

# 2-thiobarbituric acid

## Safety Data Sheet

according to Regulation (EU) 2015/830

Date of issue: 01/06/2022 Version: 1.0

Doc. No: SDS-972.079/1



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

#### 1.1. Product identifier

Product form : Substance  
Substance name : 2-thiobarbituric acid  
IUPAC name : 2-sulfanylidene-1,3-diazinane-4,6-dione  
EC-No. : 207-985-8  
CAS-No. : 504-17-6  
Type of product : Pure substances  
Formula : C<sub>4</sub>H<sub>4</sub>N<sub>2</sub>O<sub>2</sub>S

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

##### 1.2.1. Relevant identified uses

Main use category : Laboratory chemical  
Use of the substance/mixture : Laboratory use

##### 1.2.2. Uses advised against

No additional information available

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

ISOLAB Laborgeräte GmbH  
Am Dillhof 2 - 63863 Eschau / GERMANY  
Tel: + 49 93 74 / 978 55-0  
Fax: +49 93 74 / 978 55-29  
[prodsafe@isolab.de](mailto:prodsafe@isolab.de)

#### 1.4. Emergency telephone number

| Country | Official advisory body   | Address                           | Emergency number | Comment |
|---------|--|-----------------------------------|------------------|---------|
| Germany | Giftnotruf der Charité<br>CBF, Haus VIII (Wirtschaftgebäude), UG | Hindenburgdamm 30<br>12203 Berlin | +49 30 19240     |         |

### 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

Full text of H statements : see section 16

##### Adverse physicochemical, human health and environmental effects

May cause respiratory irritation. Causes skin irritation. Causes serious eye irritation.

#### 2.2. Label elements

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

Hazard pictograms (CLP) :



GHS07

Signal word (CLP) :

Warning

Hazard statements (CLP) :

H315 - Causes skin irritation.  
H319 - Causes serious eye irritation.  
H335 - May cause respiratory irritation.

Precautionary statements (CLP) :

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Substance type : Mono-constituent

| Name                  | Product identifier                       | Conc. (% w/w) |
|-----------------------|--|---------------|
| 2-thiobarbituric acid | (CAS-No.) 504-17-6<br>(EC-No.) 207-985-8 | ≥ 98          |

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            | : Call a poison center or a doctor if you feel unwell. Never give anything by mouth to an unconscious person. People with over sensibility problems are not allowed to work or be exposed to the product. In all cases of doubt, or when symptoms persist, seek medical attention. |
| First-aid measures after inhalation   | : Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.  |
| First-aid measures after skin contact | : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.   |
| First-aid measures after eye contact  | : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.   |
| First-aid measures after ingestion    | : Call a poison center or a doctor if you feel unwell.   |

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

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Symptoms/effects after inhalation   | : May cause respiratory irritation. |
| Symptoms/effects after skin contact | : Irritation.                       |
| Symptoms/effects after eye contact  | : Eye irritation.                   |
| Symptoms/effects after ingestion    | : Gastrointestinal complaints.      |

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

|                                |  |
|--------------------------------|--|
| Suitable extinguishing media   | : Water spray, dry chemical powder, alcohol-resistant foam, carbon dioxide (CO <sub>2</sub> ). |
| Unsuitable extinguishing media | : Strong water jet.  |

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

|  |  |
|--|--|
| Fire hazard                                      | : Keep away from ignition sources (including static discharges). Contact with combustible material may cause fire. |
| Explosion hazard                                 | : Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.  |
| Reactivity in case of fire                       | : At high temperature may liberate dangerous gases.  |
| Hazardous decomposition products in case of fire | : Toxic fumes may be released.   |

### 5.3. Advice for firefighters

|                                |   |
|--------------------------------|---|
| Precautionary measures fire    | : Approach from upwind. Use water spray or fog for cooling exposed containers. Keep away from combustible materials.  |
| Firefighting instructions      | : Use water spray or fog for cooling exposed containers. Cool adjacent tanks / containers / drums with water jet. Do not allow water to enter the vessels, a violent reaction may occur. Do not enter fire area without proper protective equipment, including respiratory protection. Exercise caution when fighting any chemical fire. Keep upwind. In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. |
| Protection during firefighting | : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.  |

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Other information : High temperature decomposition products are harmful by inhalation. Inhalation of vapour can cause breathing difficulties.

### SECTION 6: Accidental release measures

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

General measures : Eliminate every possible source of ignition. Access forbidden to unauthorised personnel. Use protective clothing. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Notify authorities if product enters sewers or public waters. Use care in walking on spilled material. Do not inhale vapour.

##### 6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment. Dust formation: dust mask. Wear suitable protective clothing, gloves and eye or face protection.

Emergency procedures : Ventilate spillage area. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Do not touch or walk on the spilled product. Evacuate unnecessary personnel. Mark out the contaminated area with signs and prevent access to unauthorized personnel.

