

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Supersedes date 27-Apr-2017

Revision date 19-Sep-2024

Revision Number 4

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

1.1. Product identifier

Product Code(s)	1416
Safety data sheet number	1416
Product Name	NONANOIC ACID
Index No	607-197-00-8
EC Number	203-931-2
CAS No	112-05-0
Synonyms	PELARGONIC ACID, PELARGONIC ACID HP, CAFLON CA-PELA, CAFLON CA-PELA HP
Pure substance/mixture	Substance
Molecular weight	102

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

Recommended use	Intermediate Cleaning agent Lubricant Laboratory chemicals For further information, see attached Exposure Scenario
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1.3. Details of the supplier of the safety data sheet

Supplier

Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
GBR

For further information, please contact

E-mail address	SDS.EMEA@univarsolutions.com
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306

1.4. Emergency telephone number

Emergency Telephone	SGS - +32 (0)3 575 55 55 (24h)
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Skin corrosion/irritation	Category 2 - (H315)
Serious eye damage/eye irritation	Category 2 - (H319)
Chronic aquatic toxicity	Category 3 - (H412)

2.2. Label elements



Signal word

Warning

Hazard statements

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H412 - Harmful to aquatic life with long lasting effects

Precautionary statements

P273 - Avoid release to the environment

P280 - Wear protective gloves and eye/face protection

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

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

P332 + P313 - If skin irritation occurs: Get medical advice/attention

P337 + P313 - If eye irritation persists: Get medical advice/attention

2.3. Other hazards

Vapours are heavier than air and may travel along the floor and in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
NONANOIC ACID 112-05-0	90 - 100%	203-931-2	-	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Aquatic Chronic 3 (H412)	-	-	-

Full text of H- and EUH-phrases: see section 16

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (UK REACH Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Call a doctor. Do not induce vomiting without medical advice.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

4.2. Most important symptoms and effects, both acute and delayed

Eyes Causes serious eye irritation.

Dermal Causes skin irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical, CO ₂ , alcohol-resistant foam or water spray.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Vapours may form explosive mixtures with air. Vapours are heavier than air and may travel along the floor and in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember. The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours.

Hazardous combustion products Carbon monoxide. Carbon dioxide (CO₂).

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Cool containers with flooding quantities of water until well after fire is out. Collect contaminated fire extinguishing water separately. Do not allow it to enter drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Avoid contact with skin, eyes and inhalation of vapours. Wear protective gloves/clothing and eye/face protection. Take precautionary measures against static discharge.

Other information	Refer to protective measures listed in Sections 7 and 8.
For emergency responders	Use personal protection recommended in Section 8.
<u>6.2. Environmental precautions</u>	
Environmental precautions	Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.
<u>6.3. Methods and material for containment and cleaning up</u>	
Methods for containment	Dyke far ahead of spill to collect run-off water. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Keep out of drains, sewers, ditches and waterways. Use non sparking handtools and explosion-proof electric equipment.
Methods for cleaning up	Take precautionary measures against static discharges.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.
<u>6.4. Reference to other sections</u>	
Reference to other sections	See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	Handle in accordance with good industrial hygiene and safety practice. In case of insufficient ventilation, wear suitable respiratory equipment. Ensure adequate ventilation. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Vapours may form explosive mixtures with air. Vapours are heavier than air and may travel along the floor and in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember. Use personal protection recommended in Section 8. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use spark-proof tools and explosion-proof equipment.
General hygiene considerations	Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas. Ensure that eyewash stations and safety showers are close to the workstation location.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep at temperatures between 16 and 40 °C. Ground and bond containers when transferring material. Take precautionary measures against static discharge. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Vapours are heavier than air and may travel along the floor and in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember. Avoid contact with: Amines. Strong oxidising agents. Bases. Reducing agent.
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7.3. Specific end use(s)

Specific use(s)
See section 1 for more information.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
NONANOIC ACID 112-05-0		8.33 mg/kg/day [4] [6]	58.8 mg/m ³ [4] [6]

[4] Systemic health effects.
[6] Long term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
NONANOIC ACID 112-05-0	4.17 mg/kg/day [4] [6]	4.17 mg/kg/day [4] [6]	14.5 mg/kg/day [4] [6]

[4] Systemic health effects.
[6] Long term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
NONANOIC ACID 112-05-0	0.36 mg/l	0.6 mg/L	0.036 mg/l		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
NONANOIC ACID 112-05-0	8.5 mg/kg	0.85 mg/kg	1.4 mg/L	1.48 mg/kg	1.4 mg/l

8.2. Exposure controls

Engineering controls Ensure adequate ventilation. Local and General Ventilation. Use explosion-proof ventilating equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye/face protection If splashes are likely to occur, wear safety glasses with side-shields. Tight sealing safety goggles. Use eye protection according to EN 166.

