

MOEL's Public Notice No. 2016-19 (Standards for Classification and Labeling of Chemical Substances and Safety Data Sheets)

WAI4 - KGHS - KOREAN

Issue Date 05-Sep-2019

Revision Date 05-Sep-2019

Revision Number 1

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### Product Identifier

**Product Name** Silica  
**Product No** AC4060-ACT  
**Pure substance/mixture** Mixture

Contains Sulfuric Acid

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

**Recommended Use** Use as laboratory reagent

**Uses advised against** No Information available

### **Supplier**

Fisher Scientific Korea	Thermo Fisher Scientific©
D5,D6, Incheon Airport Logistics	Water and Lab Products
Complex	22 Alpha Road
150, Gonghangdong-Ro Mapo-Gu 296	Chelmsford, MA 01824, USA
Beon-Gil	1-978-232-6000
Jung-Gu, Incheon 400-340	
Tel: +82-2-6196-5500	
Fax: +82-2-6196-5501	

### **E-mail address**

Chem.KR@thermofisher.com info.water@thermo.com

### Emergency Telephone Number

**Emergency telephone:** Medical: +(82) 070-7686-0086 or + 1-703-741-5970  
 CHEMTREC: 1-800-424-9300 or + 1-703-527-3887  
 Korea: 00-308-13-2549 (24 hours a day, 7 days a week)

Made in USA

## SECTION 2: HAZARDS IDENTIFICATION

### Classification of the substance or mixture

#### Physical hazards

Substances/mixtures corrosive to metal

Category 1

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## Health hazards

Skin Corrosion/Irritation  
Serious Eye Damage/Eye Irritation

Category 1  
Category 1

## Environmental hazards

Based on available data, the classification criteria are not met

## Label Elements



## Signal Word

**Danger**

## Hazard Statements

H290 - May be corrosive to metals  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage

## Precautionary Statements

### Prevention

P201 - Obtain special instructions before use  
P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection  
P234 - Keep only in original container

### Response

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower  
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing  
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 or doctor/ physician  
P363 - Wash contaminated clothing before reuse  
P390 - Absorb spillage to prevent material damage  
P321 - Specific treatment (see supplemental first aid instructions on this label)

### Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
P406 - Store in corrosive resistant stainless steel container with a resistant liner  
P405 - Store locked up

### Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

## Other Hazards

## NFPA

Health  
3

Flammability  
0

Instability  
0

Physical hazards  
N/A

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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## 3.2. Mixtures

Component	Common Name	CAS-No	Index No.	Weight %
Water	No information available	7732-18-5	KE-35400	60 - 70
Sulfuric Acid	No information available	7664-93-9	KE-32570	20 - 30
Ammonium Molybdate	No information available	12027-67-7	KE-18391	>=10 - 20

## SECTION 4: FIRST AID MEASURES

### First aid measures

<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Call a physician immediately.
<b>Inhalation</b>	If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.
<b>Ingestion</b>	Do not induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.
<b>Self-Protection of the First Aider</b>	Use personal protective equipment. See section 8 for more information. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

### Most important symptoms and effects, both acute and delayed

<b>Most important symptoms and effects</b>	Causes burns by all exposure routes
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### Indication of any immediate medical attention and special treatment needed

<b>Notes to Physician</b>	Treat symptomatically
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## SECTION 5: FIREFIGHTING MEASURES

### Suitable Extinguishing Media

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

### Unsuitable Extinguishing Media

No information available

### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

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## Explosion Data

Sensitivity to Mechanical Impact None

Sensitivity to Static Discharge None

## Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

#### Personal Precautions

Ensure adequate ventilation. Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

#### Environmental Precautions

Should not be released into the environment. See Section 12 for additional ecological information.

### Methods and Material for Containment and Cleaning Up

#### Methods for Containment

Prevent further leakage or spillage if safe to do so.