Measures in case of dust release : In case of dust production: protective goggles. Dust mask.

##### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection". Only qualified personnel equipped with suitable protective equipment may intervene. Wear suitable protective clothing, gloves and eye/face protection.

Emergency procedures : Avoid contact with skin and eyes. Do not touch spilled material. Evacuate unnecessary personnel. Keep away from combustible material. Keep public away from danger area. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Ventilate area. Stop leak if safe to do so.

#### 6.2. Environmental precautions

Avoid release to the environment. Do not allow to enter drains or water courses. Do not discharge into drains or waterways without neutralizing.

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

For containment : Comply with the safety instructions. Soak up with inert absorbent material (for example sand, sawdust, a universal binder, silica gel). Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up : Mechanically recover the product. Clean up any spills as soon as possible, using an absorbent material to collect it. Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Sweep or shovel spills into appropriate container for disposal. Minimise generation of dust.

Other information : Dispose of materials or solid residues at an authorized site. Dispose of contaminated materials in accordance with current regulations.

#### 6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Additional hazards when processed : Use adequate ventilation to keep vapour concentrations below applicable standard. Take all necessary technical measures to avoid or minimize the release of the product on the workplace.

Precautions for safe handling : Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Wear personal protective equipment. Avoid dust formation. Avoid prolonged and repeated contact with skin. Contaminated work clothing should not be allowed out of the workplace. Do not spray on an open flame or other ignition source. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Keep valves and fittings free from oil and grease. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Take precautionary measures against static discharge.

Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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

Technical measures : Containers which are opened should be properly resealed and kept upright to prevent leakage. The floor of the depot should be impermeable and designed to form a water-tight basin. Ensure adequate ventilation, especially in confined areas. Comply with applicable regulations.

Storage conditions : Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

Incompatible products : Strong acids. Strong bases. Strong oxidizing agents. Peroxides. Explosives.

Incompatible materials : Extremely high or low temperatures.

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Heat and ignition sources : Do not smoke. KEEP SUBSTANCE AWAY FROM: ignition sources. heat sources.  
Information on mixed storage : Keep away from food, drink and animal feeding stuffs.  
Storage area : Avoid: Extremely high or low temperatures. Heat and ignition sources.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Exposure controls

#### Appropriate engineering controls:

Ensure good ventilation of the work station. Avoid contact with skin, eyes and clothing. Carry out operations in the open/under local exhaust/ventilation or with respiratory protection. Consider the use of a work permit system e.g. for maintenance activities. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. In the event that dust and/or fine particles are generated with this product, it is prudent to minimize prolonged inhalation exposure to these forms not to exceed the occupational exposure limit. Measure concentrations regularly, and at the time of any change occurring in conditions likely to have consequences on workers exposure.

#### Personal protective equipment:

Gloves. Safety glasses.

#### Hand protection:

Protective gloves. EN 374. Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer. Gloves must be replaced after each use and whenever signs of wear or perforation appear

#### Eye protection:

Safety glasses. EN 166

#### Skin and body protection:

Wear suitable protective clothing. Where contact with eyes or skin is likely, wear suitable protection. In case of dust production: dustproof clothing. In case of dust production: head/neck protection

#### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Dust production: dust mask with filter type P1. Where excessive vapour may result, wear approved mask

#### Personal protective equipment symbol(s):



#### Environmental exposure controls:

Avoid release to the environment.

#### Consumer exposure controls:

Do not eat, drink or smoke during use. Always wash hands after handling the product. Avoid contact with skin and eyes. Avoid contact during pregnancy/while nursing.

#### Other information:

Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

## SECTION 9: Physical and chemical properties

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

Physical state : Solid  
Appearance : Powder.  
Molecular mass : 144.14 g/mol  
Colour : White.  
Odour : odourless.  
Odour threshold : No data available

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|   |   |
|---|---|
| pH  | : 1.7 - 1.9 (10 g/l, H <sub>2</sub> O, 20 °C) |
| Relative evaporation rate (butylacetate=1)      | : No data available                           |
| Melting point                                   | : 235 °C                                      |
| Freezing point                                  | : Not applicable                              |
| Boiling point                                   | : No data available                           |
| Flash point                                     | : Not applicable                              |
| Auto-ignition temperature                       | : Not applicable                              |
| Decomposition temperature                       | : No data available                           |
| Flammability (solid, gas)                       | : Non flammable.                              |
| Vapour pressure                                 | : No data available                           |
| Relative vapour density at 20 °C                | : No data available                           |
| Relative density                                | : No data available                           |
| Solubility                                      | : Water: 50 g/l slightly soluble              |
| Partition coefficient n-octanol/water (Log Pow) | : No data available                           |
| Viscosity, kinematic                            | : Not applicable                              |
| Viscosity, dynamic                              | : No data available                           |
| Explosive properties                            | : No data available                           |
| Oxidising properties                            | : No data available                           |
| Explosive limits                                | : Not applicable                              |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Strong acids. Strong bases. Strong oxidizing agents. Peroxides. Explosives.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified

|   |              |
|---|--------------|
| <b>2-thiobarbituric acid (504-17-6)</b> |              |
| LD50 oral rat                           | > 5000 mg/kg |

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

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

Reproductive toxicity : Not classified

STOT-single exposure : May cause respiratory irritation.

