

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: **5548**  
Version: **5.0 en**  
Replaces version of: 2024-02-27  
Version: (4)

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Revision: 2024-02-27

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

### 1.1 Product identifier

Identification of the substance	<b>Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)</b>
Article number	5548
EC number	236-815-5
CAS number	69365-72-6

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

Relevant identified uses:	Laboratory chemical Laboratory and analytical use
Uses advised against:	Do not use for private purposes (household). Food, drink and animal feedingstuffs.

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

Carl Roth GmbH + Co. KG  
Schoemperlenstr. 3-5  
D-76185 Karlsruhe  
Germany

**Telephone:** +49 (0) 721 - 56 06 0

**Telefax:** +49 (0) 721 - 56 06 149

**e-mail:** [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

**Website:** [www.carlroth.de](http://www.carlroth.de)

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

**e-mail (competent person):** [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

### 1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
National Poisons Information Service City Hospital	Dudley Rd	B187QH Birmingham	844 892 0111	

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
2.14	Oxidising solid	2	Ox. Sol. 2	H272
3.2	Skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	Serious eye damage/eye irritation	2	Eye Irrit. 2	H319

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: 5548

For full text of abbreviations: see SECTION 16

### 2.2 Label elements

#### Labelling

#### Signal word

**Danger**

#### Pictograms

GHS03, GHS07



#### Hazard statements

H272 May intensify fire; oxidiser  
H315 Causes skin irritation  
H319 Causes serious eye irritation

#### Precautionary statements

##### Precautionary statements - prevention

P280 Wear protective gloves/eye protection/face protection

##### Precautionary statements - response

P302+P352 IF ON SKIN: Wash with plenty of water  
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

#### Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

#### Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of  $\geq 0,1\%$ .

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Name of substance	Gallium(III) nitrate hydrate
Molecular formula	$\text{Ga}(\text{NO}_3)_3 \cdot x \text{H}_2\text{O}$
Molar mass	$255,7 \text{ g/mol} + x \text{H}_2\text{O}$
CAS No	69365-72-6
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# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



**Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)**

article number: **5548**

## SECTION 4: First aid measures

### 4.1 Description of first aid measures



#### General notes

Take off contaminated clothing.

#### Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following skin contact

Rinse skin with water/shower. In case of skin irritation, consult a physician.

#### Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

#### Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

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

Irritation

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

none

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media



#### Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings!  
water, foam, dry extinguishing powder, ABC-powder

#### Unsuitable extinguishing media

water jet

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

Oxidising property. Non-combustible.

#### Hazardous combustion products

In case of fire may be liberated: Nitrogen oxides (NOx)

### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



**Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)**

article number: **5548**

## SECTION 6: Accidental release measures

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



#### For non-emergency personnel

Avoid contact with skin, eyes and clothes. Do not breathe dust.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. The product is an acid. Before discharge into sewage plants the product normally needs to be neutralised.

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

#### Advice on how to contain a spill

Covering of drains. Take up mechanically.

#### Advice on how to clean up a spill

Take up mechanically. Control of dust.

#### Other information relating to spills and releases

Place in appropriate containers for disposal.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Avoid dust formation.

#### Measures to prevent fire as well as aerosol and dust generation

Keep away from combustible material.

#### Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

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

Store in a dry place.

#### Incompatible substances or mixtures

Observe hints for combined storage. Keep/store away from clothing/combustible materials. Take any precaution to avoid mixing with combustibles.

#### Consideration of other advice:

#### Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

### 7.3 Specific end use(s)

No information available.

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



**Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)**

article number: **5548**

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### National limit values

#### Occupational exposure limit values (Workplace Exposure Limits)

This information is not available.

### 8.2 Exposure controls

#### Individual protection measures (personal protective equipment)

##### Eye/face protection



Use safety goggle with side protection.

##### Skin protection



##### • hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

##### • type of material

NBR (Nitrile rubber)

##### • material thickness

>0,11 mm

##### • breakthrough times of the glove material

>480 minutes (permeation: level 6)

##### • other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

##### Respiratory protection



Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P1 (filters at least 80 % of airborne particles, colour code: White).

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: 5548

### Environmental exposure controls

Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state	solid
Form	crystalline
Colour	white
Odour	odourless
Melting point/freezing point	110 °C
Boiling point or initial boiling point and boiling range	not determined
Flammability	non-combustible
Lower and upper explosion limit	not determined
Flash point	not applicable
Auto-ignition temperature	not determined
Decomposition temperature	110 °C
pH (value)	2 (in aqueous solution: 50 g/l, 20 °C)
Kinematic viscosity	not relevant

#### Solubility(ies)

Water solubility (soluble)

#### Partition coefficient

Partition coefficient n-octanol/water (log value): not relevant (inorganic)

Vapour pressure not determined

#### Density and/or relative density

Density not determined

Relative vapour density Information on this property is not available.

