

Product name Propionic anhydride
MSDS number 80511
Revision Number 6

Revision Date
Issuing date

NAGH/EN
Oct.10.2014
Jun.29.2015

1. Product and company identification

Trade Name

Propionic anhydride

Celanese Chemicals Europe GmbH
Frankfurter Str. 111
D-61476 Kronberg/Ts.
Germany

Transportation emergency phone numbers:

In USA, call 800 424 9300

Outside USA, call 703 527 3887, collect calls accepted.

Identified uses

Chemical intermediate

2. Hazard Identification

GHS Classification

Hazards

Flammable liquid

Skin corrosion/irritation

Serious eye damage/eye irritation

Category

Category 4

Category 1B

Category 1

Label elements



Signal Word

Danger

Hazard Statements

Combustible liquid

Causes severe skin burns and eye damage

Causes serious eye damage

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Precautionary statements

Keep away from flames and hot surfaces - No smoking

In case of fire:

Use foam, dry chemical, carbon dioxide (CO2), water spray to extinguish.

Do not breathe dusts or mists

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

Wash face, hands and any exposed skin thoroughly after handling.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

Wash contaminated clothing before reuse.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Immediately call a POISON CENTER or doctor.

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

Immediately call a POISON CENTER or doctor.

Store locked up.

Store in a well-ventilated place. Keep cool.

Dispose of contents/ container to an approved waste disposal plant.

3. Composition/information on ingredients

Components	CAS-No	Percent %
Propionic anhydride	123-62-6	min 98
Propionic acid	79-09-4	< 2

4. First aid measures

General Information

Remove contaminated, soaked clothing immediately and dispose of safely. Pay attention to own protection. In any case show the physician the Safety Data Sheet.

Skin

Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Inhalation

Keep at rest. Move to fresh air. Call a physician immediately.

Ingestion

If conscious, drink plenty of water. If swallowed, do not induce vomiting - seek medical advice.

5. Fire-fighting measures

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5. Fire-fighting measures

NFPA: **Health:** 3 **Flammability:** 2 **Instability:** 0

Suitable extinguishing media

Foam, Dry chemical, Carbon dioxide (CO₂), Water spray

Extinguishing media which must not be used for safety reasons

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

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases

Under conditions giving incomplete combustion, hazardous gases produced may consist of

Carbon monoxide

Carbon dioxide (CO₂)

Combustion gases of organic materials must in principle be graded as inhalation poisons

Special protective equipment for fire-fighters

self-contained breathing apparatus (EN 133).

Environmental precautions

Water used to fight fire runoff can cause environmental damage. Dike and collect water used to fight fire.

Other Information

Cool containers / tanks with water spray.

6. Accidental release measures

Personal precautions

Avoid contact with the skin and the eyes. Keep away from heat and sources of ignition. Provide adequate ventilation.

Environmental precautions

Prevent further leakage or spillage. Do not discharge into the drains/surface waters/groundwater. Dike and collect water used to fight fire.

Methods for cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Dispose of in accordance with local regulations.

Authority Notification

Within the United States, call the National Response Center (800-424-8802) and appropriate state and local authorities if the quantity released over 24 hours is equal to or greater than the reportable quantity listed below:

7. Handling and storage

Advice on safe handling

Provide sufficient air exchange and/or exhaust in work rooms.

Protection - fire and explosion:

Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge. Ground and bond containers when transferring material. In case of fire, emergency cooling with water spray should be available.

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Technical measures/Storage conditions

Keep tightly closed in a dry, cool and well-ventilated place. Never allow product to get in contact with water during storage.

Material storage

Store locked up. Keep in a dry, cool and well-ventilated place.

Incompatible products

Keep away from: , bases, amines, alcohols, water

8. Exposure controls / personal protection

OSHA Exposure Limits

No exposure limits established.

ACGIH Exposure Limits

Components	TWA
Propionic acid	10 PPM

Mexico National Exposure Limits

No exposure limits established

Exposure controls

Engineering measures

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.

Protective equipment

A safety shower and eyebath should be readily available.

General advice

Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Use only in an area equipped with a safety shower. Hold eye wash fountain available.

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Respiratory protection

Based on workplace contaminant level and working limits of the respirator, use a respirator approved by NIOSH. The following is the minimum recommended equipment for an occupational exposure level. To estimate an occupational exposure level see Section 8 and Section 11.

For concentrations > 1 and < 10 times the occupational exposure level: Use air-purifying respirator with full facepiece and organic vapor cartridge(s) or air-purifying full facepiece respirator with an organic vapor canister or a full facepiece powered air-purifying respirator fitted with organic vapor cartridge(s). The air purifying element must have an end of service life indicator, or a documented change out schedule must be established. Otherwise, use supplied air.

