

SAFETY DATA SHEET



n-Valeric acid
10620

Version / Revision
Supersedes Version

6
5.02

Revision Date
Issuing date

06-May-2020
15-May-2020

SECTION 1: Identification

1.1. Product identifier

Identification of the
substance/preparation

n-Valeric acid

Chemical Name
CAS-No

Valeric acid
109-52-4

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 1B, H314
Serious eye damage/eye irritation Category 1, H318
Flammable liquid Category 4, H227
Environmental hazard Aquatic Acute 3; H402; Aquatic Chronic 3; H412

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OSHA Specified Hazards Not applicable.

2.2. Label elements

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

Hazard symbol(s)



Signal word

Danger

Hazard statements

H227: Combustible liquid
H314: Causes severe skin burns and eye damage.
H402: Harmful to aquatic life
H412: Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P210: Keep away from flames and hot surfaces. - No smoking.
P260: Do not breathe gas/mist/vapours.
P264: Wash hands thoroughly after handling.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER/doctor.
P363: Wash contaminated clothing before reuse.

Storage

P403 + P235: Store in a well ventilated place. Keep cool.
P405: Store locked up.

Disposal

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

2.3. Other hazards

Vapour/air-mixtures are explosive at intense warming

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Components of the product may be absorbed into the body by inhalation and ingestion

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	Concentration (%)
Valeric acid	109-52-4	> 98,50

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

central nervous system depression, unconsciousness, shortness of breath, vomiting.

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

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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. Water run-off and vapor cloud may be corrosive. Water run-off can cause environmental damage. Dike and collect water used to fight fire.

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

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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

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 0 and 54 °C (32 and 130 °F).

Suitable material

stainless steel

Unsuitable material

copper, nickel

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits United States of America

No exposure limits established.

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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
Evaluation	Information derived from practical experience
Glove thickness	approx 0,8 mm

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 (dust). 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

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9.1. Information on basic physical and chemical properties

Appearance liquid @ 20 °C (68 °F)
Colour colourless
Odour unpleasant
Odour threshold No data available
pH 3,3 (10 g/l in water @ 25 °C (77 °F)) DIN 19268
Melting point/range -31 °F (-35 °C) (Pour point)
Method DIN ISO 3016
Boiling point/range 367 °F (186 °C) @ 1 atm (101,3 kPa)
Flash point 192.2 °F (89 °C)
Method ISO 2719
Evaporation rate No data available
Flammability (solid, gas) Does not apply, the substance is a liquid
Lower explosion limit 1,6 Vol %
Upper explosion limit 7,3 Vol %

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
0,2	0,02	< 0,001	20	68	DIN EN 13016-2
2,3	0,23	0,002	50	122	DIN EN 13016-2

Vapour density 3,5 (Air = 1) @ 20 °C (68 °F)

Relative density

Values	@ °C	@ °F	Method
0,94	20	68	DIN 51757

Solubility 37,5 g/l @ 20 °C (68 °F), in water, OECD 105

log Pow 1,8 (measured) OECD 117

Autoignition temperature 770 °F (410 °C)

Method DIN 51794

Decomposition temperature No data available

Viscosity 2,173 mPa*s @ 68 °F (20 °C)

Method DIN 51562, dynamic

9.2. Other information

Molecular weight 102,13

Molecular formula C5 H10 O2

Oxidizing properties Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties

Refractive Index 1,408 @ 68 °F (20 °C)

Explosive properties Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties

Surface tension 51,6 mN/m (1 g/l @ 20°C (68°F)), OECD 115

SECTION 10: Stability and Reactivity

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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.

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

Valeric acid, CAS: 109-52-4

Main symptoms

central nervous system depression, unconsciousness, shortness of breath, vomiting.

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

Due to lack of data, a classification is not possible for:

STOT RE

Acute toxicity				
Valeric acid (109-52-4)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	4600 mg/kg	rat, male/female	OECD 401
Dermal	LD50	> 2000 mg/kg (24 h)	rat, male/female	OECD 402

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

Acute oral toxicity

Acute dermal toxicity

STOT SE

An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration

Irritation and corrosion				
Valeric acid (109-52-4)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	corrosive		3 min
Eyes	rabbit	corrosive		

Valeric acid, CAS: 109-52-4

Assessment

The available data lead to the classification given in section 2

For respiratory irritation, no data are available

Valeric acid, CAS: 109-52-4

Assessment

Skin sensitization was not tested due to the corrosive properties of the substance

For skin sensitization, no data are available

For respiratory sensitization, no data are available

Subacute, subchronic and prolonged toxicity				
Valeric acid (109-52-4)				
Type	Dose	Species	Method	
no data available				