Particle characteristics No data available.

#### Other safety parameters

Oxidising properties oxidiser

### 9.2 Other information

Information with regard to physical hazard classes: There is no additional information.

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: 5548

Other safety characteristics:

There is no additional information.

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

It's a reactive substance. Oxidising property.

#### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

#### 10.3 Possibility of hazardous reactions

**Violent reaction with:** Combustible materials, Organic substances, Reducing agents, Strong alkali

#### 10.4 Conditions to avoid

Humidity. Keep away from heat. Decomposition takes place from temperatures above: 110 °C.

#### 10.5 Incompatible materials

combustible materials

#### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Classification acc. to GHS

##### Acute toxicity

Shall not be classified as acutely toxic.

##### Skin corrosion/irritation

Causes skin irritation.

##### Serious eye damage/eye irritation

Causes serious eye irritation.

##### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

##### Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

##### Carcinogenicity

Shall not be classified as carcinogenic.

##### Reproductive toxicity

Shall not be classified as a reproductive toxicant.

##### Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

##### Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

##### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: 5548

### Symptoms related to the physical, chemical and toxicological characteristics

- **If swallowed**

Data are not available.

- **If in eyes**

Causes serious eye irritation

- **If inhaled**

Data are not available.

- **If on skin**

causes skin irritation

- **Other information**

none

### 11.2 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of  $\geq 0,1\%$ .

### 11.3 Information on other hazards

There is no additional information.

## SECTION 12: Ecological information

### 12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

### 12.2 Persistence and degradability

Data are not available.

### 12.3 Bioaccumulative potential

Data are not available.

### 12.4 Mobility in soil

Data are not available.

### 12.5 Results of PBT and vPvB assessment

Data are not available.

### 12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of  $\geq 0,1\%$ .

### 12.7 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.



# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: 5548

### Sewage disposal-relevant information

Do not empty into drains.

### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

### 13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

#### Properties of waste which render it hazardous

**HP 2** oxidising

**HP 4** irritant - skin irritation and eye damage

### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions. Non-contaminated packages may be recycled.

## SECTION 14: Transport information

### 14.1 UN number or ID number

ADRRID	UN 1477
IMDG-Code	UN 1477
ICAO-TI	UN 1477

### 14.2 UN proper shipping name

ADRRID	NITRATES, INORGANIC, N.O.S.
IMDG-Code	NITRATES, INORGANIC, N.O.S.
ICAO-TI	Nitrates, inorganic, n.o.s.

### 14.3 Transport hazard class(es)

ADRRID	5.1
IMDG-Code	5.1
ICAO-TI	5.1

### 14.4 Packing group

ADRRID	II
IMDG-Code	II
ICAO-TI	II

### 14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

### 14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

### 14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: 5548

### 14.8 Information for each of the UN Model Regulations

#### Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) Additional information

Proper shipping name	NITRATES, INORGANIC, N.O.S.
Particulars in the transport document	UN1477, NITRATES, INORGANIC, N.O.S., 5.1, II, (E)
Classification code	O2
Danger label(s)	5.1



Special provisions (SP)	511
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 kg
Transport category (TC)	2
Tunnel restriction code (TRC)	E
Hazard identification No	50
<b>Emergency Action Code</b>	1Y

#### Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) Additional information

<b>Classification code</b>	O2
<b>Danger label(s)</b>	5.1



<b>Special provisions (SP)</b>	511
<b>Excepted quantities (EQ)</b>	E2
<b>Limited quantities (LQ)</b>	1 kg
<b>Transport category (TC)</b>	2
<b>Hazard identification No</b>	50

#### International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name	NITRATES, INORGANIC, N.O.S.
Particulars in the shipper's declaration	UN1477, NITRATES, INORGANIC, N.O.S., 5.1, II
Marine pollutant	-
Danger label(s)	5.1



Special provisions (SP)	-
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 kg


# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: 5548

EmS	F-A, S-Q
Stowage category	A
<b>International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information</b>	
Proper shipping name	Nitrates, inorganic, n.o.s.
Particulars in the shipper's declaration	UN1477, Nitrates, inorganic, n.o.s., 5.1, II
Danger label(s)	5.1
	