Hand protection Wear suitable gloves. Impervious gloves. Gloves must conform to standard EN 374. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves.

Gloves

Duration of contact	PPE - Glove material	Glove thickness	Break through time
Long term (repeated)	Nitrile rubber	~ 0.55 mm	> 480 minutes

Skin and body protection	Wear suitable protective clothing. Long sleeved clothing.
Respiratory protection	In case of inadequate ventilation wear respiratory protection. EN 136/140/141/145/143/149.
General hygiene considerations	Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas. Ensure that eyewash stations and safety showers are close to the workstation location.
Environmental exposure controls	Bund storage facilities to prevent soil and water pollution in the event of spillage.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	No information available
Appearance	Liquid
Colour	Colourless
Odour	Slight.
Odour threshold	No information available

Property	Values	Remarks • Method
Melting point / freezing point	13 °C	DIN ISO 3016.
Initial boiling point and boiling range	> 245 - < 266 °C	OECD 103.
Flammability		No information available.
Flammability Limit in Air		No information available.
Upper flammability or explosive limits	9.0%	
Lower flammability or explosive limits	0.8%	
Flash point	137 °C	DIN EN ISO 2719.
Autoignition temperature	355 °C	DIN 51794.
Decomposition temperature	>= 266 °C	No information available.
pH		No information available.
pH (as aqueous solution)	4.4	solution (0.01 %).
Kinematic viscosity	8.972 mm ² /s	@ 20 °C.
Dynamic viscosity		No information available.
Water solubility	No data available	No information available.
Solubility(ies)		No information available.
Partition coefficient	log Pow: 3.4	OECD 117.
Vapour pressure	0.01 kPa @ 20°C	No information available.
Relative density	0.905 @ 20°C	No information available.
Bulk density		No information available
Liquid Density	No information available	No information available
Relative vapour density	5.5	No information available.
Particle characteristics		No information available.
Particle Size	No information available	
Particle Size Distribution	No information available	
Explosive properties	Not considered to be explosive.	
Oxidising properties	Does not meet the criteria for classification as oxidising	

9.2. Other information

Molecular weight	102
Refractive Index	1.433

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Yes.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Vapours are heavier than air and may travel along the floor and in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember. Vapours may form explosive mixtures with air.

10.4. Conditions to avoid

Conditions to avoid Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges.

10.5. Incompatible materials

Incompatible materials Bases. Amines. Strong oxidising agents. Reducing agent.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Information on likely routes of exposure****Product Information**

Inhalation Inhalation of vapours in high concentration may cause irritation of respiratory system.

Eye contact Causes serious eye irritation.

Skin contact Causes skin irritation.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Causes serious eye irritation. Causes skin irritation.

Acute toxicity**Numerical measures of toxicity****Component Information**

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
NONANOIC ACID	> 2 g/kg (Rat)	> 2000 mg/kg (Rat)	> 5997 mg/L (Rat) 4 h

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

Skin corrosion/irritation Causes skin irritation.

NONANOIC ACID (112-05-0)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit	Dermal		4 hours	

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitisation Based on available data the classification criteria are not met.

Method	Species	Exposure route	Results
OECD Test No. 406: Skin Sensitisation	Guinea pig	Dermal	Not a skin sensitiser
OECD Test No. 429: Skin Sensitization	Mouse	Dermal	Not a skin sensitiser

Germ cell mutagenicity Based on available data the classification criteria are not met.

Component Information

NONANOIC ACID (112-05-0)

Method	Species	Results
OECD Test No. 471: Bacterial Reverse Mutation Test	in vitro	Negative
OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test	in vitro	Negative
OECD Test No. 476: In Vitro Mammalian Cell Gene Mutation Tests using the Hprt and xprt genes	in vitro	Negative

Carcinogenicity No information available.

Reproductive toxicity Based on available data the classification criteria are not met.

