SAFETY DATA SHEET

Pelargonic acid
10560

Version / Revision	4.01	**Revision Date**	24-Jan-2022
Supersedes Version	4.00***	**Issuing date**	24-Jan-2022

SECTION 1: Identification

1.1. Product identifier

Identification of the substance/preparation **Pelargonic acid**

Chemical Name Nonanoic acid
CAS-No 112-05-0

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

Use of the Substance / Preparation Intermediate
Uses advised against None

1.3. Details of the supplier of the safety data sheet

Supplier

OQ Chemicals Corporation
15375 Memorial Drive
West Memorial Place I
Suite 300
Houston, TX 77079
USA
Phone +1 346 378 7300

Product Information

Product Stewardship
FAX: +49 (0)208 693 2053
email: sc.psq@oq.com

1.4. Emergency telephone number

Emergency telephone number NCEC +1 202 464 2554
available 24/7

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This substance is classified in accordance with paragraph (d) of §1910.1200 (GHS-US classification).

Skin corrosion/irritation Category 2, H315
Serious eye damage/eye irritation Category 2A, H319
Environmental hazard Aquatic Acute 3; H402

OSHA Specified Hazards Not applicable.

2.2. Label elements

Labeling according to §1910.1200 (GHS-US labeling).

Hazard symbol(s)

Signal word **Warning**

Hazard statements
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H402: Harmful to aquatic life

Precautionary statements

Prevention
P264: Wash hands thoroughly after handling.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P332 + P313: If skin irritation occurs: Get medical advice/ attention.
P362 + P364: Take off contaminated clothing and wash it before reuse.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313: If eye irritation persists: Get medical advice/ attention.

Disposal
P501: Dispose of contents/container in accordance with local regulation.

2.3. Other hazards

Vapour/air-mixtures are explosive at intense warming

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	Concentration (%)
Pelargonic acid	112-05-0	> 95,5

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Skin
Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Eyes
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Ingestion
Call a physician immediately. Do not induce vomiting without medical advice.

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

Main symptoms
cough, headache, nausea, shortness of breath.

Special hazard
Lung irritation, Lung oedema.

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

General advice
Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Treat symptomatically. If ingested, flush stomach and compensate acidosis.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
foam, dry chemical, carbon dioxide (CO2), water spray

Unsuitable Extinguishing Media
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Under conditions giving incomplete combustion, hazardous gases produced may consist of:
carbon monoxide (CO)
carbon dioxide (CO2)
Combustion gases of organic materials must in principle be graded as inhalation poisons

Vapours are heavier than air and may spread along floors
Vapour/air-mixtures are explosive at intense warming

5.3. Advice for firefighters

Special protective equipment for firefighters
Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

Precautions for firefighting
Keep people away from and upwind of fire. Cool containers / tanks with water spray. Dike and collect water used to fight fire. Water run-off can cause environmental damage.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: For personal protective equipment see section 8. Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition.
For emergency responders: Personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant). Water runoff can cause environmental damage.

6.3. Methods and material for containment and cleaning up

Methods for containment
Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Dispose of in accordance with local regulations. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

6.4. Reference to other sections

For personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms.

Hygiene measures
When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Advice on the protection of the environment
See Section 8: Environmental exposure controls.

Incompatible products
bases
amines
strong oxidizing agents
reducing agents

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion
Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material. Vapour/air-mixtures are explosive at intense warming.

Technical measures/Storage conditions
Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Keep at temperatures between 16 and 40 °C (60 and 104 °F).

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits United States of America

No exposure limits established.

8.2. Exposure controls

Appropriate Engineering controls
General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Individual protection measures, such as personal protective equipment

General industrial hygiene practice
Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures
When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Eye protection
Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Hand protection
Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Suitable material	nitrile rubber
Evaluation	according to EN 374: level 6
Glove thickness	approx 0,55 mm
Break through time	> 480 min

Suitable material	polyvinylchloride / nitrile rubber
Evaluation	according to EN 374: level 6
Glove thickness	approx 0,9 mm
Break through time	> 480 min

Skin and body protection
Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Respiratory protection
Respirator with filter for organic vapour. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (vapor or mist). Equipment should conform to NIOSH.

