



IRON III DIMETHYLDITHIOCARBAMATE

Safety Data Sheet AKI397

Date of issue: 22/03/2019 Version: 1.0

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

1.1. Product identifier

Product form	: Substance
Physical state	: Solid
Substance name	: IRON III DIMETHYLDITHIOCARBAMATE
Product code	: AKI397
Formula	: C6H12N2NiS4
Synonyms	: FERRIC DIMETHYLDITHIOCARBAMATE IRON TRIS(DIMETHYLDITHIOCARBAMATE) TRIS(N,N-DIMETHYLDITHIOCARBAMATE) IRON CARBAMIC ACID, DIMETHYLDITHIO-, IRON SALT DIMETHYLCARBAMODITHIOIC ACID, IRON COMPLEX DIMETHYLCARBAMODITHIOIC ACID, IRON(3+) SALT
Chemical family	: METAL COMPOUND

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

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1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335

Hazardous to the aquatic environment — Acute Hazard, Category 1 H400

Hazardous to the aquatic environment — Chronic Hazard, Category 1 H410

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

IRON III DIMETHYLDITHIOCARBAMATE

Safety Data Sheet

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS07

GHS09

Signal word (CLP) :

Warning

Hazard statements (CLP) :

H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) :

P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P261 - Avoid breathing dust.
P264 - Wash hands thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P312 - Call a doctor if you feel unwell.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type :

Mono-constituent

Name :

IRON III DIMETHYLDITHIOCARBAMATE

CAS-No. :

14484-64-1

EC-No. :

238-484-2

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Iron dimethyldithiocarbamate	(CAS-No.) 14484-64-1 (EC-No.) 238-484-2 (EC Index-No.) 006-051-00-5	95 - 100	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general :

Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation :

Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact :

Wash with plenty of water/.... Get immediate medical advice/attention.

First-aid measures after eye contact :

Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid measures after ingestion :

Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

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

Symptoms/effects after inhalation :

May cause respiratory irritation. May cause somnolence, excitement, ataxia, convulsions, weight loss.

Symptoms/effects after skin contact :

Causes skin irritation.

Symptoms/effects after eye contact :

Causes serious eye irritation.

Symptoms/effects after ingestion :

Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Chronic symptoms :

Questionable carcinogen, tumorigen, teratogen, reproductive effects, mutagenic data.

IRON III DIMETHYLDITHIOCARBAMATE

Safety Data Sheet

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment as described in Section 8.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Collect spillage. Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation. Use only outdoors or in a well-ventilated area.

Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed. Store locked up.

Incompatible materials : Strong oxidizing agents.

Storage area : Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Iron dimethyldithiocarbamate (14484-64-1)		
Austria	MAK (mg/m ³)	10 mg/m ³ (inhalable fraction)
Belgium	Limit value (mg/m ³)	10 mg/m ³
France	VME (mg/m ³)	10 mg/m ³
Greece	OEL TWA (mg/m ³)	10 mg/m ³
Greece	OEL STEL (mg/m ³)	20 mg/m ³
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m ³)	5 mg/m ³ (inhalable fraction)
USA IDLH	US IDLH (mg/m ³)	800 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	10 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (total dust)

IRON III DIMETHYLDITHIOCARBAMATE

Safety Data Sheet

Iron dimethyldithiocarbamate (14484-64-1)		
Spain	VLA-ED (mg/m ³)	5 mg/m ³ (it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary or biocide compound)
Switzerland	MAK (mg/m ³)	10 mg/m ³ (inhalable dust)
Denmark	Grænseværdie (langvarig) (mg/m ³)	5 mg/m ³
Ireland	OEL (8 hours ref) (mg/m ³)	5 mg/m ³
Ireland	OEL (15 min ref) (mg/m ³)	15 mg/m ³ (calculated)
Norway	Grænseverdier (AN) (mg/m ³)	5 mg/m ³
Norway	Grænseverdier (Korttidsverdi) (mg/m ³)	5 mg/m ³
Canada (Quebec)	VEMP (mg/m ³)	10 mg/m ³
Australia	TWA (mg/m ³)	10 mg/m ³
Portugal	OEL TWA (mg/m ³)	10 mg/m ³
Portugal	OEL chemical category (PT)	A4 - Not Classifiable as a Human Carcinogen

