

Safety Data Sheet

Adipic Acid - G

Revision date : 2023/05/02
Version: 5.0

Page: 1/11
(30042497/SDS_GEN_US/EN)

1. Identification

Product identifier used on the label

Adipic Acid - G

Recommended use of the chemical and restriction on use

Recommended use*: for the production of homopolymerisates and copolymerisates; initial product for chemical syntheses

Unsuitable for use: food additive(s)

Not intended for sale to or use by the general public.

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:

BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300

BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Molecular formula:	C6 H10 O4
Chemical family:	No data available.
Synonyms:	ADIPIC ACID 1,6 Hexanedioic Acid

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Eye Dam./Irrit.

1

Serious eye damage/eye irritation

Safety Data Sheet

Adipic Acid - G

Revision date: 2023/05/02
Version: 5.0

Page: 2/11
(30042497/SDS_GEN_US/EN)

Aquatic Acute

3

Hazardous to the aquatic environment - acute

Label elements

Pictogram:



Signal Word:
Danger

Hazard Statement:

H318 Causes serious eye damage.
H402 Harmful to aquatic life.

Precautionary Statements (Prevention):

P280 Wear eye and face protection.
P273 Avoid release to the environment.

Precautionary Statements (Response):

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 or physician.

Precautionary Statements (Disposal):

P501 Dispose of contents/container in accordance with local regulations.

Hazards not otherwise classified

No specific dangers known, if the regulations/notes for storage and handling are considered.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

adipic acid

CAS Number: 124-04-9

Content (W/W): ≥ 75.0 - $\leq 100.0\%$

Synonym: 1,4-Butanedicarboxylic acid; Adipic acid, Hexanedioic acid

4. First-Aid Measures

Description of first aid measures

General advice:

Remove contaminated clothing.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

Safety Data Sheet

Adipic Acid - G

Revision date: 2023/05/02
Version: 5.0

Page: 3/11
(30042497/SDS_GEN_US/EN)

If on skin:

Wash affected areas thoroughly with soap and water. Remove contaminated clothing. Immediate medical attention required.

If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Seek medical attention.

If swallowed:

Rinse mouth and then drink 200-300 ml of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: Overexposure may cause:, dyspnea, coughing

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, foam, dry powder

Unsuitable extinguishing media for safety reasons:
water

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
No particular hazards known.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

If exposed to fire, keep containers cool by spraying with water.

Impact Sensitivity:

Method: Explosive properties

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Safety Data Sheet

Adipic Acid - G

Revision date: 2023/05/02
Version: 5.0

Page: 4/11
(30042497/SDS_GEN_US/EN)

Avoid dust formation. Sources of ignition should be kept well clear. Use breathing apparatus if exposed to vapours/dust/aerosol. Information regarding personal protective measures, see section 8.

Environmental precautions

Substance/product is RCRA hazardous due to its properties.

Methods and material for containment and cleaning up

Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Avoid contact with skin and eyes. Wear suitable protective clothing and eye/face protection. Handle in accordance with good industrial hygiene and safety practice.

Protection against fire and explosion:

No explosion proofing necessary.

Conditions for safe storage, including any incompatibilities

Segregate from alkalies and alkalizing substances.

Suitable materials for containers: Stainless steel 1.4401, Stainless steel 1.4301 (V2), Aluminium, Polyester resin, glass reinforced (Palatal A410), Paper/Fibreboard, High density polyethylene (HDPE), glass, Low density polyethylene (LDPE)

Further information on storage conditions: Avoid extreme heat. Keep away from sources of ignition - No smoking.

Storage stability:

Tends to cake.

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

adipic acid ACGIH, US: TWA value 5 mg/m³ ;

Advice on system design:

Provide local exhaust ventilation to control dust.

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) particulate respirator. Do not exceed the maximum use concentration for the respirator facepiece/cartridge combination.

Hand protection:

Chemical resistant protective gloves

Eye protection:

Tightly fitting safety goggles (chemical goggles).

