Material Safety Data Sheet

AA03787-0000000111

1. Chemical Product and Company Identification

A. Product Name COSCALEnp

B. Recommended Uses and Usage Restrictions of the Product

Recommended Use	Cleaning and cleaning agents
Usage Restrictions	Do not mix with other cleaning agents, food additives, or sterilizing disinfectants for utensils.

C. Supplier information (for imported goods, include domestic supplier information that can be urgently contacted)

Category	Manufacturer
Company Name	CS Chemtech Co., Ltd
Address	(15470) 154 Gwangdeok-daero, Danwon-gu, Ansan-si, Gyeonggi-do, Rodeo Town A-423 (Gojan-dong, Rodeo Town)
Emergency phone number	+82314940064
Category	Supplier
Company Name	Costimo Co., Ltd
Address	(21315) 244 Bupyeongbuk-ro, Bupyeong-gu, Incheon, Costimo Co., Ltd
Emergency phone number	+8215774697

D. Additional Information for Manufacturer / Supplier

No data

2. Hazards and Risks

A. Classification of Hazards and Risks

Metal Corrosive Substances: Category 1

Acute toxicity (inhalation): Category 4

Skin Corrosive/Irritating: Category 1

Severe eye damage/eye irritation: Category 1

Specific target organ toxicity (single exposure): Category 3 (respiratory irritation)

B. Warning sign items including preventive measures

Pictogram



Signal word Danger

Harmful and Dangerous Phrases

H290: May corrode metals

H314: Causes severe burns to the skin and damage to the eyes

Harmful and Dangerous Phrases		H318: Causes severe eye damage H332: Harmful if inhaled H335: May cause respiratory system irritation
Preventive Measures Phrases	Prevention	P234: Store only in the original container. P260: Do not inhale dust, fumes, gases, mist, vapor, or spray P261: Avoid inhaling dust, fumes, gases, mist, vapor, or spray P264: After handling, thoroughly wash the treated area. P271: Handle only outdoors or in well-ventilated places. P280: Wear protective gloves/protective clothing/safety goggles/face shields.
	Response	P301+P330+P331: If swallowed: Rinse your mouth. Do not cause vomiting. P303+P361+P353: If on skin (or hair): Remove all contaminated clothing immediately. Wash your skin with water [or shower]. P304+P340: Inhale: Move to a place with fresh air and rest in a position that makes breathing easier. P305+P351+P338: If on eyes: wash carefully with water for a few minutes. Remove contact lenses if possible. Keep washing. P310: Seek medical examination immediately from a medical institution or doctor. P312: If you feel uncomfortable, consult a medical institution or doctor. P321: Perform a swift treatment. P363: Wash contaminated clothing before reuse. P390: Absorb leakage to prevent material damage.
	Storage	P403+P233: Store in a well-ventilated place. Seal the container tightly. P405: Lock it and store it. P406: As these are metal corrosive substances, store them in corrosion-resistant containers designated by the manufacturer or administrative authorities.
	Disposal	P501: Dispose of contents/containers in accordance with waste-related laws

c. Hazards · Other hazards not included in the hazard classification criteria · Hazards (e.g., dust explosion risk)

No data available

3. Names and Content of Ingredients

Chemical Substance Name	Common names and aliases	CAS number or CAS number or		Content (%)	
		CAS Number	Identification number	Scope	Single
Hydroxyacetic acid	No data available	79-14-1	No data available	1-10	No data available

Chemical Substance Name	Common names and aliases	CAS number or CAS number or		Content (%)	
		CAS Number	Identification number	Scope	Single
Sulfamic acid	No data available	5329-14-6	No data available	1-10	No data available
Phosphoric acid	No data available	7664-38-2	No data available	0.1-0.9	No data available
Water	No data available	7732-18-5	No data available	70-80	No data available
Citric acid monohydrate	No data available	5949-29-1	No data available	1-10	No data available