NONANOIC ACID (112-05-0)

Method	Species	Results
OECD 414	Rat	NOAEL 1500 mg/kg
OECD 414	Rabbit	NOAEL 426 mg/kg
OECD 416	Mouse	NOAEL 4700 mg/kg

STOT - single exposure No information available.

STOT - repeated exposure Based on available data the classification criteria are not met.

Component Information

NONANOIC ACID (112-05-0)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 407: Repeated Dose 28-day Oral Toxicity Study in Rodents	Rat	Oral		28 days	NOAEL 1000
OECD Test No. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	Oral		90 days	NOAEL 507

Aspiration hazard Based on available data the classification criteria are not met.

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Harmful to aquatic life with long lasting effects.

NONANOIC ACID (112-05-0)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
EPA OPP 72-2	Daphnia magna	EC50	96 mg/L	48 hours	
OECD Test No. 211: Daphnia magna Reproduction Test	Daphnia magna	EC50	47 mg/L	21 days	
OECD Test No. 211: Daphnia magna Reproduction Test	Daphnia magna	NOEC	18 mg/L	21 days	
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Pseudokirchneriella subcapitata	ErC50	60 mg/L	72 hours	
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Pseudokirchneriella subcapitata	NOEC	29 mg/L	3 days	
EPA OPP 72-1	Colinus virginianus	LD50	> 2250 mg/L	14 days	
	Anas platyrhynchos	LC50	> 5620 ppm	8 days	

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
NONANOIC ACID	-	LC50: 93.4 - 115mg/L (96h, Pimephales promelas) LC50: 68 - 121mg/L (96h, Oncorhynchus mykiss) LC50: =105mg/L (96h, Lepomis macrochirus)	-	-

12.2. Persistence and degradability

Persistence and degradability Readily biodegradable.

NONANOIC ACID (112-05-0)

Method	Exposure time	Value	Results
OECD Test No. 301B: Ready Biodegradability: CO2 Evolution Test (TG 301 B)	28 days	Biodegradation 68 - 75%	Readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
NONANOIC ACID	3.4

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
NONANOIC ACID	The substance is not PBT / vPvB

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Waste from residues/unused products Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority. Do not puncture or incinerate cans. Avoid release to the environment.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information**IATA**

14.1 UN number or ID number	Not regulated
14.2	
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

IMDG

14.1 UN number or ID number	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

ADR

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****Authorisations and/or restrictions on use:**

This product contains one or more substances subject to restriction (UK REACH - Annex XVII).

Persistent Organic Pollutants

Not applicable

Export Notification requirements

Not applicable

Named dangerous substances per COMAH Regulations 2015 (as amended)

Not applicable

The Ozone-Depleting Substances Regulations 2015

Not applicable

The Biocidal Products Regulations 2001 (as amended)

Chemical name	The Biocidal Products Regulations 2001 (as amended)
NONANOIC ACID - 112-05-0	Product-type 2: Disinfectants and algicides not intended for direct application to humans or animals Product-type 19: Repellents and attractants

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)

Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)

Not applicable

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECI	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:

TSCA	- United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL	- Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS	- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS	- Japan Existing and New Chemical Substances
IECSC	- China Inventory of Existing Chemical Substances
KECL	- Korean Existing and Evaluated Chemical Substances
PICCS	- Philippines Inventory of Chemicals and Chemical Substances
AIIC	- Australian Inventory of Industrial Chemicals
NZIoC	- New Zealand Inventory of Chemicals

15.2. Chemical safety assessment**Chemical Safety Report**

A Chemical Safety Assessment has been carried out for this substance

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet**Full text of H-Statements referred to under section 3**

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H412 - Harmful to aquatic life with long lasting effects

Legend

SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

TWA TWA (time-weighted average)

STEL

STEL (Short Term Exposure Limit)

Ceiling Maximum limit value

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Skin designation

+ Sensitisers

Revision Note SDS sections updated 2 11 12 15 16

Classification procedure

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

Method Used

Acute oral toxicity

Calculation method

Acute dermal toxicity

Calculation method

Acute inhalation toxicity - gas

Calculation method

Acute inhalation toxicity - vapour

Calculation method

Acute inhalation toxicity - dust/mist

Calculation method

Skin corrosion/irritation

Calculation method

Serious eye damage/eye irritation

Calculation method

Respiratory sensitisation

Calculation method

Skin sensitisation

Calculation method

Mutagenicity

Calculation method

Carcinogenicity

Calculation method

Reproductive toxicity

Calculation method

STOT - single exposure

Calculation method

STOT - repeated exposure

Calculation method

Acute aquatic toxicity

Calculation method

Chronic aquatic toxicity

Calculation method

Aspiration hazard

Calculation method

Ozone

Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)

