

Trade name: Itaconic acid

Print Date: 6. January 2021

Version: 3.2, revision date: 02.01.2021

Replaced version: 3.1 created on: 26.09.2019

Region: EN

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Trade name: Itaconic acid  
CAS Number: 97-65-4  
EC number: 202-599-6  
Registration number: 01-2119883794-19

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

Formulation and repacking  
Synthesis  
Chemical intermediate  
Manufacture of polymers

**Uses advised against**

No further relevant information available.

**1.3. Details of the supplier of the safety data sheet****Company**

SysKem Chemie GmbH  
Brucknerweg 26  
D-42289 Wuppertal

Telephone +49 (0) 202/30999510  
Telefax +49 (0) 202/87088403  
E-mail address info@syskem.de

**Prepared by / E-mail address of person responsible for the SDS**

info@syskem.de

**1.4. Emergency telephone number**

Vergiftungs-Informations-Zentrale Freiburg, Tel. +49 761 19240.

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Eye Dam. 1 H318 Causes serious eye damage.

**Classification system:**

Classification is based on information on classification submitted for REACH registration (ECHA IUCLID dossier).

**2.2. Label elements**

The substance is classified and labelled according to the CLP regulation.

**Hazard pictograms (CLP)**

The product is classified and labelled according to the CLP regulation.

**Signal word (CLP)**

Danger



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**Hazard statements (CLP)**

H318 Causes serious eye damage.

**Precautionary statements (CLP)**

P280 Wear protective gloves / eye protection.

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.

**2.3. Other hazards****Results of PBT and vPvB assessment**

PBT: Not applicable due to data

vPvB: Not applicable due to data

**SECTION 3: Composition/information on ingredients****3.1 Substances**

CAS No.	Description:
97-65-4	Itaconic acid

**Identification number(s):**

EC number: 202-599-6

**SECTION 4: First aid measures****4.1. Description of first aid measures****General information:**

Remove affected persons from danger area and lay them down.

Keep warm, position comfortably and cover well.

If symptoms persist or in case of doubt, seek medical advice.

**After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness, place patients on their side in a stable position for transportation.

**After skin contact:**

Wash with water and soap.

If skin irritation continues, consult a doctor.

**After eye contact:**

Protect unharmed eye.

Rinse the eyes with open eyelids for 10 - 15 minutes with water. Then consult an eye specialist immediately.

**After swallowing:**

Rinse mouth with water.

Never give anything by mouth to an unconscious person.

Seek immediate medical advice.

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

Serious damage to eyes

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

Symptomatic treatment



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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media:

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

#### Unsuitable extinguishing media

High volume water jet

### 5.2. Special hazards arising from the substance or mixture

In case of fire, the following can be released:

In case of fire, formation of dense, black smoke

Carbon monoxide (CO)

Carbon dioxide (CO<sub>2</sub>)

### 5.3. Advice for firefighters

#### Protective equipment:

Wear self-contained respiratory protective device.

#### Additional information

Heating leads to increased pressure and danger of bursting and explosion. Immediately cool neighbouring packages and containers

with sprayed water and, if possible, remove them out of the danger zone.

Collect contaminated fire fighting water separately. It must not enter the sewage system.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with eyes and skin.

Avoid formation of dust.

Do not breathe dust

Wear protective clothing.

### 6.2. Environmental precautions

Do not allow product to reach sewage system or any water course.

Do not allow to penetrate the ground/soil.

### 6.3. Methods and material for containment and cleaning up

Ensure adequate ventilation.

Pick up mechanically.

Avoid any dust formation. Pick up with a tested and approved industrial vacuum cleaner if necessary.

Make sure to recycle or dispose of in suitable receptacles.

### 6.4. Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.



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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.  
Avoid contact with eyes and skin. Wash hands after use.  
Avoid inhalation of dust.  
Avoid contact with clothing.  
Prevent formation of dust.  
Any deposit of dust which cannot be avoided must be regularly removed.

#### Information about protection against explosions and fires:

Observe the general rules of industrial fire protection.  
Dust may combine with air to form an explosive mixture.  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.

### 7.2. Conditions for safe storage, including any incompatibilities

#### Storage:

##### Requirements to be met by storerooms and receptacles:

Store container tightly sealed at a cool and dry place with sufficient ventilation.  
Store in original container wherever possible.

#### Information about storage in one common storage facility:

Store away from foodstuffs.  
Store away from feed.  
Refer to national regulations for storing hazardous chemicals.

#### Further information about storage conditions:

Keep receptacle tightly sealed.  
Protect from humidity and water. This product is hygroscopic.

#### Storage class:

10-13 other combustible and non-combustible substances

### 7.3. Specific end use(s)

No further relevant information available.