4. Emergency Response Guidelines

A. When it gets in the eye

Take medical action immediately

Rinse your eyes immediately in running water for at least 20 minutes upon contact with the substance

Immediately rinse skin and eyes with running water for at least 20 minutes upon contact with the substance

Seek emergency medical care

B. When in contact with skin

Remove and isolate contaminated clothes and shoes

Wash clothes and shoes thoroughly before reuse

Rinse your skin immediately with running water for at least 20 minutes upon contact with the substance

Take medical action immediately

Seek emergency medical care

Prevent spread of contamination in light skin contact

If the substance is hot, immerse or rinse the affected area in plenty of cold water to dissipate the heat

Immediately rinse skin and eyes with running water for at least 20 minutes upon contact with the substance

Remove contaminated clothes and shoes and isolate contaminated areas

C. When inhaled

Seek emergency medical care

Move to a place with fresh air

If you are not breathing, perform artificial respiration

C. When inhaled

Keep me warm and steady

If exposed to excessive dust or fumes, remove it with clean air and seek medical attention if you have a cough or other symptoms.

If breathing becomes difficult, provide oxygen
If you have ingested or inhaled any material, do not perform artificial respiration using the oral method; instead, use appropriate respiratory medical equipment
D. When eating

Do not feed anything by mouth to an unconscious person
If you have ingested or inhaled any material, do not perform artificial respiration using the oral method; instead, use appropriate respiratory medical equipment
Seek emergency medical care

E. Other Precautions for Doctors

Do not administer adrenaline preparations.

Ensure that medical personnel are aware of the relevant substance and take protective measures

If exposed, contact medical staff and take special emergency measures such as follow-up investigations.

Ensure medical personnel are aware of the relevant substances and take protective measures

5. How to Respond in Case of Explosion or Fire

A. Appropriate (and inadequate) digestive agents

Large fires: Water spray/fog, regular foam (appropriate extinguishing agent)

High-pressure injection (inappropriate fire extinguishing agent)
Small fires: dry sand, drying chemicals, alcohol-resistant foam, water spray, regular foam, CO2 (appropriate extinguishing agent)
Direct injection (inappropriate extinguishing agents)

Small fires: water spray (appropriate extinguishing agent)

Use dry sand or soil for soccer-based extinguishing

Large fires: Regular foam (appropriate extinguishing agent)

Large fires: CO2 (appropriate extinguishing agents)

Use alcohol foam, carbon dioxide, or water spray when extinguishing with this substance.

Large fires: large amounts of water (appropriate extinguishing agents)

Large fires: drying chemicals (appropriate extinguishing agents)

Small fires: drying chemicals (appropriate extinguishing agents)

Large fires: water spray/mist (appropriate extinguishing agent)

A. Appropriate (and inadequate) digestive agents

Small fires: CO2 (appropriate extinguishing agent)

Large fires: Alcohol-resistant foam (appropriate extinguishing agent)

B. Specific hazards arising from chemicals (e.g., hazardous substances generated during combustion)

Inhalation of substances can be harmful

Can be ignited by heat, sparks, or flames

It may produce irritating and toxic gases during fire

During burning, pyrolysis or combustion can produce irritating and highly toxic gases

Some can burn but are not easily ignited

Some can produce flammable hydrogen gas upon contact with metals

The container may explode when heated

In case of fire, it may produce irritating, corrosive, and toxic gases

Decomposes at high temperatures to produce toxic gases

Non-flammable; the material itself does not burn, but can decompose upon heating and produce corrosive/toxic fumes

During heating, the vapor can mix with air to form explosive mixtures: indoors, outdoors, and in sewage drains

C. Protective equipment and preventive measures to be worn during fire suppression

Contact may cause burns to skin and eyes

Leaks can cause contamination

Some may be transported at high temperatures

Rescuers should wear appropriate protective gear.

