SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Revision Date 06/17/2018 Version 1.6

SECTION 1.Identification

Product identifier

Product number	CX1723
Product name	Citric Acid Anhydrous GR ACS
CAS-No.	77-92-9

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

Identified uses	Reagent for analysis

Details of the supplier of the safety data sheet

Company	Millipore (Canada) Ltd | 109 Woodbine Downs Blvd. Unit 5 | Etobicoke | Ontario M9W 6Y1 | Canada | General Inquiries: +1 800-645-5476 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.
Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Eye irritation, Category 2A, H319

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

GHS-Labeling

Hazard pictograms

Signal Word
Warning

Hazard Statements
H319 Causes serious eye irritation.

Precautionary Statements
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ eye protection/ face 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.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	$(HOOCCH_2)_2C(OH)COOH$	$C_6H_8O_7$ (Hill)
Molar mass	192.12 g/mol	

Hazardous ingredients

Chemical name (Concentration)
CAS-No.
citric acid (>= 90 % - <= 100 %)
77-92-9

SECTION 4. First aid measures

Description of first-aid measures

Inhalation
After inhalation: fresh air.

Skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

Eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

Ingestion
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

irritant effects, Pain, Bloody vomiting

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media
Water, Foam, Carbon dioxide (CO2), Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible.
Development of hazardous combustion gases or vapors possible in the event of fire.
Risk of dust explosion.

Advice for firefighters

Special protective equipment for fire-fighters
In the event of fire, wear self-contained breathing apparatus.

Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers
No metal containers.

Tightly closed. Dry.

Store at room temperature.

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Contains no substances with occupational exposure limit values.

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.

Eye/face protection
Safety glasses

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).
The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.
This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment:
protective clothing

Respiratory protection
required when dusts are generated.
Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer. These measures have to be properly documented.

SECTION 9. Physical and chemical properties

Physical state	solid
Color	colorless
Odor	odorless
Odor Threshold	Not applicable
pH	ca. 1.7 at 100 g/l 68 °F (20 °C)

Melting point	ca. 307 °F (153 °C) Method: OECD Test Guideline 102 (decomposition)
Boiling point/boiling range	392 °F (200 °C) at 1,013 hPa (decomposition)
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	< 0.1 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Density	1.665 g/cm3 at 64 °F (18 °C) Method: OECD Test Guideline 109
Relative density	No information available.
Water solubility	1,330 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: -1.72 (20 °C) OECD Test Guideline 117 Bioaccumulation is not expected.
Autoignition temperature	No information available.
Decomposition temperature	347 °F (175 °C)
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Bulk density	ca.560 kg/m3

SECTION 10. Stability and reactivity

Reactivity
Risk of dust explosion.

Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions
Violent reactions possible with:

Metals, Oxidizing agents, Bases, Reducing agents

Conditions to avoid
Temperatures above melting point.

Incompatible materials
Metals

Hazardous decomposition products
no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Eye contact, Skin contact, Ingestion

Acute oral toxicity
LD50 Rat: 11,700 mg/kg
OECD Test Guideline 401

Symptoms: In high doses:, Irritation of mucous membranes, Pain, Bloody vomiting

Acute inhalation toxicity

Symptoms: Possible damages:, mucosal irritations

Acute dermal toxicity
LD50 Rat: > 2,000 mg/kg
OECD Test Guideline 402

Skin irritation
Rabbit
Result: No irritation
OECD Test Guideline 404

slight irritation

Eye irritation
Rabbit
Result: Severe irritations
OECD Test Guideline 405

Causes serious eye irritation.

Genotoxicity in vivo
Chromosome aberration test
Rat
Result: negative
Method: OECD Test Guideline 475

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

Reproductive toxicity
No impairment of reproductive performance in animal experiments. (Lit.)

Teratogenicity
Did not show teratogenic effects in animal experiments. (Lit.)

Specific target organ systemic toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information
Substance which occurs in the human body under physiological conditions.
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 Leuciscus idus (Golden orfe): 440 - 760 mg/l; 96 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates
EC5 E.sulcatum: 485 mg/l; 72 h (Lit.)

EC50 Daphnia magna (Water flea): ca. 120 mg/l; 72 h (IUCLID)

Toxicity to algae
IC5 Scenedesmus quadricauda (Green algae): 640 mg/l; 7 d (maximum permissible toxic concentration) (Lit.)

Toxicity to bacteria
EC5 Pseudomonas putida: > 10,000 mg/l; 16 h (maximum permissible toxic concentration) (Lit.)

Persistence and degradability
Biodegradability
97 %; 28 d; aerobic
OECD Test Guideline 301B
Readily biodegradable.

Biochemical Oxygen Demand (BOD)
526 mg/g (5 d)
(IUCLID)

Chemical Oxygen Demand (COD)
728 mg/g
(IUCLID)

Bioaccumulative potential
Partition coefficient: n-octanol/water
log Pow: -1.72 (20 °C)
OECD Test Guideline 117
Bioaccumulation is not expected.

Mobility in soil
No information available.

Additional ecological information
Harmful effect due to pH shift.
Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)
Not classified as dangerous in the meaning of transport regulations.

Air transport (IATA)

Not classified as dangerous in the meaning of transport regulations.

Sea transport (IMDG)

Not classified as dangerous in the meaning of transport regulations.

SECTION 15. Regulatory information

United States of America

Canada

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

Notification status

TSCA:	All components of the product are listed in the TSCA-inventory.
DSL:	All components of this product are on the Canadian DSL

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Labeling

Hazard pictograms

Signal Word

Warning

Hazard Statements

H319 Causes serious eye irritation.

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.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Revision Date06/17/2018

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.