Safety Data Sheet

Adipic Acid - G

Revision date: 2023/05/02
Version: 5.0

Page: 5/11
(30042497/SDS_GEN_US/EN)

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Avoid inhalation of dusts. Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to minimize contact. Handle in accordance with good industrial hygiene and safety practice. Take off immediately all contaminated clothing. At the end of the shift the skin should be cleaned and skin-care agents applied.

9. Physical and Chemical Properties

Form:	crystalline	
Odour:	of acetic acid	
Odour threshold:	No data available.	
Colour:	white	
pH value:	2.7 (23 g/l, 25 °C)	(pH Meter)
	3.2 (10 g/l)	
Melting point:	150.85 °C	(Directive 92/69/EEC, A.1)
Boiling point:	337.5 °C (1,013 hPa)	
	Literature data.	
Sublimation point:	No applicable information available.	
Flash point:	196 °C	(closed cup)
	Literature data.	
Flammability:	not highly flammable	(Directive 92/69/EEC, A.10)
Lower explosion limit:	No data available.	
Upper explosion limit:	No data available.	
Autoignition:	405 °C	(DIN 51794)
Vapour pressure:	0.097 hPa (18.5 °C)	
	Literature data.	
Density:	1.36 g/cm ³ (25 °C)	
	Literature data.	
Relative density:	1.36 (25 °C)	
	Literature data.	
Bulk density:	approx. 700 kg/m ³	(other)
Vapour density:	No data available.	
Partitioning coefficient n-octanol/water (log Pow):	0.093 (25 °C)	(measured)
Self-ignition temperature:	not self-igniting > 400 °C	(Directive 92/69/EEC, A.16)
Thermal decomposition:	No data available.	
Viscosity, dynamic:	No data available.	
Viscosity, kinematic:	No data available.	
Particle size:	approx. D50 60 µm	(measured)

Safety Data Sheet

Adipic Acid - G

Revision date: 2023/05/02
Version: 5.0

Page: 6/11
(30042497/SDS_GEN_US/EN)

Solubility in water:	23 g/l (25 °C) Literature data.
Solubility (qualitative):	soluble solvent(s): organic solvents,
Molar mass:	146.14 g/mol
Evaporation rate:	The product is a non-volatile solid.

10. Stability and Reactivity

Reactivity

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:
Based on its structural properties the product is not classified as oxidizing.

Minimum ignition energy:
10 - 30 mJ (DIN EN 13821)

Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.
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Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

The product is chemically stable.

Conditions to avoid

No data available. Avoid extreme heat. Avoid sources of ignition.

Incompatible materials

strong bases, oxidizing agents

Hazardous decomposition products

Decomposition products:

Thermal decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated., Incomplete combustion results in formation of toxic gases, containing mainly carbon monoxide and carbon dioxide.

Thermal decomposition:
No data available.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Safety Data Sheet

Adipic Acid - G

Revision date: 2023/05/02
Version: 5.0

Page: 7/11
(30042497/SDS_GEN_US/EN)

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact.

Oral

Type of value: LD50

Species: rat (male/female)

Value: approx. 5,560 mg/kg (BASF-Test)

Inhalation

Type of value: LC50

Species: rat

Value: > 7.7 mg/l (BASF-Test)

Exposure time: 4 h

An aerosol was tested.

Dermal

Type of value: LD50

Species: rabbit (male/female)

Value: > 7,940 mg/kg (other)

Assessment other acute effects

Assessment of STOT single:

Based on available data, the classification criteria are not met.

Irritation / corrosion

Assessment of irritating effects: May cause slight irritation to the skin. May cause severe damage to the eyes.

Skin

Species: rabbit

Result: non-irritant

Method: BASF-Test

Eye

Species: rabbit

Result: Risk of serious damage to eyes.

Method: OECD Guideline 405

Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies. A sensitizing effect on particularly sensitive individuals cannot be excluded.