For large-scale tank fires, use unmanned firefighting equipment, and if not, leave the tank to burn

In the event of a tank fire, cool the container with plenty of water even after extinguishing the extinguishing fire.

Dig a trench to trap the fire hose to prevent it from dispersing

Leave the area and maintain a safe distance to extinguish the fire.

Be careful, as it may be melted and transported

If there is a high noise from the pressure relief device or if the tank discoloration occurs during a tank fire, withdraw immediately

If it's not dangerous, move your container to the fire area

Retreat from the tank engulfed in flames during a tank fire

In case of tank fire, extinguish it from maximum distance or use unmanned fire extinguishing equipment

6. How to Respond in Case of a Leak Accident

A. Measures and protective equipment necessary to protect the human body

Do not enter the space without proper protective equipment such as a respirator or supplied-air mask until adequate air (oxygen concentration 18~23.5%) is secured.

Prevent dust formation

Do not touch or walk on exposed surfaces

Ventilate the contaminated areas

Cover with plastic sheets to prevent spread

Wipe off any spills immediately and follow protective gear protest precautions.

Do not touch broken containers or spills without wearing proper protective clothing

If it's not dangerous, stop leaking

Eliminate all ignition sources

Do not enter if you do not need to enter or are not equipped with protective equipment.

Isolate contaminated areas.

Pay attention to substances and conditions to avoid

B. Measures Necessary to Protect the Environment

Prevent entry into waterways, sewers, basements, and confined spaces

C. Methods of Purification or Removal

Use a clean shovel to place the spill in a clean, dry container, close it loosely, and move the container from the leak area

If a small amount leaks, absorb it with sand or non-combustible materials and store it in a container

Rinse the contaminated area with a large amount of water if a small leak occurs.

If there is a large leak, make a trench away from the liquid leak

In case of powder leakage, cover with a plastic sheet to prevent spread and keep it dry

Remove airborne dust and moisten it with water to prevent dispersal.

Absorb spills made from inert substances (such as dry sand or soil) and place them in a chemical waste container.

Absorb the liquid and wash the contaminated area with detergent and water.

Cover or absorb dry sand/soil or other non-combustible materials before transferring to a container

7. Handling and Storage Instructions

A. Safety Handling Guidelines

When substances leak, liquids rapidly evaporate and replace air, so be careful not to let them leak as there is a serious risk of suffocation when in enclosed spaces.
If substances leak, lower the oxygen concentration in the air, causing suffocation in enclosed spaces, so be careful not to let them leak.

A. Safety Handling Guidelines

Wash thoroughly after handling

When substances leak, the harmful concentration of this gas in the air reaches very quickly, so be careful not to let it leak.

High concentrations in the air can cause oxygen deficiency, which may lead to loss of consciousness or death, so check your oxygen level before entering the area.

Be careful of high temperatures

Product residue may remain even after the container is emptied, so follow all MSDS/label precautions.

Do not enter the storage area without proper ventilation.

Avoid prolonged or continuous skin contact.

Handle and store with care.

Pay attention to substances and conditions to avoid

Do not breathe vapors generated by heated materials.

Carefully open the cap before opening.

Work with reference to engineering management and personal protective equipment

Use only in well-ventilated areas.

B. Safe storage methods (including conditions to avoid)

Store tightly

Pay attention to substances and conditions to avoid

Store in a cool, dry place

Drain the empty drum barrel completely, seal it properly, and immediately return it to the drum regulator or arrange it properly.