#### Methods for Cleaning Up

Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe Handling

#### Handling

Wear personal protective equipment  
Do not get in eyes, on skin, or on clothing  
Use only under a chemical fume hood  
Do not breathe vapors or spray mist  
Do not ingest

### Conditions for Safe Storage, Including any Incompatibilities

#### Storage

Corrosives area  
Keep containers tightly closed in a dry, cool and well-ventilated place

#### Incompatible Products

No information available

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

Component	CAS-No	Korea	ACGIH TLV	OSHA PEL
Water	7732-18-5	Not listed	Not listed	Not listed
Sulfuric Acid	7664-93-9	STEL: 0.6 mg/m <sup>3</sup> TWA: 0.2 mg/m <sup>3</sup>	TWA: 0.2 mg/m <sup>3</sup>	(Vacated) TWA: 1 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>
Ammonium Molybdate	12027-67-7	Not listed	TWA: 0.5 mg/m <sup>3</sup>	(Vacated) TWA: 5 mg/m <sup>3</sup>

Component	CAS-No	European Union	The United Kingdom	Germany
Water	7732-18-5	Not listed	Not listed	Not listed
Sulfuric Acid	7664-93-9	TWA: 0.05 mg/m <sup>3</sup> (8h)	STEL: 0.15 mg/m <sup>3</sup> 15 min TWA: 0.05 mg/m <sup>3</sup> 8 hr	TWA: 0.1 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 1 TWA: 0.1 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 0.1 mg/m <sup>3</sup>
Ammonium Molybdate	12027-67-7	Not listed	STEL: 10 mg/m <sup>3</sup> 15 min TWA: 5 mg/m <sup>3</sup> 8 hr	Not listed

### Biological Exposure Indices

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Component	CAS-No	Biological Exposure Indices
Water	7732-18-5	Not listed
Sulfuric Acid	7664-93-9	Not listed
Ammonium Molybdate	12027-67-7	Not listed

## Appropriate engineering controls

**Engineering Measures** Ensure that eyewash stations and safety showers are close to the workstation location

## Individual protection measures, such as personal protective equipment

**Personal protective equipment** Use only those certified by the Korea Occupational Safety and Health Administration.

**Eye/face Protection** Wear chemical splash goggles and face shield. If splashes are likely to occur, wear:. Face-shield.

**Skin and Body Protection** Wear protective gloves/clothing.

**Respiratory Protection** None under normal use conditions. In case of inadequate ventilation wear respiratory protection.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls** No information available

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Odorless
Odor Threshold	No information available
pH	1
PH Range	1-3

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point/freezing point	No information available	
Boiling Point/Range	132 °C / 269.6 °F	
Flash Point (High in °C)	N/A	
Evaporation Rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor Density	No information available	
Specific Gravity	No information available	
Water Solubility	Soluble in water	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition Temperature	-	
Decomposition Temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive Properties	No information available	
Oxidizing Properties	No information available	

### Other Information

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Softening Point	No information available
Molecular Weight	No information available
VOC Content(%)	No information available
Density	No Information available
Bulk Density	No information available

## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

No Information available

### Chemical Stability

Stable under normal conditions

### Possibility of Hazardous Reactions

None under normal processing

### Conditions to Avoid

Extremes of temperature and direct sunlight.

### Incompatible Materials

No information available

### Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Product Information

#### Information on likely routes of exposure

Inhalation	Not an expected route of exposure.
Ingestion	May be harmful if swallowed.
Eyes	Avoid contact with eyes. Corrosive to the eyes and may cause severe damage including blindness.
Skin	Avoid contact with skin. Causes burns. Skin corrosion/irritation.

