

Safety Data Sheet



according to Regulation (EC) No 1907/2006

Eco C

Revision date: 03.12.2020

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

1.1. Product identifier

Eco C

UFI: P800-P0VS-K008-TQF7

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

Use of the substance/mixture

Aqueous acidic solution based on citric acid to create non-biocidal circulation liquid for Reverse Osmosis membranes to remove inorganic, particulate deposits

Uses advised against

No information available.

1.3. Details of the supplier of the safety data sheet

Company name: Pall GmbH
Street: Phillipp-Reis-Str. 6
Place: D-63303 Dreieich
Telephone: +49 (0) 6103 / 307 -0
Internet: www.pall.com
Responsible Department: Abt.: Quality Management
E-Mail (competent person): paul_garland@europe.pall.com
Poison Centre (UK-Wales): +44 (0) 845 / 4647 (24 hours / 7 days)

1.4. Emergency telephone number:

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:

Serious eye damage/eye irritation: Eye Irrit. 2

Respiratory or skin sensitisation: Skin Sens. 1

Hazardous to the aquatic environment: Aquatic Chronic 3

Hazard Statements:

Causes serious eye irritation.

May cause an allergic skin reaction.

Harmful to aquatic life with long lasting effects.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)

Signal word: Warning

Pictograms:



Hazard statements

H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

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Precautionary statements

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
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.

Labelling of packages where the contents do not exceed 125 ml

Signal word: Warning

Pictograms:



Hazard statements

H317-H412

Precautionary statements

P261-P272-P280-P333+P313-P362+P364

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name	Quantity		
	EC No	Index No	REACH No	
	GHS Classification			
5949-29-1	Citric acid monohydrate			20 - < 50 %
	201-069-1		01-2119457026-42	
	Eye Irrit. 2; H319			
55965-84-9	Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)			< 0.1 %
	911-418-6	613-167-00-5	01-2120764691-48	
	Acute Tox. 2, Acute Tox. 2, Acute Tox. 3, Skin Corr. 1C, Eye Dam. 1, Skin Sens. 1A, Aquatic Acute 1, Aquatic Chronic 1; H330 H310 H301 H314 H318 H317 H400 H410 EUH071			

Full text of H and EUH statements: see section 16.

Specific concentration limits and M-factors

CAS No	EC No	Chemical name	Quantity	
	Specific concentration limits and M-factors			
55965-84-9	911-418-6	Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)	< 0.1 %	
	Skin Corr. 1C; H314: >= 0,6 - 100 Skin Irrit. 2; H315: >= 0,06 - < 0,6 Eye Dam. 1; H318: >= 0,6 - 100 Eye Irrit. 2; H319: >= 0,06 - < 0,6 Skin Sens. 1A; H317: >= 0,0015 - 100 M akut; H400: M=100 M chron.; H410: M=100			

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SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Take off immediately all contaminated clothing and wash it before reuse.
If unconscious place in recovery position and seek medical advice.
First aider: Pay attention to self-protection!

After inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin irritation, consult a physician.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Let 1 glass of water be drunk in little sips (dilution effect).
Do NOT induce vomiting.

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

No data available

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

First Aid, decontamination, treatment of symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.
The product itself does not burn.

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

No data available

5.3. Advice for firefighters

Co-ordinate fire-fighting measures to the fire surroundings.
In case of fire: Wear self-contained breathing apparatus. Chemical protection clothing

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation.
Avoid contact with skin, eyes and clothes.
Remove persons to safety.
Personal protection equipment: see section 8
Safe handling: see section 7

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6.2. Environmental precautions

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Cover drains. In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Collect in closed and suitable containers for disposal.

Treat the recovered material as prescribed in the section on waste disposal.

Provide adequate ventilation.

The product is an acid. Before discharge into sewage plants the product normally needs to be neutralised.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Keep container tightly closed.

Provide adequate ventilation as well as local exhaust at critical locations.

Avoid contact with skin, eyes and clothes.

Do not breathe gas/vapour/aerosol.

Personal protection equipment: see section 8

Advice on protection against fire and explosion

No special fire protection measures are necessary.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place. Keep/Store only in original container.

