



# SAFETY DATA SHEET

Creation Date 23-Jun-2009

Revision Date 16-Oct-2017

Revision Number 7

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

### 1.1. Product identification

Product Description:	<b>Sulfuric acid</b>
Cat No. :	<b>424520000; 424520025; 424520026; 424520100; 424525000; 424525001, 424528000</b>
CAS-No	7664-93-9
EC-No.	231-639-5
Molecular Formula	H <sub>2</sub> O <sub>4</sub> S
Reach Registration Number	-

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

Recommended Use	Laboratory chemicals.
Uses advised against	No Information available

### 1.3. Details of the supplier of the safety data sheet

Company	Acros Organics BVBA Janssen Pharmaceuticaaan 3a 2440 Geel, Belgium
E-mail address	begel.sdsdesk@thermofisher.com

### 1.4. Emergency telephone number

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

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

##### Physical hazards

Based on available data, the classification criteria are not met

##### Health hazards

Skin Corrosion/irritation  
Serious Eye Damage/Eye Irritation

Category 1 A (H314)  
Category 1 (H318)

##### Environmental hazards

Based on available data, the classification criteria are not met

### 2.2. Label elements

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Signal Word

Danger

## Hazard Statements

H314 - Causes severe skin burns and eye damage

## Precautionary Statements

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

## 2.3. Other hazards

No information available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Sulfuric acid	7664-93-9	231-639-5	>95	Skin Corr. 1A (H314) Eye Dam. 1 (H318)

Reach Registration Number	-
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Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Ingestion	Do not induce vomiting. Call a physician or Poison Control Center immediately.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. 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. Immediate medical attention is required.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to

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protect themselves and prevent spread of contamination.

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

Causes burns by all exposure routes. . 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

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

Notes to Physician

Treat symptomatically.

## **SECTION 5: FIREFIGHTING MEASURES**

### **5.1. Extinguishing media**

#### **Suitable Extinguishing Media**

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

#### **Extinguishing media which must not be used for safety reasons**

Water.

### **5.2. Special hazards arising from the substance or mixture**

Corrosive Material. Reacts violently with water. Reaction with water may generate much heat which will increase the concentration of fumes in the air. Contact with metals may evolve flammable hydrogen gas. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

#### **Hazardous Combustion Products**

Hydrogen, Sulfur oxides.

### **5.3. Advice for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### **6.1. Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

### **6.2. Environmental precautions**

Avoid release to the environment. See Section 12 for additional ecological information.

### **6.3. Methods and material for containment and cleaning up**

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

### **6.4. Reference to other sections**

Refer to protective measures listed in Sections 8 and 13.

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## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

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

### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

### 7.2. Conditions for safe storage, including any incompatibilities

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

### 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Exposure limits

List source(s): **EU** - Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Sulfuric acid	TWA: 0.05 mg/m <sup>3</sup> 8 hr	STEL: 0.15 mg/m <sup>3</sup> 15 min TWA: 0.05 mg/m <sup>3</sup> 8 hr	TWA / VME: 0.05 mg/m <sup>3</sup> (8 heures). STEL / VLCT: 3 mg/m <sup>3</sup> .	TWA: 0.2 mg/m <sup>3</sup> 8 uren	TWA / VLA-ED: 0.05 mg/m <sup>3</sup> (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Sulfuric acid	-	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>	TWA: 0.05 mg/m <sup>3</sup> 8 horas	TWA: 0.05 mg/m <sup>3</sup> 8 uren	TWA: 0.05 mg/m <sup>3</sup> 8 tunteina STEL: 0.1 mg/m <sup>3</sup> 15 minuutteina

Component	Austria	Denmark	Switzerland	Poland	Norway
Sulfuric acid	MAK-KZW: 0.2 mg/m <sup>3</sup> 15 Minuten MAK-TMW: 0.1 mg/m <sup>3</sup> 8 Stunden	TWA: 0.05 mg/m <sup>3</sup> 8 timer	STEL: 0.1 mg/m <sup>3</sup> 15 Minuten TWA: 0.1 mg/m <sup>3</sup> 8 Stunden	TWA: 0.05 mg/m <sup>3</sup> 8 godzinach	TWA: 0.1 mg/m <sup>3</sup> 8 timer STEL: 0.3 mg/m <sup>3</sup> 15 minutter. value calculated thoracic fraction

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Sulfuric acid	TWA: 0.05 mg/m <sup>3</sup>	TWA-GVI: 0.05 mg/m <sup>3</sup> 8 satima.	TWA: 0.05 ppm 8 hr. STEL: 0.15 ppm 15 min	TWA: 0.05 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> 8 hodinách. SO3 TWA: 0.05 mg/m <sup>3</sup> 8 hodinách. concentrated H2SO4 mist Ceiling: 2 mg/m <sup>3</sup> SO3

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Sulfuric acid	TWA: 1 mg/m <sup>3</sup> 8	TWA: 0.05 mg/m <sup>3</sup> 8 hr	TWA: 0.05 mg/m <sup>3</sup>	TWA: 0.05 mg/m <sup>3</sup> 8	TWA: 0.05 mg/m <sup>3</sup> 8

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	tundides. fume	when selecting an appropriate exposure monitoring method, account should be taken of potential limitations and interferences that may arise in the presence of other sulphur compounds thoracic fraction		óraban. AK	klukkustundum. aerosols Ceiling: 0.1 mg/m <sup>3</sup>
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Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Sulfuric acid	TWA: 0.05 mg/m <sup>3</sup>	TWA: 0.05 mg/m <sup>3</sup> vapor IPRD STEL: 3 mg/m <sup>3</sup>	TWA: 0.05 mg/m <sup>3</sup> 8 Stunden	TWA: 0.05 mg/m <sup>3</sup>	TWA: 0.05 mg/m <sup>3</sup> 8 ore