European Chemicals Agency (ECHA) (ECHA_API)

Environmental Protection Agency

Acute Exposure Guideline Level(s) (AEGL(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal

Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)

National Institute of Technology and Evaluation (NITE)

Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)

NIOSH (National Institute for Occupational Safety and Health)

National Library of Medicine's ChemID Plus (NLM CIP)

National Library of Medicine's PubMed database (NLM PUBMED)

U.S. National Toxicology Program (NTP)

New Zealand's Chemical Classification and Information Database (CCID)

Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications

Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme

Organisation for Economic Co-operation and Development Screening Information Data Set

World Health Organization

Prepared By

J Spenceley

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This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name NONANOIC ACID
REACH registration number 01-2119529247-37-XXXX
CAS No 112-05-0
EC No (EU Index No) 203-931-2
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC13 - Treatment of articles by dipping and pouring
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC15 - Use as laboratory reagent

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Covers concentrations up to 100%
Amounts used

Type	Daily amount per site
Value	2000
Units	kg/d

Type	Annual amount per site
Value	200
Units	t(ons)/year

Type	Fraction of regional tonnage used locally
Value	1

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	2.5%
Release fraction to wastewater from process (initial release prior to RMM)	0.9%
Release fraction to soil from process (initial release prior to RMM)	0.01%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000
Removal efficiency (total)	87.5%

Further information

Operational conditions	Indoor/Outdoor use
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external recovery of waste

Method	External recovery and recycling of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent
Covers concentrations up to	>=10%
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves (tested to EN 374) and eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Clean equipment and the work area every day Supervision in place to check that the RMMs in place are being used correctly and OCs followed Avoid contact with contaminated tools and objects Good practice advice Handle all packages and containers carefully to minimise spills
Remarks	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Covers indoor and outdoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC)

Freshwater 0.36 mg/l

Freshwater sediment	8.5 mg/kg dw
Marine water	0.036 mg/l
Marine sediment	0.85 mg/kg dw
Soil	1.48 mg/kg dw
Impact on Sewage Treatment	1.4 mg/l
Intermittent release	0.6 mg/l

Calculation method Used CHESAR model

Environment	predicted exposure level	Risk characterisation ratio (RCR)
Freshwater	0.113 mg/l	0.313
Freshwater sediment	1.593 mg/kg dw	0.187
Marine water	0.011 mg/l	0.313
Marine sediment	0.159 mg/kg dw	0.187
Soil	0.255 mg/kg dw	0.173
STP: Sewage Treatment Plant	1.128 mg/l	0.806

Derived No Effect Level (DNEL):

Calculation method Used CHESAR model

Section 4 - Guidance to check compliance with the exposure scenario

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name NONANOIC ACID
REACH registration number 01-2119529247-37-XXXX
CAS No 112-05-0
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Section 1 - Title

Title Use in Cleaning Agents (Industrial)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC7 - Industrial spraying
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC10 - Roller application or brushing
 PROC13 - Treatment of articles by dipping and pouring
 PROC15 - Use as laboratory reagent
 PROC17 - Lubrication at high energy conditions and in partly open process
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Covers concentrations up to 100%
Amounts used

Type	Daily amount per site
Value	5000
Units	kg/d

Type	Annual amount per site
Value	100
Units	t(ons)/year

Type	Fraction of regional tonnage used locally
Value	1

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
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Release fraction to wastewater from process (initial release prior to RMM)	0.3%
Release fraction to soil from process (initial release prior to RMM)	5%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000
Removal efficiency (total)	87.5%

Further information

Operational conditions	Indoor/Outdoor use
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external recovery of waste

Method	External recovery and recycling of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC7 - Industrial spraying PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10 - Roller application or brushing PROC13 - Treatment of articles by dipping and pouring PROC15 - Use as laboratory reagent PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	>=10%
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves (tested to EN 374) and eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Clean equipment and the work area every day Supervision in place to check that the RMMs in place are being used correctly and OCs followed Avoid contact with contaminated tools and objects Good practice advice Handle all packages and containers carefully to minimise spills
Remarks	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Covers indoor and outdoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Predicted No Effect Concentration (PNEC)