Hints on joint storage

To follow: TRGS 510

Keep away from food, drink and animal feedingstuffs.

Keep away from: Acids

Further information on storage conditions

Keep away from: Frost

Unsuitable container/equipment material: Light metal

7.3. Specific end use(s)

Cleaning agent, alkaline

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
55965-84-9	Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)			
Worker DNEL, long-term		inhalation	local	0,02 mg/m ³
Worker DNEL, acute		inhalation	local	0,04 mg/m ³
Consumer DNEL, long-term		inhalation	local	0,02 mg/m ³
Consumer DNEL, acute		inhalation	local	0,04 mg/m ³
Consumer DNEL, long-term		oral	systemic	0,09 mg/kg bw/day
Consumer DNEL, acute		oral	systemic	0,11 mg/kg bw/day

PNEC values

CAS No	Substance	Value
5949-29-1	Citric acid monohydrate	
Freshwater		0,44 mg/l
Marine water		0,044 mg/l
Freshwater sediment		34,6 mg/kg
Marine sediment		3,46 mg/kg
Micro-organisms in sewage treatment plants (STP)		1000 mg/l
Soil		33,1 mg/kg
55965-84-9	Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)	
Freshwater		0,00339 mg/l
Freshwater (intermittent releases)		0,00339 mg/l
Marine water		0,00339 mg/l
Freshwater sediment		0,027 mg/kg
Marine sediment		0,027 mg/kg
Micro-organisms in sewage treatment plants (STP)		0,23 mg/l
Soil		0,01 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Provide adequate ventilation as well as local exhaust at critical locations.

Protective and hygiene measures

Avoid contact with skin, eyes and clothes. Use protective skin cream before handling the product. Remove contaminated, saturated clothing immediately. When using do not eat, drink, smoke, sniff. Wash hands and face before breaks and after work and take a shower if necessary.

Eye/face protection

Suitable eye protection: goggles, Tightly sealed safety glasses., Face protection umbrella (DIN EN 166)

Hand protection

Tested protective gloves must be worn: EN ISO 374

Butyl caoutchouc (butyl rubber), NBR (Nitrile rubber) PVC (polyvinyl chloride)

Thickness of the glove material \geq 0,5 mm

Permeation time (maximum wear time) \geq 8 h

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Breakthrough times and swelling properties of the material must be taken into consideration.
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.
Observe the wear time limits as specified by the manufacturer.

Skin protection

For the protection against direct skin contact, body protective clothing is essential (in addition to the usual working clothes).

Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: flüssig
Colour: colourless
Odour: odourless

Test method

pH-Value: 2,5

Changes in the physical state

Melting point: < - 7 °C

Initial boiling point and boiling range: 100 °C

Flash point: not applicable

Flammability

Solid: not applicable

Gas: not applicable

Explosive properties

not explosive.

Lower explosion limits: No data available

Upper explosion limits: No data available

Ignition temperature: No data available

Auto-ignition temperature

Solid: No data available

Gas: No data available

Decomposition temperature: No data available

Oxidizing properties

No information available.

Vapour pressure: No data available

Density (at 20 °C): 1,1 g/cm³ ISO 387

Water solubility:
(at 20 °C) completely miscible

Solubility in other solvents

No information available.

Partition coefficient: No data available

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Viscosity / dynamic: (at 20 °C)	< 5 mPa·s
Viscosity / kinematic:	No data available
Vapour density:	No data available
Evaporation rate:	No data available

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Exothermic reaction with: Alkali (lye)

10.4. Conditions to avoid

No special measures are necessary.