8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles or face shield. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (orange cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder.
Molecular mass	: 416.51 g/mol
Colour	: Black.
Odour	: No data available
Odour threshold	: No data available
Refractive index	: No additional information available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 180 °C decomposes
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: < 0.1 mm Hg @ 25°C
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
% Volatiles	: < 1 %
Solubility	: Slightly soluble.

IRON III DIMETHYLDITHIOCARBAMATE

Safety Data Sheet

Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Iron oxide fumes. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Iron dimethyldithiocarbamate (14484-64-1)

LD50 oral rat	1130 mg/kg RTECS Number: NO8750000
LC50 inhalation rat (mg/l)	0.4 mg/l/4h Remarks: It was demonstrated that during intended and foreseen no respirable aerosol is formed.
ATE CLP (oral)	1130 mg/kg bodyweight
ATE CLP (vapours)	0.4 mg/l/4h
ATE CLP (dust,mist)	0.4 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

This product contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Iron dimethyldithiocarbamate (14484-64-1)

IARC group	3 - Not classifiable
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Reproductive toxicity : Not classified

STOT-single exposure : May cause respiratory irritation.

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

Symptoms/effects after inhalation : May cause respiratory irritation. May cause somnolence, excitement, ataxia, convulsions, weight loss.

Symptoms/effects after skin contact : Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Chronic symptoms : Questionable carcinogen, tumorigen, teratogen, reproductive effects, mutagenic data.

IRON III DIMETHYLDITHIOCARBAMATE

Safety Data Sheet

SECTION 12: Ecological information

12.1. Toxicity

- Ecology - general : Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
Acute aquatic toxicity : Very toxic to aquatic life.
Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Iron dimethyldithiocarbamate (14484-64-1)	
LC50 fish 1	10.02
EC50 Daphnia 1	0.09 mg/l Crustacea (Daphnia magna)
EC50 other aquatic organisms 1	0.216 mg/l EC50 (Chlorella pyrenoidosa), Exposure time: 120 h
EC50 Daphnia 2	0.017 ml/l (Daphnia magna (Water flea))
ErC50 (algae)	0.216 mg/l

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

- UN-No. (ADR) : 3077
UN-No. (IMDG) : 3077
UN-No. (IATA) : 3077
UN-No. (ADN) : 3077
UN-No. (RID) : 3077

14.2. UN proper shipping name

- Proper Shipping Name (ADR) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Proper Shipping Name (IATA) : Environmentally hazardous substance, solid, n.o.s.
Proper Shipping Name (ADN) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Proper Shipping Name (RID) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Transport document description (ADR) : UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (IRON III DIMETHYLDITHIOCARBAMATE), 9, III, (-)
Transport document description (IMDG) : UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (IRON III DIMETHYLDITHIOCARBAMATE), 9, III, MARINE POLLUTANT
Transport document description (IATA) : UN 3077 Environmentally hazardous substance, solid, n.o.s. (IRON III DIMETHYLDITHIOCARBAMATE), 9, III
Transport document description (ADN) : UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (IRON III DIMETHYLDITHIOCARBAMATE), 9, III
Transport document description (RID) : UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (IRON III DIMETHYLDITHIOCARBAMATE), 9, III