Valeric acid, CAS: 109-52-4

Assessment

Due to lack of data, a classification is not possible for:

STOT RE

Carcinogenicity, Mutagenicity, Reproductive toxicity					
Valeric acid (109-52-4)					
Type	Dose	Species	Evaluation	Method	
Developmental Toxicity	NOAEL 50 mg/kg/d	rat		OECD 414, Oral	Developmental toxicity
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study
Mutagenicity		CHO (Chinese Hamster Ovary) cells	positive	OECD 473 (Chromosomal Aberration)	In vitro study
Mutagenicity		CHO (Chinese Hamster Ovary) cells	positive	OECD 479 (SCE)	In vitro study
Mutagenicity		CHO (Chinese Hamster Ovary) cells	negative	OECD 476	In vitro study

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		Hamster Ovary) cells		(Mammalian Gene Mutation)	
Mutagenicity		mouse	negative	OECD 474	in vivo

Valeric acid, CAS: 109-52-4

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 did not show mutagenic effects

Valeric acid, CAS: 109-52-4

Aspiration toxicity

no data available

Other adverse effects

Components of the product may be absorbed into the body by inhalation and ingestion.

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			
Valeric acid (109-52-4)			
Species	Exposure time	Dose	Method
Daphnia magna (Water flea)	48h	LC50: 88,1 mg/l	OECD 202 read across
Pseudokirchneriella subcapitata	72h	EC50: 29,3 mg/l	OECD 201
Pimephales promelas (fathead minnow)	96h	LC50: 39 mg/l	OECD 203

Long term toxicity				
Valeric acid (109-52-4)				
Type	Species	Dose	Method	
Aquatic toxicity	Pseudokirchneriella subcapitata	NOAEC: 12,6 mg/l (3d)	OECD 201	

12.2. Persistence and degradability

Valeric acid, CAS: 109-52-4

Biodegradation

72 % (10 d), activated sludge, non-adapted, aerobic.

Abiotic Degradation		
Valeric acid (109-52-4)		
Type	Result	Method

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Hydrolysis	not expected	
Photolysis	No data available	

12.3. Bioaccumulative potential

Valeric acid (109-52-4)		
Type	Result	Method
log Pow	1,8	measured, OECD 117

12.4. Mobility in soil

Valeric acid (109-52-4)		
Type	Result	Method
Surface tension	51,6 mN/m (1 g/l @ 20°C (68°F))	OECD 115
Adsorption/Desorption	no data available	
Distribution to environmental compartments	no data available	

12.5. Results of PBT and vPvB assessment

Valeric acid, CAS: 109-52-4
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

Valeric acid, CAS: 109-52-4
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.

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SECTION 14: Transport information

D.O.T. (49CFR)

14.1. UN number	UN 3265
14.2. UN proper shipping name	Corrosive liquid, acidic, organic, n.o.s. (n-Valeric acid)
14.3. Transport hazard class(es)	8
14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	
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ICAO-TI / IATA-DGR

14.1. UN number	UN 3265
14.2. UN proper shipping name	Corrosive liquid, acidic, organic, n.o.s. (n-Valeric acid)
14.3. Transport hazard class(es)	8
14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	no data available

IMDG

14.1. UN number	UN 3265
14.2. UN proper shipping name	Corrosive liquid, acidic, organic, n.o.s. (n-Valeric acid)
14.3. Transport hazard class(es)	8
14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	
EmS	F-A, S-B

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

Product name	Pentanoic acid
Ship type	3
Pollution category	Y

SECTION 15: Regulatory information

Federal and State Regulations

Components of the product are listed in the quoted regulations. For details please refer to the regulations directly.

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This list is not exhaustive, please check for other applicable regulations.

Federal Regulations

This product is listed on the TSCA inventory

State Regulations

Valeric acid, CAS: 109-52-4

MA RTK List
NY RTK List
PA RTK List

International Inventories

Valeric acid, CAS: 109-52-4

AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2036772 (EU)
ENCS (2)-608 (JP)
ISHL (2)-608 (JP)
KECI KE-35263 (KR)
INSQ (MX)
PICCS (PH)
TSCA (US)
NZIoC (NZ)
TCSI (TW)

SECTION 16: Other information

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Hazard Rating Systems

NFPA (National Fire Protection Association)

Health Hazard 3
Fire Hazard 1
Reactivity 0

HMIS (Hazardous Material Information System)

Health Hazard 3
Flammability 1
Physical Hazard 0

Training advice

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

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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