ConnectingChemistry

BRENNTAG

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

CITRIC ACID ANHYDROUS

Version 7.1 Print Date 2022/09/15

Revision date / valid from 2022/09/15 **MSDS code: MCIT100**

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	:	CITRIC ACID ANHYDROUS
Substance name	:	citric acid
CAS-No.	:	77-92-9
EC-No.	:	201-069-1
EU REACH-Reg. No.	:	01-2119457026-42-xxxx

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

Use of the Substance/Mixture	:	Food additive, Pharmaceutical industry, Cosmetics, personal care products, Detergent, Cleaning agent, Industrial use
Uses advised against	:	At this moment we have not identified any uses advised against

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag UK Limited Alpha House, Lawnswood Business Park GB LS16 6QY Leeds
Telephone	:	+44 (0) 113 3879 200
Telefax	:	+44 (0) 113 3879 280
E-mail address	:	msds@brenntag.co.uk

1.4. Emergency telephone number

Emergency telephone number	:	Emergency only telephone number (open 24 hours): +44 (0) 1865 407333 (N.C.E.C. Culham)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation S.I. 2019/720 (GB CLP)

Regulation S.I. 2019/720 (GB CLP)			
Hazard class	**Hazard category**	**Target Organs**	**Hazard statements**
Eye irritation	Category 2	---	H319
Specific target organ toxicity - single exposure	Category 3	Respiratory system	H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

Most important adverse effects

Human Health	:	See section 11 for toxicological information.
Physical and chemical hazards	:	See section 9/10 for physicochemical information.
Potential environmental effects	:	See section 12 for environmental information.

2.2. Label elements

Labelling according to Regulation S.I. 2019/720 (GB CLP)

Hazard symbols :

Signal word	:	Warning	
Hazard statements	:	H319	Causes serious eye irritation.
		H335	May cause respiratory irritation.
Precautionary statements			
Prevention	:	P261	Avoid breathing dust.
		P280	Wear eye protection/ face protection.
Response	:	P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
		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.
Storage	:	P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
Disposal	:	P501	Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

• citric acid

2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Dust can form an explosive mixture in air. Combustible material

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous components	Amount [%]	Classification (Regulation S.I. 2019/720 (GB CLP))	
		Hazard class / Hazard category	Hazard statements
citric acid			
Index-No. : 607-750-00-3 CAS-No. : 77-92-9 EC-No. : 201-069-1 EU REACH-Reg. No. : 01-2119457026-42-xxxx	<= 100	Eye Irrit.2 STOT SE3	H319 H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : Take off all contaminated clothing immediately. If symptoms call a physician.

If inhaled : Remove to fresh air. If symptoms persist, call a physician.

In case of skin contact : Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids,

	for at least 5 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.
If swallowed	: Rinse mouth with water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. If symptoms persist, call a physician.
Protection of First Aid Responders	: First Aid responders should pay attention to self-protection and use the recommended protective clothing.

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

Symptoms	: See Section 11 for more detailed information on health effects and symptoms.
Effects	: Dust in the eyes may cause mechanical irritation. May cause respiratory irritation. See Section 11 for more detailed information on health effects and symptoms.

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

Treatment	: If in eyes or on skin, rinse well with water.Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Water spray, foam, dry powder or CO2.
Unsuitable extinguishing media	:	High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Combustible solids. In case of fire hazardous decomposition products may be produced such as:
Hazardous combustion products	:	Carbon monoxide, Carbon dioxide (CO2)

5.3. Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.Wear personal protective equipment.
Further advice	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.Cool closed containers exposed to fire with water spray.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Keep away unprotected persons. Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin and eyes.

6.2. Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Use mechanical handling equipment. Keep in suitable, closed containers for disposal.
Further information	:	Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Keep container tightly closed. Use personal protective equipment. Avoid dust formation. Risk of dust explosion. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container.
Advice on protection against fire and explosion	:	Avoid dust formation. Normal measures for preventive fire protection.
Further information on storage conditions	:	Keep tightly closed in a dry and cool place. Avoid moisture.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs. Incompatible with oxidizing agents.

Storage temperature : 10 - 30 °C

7.3. Specific end use(s)

Specific use(s) : Identified use: See table in front of appendix for a complete overview of identified uses.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)	
No DNEL value was derived.	:

Other Occupational Exposure Limit Values	
(Additional) Information	: Contains no substances with occupational exposure limit values. Contains no substances with occupational exposure limit values.

Component:	citric acid	CAS-No. 77-92-9

Predicted No Effect Concentration (PNEC)		
Fresh water	:	0.44 mg/l
Marine water	:	0.044 mg/l
Sewage treatment plant (STP)	:	1000 mg/l
Fresh water sediment	:	34.6 mg/kg d.w.
Marine sediment	:	3.46 mg/kg d.w.
Soil	:	33.1 mg/kg d.w.