10.5. Incompatible materials

Alkali (lye) Oxidizing agent

10.6. Hazardous decomposition products

No information available.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

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

CAS No	Chemical name					
	Exposure route	Dose	Species	Source	Method	
5949-29-1	Citric acid monohydrate					
	oral	LD50 mg/kg	5400	Mouse	Study report (1981)	OECD Guideline 401
	dermal	LD50 mg/kg	> 2000	Rat	Study report (2006)	OECD Guideline 402
55965-84-9	Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)					
	oral	LD50 mg/kg	457	Rat	Study report (1993)	- Principle of test: The test material w
	dermal	LD50 mg/kg	660	Rabbit	Study report (1993)	- Principle of test: The undiluted test
	inhalation vapour	ATE	0,5 mg/l			
	inhalation aerosol	ATE	0,05 mg/l			

Irritation and corrosivity

Causes serious eye irritation.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Sensitising effects

May cause an allergic skin reaction. (Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1))

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Carcinogenic/mutagenic/toxic effects for reproduction

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

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

Aspiration hazard

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

SECTION 12: Ecological information

12.1. Toxicity

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
5949-29-1	Citric acid monohydrate					
	Acute fish toxicity	LC50 > 100 mg/l	96 h	Pimephales promelas	Photogr. Sci. Eng. 16(5):370-377 (1972)	OECD 203
	Acute algae toxicity	ErC50 425 mg/l		Scenedesmus quadricauda	Supplier	
	Acute crustacea toxicity	EC50 > 50 mg/l	48 h	other aquatic crustacea: Dreissena polymorpha	Environ.Toxicol.Ch em. 16(9): 1930-1934 (other: ASTM
	Algae toxicity	NOEC 425 mg/l	8 d	Scenedesmus quadricauda	Water Research 14: 231-241 (1980)	other: Bringmann and Kuhn
	Acute bacteria toxicity	0,526 g O2/g		Biochemical oxygen demand		
55965-84-9	Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)					
	Acute fish toxicity	LC50 0,19 mg/l	96 h	Oncorhynchus mykiss	REACH Registration Dossier	EPA OPP 72-1
	Acute algae toxicity	ErC50 0,0063 mg/l	72 h	Skeletonema costatum	Study report (1995)	OECD Guideline 201
	Acute crustacea toxicity	EC50 0,18 mg/l	48 h	Daphnia magna	REACH Registration Dossier	EPA OPP 72-2
	Fish toxicity	NOEC >= 0,0464 mg/l	35 d	Danio rerio	REACH Registration Dossier	OECD Guideline 210
	Crustacea toxicity	NOEC 0,1 mg/l	21 d	Daphnia magna	Study report (1991)	EPA OPP 72-4
	Acute bacteria toxicity	(4,5 mg/l)	3 h	activated sludge of a predominantly domestic sewage	Study report (1995)	OECD Guideline 209

12.2. Persistence and degradability

No information available.

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CAS No	Chemical name	Method	Value	d	Source
5949-29-1	Citric acid monohydrate	OECD 301B	98%	28	
Readily biodegradable (according to OECD criteria).					

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
5949-29-1	Citric acid monohydrate	-1,55
55965-84-9	Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)	0,326

BCF

CAS No	Chemical name	BCF	Species	Source
5949-29-1	Citric acid monohydrate	3,2		In: (2009)
55965-84-9	Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)	ca. 54	Lepomis macrochirus	Study report (1996)

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No data available

Further information

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Dispose of waste according to applicable legislation.

Contaminated packaging

Non-contaminated packages may be recycled. Packing which cannot be properly cleaned must be disposed of. Dispose of waste according to applicable legislation.

Cleaning agent: Water (with cleaning agent)

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:

No dangerous good in sense of this transport regulation.

14.2. UN proper shipping name:

No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es):

No dangerous good in sense of this transport regulation.

14.4. Packing group:

No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

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14.1. UN number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

14.1. UN number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No information available.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No information available.

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3

2004/42/EC (VOC): 0,0 %

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Employment restrictions:

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions for women of child-bearing age.

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

Citric acid monohydrate

Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)

SECTION 16: Other information

Abbreviations and acronyms

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

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RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
CAS: Chemical Abstracts Service (division of the American Chemical Society)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CLP: Regulation on Classification, Labelling and Packaging of Substances and Mixtures,
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
EC50: Effect concentration, 50 percent
DNEL: Derived No Effect Level
PNEC: Predicted No Effect Concentration
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Eye Irrit. 2; H319	Calculation method
Skin Sens. 1; H317	Calculation method
Aquatic Chronic 3; H412	Calculation method

Relevant H and EUH statements (number and full text)

H301 Toxic if swallowed.
H310 Fatal in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.
EUH071 Corrosive to the respiratory tract.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)