. Avoid conducting exposure activities longer than 1 hour [OC27].
General exposure (open systems) [CS16].	Product content limit of up to 5% [OC17]. Provide general ventilation at a good level (no less than 3 to 5 air changes per hour) or make sure that activities are undertaken outdoors [E11 and E69]. Exposure activities longer than 4 hours should be avoided [OC28]. Wear appropriate gloves conforming to the standard EN374 [PPE15]
Pour from small containers [CS9] Treatment by immersion and pouring [CS35].	At a good level of general ventilation (no less than 3 to 5 air changes per hour) [E11]. Connect ventilation to points where emissions may occur [E54]. Wear appropriate gloves conforming to EN374 [PPE15] and PPE - see the material safety data sheet Section 8.
Hardware Maintenance [CS5].	At a good level of general ventilation (not less than 3 to 5 air changes per hour) or make sure that activities are undertaken outdoors [E11 and E69]. Flush or remove the substance from the unit before dismantling or maintenance [E81]. Wear appropriate gloves
Storage [CS67].	Store the substance in a closed system [E84].
2.2 Environmental exposure controls	
During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario.	
3. Exposure estimation	
3.1 Health	With risk management measures (RMMs) and adherence to operating rules (OCs), DNELs are not expected to be exceeded as well as resulting indicators.
3.2 Environment protection	No exposure and risk assessment required
4. Guidelines for exposure scenario compliance monitoring	
4.1 Health	Expected exposure should not exceed the designated DN (M)EL for workers and consumers when the risk management measures and operational conditions recommended in Section 2 are applied [G22]. When other risk management measures /operational conditions are applied, those applying them should ensure that risks are managed at the equivalent level at least [G23].
4.2 Environment protection	No exposure and risk assessment required
5 Exposure estimation	
5.1 Employee exposures	

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

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5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified. Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg bw / 24h)	Inhalation (mg/m3)
-	-	-	25	-	25

6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
Bulk transport [CS14]	0.60	0.14	0.74
Batch transfer in DPPL [CS8].	0.60	0.14	0.74
General exposure (closed systems) [CS15]	0.35	0.03	0.38
General exposure (open systems) [CS16]	0.84	0.14	0.98
Pouring from small containers [CS9]	0.70	0.27	0.97
Hardware Maintenance [CS5].	0.70	0.27	0.97
Storage [CS67].	0.00	0.00	0.00

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document Worker Chemical Safety Assessment (CSA) Template document.

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SN14 (EMPLOYEE)

1. Title	Professional water treatment
Application sector [SU]:	SU 22 - Professional applications: public domain (administration, education, entertainment, services, crafts)
Process Categories [PROC]:	PROC1 - Use in closed processes, no possibility of exposure PROC2 - Use in closed batch processes with sporadic, controlled exposure. PROC3 - Use in closed batch processes (synthesis or formulation). PROC4 - Use in batch and other processes (synthesis) where the possibility of exposure arises. PROC8a - Transfer of substances or preparations (loading/unloading) to/from vessels/large containers in non-dedicated areas. PROC8b - Transfer of substances or a preparation (loading/unloading) to/from vessels/large containers in rooms not intended for this goal. PROC13 - Treatment of industrial products by soaking or flooding
Environmental Release Category [ERC]:	ERC1 - Substance production
Covered processes, tasks, activities:	Includes use of substances in water treatment, in open and closed systems. PH control
2. Operating conditions and risk management measures	
2.1 Control of worker exposure	
Characteristics of the product	Liquid, vapor pressure > 10 kPa [OC5].
Concentration of the substance in the product	Includes substances up to 100% in the product (unless, otherwise noted) [G13].
Quantities used	Specified without limits.
Frequency and duration of use/exposure	Includes daily exposure of up to 8 hours (unless, otherwise noted) [G2].
Human factors unaffected by risk management	No
Other operating conditions affecting worker exposure	Assumes use at a temperature of no more than 20 °C above ambient unless otherwise noted [G15]; Assuming correct, basic occupational hygiene standards are applied [G1].
Scope of the Scenario	
Batch transfer in DPPL [CS8]. Dedicated room [CS81].	Use the pump [E53]. Avoid spillage when disconnecting the pump [CH16]. Avoid conducting activities involving exposure for more than 4 hours [OC28]. Wear appropriate gloves conforming to EN374 [PPE15] and personal protective equipment - see safety data sheet Section 8.
General exposure (closed systems) [CS15]. Periodic process [CS55].	Use general ventilation at a good level (not less than 3 to 5 air exchanges per hour) or make sure activities are undertaken outdoors [E11 and E69]. Exposure activities longer than 1 hour should be avoided [OC27].