Freshwater	0.36 mg/l
Freshwater sediment	8.5 mg/kg dw
Marine water	0.036 mg/l
Marine sediment	0.85 mg/kg dw
Soil	1.48 mg/kg dw

Impact on Sewage Treatment 1.4 mg/l
Intermittent release 0.6 mg/l

Calculation method	Used CHESAR model	
Environment	predicted exposure level	Risk characterisation ratio (RCR)
Freshwater	0.094 mg/l	0.261
Freshwater sediment	1.328 mg/kg dw	0.156
Marine water	0.009 mg/l	0.261
Marine sediment	0.133 mg/kg dw	0.156
Soil	0.226 mg/kg dw	0.152
STP: Sewage Treatment Plant	0.94 mg/l	0.672

Derived No Effect Level (DNEL):

Calculation method Used CHESAR model

Section 4 - Guidance to check compliance with the exposure scenario

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

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Section 1 - Title

Title Use in Cleaning Agents (Industrial)
Type Worker
Main user group Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies) ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC10 - Roller application or brushing
 PROC11 - Non industrial spraying
 PROC13 - Treatment of articles by dipping and pouring
 PROC15 - Use as laboratory reagent
 PROC19 - Hand-mixing with intimate contact and only PPE available
Sector(s) of use SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems

Covers concentrations up to 100%

Amounts used

Type	Daily amount for wide dispersive uses
Value	0.055
Units	kg/d

Type	Annual amount used in the EU
Value	10
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Release fraction to soil from process (initial release prior to RMM)	0%
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Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000
Removal efficiency (total)	87.5%

Further information

Operational conditions	Indoor/Outdoor use
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external recovery of waste

Method	External recovery and recycling of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10 - Roller application or brushing PROC11 - Non industrial spraying PROC13 - Treatment of articles by dipping and pouring PROC15 - Use as laboratory reagent PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	>=10%
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves (tested to EN 374) and eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Clean equipment and the work area every day Supervision in place to check that the RMMs in place are being used correctly and OCs followed Avoid contact with contaminated tools and objects Good practice advice Handle all packages and containers carefully to minimise spills
Remarks	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Covers indoor and outdoor use

Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8d - Wide dispersive outdoor use of processing aids in open systems**

**Predicted No Effect Concentration
(PNEC)**

Freshwater	0.36 mg/l
Freshwater sediment	8.5 mg/kg dw
Marine water	0.036 mg/l
Marine sediment	0.85 mg/kg dw
Soil	1.48 mg/kg dw
Impact on Sewage Treatment	1.4 mg/l
Intermittent release	0.6 mg/l

Calculation method	Used CHESAR model	
Environment	predicted exposure level	Risk characterisation ratio (RCR)
Freshwater	3.736E-4 mg/l	<0.01
Freshwater sediment	0.005 mg/kg dw	<0.01
Marine water	3.693E-5 mg/l	<0.01
Marine sediment	5.215E-4 mg/kg dw	<0.01
Soil	7.794E-4 mg/kg dw	<0.01
STP: Sewage Treatment Plant	3.45E-5 mg/l	2.46E-5

Derived No Effect Level (DNEL):

Calculation method Used CHESAR model

Section 4 - Guidance to check compliance with the exposure scenario

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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Section 1 - Title

Title Use in Lubricants
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Process category(ies) PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
 PROC13 - Treatment of articles by dipping and pouring
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Covers concentrations up to 100%
Amounts used

Type	Daily amount per site
Value	5000
Units	kg/d

Type	Annual amount per site
Value	100
Units	t(ons)/year

Type	Fraction of regional tonnage used locally
Value	1

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
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Release fraction to wastewater from process (initial release prior to RMM)	0.3%
Release fraction to soil from process (initial release prior to RMM)	5%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000
Removal efficiency (total)	100%

Further information

Operational conditions	Indoor/Outdoor use
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external recovery of waste

Method	External recovery and recycling of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	>=10%
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves (tested to EN 374) and eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Clean equipment and the work area every day Supervision in place to check that the RMMs in place are being used correctly and OCs followed Avoid contact with contaminated tools and objects Good practice advice Handle all packages and containers carefully to minimise spills
Remarks	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Covers indoor and outdoor use

Section 3 - Exposure estimation**Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles****Predicted No Effect Concentration (PNEC)**