## SECTION 8: Exposure controls/personal protection

#### Additional information about design of technical systems:

Install appropriate mechanical ventilation.  
No further data; see section 7.

### 8.1 Control parameters

#### Components with limit values that require monitoring at the workplace:

Not required

#### DNELs

Abbreviations:

In = Industrial

Prof = Professional

Cons = Consumer

LLE = Long term, local effects

LSE = Long term, systemic effects

SLE = Short term, local effects

SSE = Short term, systemic effects

Trade name: Itaconic acid

Print Date: 6. January 2021

Version: 3.2, revision date: 02.01.2021

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**97-65-4 itaconic acid**

Oral	DNEL/Cons/LSE	12.5 mg/kg bw/day (human)
Dermal	DNEL/In/LSE	25 mg/kg bw/day (human)
Inhalative	DNEL/Cons/LSE	11.03 mg/m <sup>3</sup> (human)
	DNEL/In/LSE	22.05 mg/m <sup>3</sup> (human)

**PNECs**

Since the substance has no potential for bioaccumulation no PNEC oral was derived.

Abbreviations:

aq = aqua

sed = sediment

**97-65-4 itaconic acid**

PNEC STP	2.17 mg/L (sewage treatment plant)
PNEC/Aq	0.0622 mg/l (fresh water)
	0.622 mg/l (Intermittent releases)
	0.00622 mg/l (marine water)
PNEC/soil	0.00883 mg/kg (soil)

**8.2. Exposure controls****Personal protective equipment:****General protective and hygienic measures:**

The usual precautionary measures should be adhered to when handling chemicals.

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Vacuum contaminated clothing. Do not blow or brush off contamination.

Store protective clothing separately.

Avoid contact with eyes.

Provide eye bath and emergency shower.

Do not inhale dust/smoke/mist.

**Breathing equipment:**

At heavy dust formation:

In case of unintentional release of substance, exceeding the occupational exposure limit value:

Short term filter device:

Use suitable respiratory protective device when high concentrations are present.

FFP1

**Protection of hands:**

Chemical resistant gloves (EN 374)

The glove material has to be impermeable and resistant to the product/substance/preparation.

Selection of the glove material in consideration of the penetration times, rates of diffusion and the degradation

**Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Penetration time of glove material**

The exact penetration time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:**

Tightly sealed goggles

EN 166

**Body protection:**

Protective work clothing

Dust-proof protective clothing

**Limitation and monitoring of environmental exposure**

Do not empty into drains.

Trade name: Itaconic acid

Print Date: 6. January 2021

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Replaced version: 3.1 created on: 26.09.2019

Region: EN

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### General Information

#### Appearance:

Form	Crystalline powder
Colour	Amber coloured
Odour	No data available
Odour threshold	Not determined

pH-value (0.08 g/l) at 20 °C 2

#### Change in condition

Melting point/Melting range:	163-168.4 °C (OECD Guideline 102)
Boiling point and boiling range:	Not determined

#### Flash point:

Not applicable.

#### Flammability (solid, gaseous)

Product is not flammable.

#### Ignition temperature:

Not determined

#### Decomposition temperature:

Not determined.

#### Self-ignition temperature:

Product is not self-igniting.

#### Danger of explosion:

Product is not explosive. However, formation of explosive air/dust mixtures is possible.

#### Explosion limits:

##### Lower:

Not determined.

##### Upper:

Not determined.

#### Oxidising properties

Non-oxidizing

#### Vapour pressure at 20 °C:

1.15E-7 hPa (OECD Guideline 104)

#### Density at 20 °C:

0.893 g/cm<sup>3</sup> (CIPAC MT 186 (2001))

#### Relative density

Not determined

#### Vapour density

Not applicable

#### Evaporation rate

Not applicable

#### Dissociation constant pKa at 25 °C

~ 4.273 (pKa<sub>2</sub>: ~ 4,304)

#### Solubility in / Miscibility with water:

~77.49 g/l (OECD Guideline 105) at 20 °C

#### Partition coefficient: n-octanol/water at 20 °C

-0.301 log POW (OECD Guideline 107)

#### Viscosity:

##### Dynamic at 20 °C:

Not applicable

##### Kinematic:

Not applicable

### 9.2. Other information

No further relevant information available.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No further relevant information available

### 10.2. Chemical stability

No decomposition if used and stored according to specifications.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known

Trade name: Itaconic acid

Print Date: 6. January 2021

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**10.4. Conditions to avoid**

No further relevant information available

**10.5. Incompatible materials**Oxidants  
Reducing agents  
Bases**10.6. Hazardous decomposition products**

No hazardous decomposition products if instructions for storage and handling are followed

**SECTION 11: Toxicological information****11.1. Information on toxicological effects****Acute toxicity**

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

**LD/LC50 values that are relevant for classification****97-65-4 itaconic acid**

Oral LD 50 2969 mg/kg (rat) (EU Method B.1)

Dermal LD0 &gt; 2000 mg/kg (rat) (EU Method B.3)

**Skin corrosion/irritation**

Skin irritation test (rabbit): no irritation

EU Method B.4 (Acute Toxicity: Dermal Irritation / Corrosion)

**Serious eye damage/eye irritation**

Rabbit, EU Method B.5 (Acute Toxicity: Eye Irritation / Corrosion)

Causes serious eye damage.