#### Information on Toxicological Effects

Symptoms	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
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#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

(b) skin corrosion/irritation;	Category 1. A.
Sensitization	No information available

Mutagenic Effects	No information available
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Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.
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Component	ACGIH	IARC	NTP	OSHA
Sulfuric Acid 7664-93-9	A2	Group 1	Known	X
Ammonium Molybdate 12027-67-7	A3	-	-	-

ACGIH: (American Conference of Governmental Industrial Hygienists)  
A1 - Known Human Carcinogen

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A2 - Suspected Human Carcinogen  
A3 - Animal Carcinogen  
ACGIH: (American Conference of Governmental Industrial Hygienists)  
IARC: (International Agency for Research on Cancer)  
IARC: (International Agency for Research on Cancer)  
Group 1 - Carcinogenic to Humans  
Group 2A - Probably Carcinogenic to Humans  
Group 2B - Possibly Carcinogenic to Humans  
NTP: (National Toxicity Program)  
NTP: (National Toxicity Program)  
Known - Known Carcinogen  
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

**Reproductive Effects** No information available

**STOT - single exposure** No information available

**STOT - repeated exposure** No information available  
**Target Organs** None known.

**Aspiration hazard** No information available

## Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

**ATEmix (oral)** 8188 mg/kg

**ATEmix (inhalation-dust/mist)** 1 mg/L

## **SECTION 12: ECOLOGICAL INFORMATION**

### Ecotoxicity

12% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Component	Freshwater Algae	Freshwater Fish	Water Flea
Sulfuric Acid 7664-93-9	-	LC50: > 500 mg/L, 96h static (Brachydanio rerio)	EC50: = 29 mg/L, 24h (Daphnia magna)

### Persistence and Degradability

No information available

### Bioaccumulation/ Accumulation

No information available

### Mobility

No information available.

### Other adverse effects

No information available

## **SECTION 13: DISPOSAL CONSIDERATIONS**

### Waste treatment methods

**Waste Disposal Methods** Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

## **SECTION 14: TRANSPORT INFORMATION**

**Road and Rail Transport** Not Regulated

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## IATA

UN-No UN1760  
 Proper Shipping Name Corrosive Liquid, n.o.s.\*(contains sulfuric acid)  
 Hazard Class 8  
 Packing Group II

## IMDG/IMO

UN-No UN1760  
 Proper Shipping Name Corrosive liquid, n.o.s.  
 Hazard Class 8  
 Packing Group II  
 Marine Pollutant No

Special Precautions for User No special precautions required

## SECTION 15: REGULATORY INFORMATION

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

Legend: X - Listed '-' - Not Listed

### International Inventories

Component	CAS-No	KECL	TSCA	EINECS	IECSC	DSL	NDSL	PICCS	ENCS	AICS
Water	7732-18-5	KE-35400	X	231-791-2	X	X	-	X	-	X
Sulfuric Acid	7664-93-9	KE-32570	X	231-639-5	X	X	-	X	X	X
Ammonium Molybdate	12027-67-7	KE-18391	X	234-722-4	X	X	-	X	X	X

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	Not applicable	Not applicable	Not applicable	Annex I - Y34
Ammonium Molybdate	12027-67-7	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential
Water	7732-18-5	Listed	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	Listed	Not applicable	Not applicable
Ammonium Molybdate	12027-67-7	Listed	Not applicable	Not applicable

### Korean National Regulations

Component	CAS-No	Act on Registration and Evaluation of Chemical Substances (K-REACH)	Authorised Chemicals	Existing Substances Subject to Registration
Water	7732-18-5	Annex 1 - KE-35400 Exempt (Index No. 25)	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	Annex 1 - KE-32570	Not applicable	Listed
Ammonium Molybdate	12027-67-7	Annex 1 - KE-18391	Not applicable	Not applicable

Component	CAS-No	Chemical Control Act - Toxic Chemicals	Chemical Control Act - Prohibited Chemicals	Chemical Control Act - Use Restricted Chemicals
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	97-1-405 (>10%)	Not applicable	Not applicable
Ammonium Molybdate	12027-67-7	Not applicable	Not applicable	Not applicable

Component	CAS-No	Chemical Control Act -	Chemical Control Act -	Chemical Control Act -
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		Accident Precaution Chemicals (% in mixtures)	Accident Precaution Chemicals - Quantity limits Storage (% in mixtures)	Accident Precaution Chemicals - Quantity limits Manufacture/Use (% in mixtures)
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	>10%	20000 kg/yr	1500000 kg/yr
Ammonium Molybdate	12027-67-7	Not applicable	Not applicable	Not applicable