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice : Required, if exposure limit is exceeded (e.g. OEL).
Respiratory protection complying with EN 141.
Recommended Filter type:
Particle filter:P2

Hand protection

Advice	:	Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Protective gloves should be replaced at first signs of wear.
Material	:	Natural Rubber
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm
Material	:	polychloroprene
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm
Material	:	Nitrile rubber
Break through time	:	>= 8 h
Glove thickness	:	0.35 mm
Material	:	butyl-rubber
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm
Material	:	Fluorinated rubber
Break through time	:	>= 8 h
Glove thickness	:	0.4 mm
Material	:	Polyvinylchloride
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm

Eye protection

Advice	:	Tightly fitting safety goggles (EN166)

Skin and body protection

Advice	:	Wear personal protective equipment.

Environmental exposure controls

General advice	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such

cases.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	:	granular
Physical state	:	solid
Colour	:	white
Odour	:	odourless
Odour Threshold	:	Not applicable
Melting point/range	:	153 °C
Boiling point/boiling range	:	> 175 °C
Flammability (solid, gas)	:	does not ignite
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	345 °C
Auto-ignition temperature	:	No data available
Decomposition temperature	:	> 175 °C
Self-Accelerating decomposition temperature (SADT)	:	No data available
pH	:	1.8 (25 °C) 5% solution
Viscosity		
Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
Flow time	:	No data available
Solubility(ies)		
Water solubility	:	1450 g/l (20 °C)
Solubility in other solvents	:	No data available
Dissolution Rate	:	No data available

Partition coefficient: n-octanol/water	:	log Pow: -1.8 - -0.2
Dispersion Stability	:	No data available
Vapour pressure	:	< 0.001 hPa (20 °C)
Relative density	:	No data available
Density	:	1.665 g/cm3 (20 °C)
Bulk density	:	No data available
Relative vapour density	:	No data available

Particle characteristics
No data available

9.2 Other information

Explosives	:	Dust may form explosive mixture in air.
Oxidizing properties	:	not oxidising
Evaporation rate	:	Not applicable
Molecular weight	:	192.12 g/mol

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : No decomposition if stored and applied as directed.

10.2. Chemical stability

Advice : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Conditions to avoid : Avoid moisture.Avoid dust formation.Heat, flames and sparks.Risk of dust explosion.

Thermal decomposition : > 175 °C

10.5. Incompatible materials

Materials to avoid : Strong bases, Oxidizing agents, Strong acids, Sodium nitrite, Potassium nitrite

10.6. Hazardous decomposition products

Hazardous decomposition products : Fire may cause evolution of: Carbon oxides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Component:		citric acid	CAS-No. 77-92-9
Acute toxicity			
Oral			
LD50	:	5400 mg/kg (Mouse, male and female) (OECD Test Guideline 401)	
Inhalation			
		No valid data available.	
Dermal			
LD50	:	> 2000 mg/kg (Rat, male and female) (OECD Test Guideline 402)	
Irritation			
Skin			
Result	:	No skin irritation (Rabbit) (OECD Test Guideline 404)	
Eyes			
Result	:	Irritating to eyes.	
Sensitisation			
Result	:	not sensitizing	
CMR effects			
CMR Properties			
Carcinogenicity	:	It is not considered carcinogenic.	
Mutagenicity	:	In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects	
Teratogenicity	:	Did not show teratogenic effects in animal experiments.	
Reproductive toxicity	:	It is not considered toxic for reproduction.	

Genotoxicity in vitro		
Result	:	negative (Bacterial Reverse Mutation Test; Salmonella typhimurium; with and without metabolic activation) (OECD Test Guideline 471)

Genotoxicity in vivo		
Result	:	negative (Chromosome aberration test in vivo; Rat, male and female) (Oral;) (Regulation (EC) No. 440/2008, Annex, B.22) negative (Mammalian Bone Marrow Chromosomal Aberration Test; Rat, male) (Oral;) (OECD Test Guideline 475)

Teratogenicity		
NOAEL Teratog.	:	> 272 mg/kg bw/day (Mouse)(Oral)No adverse effects

Specific Target Organ Toxicity		
Single exposure		
Remarks	:	No data available
Repeated exposure		
Inhalation	:	Target Organs: Respiratory systemMay cause respiratory irritation.