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General exposure (open systems) [CS16].	Provide general ventilation at a good level (no less than 3 to 5 air changes per hour) or make sure that activities are undertaken outdoors [E11 and E69]. Avoid conducting exposure activities longer than 1 hour [OC27]. Wear appropriate gloves conforming to the standard EN374 [PPE15]
Pour from small containers [CS9] Treatment by immersion and pouring [CS35].	Use general ventilation at a good level (not less than 3 to 5 air exchanges per hour) or make sure activities are undertaken outdoors [E11 and E69]. Avoid conducting activities involving exposure for more than 4 hours [OC28]. Wear appropriate chemical-resistant gloves (tested to EN374) in conjunction with basic training for workers [PPE16].
Equipment maintenance [CS5]. Non-dedicated rooms [CS82].	Rinse and dry before disassembly and maintenance [E55]. Provide general ventilation at a good level (not less than 3 to 5 air changes per hour) or make sure activities are carried out outdoors [E11 and E69]. Wear chemical-resistant gloves (tested to EN374) in conjunction with basic training for employees [PPE16].
Storage [CS67].	Store the substance in a closed system [E47].
2.2 Environmental exposure controls	
During the chemical safety assessment of the substance, performed in accordance with Article 14 (3), together with Annex I, Section 3 (environmental risk assessment) and Section 4 (PBT / vPvB), no hazard was found. Hence, in accordance with Annex I of the REACH Regulation (5.0), an exposure assessment and risk characterization is not necessary, but a risk qualification assessment was carried out at the Section 5 of this scenario	
3. Exposure estimation	
3.1 Health	While maintaining risk management measures (RMMs) and adhering to policies (OCs), DNELs as well as resulting indicators are not expected to be exceeded.
3.2 Environment protection	No exposure and risk assessment required
4. Guidelines for exposure scenario compliance monitoring	
4.1 Health	Expected exposure should not exceed the designated DN(M)EL for workers and consumers when recommended in Section 2 risk management measures and operational conditions are applied [G22]. Where other risk management measures / operational conditions are applied, those applying them should make sure that risks are managed to at least an equivalent level [G23].
4.2 Environment protection	No exposure and risk assessment required

5. Exposure estimation

5.1 Employee exposures

Worker exposure estimates for acetic acid production activities were assessed with ECETOC TRAv2.

5.2 Consumer exposure - not applicable.

5.3 Indirect human exposure via the environment (oral) - not applicable.

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5.4 Environmental exposure

In the chemical safety assessment of the substance performed, no hazard was identified. Therefore, according to REACH Annex I (5.0), an exposure assessment and risk characterization is not necessary.

6. Risk characteristics

DN(M)ELs for employees

Acute effects		Local effects		Long-term effects	
Skin (mg/kg bw / 24h)	Inhalation (mg/m3)	Skin (mg/cm2)	Inhalation (mg/m3)	Skin (mg/kg bw / 24h)	Inhalation (mg/m3)
-	-	-	25	-	25

6.1 Risk characterization factors

Reference to scenario	RCR (inhalation)	RCR (skin)	RCR (general)
Batch transfer in DPPL[CS8].	0.70	0.14	0.84
General exposure (closed systems) [CS15].	0.35	0.03	0.38
General exposure (open systems) [CS16].	0.70	0.14	0.84
Pouring from small containers [CS9]	0.84	0.14	0.84
Hardware Maintenance [CS5].	0.70	0.14	0.84
Storage [CS67].	0.00	0.03	0.03

Note:

Symbols in square brackets, e.g., [G2], [E66] are references to sample standard phrases for use in exposure scenarios developed by CEFIC in the document Worker Chemical Safety Assessment (CSA) Template document.

This scenario is based on the Chemical Safety Report CSR-PI-5.2.6 dated 2010-08-16 for Acetic acid EC Number: 200-580-7 CAS Number: 64-19-7.