8. Exposure Protection and Personal Protective Equipment

A. Standards for chemical substances, biological exposure, etc

Domestic regulations	Hydroxyacetic acid - TWA : No data , STEL : No data
	Sulfamic acid - TWA : No data , STEL : No data
	Phosphoric acid - TWA : 1 mg/㎥ , STEL : 3 mg/㎥
	Water - TWA : No data , STEL : No data
	Citric acid monohydrate - TWA : No data , STEL : No data
ACGIH Regulations	Hydroxyacetic acid - TWA : No data , STEL : No data

ACGIH Regulations	Sulfamic acid - TWA : No data , STEL : No data
	Phosphoric acid - TWA : 1 mg/㎥ , STEL : 3 mg/㎥
	Water - TWA : No data , STEL : No data
	Citric acid monohydrate - TWA : No data , STEL : No data
Biological Exposure Criteria	Hydroxyacetic acid - No data
	Sulfamic acid - No data
	Phosphoric acid - No data
	Water - No data
	Citric acid monohydrate - No data
Other Exposure Criteria	Hydroxyacetic acid - No data
	Sulfamic acid - No data
	Phosphoric acid - No data
	Water - No data
	Citric acid monohydrate - No data

B. Proper Engineering Management

Use process isolation, use local exhaust, or keep air levels below exposure standards
Use process isolation, use local exhaust, or perform other engineering controls to keep air levels below exposure standards.
If dust, fumes, or mist are generated while driving, ventilate to keep air pollution below exposure standards

For storing or using this substance, install face wash equipment and safety showers.

C. Personal protective equipment

Respiratory protection	Wear respiratory protective equipment certified by the Korea Occupational Safety and Health Agency according to the physical and chemical properties of the substances being exposed
Eye protection	Install face washing equipment and emergency shower facilities near the workplace
	Use chemical protective goggles and a face shield
Hand protection	Wear appropriate chemical-resistant gloves
Body protection	Wear appropriate chemical-resistant protective clothing

9. Physicochemical Properties

Product Features

Category		Details
A. Appearance (physical condition	Iconography	Liquid

Product Features

Category		Details
A. Appearance (physical condition	Color	Transparent white
B. Smell		Mild smell
C. Odor threshold		No data
D. pH (Stock Solution, 25° C)		2.0~4.0
E. Melting point/freezing point		-10°C or below
F. Initial boiling point and boiling point range		100°C or higher
G. Flash Point		No data
H. Evaporation rate		No data
I. Flammability (solid, gaseous)		No data
J. Upper or Lower Limits of Ignition or Explosion Radius		No data
K. Vapor pressure		No data
L. Solubility		Soluble in water
M. Vapor density		No data
N. Specific gravity (raw solution, 25° C)		1.0~1.3
O. n-Octanol/Water Partition Coefficient		No data
P. Spontaneous ignition temperature		No data
Q. Decomposition Temperature		No data
R. Viscosity		No data
S. Molecular weight		No data

Characteristics by Component

Ingredients	Category		Details
Hydroxyacetic acid	A. Appearance (physical condition, color, etc.)	Iconography	No data
		Color	No data
	B. Smell		No data
	C. Odor threshold		No data
	D. pH		No data

Characteristics by Component

Ingredients	Category		Details
Hydroxyacetic acid	E. Melting point/freezing point		No data
	F. Initial boiling point and boiling point range		No data
	G. Flash Point		No data
	H. Evaporation rate		No data
	I. Flammability (solid, gaseous)		No data
	J. Upper or Lower Limits of Ignition or Explosion Radius		No data
	K. Vapor pressure		No data
	L. Solubility		No data
	M. Vapor density		No data
	N. Specific gravity		No data
	O. n-Octanol/Water Partition Coefficient		No data
	P. Spontaneous ignition temperature		No data
	Q. Decomposition Temperature		No data
	R. Viscosity		No data
	S. Molecular weight		No data
Sulfamic acid	A. Appearance (physical condition, color, etc.)	Iconography	No data
		Color	No data
	B. Smell		No data
	C. Odor threshold		No data
	D. pH		No data
	E. Melting point/freezing point		No data
	F. Initial boiling point and boiling point range		No data
	G. Flash Point		No data
	H. Evaporation rate		No data
	I. Flammability (solid, gaseous)		No data
	J. Upper or Lower Limits of Ignition or Explosion Radius		No data
	K. Vapor pressure		No data