14.3. Transport hazard class(es)

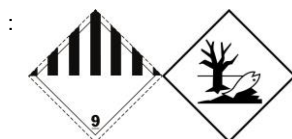
ADR

IRON III DIMETHYLDITHIOCARBAMATE

Safety Data Sheet

Transport hazard class(es) (ADR) : 9

Danger labels (ADR) : 9



IMDG

Transport hazard class(es) (IMDG) : 9

Danger labels (IMDG) : 9



IATA

Transport hazard class(es) (IATA) : 9

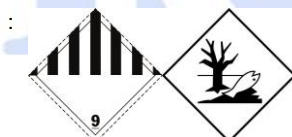
Hazard labels (IATA) : 9



ADN

Transport hazard class(es) (ADN) : 9

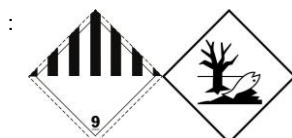
Danger labels (ADN) : 9



RID

Transport hazard class(es) (RID) : 9

Danger labels (RID) : 9



14.4. Packing group

Packing group (ADR) : III

Packing group (IMDG) : III

Packing group (IATA) : III

Packing group (ADN) : III

Packing group (RID) : III

14.5. Environmental hazards

Dangerous for the environment : Yes

Marine pollutant : Yes

Other information : No supplementary information available

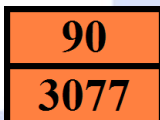
IRON III DIMETHYLDITHIOCARBAMATE

Safety Data Sheet

14.6. Special precautions for user

- Overland transport

Classification code (ADR)	: M7
Special provisions (ADR)	: 274, 335, 375, 601
Limited quantities (ADR)	: 5kg
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P002, IBC08, LP02, R001
Special packing provisions (ADR)	: PP12, B3
Mixed packing provisions (ADR)	: MP10
Portable tank and bulk container instructions (ADR)	: T1, BK1, BK2, BK3
Portable tank and bulk container special provisions (ADR)	: TP33
Tank code (ADR)	: SGAV, LGBV
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V13
Special provisions for carriage - Bulk (ADR)	: VC1, VC2
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV13
Hazard identification number (Kemler No.)	: 90
Orange plates	:



Tunnel restriction code (ADR)	: -
EAC code	: 2Z

- Transport by sea

Special provisions (IMDG)	: 274, 335, 966, 967, 969
Limited quantities (IMDG)	: 5 kg
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: LP02, P002
Special packing provisions (IMDG)	: PP12
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B3
Tank instructions (IMDG)	: BK1, BK2, BK3, T1
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-F
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW23

- Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y956
PCA limited quantity max net quantity (IATA)	: 30kgG
PCA packing instructions (IATA)	: 956
PCA max net quantity (IATA)	: 400kg
CAO packing instructions (IATA)	: 956
CAO max net quantity (IATA)	: 400kg
Special provisions (IATA)	: A97, A158, A179, A197
ERG code (IATA)	: 9L

- Inland waterway transport

Classification code (ADN)	: M7
Special provisions (ADN)	: 274, 335, 375, 601
Limited quantities (ADN)	: 5 kg
Excepted quantities (ADN)	: E1

IRON III DIMETHYLDITHIOCARBAMATE

Safety Data Sheet

Carriage permitted (ADN)	: T* B**
Equipment required (ADN)	: PP, A
Number of blue cones/lights (ADN)	: 0
Additional requirements/Remarks (ADN)	: * Only in the molten state. ** For carriage in bulk see also 7.1.4.1. *** Only in the case of transport in bulk.

- Rail transport

Classification code (RID)	: M7
Special provisions (RID)	: 274, 335, 375, 601
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P002, IBC08, LP02, R001
Special packing provisions (RID)	: PP12, B3
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T1, BK1, BK2, BK3
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAV, LGBV
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W13
Special provisions for carriage – Bulk (RID)	: VC1, VC2
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW31
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 90

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

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

IRON III DIMETHYLDITHIOCARBAMATE is not on the REACH Candidate List

IRON III DIMETHYLDITHIOCARBAMATE is not on the REACH Annex XIV List

Ferbam is subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

IRON III DIMETHYLDITHIOCARBAMATE is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

% Volatiles : < 1 %

15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

IRON III DIMETHYLDITHIOCARBAMATE

Safety Data Sheet

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

SDS EU (REACH Annex II) - Custom

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

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