Species: guinea pig

Result: Non-sensitizing.

Method: other

Aspiration Hazard

No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity

Safety Data Sheet

Adipic Acid - G

Revision date: 2023/05/02
Version: 5.0

Page: 8/11
(30042497/SDS_GEN_US/EN)

Assessment of repeated dose toxicity: Repeated oral uptake of the substance did not cause substance-related effects.

The substance may cause damage to the upper respiratory tract after repeated inhalation, as shown in animal studies. May affect the liver and kidneys as indicated in animal studies. May affect the central nervous system as indicated in animal studies.

Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not genotoxic in mammalian cell culture. The substance was not genotoxic in a test with mammals.

Carcinogenicity

Assessment of carcinogenicity: In long-term animal studies in which the substance was given in high concentrations by feed, a carcinogenic effect was not observed.

Reproductive toxicity

Assessment of reproduction toxicity: No effects have been reported in reproductive organs in long term animal studies.

Teratogenicity

Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Medical conditions aggravated by overexposure

Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See SDS section 11 - Toxicological information.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Acutely harmful for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish

LC0 (96 h) \geq 1,000 mg/l, Brachydanio rerio (other, static)

Nominal values (confirmed by concentration control analytics)

Aquatic invertebrates

LC50 (48 h) 46 mg/l, Daphnia magna (OECD Guideline 202, part 1)

Nominal concentration.

Aquatic plants

EC50 (72 h) 64.5 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

Nominal concentration.

No observed effect concentration (72 h) 40.6 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

Nominal concentration.

Chronic toxicity to fish

Study scientifically not justified.

Safety Data Sheet

Adipic Acid - G

Revision date: 2023/05/02
Version: 5.0

Page: 9/11
(30042497/SDS_GEN_US/EN)

Chronic toxicity to aquatic invertebrates

No observed effect concentration (21 d) 6.3 mg/l, Daphnia magna (OECD Guideline 211)
Nominal concentration.

Assessment of terrestrial toxicity

No data available.
Study scientifically not justified.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

OECD Guideline 209 aerobic
activated sludge/EC50 (3 h): > 100 mg/l

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Readily biodegradable (according to OECD criteria).

Elimination information

83 % BOD of the ThOD (30 d) (OECD 301D; EEC 92/69, C.4-E) (aerobic, domestic sewage)
Literature data.

Assessment of stability in water

According to structural properties, hydrolysis is not expected/probable.

Bioaccumulative potential

Assessment bioaccumulation potential

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Bioaccumulation potential

Bioconcentration factor: 3.16 (calculated)
Accumulation in organisms is not to be expected.

Mobility in soil

Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

Additional information

Other ecotoxicological advice:
Do not release untreated into natural waters.

13. Disposal considerations

Waste disposal of substance:

Do not discharge into waterways or sewer systems without proper authorization. Dispose of in accordance with national, state and local regulations.

Safety Data Sheet

Adipic Acid - G

Revision date: 2023/05/02
Version: 5.0

Page: 10/11
(30042497/SDS_GEN_US/EN)

Container disposal:

Empty containers with less than 1 inch of residue may be landfilled at a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. If containers are not empty, they must be disposed of in a RCRA-licensed facility.

RCRA: D002

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

Reportable Quantity for release: 5,000 lb

State regulations

State RTK

PA

NJ

CAS Number

124-04-9

124-04-9

Chemical name

adipic acid

adipic acid

NFPA Hazard codes:

Health: 3

Fire: 1

Reactivity: 0

Special:

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Eye Dam./Irrit.

1

Serious eye damage/eye irritation

Aquatic Acute

3

Hazardous to the aquatic environment - acute

16. Other Information

SDS Prepared by:

BASF NA Product Regulations

Safety Data Sheet

Adipic Acid - G

Revision date: 2023/05/02
Version: 5.0

Page: 11/11
(30042497/SDS_GEN_US/EN)

SDS Prepared on: 2023/05/02

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