For concentrations more than 10 times the occupational exposure level and less than the lower of either 100 times the occupational exposure level or the IDLH: Use Type C full facepiece supplied-air respirator operated in positive-pressure or continuous-flow mode.

For concentrations > 100 times the occupational exposure level or greater than the IDLH level or unknown concentrations (such as in emergencies): Use self-contained breathing apparatus with full facepiece in positive-pressure mode or Type C positive-pressure full facepiece supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus escape system.

For escape: Use self-contained breathing apparatus with full facepiece or any respirator specifically approved for escape.

Skin protection:

Wear impervious clothing and gloves to prevent contact. Butyl rubber is recommended. 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.

Eye/face protection:

Wear chemical goggles when there is a reasonable chance of eye contact.. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face..

9. Physical and chemical properties

Appearance

Form	liquid
Color	colourless
Odor	pungent
Molecular Weight	130.14
Flash point	63°C(145.4°F)
Method	EU Method A.9
Autoignition Temperature	282 °C
Method	EU A.15
Melting point/range	-43°C
Boiling point/range	168.4°C
Method	EU A.2 @ 1013 hPa
Density	1.0103 g/ml @ 20°C
Method	EU A.3
Viscosity	1.039 mPa*s @ 25°C

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Method	OECD 114
Vapor pressure	168 Pa @ 20°C
Water solubility	hydrolyses
Partition coefficient (n-octanol/water)	0.33 (data based on propionic acid)

10. Stability and reactivity

Chemical stability

Stable under normal conditions of handling, use and transportation.

Conditions to avoid

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

Incompatible Materials

Keep away from:

- amines
- bases
- alcohols
- water

Hazardous Combustion or Decomposition Products:

Thermal decomposition products may include oxides of carbon.

Possibility of hazardous reactions

Reacts violently with water.

11. Toxicological information

Potential health effects

Routes of exposure Skin, eyes, inhalation, ingestion.

Immediate effects

Skin	Harmful if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.
Inhalation	May be harmful if inhaled. Causes respiratory tract burns.
Ingestion	May be harmful if swallowed. Causes digestive tract burns.

Propionic anhydride

Acute oral toxicity	LD50: 3455 mg/kg (Reference substance: Propionic acid)
Acute inhalation toxicity	LC50 (4h): > 20 mg/l

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Propionic anhydride

Method	Similar to OECD 403
Skin corrosion/irritation	corrosive (Reference substance: Propionic acid)
Species	rabbit
Serious eye damage/eye irritation	corrosive (Reference substance: Propionic acid)
Species	rabbit eye
Carcinogenic effects	No evidence of carcinogenicity
Species	rat male
Study	oral gavage lifetime study
in vitro Mutagenicity	Ames Test: negative - with and without metabolic activation - Method: OECD 471 (Reference substance: Propionic acid) Cell gene-mutation in Chinese Hamster Cells: negative - with and without metabolic activation - Method: OECD 476 (Reference substance: Formic acid)
in vivo Mutagenicity	In vitro mammalian chromosome aberration test in Chinese hamster cells: negative - with and without metabolic activation - OECD 473 (Reference substance: Propionic acid)
Developmental effects	(Reference substance: Calcium propionate)
Routes of exposure	oral gavage
Species	rat
	NOAEL: 300 mg/kg bw/day (Maternal toxicity / teratogenicity)

Propionic acid

Acute oral toxicity	LD50: 960 - 2270 mg/kg, rat- not toxic to harmful
Acute dermal toxicity	LD50: 500 - 794 mg/kg, rabbit- Harmful to toxic
Acute inhalation toxicity	LC50 (4h): > 5.4 mg/l
Skin corrosion/irritation	corrosive
Species	rabbit
Method	Exposure time: 1 h occluded treatment
Skin Sensitization	nonsensitizer
Species	guinea pig
Method	Maximization
Serious eye damage/eye irritation	Considered to be corrosive
Carcinogenic effects	5 Papillomas of the forestomach mucosa were observed in 20 animals Significant hyperplasia and dysplasia of the forestomach mucosa were also observed
Species	rats
Study	oral dose-feed lifetime study
	LOAEL: 2640 mg/kg/d
in vitro Mutagenicity	Negative for sister-Chromatid-exchange (SCE) Ames Test: negative - with and without metabolic activation - Method: OECD 471
in vivo Mutagenicity	Mouse micronucleus test for chromosome damage: - negative

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Propionic anhydride

Developmental effects

Routes of exposure
Species

no adverse developmental effects at a dose level of 300 - 400 mg/kg/day
oral gavage
rat rabbit mouse hamster
LOAEL: 300 mg/kg/d

Repeated exposure

Routes of exposure
Species

90-day Skin ulceration at 233 mg/kg/day (14% solution). No clinical signs of toxicity and no impact on body weight
dermal
mice