Characteristics by Component

Ingredients	Category		Details
Sulfamic acid	L. Solubility		No data
	M. Vapor density		No data
	N. Specific gravity		No data
	O. n-Octanol/Water Partition Coefficient		No data
	P. Spontaneous ignition temperature		No data
	Q. Decomposition Temperature		No data
	R. Viscosity		No data
	S. Molecular weight		No data
Phosphoric acid	A. Appearance (physical condition, color, etc.)	Iconography	No data
		Color	No data
	B. Smell		No data
	C. Odor threshold		No data
	D. pH		No data
	E. Melting point/freezing point		No data
	F. Initial boiling point and boiling point range		No data
	G. Flash Point		No data
	H. Evaporation rate		No data
	I. Flammability (solid, gaseous)		No data
	J. Upper or Lower Limits of Ignition or Explosion Radius		No data
	K. Vapor pressure		No data
	L. Solubility		No data
	M. Vapor density		No data
	N. Specific gravity		No data
	O. n-Octanol/Water Partition Coefficient		No data
	P. Spontaneous ignition temperature		No data
	Q. Decomposition Temperature		No data
	R. Viscosity		No data

Characteristics by Component

Ingredients	Category		Details
Phosphoric acid	S. Molecular weight		No data
Water	A. Appearance (physical condition, color, etc.)	Iconography	No data
		Color	No data
	B. Smell		No data
	C. Odor threshold		No data
	D. pH		No data
	E. Melting point/freezing point		No data
	F. Initial boiling point and boiling point range		No data
	G. Flash Point		No data
	H. Evaporation rate		No data
	I. Flammability (solid, gaseous)		No data
	J. Upper or Lower Limits of Ignition or Explosion Radius		No data
	K. Vapor pressure		No data
	L. Solubility		No data
	M. Vapor density		No data
	N. Specific gravity		No data
	O. n-Octanol/Water Partition Coefficient		No data
	P. Spontaneous ignition temperature		No data
	Q. Decomposition Temperature		No data
	R. Viscosity		No data
	S. Molecular weight		No data
Citric acid monohydrate	A. Appearance (physical condition, color, etc.)	Iconography	No data
		Color	No data
	B. Smell		No data
	C. Odor threshold		No data
	D. pH		No data
	E. Melting point/freezing point		No data

Characteristics by Component

Ingredients	Category	Details
Citric acid monohydrate	F. Initial boiling point and boiling point range	No data
	G. Flash Point	No data
	H. Evaporation rate	No data
	I. Flammability (solid, gaseous)	No data
	J. Upper or Lower Limits of Ignition or Explosion Radius	No data
	K. Vapor pressure	No data
	L. Solubility	No data
	M. Vapor density	No data
	N. Specific gravity	No data
	O. n-Octanol/Water Partition Coefficient	No data
	P. Spontaneous ignition temperature	No data
	Q. Decomposition Temperature	No data
	R. Viscosity	No data
	S. Molecular weight	No data

10. Stability and responsiveness

A. Chemical Stability and Potential for Harmful Reactions

It may produce irritating and toxic gases during fire

In case of fire, it may produce irritating, corrosive, and toxic gases

The container may explode when heated

Some can burn but are not easily ignited

Decomposes at high temperatures to produce toxic gases

Non-flammable; the material itself does not burn, but can decompose upon heating and produce corrosive/toxic fumes

Some can produce flammable hydrogen gas upon contact with metals

During heating, the vapor can mix with air to form explosive mixtures: indoors, outdoors, and in sewage drains

B. Conditions to avoid (electrostatic discharge, shock, vibration, etc.)

Heat, sparks, flames, and other ignition sources

Heat

C. Substances to Avoid

Metal

Combustible materials, reducing materials

D. Hazardous substances generated during decomposition

During burning, pyrolysis or combustion can produce irritating and highly toxic gases