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Sulfuric acid	Skin notation MAC: 1 mg/m <sup>3</sup>	TWA: 0.1 mg/m <sup>3</sup>	TWA: 0.05 mg/m <sup>3</sup> 8 urah inhalable fraction, fog	Indicative STLV: 0.2 mg/m <sup>3</sup> 15 minuter inhalable fraction LLV: 0.1 mg/m <sup>3</sup> 8 timmar. inhalable fraction	TWA: 0.05 mg/m <sup>3</sup> 8 saat

## Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

## Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

**Derived No Effect Level (DNEL)** No information available

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral Dermal Inhalation				

**Predicted No Effect Concentration (PNEC)** No information available.

## 8.2. Exposure controls

### Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

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Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Butyl rubber	> = 120 minutes	0.5 mm	EN 374	(minimum requirement)
Viton (R)	> 480 minutes	0.4 mm		

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.

(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

## Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

## Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Recommended Filter type:** Particulates filter conforming to EN 143 Acid gases filter Type E Yellow conforming to EN14387

## Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

When RPE is used a face piece Fit Test should be conducted

**Environmental exposure controls** No information available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Colorless	
<b>Physical State</b>	Liquid	
<b>Odor</b>	Odorless	
<b>Odor Threshold</b>	No data available	
<b>pH</b>	1	1N aq.sol
<b>Melting Point/Range</b>	10 °C / 50 °F	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	290 °C / 554 °F	
<b>Flash Point</b>	No information available	<b>Method -</b> No information available
<b>Evaporation Rate</b>	No data available	
<b>Flammability (solid,gas)</b>	Not applicable	Liquid
<b>Explosion Limits</b>	No data available	
<b>Vapor Pressure</b>	1 mmHg @ 146 °C	
<b>Vapor Density</b>	No data available	(Air = 1.0)
<b>Specific Gravity / Density</b>	1.840	
<b>Bulk Density</b>	Not applicable	Liquid
<b>Water Solubility</b>	Miscible	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	340 °C	
<b>Viscosity</b>	21mPa.s @ 25 °C	
<b>Explosive Properties</b>	No information available	

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**Oxidizing Properties** No information available

## 9.2. Other information

**Molecular Formula** H<sub>2</sub> O<sub>4</sub> S  
**Molecular Weight** 98.07

## SECTION 10: STABILITY AND REACTIVITY

**10.1. Reactivity** Yes

**10.2. Chemical stability** Water reactive, Hygroscopic.

### 10.3. Possibility of hazardous reactions

**Hazardous Polymerization** Hazardous polymerization does not occur.  
**Hazardous Reactions** Contact with metals may evolve flammable hydrogen gas. Reacts violently with water.

**10.4. Conditions to avoid** Incompatible products. Excess heat. Exposure to moist air or water.

**10.5. Incompatible materials** Strong oxidizing agents. Combustible material. Bases. Organic materials. Reducing agents. Powdered metals. Peroxides.

**10.6. Hazardous decomposition products** Hydrogen. Sulfur oxides.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

#### Product Information

(a) acute toxicity;  
**Oral** Based on available data, the classification criteria are not met  
**Dermal** Based on available data, the classification criteria are not met  
**Inhalation** Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid	2140 mg/kg ( Rat )		LC50 = 510 mg/m <sup>3</sup> ( Rat ) 2 h

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;  
**Respiratory** Based on available data, the classification criteria are not met  
**Skin** Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

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- (f) **carcinogenicity;** Based on available data, the classification criteria are not met  
The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Sulfuric acid				Group 1

- (g) **reproductive toxicity;** Based on available data, the classification criteria are not met

- (h) **STOT-single exposure;** Based on available data, the classification criteria are not met

- (i) **STOT-repeated exposure;** Based on available data, the classification criteria are not met

**Target Organs** No information available.

- (j) **aspiration hazard;** Based on available data, the classification criteria are not met

**Other Adverse Effects** See actual entry in RTECS for complete information

**Symptoms / effects, both acute and delayed** 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

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

**Ecotoxicity effects** Do not empty into drains.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Sulfuric acid	LC50: > 500 mg/L, 96h static (Brachydanio rerio)	EC50: 29 mg/L/24h	-	-

### 12.2. Persistence and degradability

**Persistence** Miscible with water, Persistence is unlikely, based on information available.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

12.4. Mobility in soil The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment No data available for assessment.

### 12.6. Other adverse effects

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors  
**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS



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## 13.1. Waste treatment methods

### Waste from Residues / Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

### Contaminated Packaging

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

### European Waste Catalogue (EWC)

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

### Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not dispose of waste into sewer. Large amounts will affect pH and harm aquatic organisms. Solutions with low pH-value must be neutralized before discharge.

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

14.1. UN number	UN1830
14.2. UN proper shipping name	Sulphuric acid
14.3. Transport hazard class(es)	8
14.4. Packing group	II

### ADR

14.1. UN number	UN1830
14.2. UN proper shipping name	Sulphuric acid
14.3. Transport hazard class(es)	8
14.4. Packing group	II

### IATA

14.1. UN number	UN1830
14.2. UN proper shipping name	Sulphuric acid
14.3. Transport hazard class(es)	8
14.4. Packing group	II

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

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

International Inventories X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Sulfuric acid	231-639-5	-		X	X	-	X	X	X	X	X

### National Regulations

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Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Sulfuric acid	WGK 1	

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.

## 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

## SECTION 16: OTHER INFORMATION

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

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

### Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - Volatile Organic Compounds

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

**Creation Date** 23-Jun-2009  
**Revision Date** 16-Oct-2017  
**Revision Summary** Not applicable.

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

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**End of Safety Data Sheet**