Freshwater	0.36 mg/l
Freshwater sediment	8.5 mg/kg dw
Marine water	0.036 mg/l
Marine sediment	0.85 mg/kg dw
Soil	1.48 mg/kg dw
Impact on Sewage Treatment	1.4 mg/l

Intermittent release 0.6 mg/l

Calculation method Used CHESAR model

Environment	predicted exposure level	Risk characterisation ratio (RCR)
Freshwater	3.736E-4 mg/l	<0.01
Freshwater sediment	0.005 mg/kg dw	<0.01
Marine water	3.693E-5 mg/l	<0.01
Marine sediment	5.215E-4 mg/kg dw	<0.01
Soil	7.794E-4 mg/kg dw	<0.01
STP: Sewage Treatment Plant	0.003 mg/l	<0.01

Derived No Effect Level (DNEL):

Calculation method Used CHESAR model

Section 4 - Guidance to check compliance with the exposure scenario

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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Section 1 - Title

Title Use in Lubricants
Type Worker
Main user group Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies) ERC8a - Wide dispersive indoor use of processing aids in open systems
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC10 - Roller application or brushing
 PROC11 - Non industrial spraying
 PROC13 - Treatment of articles by dipping and pouring
 PROC17 - Lubrication at high energy conditions and in partly open process

Sector(s) of use SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

Amounts used

Type	Daily amount for wide dispersive uses
Value	0.055
Units	kg/d

Type	Annual amount used in the EU
Value	100
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	1%
Release fraction to wastewater from process (initial release prior to RMM)	1%
Release fraction to soil from process (initial release prior to RMM)	0%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000
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Removal efficiency (total)	87.5%
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Further information

Operational conditions	Indoor/Outdoor use
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external recovery of waste

Method	External recovery and recycling of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10 - Roller application or brushing PROC11 - Non industrial spraying PROC13 - Treatment of articles by dipping and pouring PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	>=10%
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves (tested to EN 374) and eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Clean equipment and the work area every day Supervision in place to check that the RMMs in place are being used correctly and OCs followed Avoid contact with contaminated tools and objects Good practice advice Handle all packages and containers carefully to minimise spills
Remarks	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Covers indoor and outdoor use

Section 3 - Exposure estimation**Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems****Predicted No Effect Concentration (PNEC)**

Freshwater	0.36 mg/l
Freshwater sediment	8.5 mg/kg dw
Marine water	0.036 mg/l
Marine sediment	0.85 mg/kg dw
Soil	1.48 mg/kg dw
Impact on Sewage Treatment	1.4 mg/l
Intermittent release	0.6 mg/l

Calculation method

Used CHESAR model

Environment	predicted exposure level	Risk characterisation ratio (RCR)
Freshwater	3.736E-4 mg/l	<0.01
Freshwater sediment	0.005 mg/kg dw	<0.01
Marine water	3.693E-5 mg/l	<0.01
Marine sediment	5.215E-4 mg/kg dw	<0.01
Soil	7.794E-4 mg/kg dw	<0.01
STP: Sewage Treatment Plant	0.003 mg/l	<0.01

Derived No Effect Level (DNEL):

Calculation method

Used CHESAR model

Section 4 - Guidance to check compliance with the exposure scenario

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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Section 1 - Title

Title Industrial use resulting in manufacture of another substance (use of intermediates)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC15 - Use as laboratory reagent

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Covers concentrations up to 100%
Amounts used

Type	Daily amount per site
Value	5000
Units	kg/d

Type	Annual amount per site
Value	100
Units	t(ons)/year

Type	Fraction of regional tonnage used locally
Value	1

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	5%
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Release fraction to wastewater from process (initial release prior to RMM)	0.3%
Release fraction to soil from process (initial release prior to RMM)	0.1%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000
Removal efficiency (total)	87.5%

Further information

Operational conditions	Indoor/Outdoor use
------------------------	--------------------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external recovery of waste

Method	External recovery and recycling of waste should comply with applicable local and/or national regulations
--------	--

Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent
Covers concentrations up to	>=10%
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves (tested to EN 374) and eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Clean equipment and the work area every day Supervision in place to check that the RMMs in place are being used correctly and OCs followed Avoid contact with contaminated tools and objects Good practice advice Handle all packages and containers carefully to minimise spills
Remarks	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Covers indoor and outdoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Predicted No Effect Concentration (PNEC)