Corrosive/toxic fume

Irritating, corrosive, toxic gases

11. Information on toxicity

A. Information on Highly Likely Exposure Paths

Products	No data
Hydroxyacetic acid	No data
Sulfamic acid	No data
Phosphoric acid	No data
Water	No data
Citric acid monohydrate	No data

B. Health Hazard Information

Acute toxicity	Aphorism	Products	No data
		Hydroxyacetic acid	LD50(2,040 mg/kg bw)(Rat) - Source : ECHA
		Sulfamic acid	LD50(3,160 mg/kg)(Rat) - Source : ChemIDplus
		Phosphoric acid	LD50(4,400 mg/kg bw)(Rat) - Source : ECHA
		Water	LD50(>90 mL/kg)(Rat) - Source : ChemIDplus
		Citric acid monohydrate	LD50(2,830 mg/kg bw)(Rat) - Source : ECHA
	Transdermal	Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	LD50(2,740 mg/kg)(Rabbit) - Source : ChemIDplus
		Water	No data
		Citric acid monohydrate	LD50(662 mg/kg bw)(Rabbit) - Source : ECHA
	Inhalation	Products	No data

B. Health Hazard Information

Acute toxicity	Inhalation	Hydroxyacetic acid	LC50(7.7 mg/L air)(Rat) - Source : ECHA
		Sulfamic acid	No data
		Phosphoric acid	LC50(>850 mg/m³/1hr)(Rat) - Source : ChemIDplus
		Water	No data
		Citric acid monohydrate	No data
Skin Corrosive or Irritating		Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
Severe eye damage or irritation		Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
Respiratory hypersensitivity		Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
Dermatitive		Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data

Carcinogenicity	IARC	Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
	NTP	Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
	OSHA	Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
	ACGIH	Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
	Industrial Safety and Health Act	Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data

Carcinogenicity	Ministry of Employment and Labor Notice	Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
	EU CLP	Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
Germ cell mutagenicity		Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
Reproductive toxicity		Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data
Specific target organ toxicity (single exposure)		Products	No data
		Hydroxyacetic acid	No data
		Sulfamic acid	No data
		Phosphoric acid	No data
		Water	No data
		Citric acid monohydrate	No data

Specific target organ toxicity (repeated exposure)	Products	No data
	Hydroxyacetic acid	No data
	Sulfamic acid	No data
	Phosphoric acid	No data
	Water	No data
	Citric acid monohydrate	No data
Aspiration hazards	Products	No data
	Hydroxyacetic acid	No data
	Sulfamic acid	No data
	Phosphoric acid	No data
	Water	No data
	Citric acid monohydrate	No data

12. Environmental Impact

A. Ecotoxicity

Fish	Products	No data
	Hydroxyacetic acid	LC50(164 mg/L/96hr)(Pimephales promelas) - Source : ECHA
	Sulfamic acid	LC50(95.2 mg/L/48hr)(Lepomis macrochirus) - Source : ECHA
	Phosphoric acid	LC50(75.1 mg/L/96hr)(Oryzias latipes) - Source : ECHA
	Water	No data
	Citric acid monohydrate	LC50(387 mg/L/96hr)(Pimephales promelas) - Source : ECHA
Crustacean	Products	No data
	Hydroxyacetic acid	EC50(264 mg/L/48hr)(other aquatic crustacea: Acartia tonsa (Dana) - Source : ECHA
	Sulfamic acid	EC50(71.6 mg/L/48hr)(Daphnia magna) - Source : ECHA
	Phosphoric acid	No data
	Water	No data
	Citric acid monohydrate	EC50(187.35 mg/L/48hr)(Daphnia magna) - Source : ECHA
Bird	Products	No data
	Hydroxyacetic acid	EC50(44 mg/L/72hr)(Pseudokirchneriella subcapitata) - Source : ECHA