Other toxic properties		
Repeated dose toxicity		
NOAEL	:	4000 mg/kg bw/day
LOAEL	:	8000 mg/kg bw/day (Rat)(Oral; 10 d)
Aspiration hazard		
		Not applicable,

11.2. Information on other hazards

Data for the product		
Endocrine disrupting properties		
Assessment	:	The substance/mixture does not contain components

considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Component:		citric acid	CAS-No. 77-92-9
Endocrine disrupting properties			
Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.	

SECTION 12: Ecological information

12.1. Toxicity

Component:		citric acid	CAS-No. 77-92-9
Acute toxicity			
Fish			
LC50	:	440 mg/l (Leuciscus idus melanotus; 48 h) (static test; OECD Test Guideline 203)	
Toxicity to daphnia and other aquatic invertebrates			
LC50	:	1,535 mg/l (Daphnia magna (Water flea); 24 h) (static test)	
algae			
	:	No data available	

12.2. Persistence and degradability

Component:		citric acid	CAS-No. 77-92-9
Persistence and degradability			
Persistence			
Result	:	No data available	
Biodegradability			

Result	:	97 % (aerobic; Related to: CO2 formation (% of the theoretical value).; Exposure Time: 28 d)(OECD Test Guideline 301B)Readily biodegradable.
Result	:	100 % (aerobic; Related to: Dissolved organic carbon (DOC); Exposure Time: 19 d)(OECD Test Guideline 301E)Readily biodegradable.

12.3. Bioaccumulative potential

Component:	citric acid	CAS-No. 77-92-9
Bioaccumulation		

Result	:	log Kow -1.80 - -1.61
	:	Bioaccumulation is not expected.

12.4. Mobility in soil

Component:	citric acid	CAS-No. 77-92-9
Mobility		

Water	:	The product is water soluble.
Air	:	not volatile

12.5. Results of PBT and vPvB assessment

Data for the product		
Results of PBT and vPvB assessment		

Result	:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Component:	citric acid	CAS-No. 77-92-9
Results of PBT and vPvB assessment		

Result	:	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6. Endocrine disrupting properties

Data for the product		
Endocrine disrupting potential	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7. Other adverse effects

Data for the product		
Additional ecological information		
Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.
Result	:	

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	:	Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.
Contaminated packaging	:	Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. If recycling is not practicable, dispose of in compliance with local regulations.
European Waste Catalogue Number	:	No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

Not dangerous goods for ADR, RID, IMDG and IATA.

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packaging group

Not applicable.

14.5. Environmental hazards

Not applicable.

14.6. Special precautions for user

Not applicable.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Component:	citric acid	CAS-No. 77-92-9

EU. Chemicals Subject to PIC Procedure: Regulation 649/2012/EU on export and import of dangerous chemicals, as amended	:	; The substance/mixture does not fall under this legislation.
EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC)	:	; The substance/mixture does not fall under this legislation.
EU. Regulation 528/2012/EU concerning the making available on the market and use of biocidal products, Annex I: Active substances	:	EC Number: , 201-069-1; Category 6 - Substances included in Annex I or IA to Directive 98/8/EC; Minimum degree of purity of the active substance (The purity indicated in this column was the minimum degree of purity of the active substance evaluated. The active substance in the product placed on the market can be of equal or different purity if it has been proven to be technically equivalent to the evaluated active substance): 995 g/kg
EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I	:	; The substance/mixture does not fall under this legislation.

15.2. Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Full text of the Notes referred to under section 3.

Abbreviations and Acronyms

AU AIICL	Australia. Industrial Chemicals Act (AIIC) List
BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
DSL	Canada. Environmental Protection Act, Domestic Substances List
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ENCS (JP)	Japan. Kashin-Hou Law List
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IECSC	China. Inventory of Existing Chemical Substances
INSQ	Mexico. National Inventory of Chemical Substances
ISHL (JP)	Japan. Inventory of Industrial Safety & Health
KECI (KR)	Korea. Existing Chemicals Inventory
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NDSL	Canada. Environmental Protection Act. Non-Domestic Substances List
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level

NZIOC	New Zealand. Inventory of Chemicals
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
ONT INV	Canada. Ontario Inventory List
PBT	persistent, bioaccumulative and toxic
PHARM (JP)	Japan. Pharmacopoeia Listing
PICCS (PH)	Philippines. Inventory of Chemicals and Chemical Substances
PNEC	predicted no-effect concentration
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number
STOT	specific target organ toxicity
SVHC	substance of very high concern
TCSI	Taiwan. Existing Chemicals Inventory
TH INV	Thailand. Existing Chemicals Inventory from FDA
TSCA	US. Toxic Substances Control Act
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
VN INVL	Vietnam. National Chemical Inventory
vPvB	very persistent and very bioaccumulative

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of hazardous materials must be adhered to.
Other information	:	The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.