Environmental exposure controls
If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid
Colour	colourless
Odour	weak
Odour threshold	No data available
pH	4,4 (0,1 g/l in water @ 25 °C (77 °F)) DIN 19268
Melting point/range	55 °F (13 °C) (Pour point)
Method	DIN ISO 3016
Boiling point/range	> 473 - < 510,8 °F (> 245 - < 266 °C) @ 1 atm (101,3 kPa)
Method	OECD 103
Flash point	278,6 °F (137 °C) @ 1 atm (101,3 kPa)
Method	ISO 2719
Evaporation rate	No data available
Flammability (solid, gas)	Does not apply, the substance is a liquid

Lower explosion limit 0,8 Vol %
Upper explosion limit 9,0 Vol %

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
1	0,1	0,001	20	68	DIN EN 13016-2
4,6	0,46	0,005	50	122	DIN EN 13016-2

Vapour density 5,5 (Air = 1) @ 20 °C (68 °F)

Relative density

Values	@ °C	@ °F	Method
0,905	20	68	DIN 51757

Solubility ≥ 0,3 g/l @ 68 °F (20 °C), in water, OECD 105
log Pow 3,4 (measured) OECD 117
Autoignition temperature 671 °F (355 °C) @ 1 atm (101,3 kPa)
Method DIN 51794
Decomposition temperature ≥ 510,8 °F (≥ 266 °C) @ 1013 hPa OECD 103***
Viscosity 8,12 mPa*s @ 68 °F (20 °C)
Method dynamic, ASTM D445

9.2. Other information

Molecular weight 158,23
Molecular formula C9 H18 O2
log Koc 2 @ pH 7***
Dissociation constant pKa not determinable due to low water solubility @ 20°C (68°F)***
Oxidizing properties Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties
Refractive Index 1,433 @ 68 °F (20 °C)
Explosive properties Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties
Surface tension 31,7 mN/m (0,27 g/l @ 20°C (68°F)), OECD 115

SECTION 10: Stability and Reactivity

10.1. Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

10.5. Incompatible materials

bases, amines, strong oxidizing agents, reducing agents.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure Ingestion, Inhalation, Eye contact, Skin contact

Pelargonic acid, CAS: 112-05-0
Main symptoms
cough, headache, nausea, shortness of breath.
Target Organ Systemic Toxicant - Single exposure
Based on available data, the classification criteria are not met for:
STOT SE
Target Organ Systemic Toxicant - Repeated exposure
Based on available data, the classification criteria are not met for:
STOT RE

Acute toxicity				
Pelargonic acid (112-05-0)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	> 2000 mg/kg	rat, male/female	OECD 423
Oral	LD0	2000 mg/kg	rat, male/female	OECD 423
Dermal	LD50	> 2000 mg/kg	rat, male/female	OECD 402
Dermal	LD0	2000 mg/kg	rat, male/female	OECD 402
Inhalative	LC50	> 5,997 mg/l (4h)***	rat, male/female	OECD 403

Pelargonic acid, CAS: 112-05-0
Assessment
Based on available data, the classification criteria are not met for:
Acute oral toxicity
Acute dermal toxicity
Acute inhalation toxicity
STOT SE

Irritation and corrosion
Pelargonic acid (112-05-0)

Target Organ Effects	Species	Result	Method	
Skin	rabbit	irritating	OECD 404	4h
Eyes	rabbit	irritating		

Pelargonic acid, CAS: 112-05-0

Assessment

The available data lead to the classification given in section 2

Sensitization				
Pelargonic acid (112-05-0)				
Target Organ Effects	Species	Evaluation	Method	
Skin	guinea pig	not sensitizing	OECD 406	25 %***
Skin	mouse	not sensitizing	OECD 429	

Pelargonic acid, CAS: 112-05-0

Assessment

Based on available data, the classification criteria are not met for:
Skin sensitization
For respiratory sensitization, no data are available

Subacute, subchronic and prolonged toxicity				
Pelargonic acid (112-05-0)				
Type	Dose	Species	Method	
Subacute toxicity	NOAEL: 1000 mg/kg/d (28d)	rat, male/female	OECD 407 Oral***	Systemic toxicity
Subchronic toxicity	NOAEL: 5074 mg/kg/d (90d)	rat	OECD 408 Oral	Systemic toxicity read across

Pelargonic acid, CAS: 112-05-0

Assessment

Based on available data, the classification criteria are not met for:
STOT RE

Carcinogenicity, Mutagenicity, Reproductive toxicity					
Pelargonic acid (112-05-0)					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		Salmonella typhimurium	negative (with metabolic activation) negative (without metabolic activation)	OECD 471 (Ames)	
Mutagenicity		human lymphocytes	negative (with metabolic activation) negative (without metabolic activation)	OECD 473 (Chromosomal Aberration)	

Developmental Toxicity	NOAEL 1500 mg/kg/d	rat		OECD 414	Maternal toxicity, Fetal toxicity Teratogenicity
Developmental Toxicity	NOAEL 425 mg/kg/d	rabbit		OECD 414	Maternal toxicity, Developmental toxicity, Teratogenicity read across
Reproductive toxicity	NOAEL 4700 mg/kg/d	mouse		OECD 416	read across
Mutagenicity		mouse lymphoma cells	negative (without metabolic activation)	OECD 476 (Mammalian Gene Mutation)	