Freshwater	0.36 mg/l
Freshwater sediment	8.5 mg/kg dw
Marine water	0.036 mg/l
Marine sediment	0.85 mg/kg dw
Soil	1.48 mg/kg dw

Impact on Sewage Treatment 1.4 mg/l
Intermittent release 0.6 mg/l

Calculation method Used CHESAR model

Environment	predicted exposure level	Risk characterisation ratio (RCR)
Freshwater	0.094 mg/l	0.261
Freshwater sediment	1.33 mg/kg dw	0.156
Marine water	0.009 mg/l	0.261
Marine sediment	0.133 mg/kg dw	0.156
Soil	0.213 mg/kg dw	0.144
STP: Sewage Treatment Plant	0.94 mg/l	0.672

Derived No Effect Level (DNEL):

Calculation method Used CHESAR model

Section 4 - Guidance to check compliance with the exposure scenario

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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Section 1 - Title

Title Laboratory activities
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Process category(ies) PROC10 - Roller application or brushing
 PROC15 - Use as laboratory reagent
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU24 - Scientific research and development

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Covers concentrations up to 100%
Amounts used

Type	Daily amount per site
Value	1000
Units	kg/d

Type	Annual amount per site
Value	20
Units	t(ons)/year

Type	Fraction of regional tonnage used locally
Value	1

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	1.5%
Release fraction to soil from process (initial release prior to RMM)	5%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000
Removal efficiency (total)	87.5%

Further information

Operational conditions	Indoor/Outdoor use
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external recovery of waste

Method	External recovery and recycling of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC10 - Roller application or brushing PROC15 - Use as laboratory reagent
Covers concentrations up to	>=10%
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves (tested to EN 374) and eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Clean equipment and the work area every day Supervision in place to check that the RMMs in place are being used correctly and OCs followed Avoid contact with contaminated tools and objects Good practice advice Handle all packages and containers carefully to minimise spills
Remarks	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Covers indoor and outdoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Predicted No Effect Concentration (PNEC)

Freshwater	0.36 mg/l
Freshwater sediment	8.5 mg/kg dw
Marine water	0.036 mg/l
Marine sediment	0.85 mg/kg dw
Soil	1.48 mg/kg dw
Impact on Sewage Treatment	1.4 mg/l
Intermittent release	0.6 mg/l

Calculation method Used CHESAR model

Environment	predicted exposure level	Risk characterisation ratio (RCR)
Freshwater	0.094 mg/l	0.261
Freshwater sediment	1.328 mg/kg dw	0.156
Marine water	0.009 mg/l	0.261
Marine sediment	0.133 mg/kg dw	0.156
Soil	0.215 mg/kg dw	0.145
STP: Sewage Treatment Plant	0.94 mg/l	0.672

Derived No Effect Level (DNEL):

Calculation method Used CHESAR model

Section 4 - Guidance to check compliance with the exposure scenario

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name NONANOIC ACID
REACH registration number 01-2119529247-37-XXXX
CAS No 112-05-0
EC No (EU Index No) 203-931-2
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Process category(ies) PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC13 - Treatment of articles by dipping and pouring
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU7
 - Printing and reproduction of recorded media

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Covers concentrations up to 100%
Amounts used

Type	Daily amount per site
Value	500
Units	kg/d

Type	Annual amount per site
Value	10
Units	t(ons)/year

Type	Fraction of regional tonnage used locally
Value	1

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	3%
Release fraction to soil from process (initial release prior to RMM)	5%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000
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Removal efficiency (total)	87.5%
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Further information

Operational conditions	Indoor/Outdoor use
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external recovery of waste

Method	External recovery and recycling of waste should comply with applicable local and/or national regulations
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Control of worker exposure	
Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	>=10%
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves (tested to EN 374) and eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Clean equipment and the work area every day Supervision in place to check that the RMMs in place are being used correctly and OCs followed Avoid contact with contaminated tools and objects Good practice advice Handle all packages and containers carefully to minimise spills
Remarks	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Covers indoor and outdoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Predicted No Effect Concentration (PNEC)

Freshwater	0.36 mg/l
Freshwater sediment	8.5 mg/kg dw
Marine water	0.036 mg/l
Marine sediment	0.85 mg/kg dw
Soil	1.48 mg/kg dw
Impact on Sewage Treatment	1.4 mg/l
Intermittent release	0.6 mg/l