A. Ecotoxicity

Bird	Sulfamic acid	EC50(48 mg/L/72hr)(Desmodesmus subspicatus) - Source : ECHA
	Phosphoric acid	EC50(77.9 mg/L/72hr)(Pseudokirchneriella subcapitata) - Source : ECHA
	Water	No data
	Citric acid monohydrate	EC50(214.88 mg/L/96hr)(Desmodesmus subspicatus) - Source : ECHA

B. Persistence and Degradability

Persistence	Products	No data
	Hydroxyacetic acid	-1.11 log Pow(logP) - Source : ChemIDplus
	Sulfamic acid	0.1 log Pow(logP)(20℃) - Source : ECHA
	Phosphoric acid	No data
	Water	No data
	Citric acid monohydrate	-1.67 log Pow(logP) - Source : ChemIDplus
Degradability	Products	No data
	Hydroxyacetic acid	No data
	Sulfamic acid	No data
	Phosphoric acid	No data
	Water	No data
	Citric acid monohydrate	No data

C. Bioaccumulation

Concentrated	Products	No data
	Hydroxyacetic acid	No data
	Sulfamic acid	No data
	Phosphoric acid	No data
	Water	No data
	Citric acid monohydrate	No data
Biodegradable	Products	No data

C. Bioaccumulation

Biodegradable	Hydroxyacetic acid	No data
	Sulfamic acid	No data
	Phosphoric acid	No data
	Water	No data
	Citric acid monohydrate	No data

D. Soil mobility

Products	No data
Hydroxyacetic acid	No data
Sulfamic acid	No data
Phosphoric acid	No data
Water	No data
Citric acid monohydrate	No data

E. Other Harmful Effects

Products	No data
Hydroxyacetic acid	No data
Sulfamic acid	No data
Phosphoric acid	No data
Water	No data
Citric acid monohydrate	No data

13. Precautions for disposal

A. Disposal Method

If specified in the Waste Management Act, dispose of contents and containers according to regulations.

B. Precautions for disposal (including disposal methods for contaminated containers and packaging)

Dispose of the contents and containers according to the relevant regulations.

14. Information required for transportation

A. UN Number

3265

B. UN Appropriate Shipping List

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Contains Citric acid and Glycolic acid)

C. Risk Levels in Transportation

8

D. Container grade (if applicable)

II

E. Marine pollutants (indicated as applicable or non-applicable)

Not applicable

F. Special safety measures that the user needs to know or needs regarding transportation or means of transport

Emergency Measures in Case of Fire

F-A

Emergency measures in case of leakage

S-B

15. Legal Regulatory Status

A. Regulation under the Industrial Safety and Health Act

Substances subject to exposure standard setting

Substances Subject to Workplace Environment Measurement

Controlled Hazardous Substances

B. Regulation under the Chemical Substances Control Act

Not applicable

C. Regulations of the Act on Registration and Evaluation of Chemical Substances, etc

Conventional Chemicals

D. Regulation under the Hazardous Materials Safety Control Act

Not applicable

E. Regulation under the Waste Management Act

Proper disposal in accordance with the Waste Management Act

F. Other regulations under domestic and foreign laws

Domestic Regulations No data

Foreign Regulations No data

16. Other Reference Information

A. Source of Data

3. Name and Content of Ingredients: Chemical Substance Information System

11. Toxicity information: ECHA, ChemIDplus

12. Environmental impact: ECHA, ChemIDplus

14. Information required for transportation: Korea Maritime Hazardous Materials Inspection Service

B. Date of Initial Preparation

2021-12-15

C. Number of Amendments and Final Amendment Dates

Number of revisions: 5 times Last revised date: 2026-06-30

D. Others

※ This MSDS was prepared by CS Chemtech Co., Ltd. in accordance with the Industrial Safety and Health Act. This MSDS describes necessary matters for safety purposes during product use and does not imply a guarantee of accuracy or specific nature of the information.