STOT-repeated exposure : Not classified

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Aspiration hazard : Not classified

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

#### 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

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Regional legislation (waste) : Disposal must be done according to official regulations. Waste Management Regulation published in the Official Journal numbered 29314 on April 2, 2015.

Sewage disposal recommendations : Disposal must be done according to official regulations.

Product/Packaging disposal recommendations : Completely empty the packaging prior to decontamination. Empty containers should be taken for recycling, recovery or waste in accordance with local regulation. Comply with applicable regulations for solid waste disposal.

Additional information : Empty containers should be taken for recycling, recovery or waste in accordance with local regulation.

### SECTION 14: Transport information

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

| ADR                                     | IMDG           | IATA           | ADN            | RID            |
|---|----------------|----------------|----------------|----------------|
| <b>14.1. UN number</b>                  |                |                |                |                |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| <b>14.2. UN proper shipping name</b>    |                |                |                |                |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| <b>14.3. Transport hazard class(es)</b> |                |                |                |                |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| <b>14.4. Packing group</b>              |                |                |                |                |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| <b>14.5. Environmental hazards</b>      |                |                |                |                |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| No supplementary information available  |                |                |                |                |

#### 14.6. Special precautions for user

##### - Overland transport

Not applicable

##### - Transport by sea

Not applicable

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### - Air transport

Not applicable

### - Inland waterway transport

Not applicable

### - Rail transport

Not applicable

### 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

2-thiobarbituric acid is not on the REACH Candidate List

2-thiobarbituric acid is not on the REACH Annex XIV List

#### 15.1.2. National regulations

##### Germany

Regulatory reference : Not classified according to Regulation Governing Systems for Handling Substances Hazardous to Waters (AwSV)

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG)  
Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG)

Hazardous Incident Ordinance (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

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

Abbreviations and acronyms:

|       |   |
|-------|---|
| ADN   | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR   | European Agreement concerning the International Carriage of Dangerous Goods by Road             |
| ATE   | Acute Toxicity Estimate   |
| BCF   | Bioconcentration factor   |
| DMEL  | Derived Minimal Effect level  |
| DNEL  | Derived-No Effect Level   |
| EC50  | Median effective concentration  |
| IARC  | International Agency for Research on Cancer   |
| IATA  | International Air Transport Association   |
| IMDG  | International Maritime Dangerous Goods  |
| LC50  | Median lethal concentration   |
| LD50  | Median lethal dose  |
| LOAEL | Lowest Observed Adverse Effect Level  |



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|           |   |
|-----------|---|
| NOAEC     | No-Observed Adverse Effect Concentration  |
| NOAEL     | No-Observed Adverse Effect Level  |
| NOEC      | No-Observed Effect Concentration  |
| OECD      | Organisation for Economic Co-operation and Development  |
| PBT       | Persistent Bioaccumulative Toxic  |
| PNEC      | Predicted No-Effect Concentration   |
| RID       | Regulations concerning the International Carriage of Dangerous Goods by Rail                      |
| SDS       | Safety Data Sheet   |
| STP       | Sewage treatment plant  |
| TLM       | Median Tolerance Limit  |
| vPvB      | Very Persistent and Very Bioaccumulative  |
| CAS-No.   | Chemical Abstract Service number  |
| BLV       | Biological limit value  |
| BOD       | Biochemical oxygen demand (BOD)   |
| CAS       | Chemical Abstracts Service (division of the American Chemical Society)                            |
| EC-No.    | European Community number   |
| EN        | European Standard   |
| IOELV     | Indicative Occupational Exposure Limit Value  |
| N.O.S.    | Not Otherwise Specified   |
| OEL       | Occupational Exposure Limit   |
| Pow (log) | n-octanol/water partition coefficient   |
| REACH     | Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006 |
| ThOD      | Theoretical oxygen demand (ThOD)  |
| TRGS      | Technical Rules for Hazardous Substances  |
| VOC       | Volatile Organic Compounds  |
| WGK       | Water Hazard Class  |
| COD       | Chemical oxygen demand (COD)  |

Data sources : Classification according to Regulation (EC) No. 1272/2008 [CLP]. ECHA (European Chemicals Agency). Supplier's safety documents.

### Full text of H- and EUH-statements:

|               |  |
|---------------|--|
| 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.  |

### SDS ISOLAB (EU)

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