**Respiratory or skin sensitisation**

Not sensitising (guinea pig)

EU Method B.6 (Skin Sensitisation)

**Germ cell mutagenicity**

Ames-test: negative

OECD 471

Micronucleus Test (in vivo/mouse): negative

EU Method B.12

No classification

**Carcinogenicity**

No data available

**Reproductive toxicity****97-65-4 itaconic acid**

Oral NOAEL (maternal) 1000 mg/kg bw/day (rat) (OECD guideline 415)

NOAEL(developmental) 1000 mg/kg bw/day (rat) (OECD Guideline 415 (fetotoxicity))

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

**STOT - single exposure**

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

**STOT - repeated exposure****97-65-4 itaconic acid**

Oral NOAEL 1001 mg/kg/day (rat) (OECD Guideline 408)

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



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**Aspiration toxicity**

Not relevant

**SECTION 12: Ecological information****12.1 Toxicity****Aquatic toxicity:****97-65-4 itaconic acid**

EC 50 /24h	~240 mg/l (Daphnia magna) (EU Method C.2)
EC 50 /72h	~ 47 mg/l (Scenedesmus subspicatus) (EU Method C.3)
EC 50 /96h	6.22 mg/l (Algae) (REACH guidance on QSARs R.)
LC 50 /24h (static)	190 mg/l (Salmo gairdneri) (EU Method C.1)

**12.2 Persistence and degradability**

Readily biodegradable  
90.9 %, 10 d; aerob.  
~100 %, 18 d, aerob.  
OECD 301 B

**12.3 Bioaccumulative potential**

Bioaccumulation is not to be expected ( $\log P_{o/w} < 1$ ).

**12.4 Mobility in soil**

No further relevant information available

**12.5 Results of PBT and vPvB assessment**

PBT: Not applicable due to data  
vPvB: Not applicable due to data

**12.6 Other adverse effects**

No further relevant information available.

**Additional ecological information:****General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous to water  
Classification according to German VwVwS dt. 17.05.1999 appendix 3  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.  
Danger to drinking water is possible if large quantities leak into the ground or into water course.

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

Must be recycled or disposed of according to the regulations. Waste has to be classified according to the European Waste Catalogue based on the identification of the waste generating source.  
Disposal according to instructions of local authorities  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

**Uncleaned packaging:****Recommendation:**

Disposal must be made according to official regulations.

**Recommended cleansing agents:**

Water, if necessary together with cleansing agents.





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## SECTION 14: Transport information

### 14.1 UN number

ADR, ADN, IMDG, IATA Void

### 14.2 UN proper shipping name

ADR, ADN, IMDG, IATA Void

### 14.3 Transport hazard class(es)

ADR, ADN, IMDG, IATA  
Class Void

### 14.4 Packing group

ADR, IMDG, IATA Void

### 14.5 Environmental hazards

Marine pollutant No

### 14.6 Special precautions for user

Not applicable

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

**Transport/Additional information**  
UN "Model Regulation"

Not dangerous according to the above regulations  
Void

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

**Directive 2012/18/EU**  
**Named dangerous substances - ANNEX I**  
Substance is not listed.

**National regulations:**  
**Waterhazard class:**  
Water hazard class 1 (Self-assessment): slightly hazardous for water

### 15.2. Chemical Safety Assessment

A Chemical safety Assessment has been carried out.



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**SECTION 16: Other information****Further information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Relevant phrases**

H318 Causes serious eye damage.

**Training hints**

Provide adequate information, instruction and training for operators.

**Sources**

MSDS of the supplier  
IUCLID-Dossier from ECHA

**Indication of changes**

Section 1

**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
ICAO: International Civil Aviation Organisation  
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
DNEL: Derived No-Effect Level (REACH)  
PNEC: Predicted No-Effect Concentration (REACH)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
Met. Corr. 1: Corrosive to metals – Category 1  
Acute Tox. 3: Acute toxicity – Category 3  
Acute Tox. 4: Acute toxicity – Category 4  
Skin Corr. 1A: Skin corrosion/irritation – Category 1A  
Skin Corr. 1B: Skin corrosion/irritation – Category 1B  
Eye Dam. 1: Serious eye damage/eye irritation – Category 1  
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2  
Skin Sens. 1: Skin sensitisation – Category 1  
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1  
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1