Pelargonic acid, CAS: 112-05-0
CMR Classification
The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B
Evaluation
In vitro tests showed mutagenic effects
Animal testing did not show any effects on fertility

Pelargonic acid, CAS: 112-05-0
Aspiration toxicity
Due to the viscosity, this product does not present an aspiration hazard
Note
Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:
http://echa.europa.eu/information-on-chemicals/registered-substances.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity			
Pelargonic acid (112-05-0)			
Species	Exposure time	Dose	Method
Pimephales promelas (fathead minnow)	96h	LC50: 104 mg/l	OECD 203
Daphnia magna (Water flea)	48h	EC50: 96 mg/l	EPA OPP 72-2
Pseudokirchneriella subcapitata	72h	EC50: 60 mg/l (Growth rate)	OECD 201 read across***
Activated sludge (domestic)	28 d	NOEC: >= 14 mg/l	OECD 301B

Long term toxicity				
Pelargonic acid (112-05-0)				
Type	Species	Dose	Method	
Reproductive toxicity	Daphnia magna	NOEC: 18 mg/l (21d)	OECD 211	read across

	(Water flea)			
Reproductive toxicity	Daphnia magna (Water flea)	EC50: 47 mg/l/21d	OECD 211	read across
Aquatic toxicity	Pseudokirchneriella subcapitata	NOAEC: 29 mg/l (3d) Growth rate***	OECD 201***	read across

Terrestrial toxicity				
Pelargonic acid (112-05-0)				
Species	Exposure time	Dose	Type	Method
Colinus virginianus (bobwhite quail).***	8 d***	LC50: > 5620 ppm***	Mortality***	EPA OPP 71-2***
Colinus virginianus (bobwhite quail).***	14 d***	LD50: > 2250 mg/kg bw***	Mortality***	EPA OPP 72-1***
Anas platyrhynchos (mallard duck)***	8 d***	LC50: > 5620 ppm***	Mortality***	

12.2. Persistence and degradability

Pelargonic acid, CAS: 112-05-0
Biodegradation
68 - 75 % (28 d), activated sludge (domestic), aerobic, non-adapted, OECD 301 B.

Abiotic Degradation		
Pelargonic acid (112-05-0)		
Type	Result	Method
Hydrolysis	not expected	
Photolysis	No data available Half-life (DT50): 1,64 days***	calculated***

12.3. Bioaccumulative potential

Pelargonic acid (112-05-0)		
Type	Result	Method
log Pow	3,4 @ 25 °C (77 °F)***	measured, OECD 117
BCF	3,162	calculated

12.4. Mobility in soil

Pelargonic acid (112-05-0)		
Type	Result	Method
Surface tension	31,7 mN/m (0,27 g/l @ 20°C (68°F))	OECD 115
Adsorption/Desorption	log Koc: 2 @ pH 7 calculated***	
Distribution to environmental compartments	no data available	

12.5. Results of PBT and vPvB assessment

Pelargonic acid, CAS: 112-05-0
PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

12.6. Other adverse effects

Pelargonic acid, CAS: 112-05-0
No data available

Note
Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product Information
Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Uncleaned empty packaging
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

SECTION 14: Transport information

Section 14.1 - 14.6

D.O.T. (49CFR) Not restricted

ICAO-TI / IATA-DGR Not restricted

IMDG Not restricted

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

Product name	Nonanoic acid
Ship type	3

Pollution category	Y

SECTION 15: Regulatory information

Federal and State Regulations

Components contained in this product are not listed in federal or state regulations monitored for this MSDS. Please refer to all applicable state and federal regulations directly.

Federal Regulations

This product is listed on the TSCA inventory

International Inventories

Pelargonic acid, CAS: 112-05-0

AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2039312 (EU)
ENCS (2)-608 (JP)
ISHL (2)-608 (JP)
KECI KE-26163 (KR)
INSQ (MX)
PICCS (PH)
TSCA (US)
NZIoC (NZ)***
TCSI (TW)

SECTION 16: Other information

Revision Date	24-Jan-2022
Issuing date	24-Jan-2022

Hazard Rating Systems

NFPA (National Fire Protection Association)

Health Hazard	2
Fire Hazard	1
Reactivity	0

HMIS (Hazardous Material Information System)

Health Hazard	2
Flammability	1
Physical Hazard	0

Training advice

For effective first-aid, special training / education is needed.

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on OQ owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet
Changes against the previous version are marked by ***. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the OQ homepage (www.chemicals.oq.com).
The use of a comma in section 3 and section 7 to 12 is the same as a period.

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End of Safety Data Sheet