Component	CAS-No	Waste Control Law	Ministry of Environment - CMR risk	Ministry of Environment - Critically Controlled Substance
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	Not applicable	Not applicable	Not applicable
Ammonium Molybdate	12027-67-7	Not applicable	Not applicable	Not applicable

Component	CAS-No	ISHA - Harmful Agents Subject to Work Environment Monitoring	ISHA - Prohibited substances	ISHA - Substances requiring permission
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	Listed	Not applicable	Not applicable
Ammonium Molybdate	12027-67-7	Not applicable	Not applicable	Not applicable

Component	CAS-No	ISHA - Substances subject to control	ISHA - Harmful Agents Requiring Health Examination	ISHA - Permissible Exposure Limits
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	Listed	Listed	Not applicable
Ammonium Molybdate	12027-67-7	Not applicable	Not applicable	Not applicable

Component	CAS-No	ISHA - Subject to Process Safety Reports (minimum quantity)	ISHA - Threshold Limit Values (TLVs) Chemicals	ISHA - Special management materials
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	20000 kg	STEL: 0.6 mg/m <sup>3</sup> TWA: 0.2 mg/m <sup>3</sup>	Formulation containing 0.1% or more strong acid below pH 2.0
Ammonium Molybdate	12027-67-7	Not applicable	Not applicable	Not applicable

**National Fire Association - Dangerous Substances** Minimum quantity requiring a permit

Component	CAS-No	Class 1 - Oxidising solids	Class 2 - Flammable solid	Class 3 - Spontaneously Combustible Substances and Dangerous Substances When Wet	Class 4 - Flammable liquids	Class 5 - Self-reactive substances	Class 6 - Oxidising liquids
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Ammonium Molybdate	12027-67-7	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

## Control Parameters

Component	CAS-No	Korea	Biological Exposure Indices
Water	7732-18-5	Not listed	Not listed
Sulfuric Acid	7664-93-9	STEL: 0.6 mg/m <sup>3</sup> TWA: 0.2 mg/m <sup>3</sup>	Not listed
Ammonium Molybdate	12027-67-7	Not listed	Not listed

## US Management Information

OSHA - Occupational Safety and Health Administration

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Not applicable

Component	CAS-No	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Water	7732-18-5	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	Not applicable	Not applicable
Ammonium Molybdate	12027-67-7	Not applicable	Not applicable

## CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	CAS-No	CERCLA EHS RQs	Hazardous Substances RQs	SARA 313 - Threshold Values %
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Sulfuric Acid	7664-93-9	1000 lb	1000 lb	1.0
Ammonium Molybdate	12027-67-7	Not applicable	Not applicable	Not applicable

## CLP Classification - Regulation (EC) No 1272/2008

Danger.

H314 - Causes severe skin burns and eye damage.

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection. P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. 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 or doctor/ physician.

## SECTION 16: OTHER INFORMATION

Prepared By	Regulatory Affairs
Prepared For	Thermo Fisher Scientific Inc.©
Issue Date	05-Sep-2019
Revision Date	05-Sep-2019
Reason for revision	Initial Release.

## MOEL's Public Notice No. 2016-19 (Standards for Classification and Labeling of Chemical Substances and Safety Data Sheets)

### Disclaimer

IMPORTANT: The information contained in this SDS is correct to the best of our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties of any kind as to the accuracy or completeness of the information contained herein or the merchantability or fitness of the product or this information for a particular purpose. It is the responsibility of each individual buyer/user to determine the suitability of this information and the product for its intended purposes. Product sales are subject to Thermo Fisher Scientifics standard terms and conditions of sale. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions, or is altered in any way. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable government requirements. Since conditions of use of the product are not under direct control of Thermo Fisher Scientific, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. Thermo Fisher Scientific will not be liable for any injuries or damages resulting from handling, use, misuse or contact with the product.

**End of Safety Data Sheet**