Calculation method Used CHESAR model

Environment	predicted exposure level	Risk characterisation ratio (RCR)
Freshwater	0.094 mg/l	0.261
Freshwater sediment	1.328 mg/kg dw	0.156
Marine water	0.009 mg/l	0.261
Marine sediment	0.133 mg/kg dw	0.156
Soil	0.214 mg/kg dw	0.144
STP: Sewage Treatment Plant	0.94 mg/l	0.672

Derived No Effect Level (DNEL):

Calculation method

Used CHESAR model

Section 4 - Guidance to check compliance with the exposure scenario

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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Section 1 - Title

Title Industrial use
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Process category(ies) PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC13 - Treatment of articles by dipping and pouring
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU7
 - Printing and reproduction of recorded media

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Covers concentrations up to 100%
Amounts used

Type	Daily amount per site
Value	500
Units	kg/d

Type	Annual amount per site
Value	10
Units	t(ons)/year

Type	Fraction of regional tonnage used locally
Value	1

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	50%
Release fraction to wastewater from process (initial release prior to RMM)	3%
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000
Removal efficiency (total)	87.5%

Further information

Operational conditions	Indoor/Outdoor use
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external recovery of waste

Method	External recovery and recycling of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	>=10%
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves (tested to EN 374) and eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Clean equipment and the work area every day Supervision in place to check that the RMMs in place are being used correctly and OCs followed Avoid contact with contaminated tools and objects Good practice advice Handle all packages and containers carefully to minimise spills
Remarks	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Covers indoor and outdoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Predicted No Effect Concentration (PNEC)

Freshwater	0.36 mg/l
Freshwater sediment	8.5 mg/kg dw
Marine water	0.036 mg/l
Marine sediment	0.85 mg/kg dw
Soil	1.48 mg/kg dw
Impact on Sewage Treatment	1.4 mg/l
Intermittent release	0.6 mg/l

Calculation method

Used CHESAR model

Environment	predicted exposure level	Risk characterisation ratio (RCR)
Freshwater	0.094 mg/l	0.261
Freshwater sediment	1.328 mg/kg dw	0.156
Marine water	0.009 mg/l	0.261
Marine sediment	0.133 mg/kg dw	0.156
Soil	0.213 mg/kg dw	0.144
STP: Sewage Treatment Plant	0.94 mg/l	0.672

Derived No Effect Level (DNEL):

Calculation method

Used CHESAR model

Section 4 - Guidance to check compliance with the exposure scenario

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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Section 1 - Title

Title Industrial use
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6b - Industrial use of reactive processing aids
Process category(ies) PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC13 - Treatment of articles by dipping and pouring
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU7
 - Printing and reproduction of recorded media

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids

Covers concentrations up to 100%
Amounts used

Type	Daily amount per site
Value	500
Units	kg/d

Type	Annual amount per site
Value	10
Units	t(ons)/year

Type	Fraction of regional tonnage used locally
Value	1

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	0.025%
Release fraction to wastewater from process (initial release prior to RMM)	3%
Release fraction to soil from process (initial release prior to RMM)	0.1%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000
Removal efficiency (total)	87.5%

Further information

Operational conditions	Indoor/Outdoor use
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external recovery of waste

Method	External recovery and recycling of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	>=10%
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves (tested to EN 374) and eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Clean equipment and the work area every day Supervision in place to check that the RMMs in place are being used correctly and OCs followed Avoid contact with contaminated tools and objects Good practice advice Handle all packages and containers carefully to minimise spills
Remarks	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Covers indoor and outdoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids

Predicted No Effect Concentration (PNEC)

Freshwater	0.36 mg/l
Freshwater sediment	8.5 mg/kg dw
Marine water	0.036 mg/l
Marine sediment	0.85 mg/kg dw
Soil	1.48 mg/kg dw
Impact on Sewage Treatment	1.4 mg/l
Intermittent release	0.6 mg/l

Calculation method

Used CHESAR model

Environment	predicted exposure level	Risk characterisation ratio (RCR)
Freshwater	0.094 mg/l	0.261
Freshwater sediment	1.33 mg/kg dw	0.156
Marine water	0.009 mg/l	0.261
Marine sediment	0.133 mg/kg dw	0.156
Soil	0.212 mg/kg dw	0.143
STP: Sewage Treatment Plant	0.94 mg/l	0.671

Derived No Effect Level (DNEL):

Calculation method

Used CHESAR model

Section 4 - Guidance to check compliance with the exposure scenario

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.