Special provisions (SP)	A3
Excepted quantities (EQ)	E2
Limited quantities (LQ)	2,5 kg

## SECTION 15: Regulatory information

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

#### Relevant provisions of the European Union (EU)

##### Seveso Directive

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
P8	oxidising liquids and solids	50                      200	55)

##### Notation

55) Oxidising liquids, category 1, 2 or 3, or oxidising solids, category 1, 2 or 3

##### Deco-Paint Directive

VOC content	0 %
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##### Industrial Emissions Directive (IED)

VOC content	0 %
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##### Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

not listed

##### Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: 5548

### Water Framework Directive (WFD)

List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
Gallium(III) nitrate hydrate	Substances which contribute to eutrophication (in particular, nitrates and phosphates)		a)	

#### Legend

a) Indicative list of the main pollutants

### Regulation on the marketing and use of explosives precursors

not listed

### Regulation on drug precursors

not listed

### Regulation on substances that deplete the ozone layer (ODS)

not listed

### Regulation concerning the export and import of hazardous chemicals (PIC)

not listed

### Regulation on persistent organic pollutants (POP)

not listed

### National regulations(GB)

#### List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

not listed

#### Restrictions according to GB REACH, Annex 17

not listed

### Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

### National inventories

Country	Inventory	Status
EU	ECSI	substance is listed
KR	KECI	substance is listed
TW	TCSI	substance is listed

#### Legend

ECSI EC Substance Inventory (EINECS, ELINCS, NLP)  
KECI Korea Existing Chemicals Inventory  
TCSI Taiwan Chemical Substance Inventory

## 15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance.

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: 5548

### SECTION 16: Other information

#### Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.1	ADRRID: UN 1479	ADRRID: UN 1477	yes
14.1	IMDG-Code: UN 1479	IMDG-Code: UN 1477	yes
14.1	ICAO-TI: UN 1479	ICAO-TI: UN 1477	yes
14.2	ADRRID: OXIDIZING SOLID, N.O.S.	ADRRID: NITRATES, INORGANIC, N.O.S.	yes
14.2	IMDG-Code: OXIDIZING SOLID, N.O.S.	IMDG-Code: NITRATES, INORGANIC, N.O.S.	yes
14.2	ICAO-TI: Oxidizing solid, n.o.s.	ICAO-TI: Nitrates, inorganic, n.o.s.	yes
14.2	Technical name: Gallium(III) nitrate hydrate		yes
14.8	Proper shipping name: OXIDIZING SOLID, N.O.S.	Proper shipping name: NITRATES, INORGANIC, N.O.S.	yes
14.8	Particulars in the transport document: UN1479, OXIDIZING SOLID, N.O.S., (Gallium(III) nitrate hydrate), 5.1, II, (E)	Particulars in the transport document: UN1477, NITRATES, INORGANIC, N.O.S., 5.1, II, (E)	yes
14.8	Special provisions (SP): 274	Special provisions (SP): 511	yes
14.8	Special provisions (SP): 274	Special provisions (SP): 511	yes
14.8	Proper shipping name: OXIDIZING SOLID, N.O.S.	Proper shipping name: NITRATES, INORGANIC, N.O.S.	yes
14.8	Particulars in the shipper's declaration: UN1479, OXIDIZING SOLID, N.O.S., (Gallium(III) nitrate hydrate), 5.1, II	Particulars in the shipper's declaration: UN1477, NITRATES, INORGANIC, N.O.S., 5.1, II	yes
14.8	Special provisions (SP): 274, 900	Special provisions (SP): -	yes
14.8	Stowage category: B	Stowage category: A	yes
14.8	Proper shipping name: Oxidizing solid, n.o.s.	Proper shipping name: Nitrates, inorganic, n.o.s.	yes
14.8	Particulars in the shipper's declaration: UN1479, Oxidizing solid, n.o.s., (Gallium(III) nitrate hydrate), 5.1, II	Particulars in the shipper's declaration: UN1477, Nitrates, inorganic, n.o.s., 5.1, II	yes
15.1	Water Framework Directive (WFD): not listed	Water Framework Directive (WFD)	yes
15.1		List of pollutants (WFD): change in the listing (table)	yes

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: 5548

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
ED	Endocrine disruptor
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

### Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H272	May intensify fire; oxidiser.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Gallium(III) nitrate hydrate ROTI®METIC 99,999 % (5N)

article number: **5548**

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### **Disclaimer**

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.