Repeated Exposure

Routes of exposure
Species

LOAEL: 133 mg/kg/d
90-day Increased esophageal epithelial hyperplasia was observed at ~2000 mg/kg/day. No other adverse effects were observed
oral dose-feed
dogs
NOAEL: ~700 mg/kg bw/day

12. Ecological Information

Propionic anhydride

Acute fish toxicity

Species:
Method

LC50: > 10000 mg/l (96h)
(Reference substance: Calcium propionate)
Leuciscus idus (Golden orfe)
DIN 38412 T.15

Acute daphnia toxicity

Species:
Method

EC50: > 500 mg/l (48h)
Daphnia magna
EU C.2

Toxicity to aquatic plants

Species:
Method

EC50: > 500 mg/l (72h)
(Reference substance: Calcium propionate)
Desmodemus subspicatus
OECD 201

Toxicity to bacteria

Species:

EC50: 60 mg/l (17h)
(Reference substance: Calcium propionate)
Pseudomonas putida

Biodegradation

Method

Readily biodegradable
(Reference substance: Propionic acid)
according to OECD criteria

Other potential hazards

The substance does not meet the criteria for PBT / vPvB according to REACH, Annex XIII

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13. Disposal considerations

Disposal considerations

Dispose of spilled material in accordance with state and local regulations for hazardous waste. Recommended methods are incineration or biological treatment at a federally or state-permitted disposal facility. Note that this information applies to the material as manufactured; processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

Note that this handling and disposal information may also apply to empty containers, liners and rinsate. State or local regulations or restrictions are complex and may differ from federal regulations. This information is intended as an aid to proper handling and disposal; the final responsibility for handling and disposal is with the owner of the waste.

14. Transport information

US Department of Transportation

UN/NA Number:	UN 2496
Proper Shipping Name	Propionic anhydride
Hazard class	8
Packing Group	III
Emergency Resp. Guide	156

ICAO/IATA

UN-No.	UN 2496
Proper Shipping Name	Propionic anhydride
Hazard Class	8
Packing group	III

IMDG

UN/ID No.	UN 2496
Proper Shipping Name	Propionic anhydride
Hazard Class	8
Packing group	III
Marine pollutant	no
EmS Code	F-A, S-B

15. Regulatory Information

US State Regulations

Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with the applicable state(s):

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Propionic anhydride 123-62-6

Pennsylvania	Listed
New York	Listed
New Jersey	Listed
Massachusetts	Listed
Rhode Island	Listed

Propionic acid 79-09-4

Pennsylvania	Listed
New York	Listed
New Jersey	Listed
Illinois	Listed
Massachusetts	Listed
Rhode Island	Listed

U.S. FEDERAL REGULATIONS

TSCA Inventory:

We certify that all components are either on the TSCA inventory or qualify for an exemption.

Environmental Regulations:

Propionic anhydride 123-62-6

CERCLA Hazardous Substance Listed

Propionic acid 79-09-4

CERCLA Hazardous Substance Listed

SARA 311:

Acute health:	Yes
Chronic health:	No
Fire:	Yes
Sudden release of pressure:	No
Reactive:	No

INTERNATIONAL REGULATIONS

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International Inventories

Listed on the chemical inventories of the following countries or qualifies for an exemption:

Australia (AICS)
Canada (DSL)
China (IECSC)
Europe (EINECS)
Japan (ENCS)
Japan (ISHL)
Korea (KECI)
New Zealand (NZIoC)
Philippines (PICCS)
United States (TSCA)

16. Other information

NFPA: Health: 3 Flammability: 2 Instability: 0

Prepared By

Product Stewardship Department
Celanese

Sources of key data used to compile the datasheet

Information contained in this safety data sheet is based on Celanese owned data and public sources deemed valid or acceptable.. The absence of data elements required by ANSI or 1907/2006/EC indicates that no data meeting these requirements is available..

Other Information:

Observe national and local legal requirements
Changes against the previous version are marked by ***

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Abbreviation and Acronym:

ADR = Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

CAS = Chemical Abstracts Service (division of the American Chemical Society)

CLP = Classification, Labelling and Packaging

DNEL = Derived No Effect Level

EINECS = European Inventory of Existing Commercial Chemical Substances

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

ICAO = International Civil Aviation Organization

IMDG = International Maritime Code for Dangerous Goods

LC50 = Lethal Concentration

LD50 = Lethal Dose

NOAEC = No Observed Adverse Effect Concentration

NOAEL = No Observed Adverse Effect Level

PBT = Persistent, Bioaccumulative and Toxic

PNEC = Predicted No Effect Concentration

RCR = Risk Characterization Ratio

RID = Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

R-Phrases = Risk Phrases

S-Phrases = Safety Phrases

STP = Sewage Treatment Plant

vPvB = very Persistent and very Bioaccumulative