

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878  
Issue date: 01/01/2021 Revision date: 02/06/2025 Supersedes version of: Version: 2.0

## Cover Sheet

### MSDS

## ATTO Antibody Labeling Kit (ALK XXX-3R)

Kit Component		Component Number	Page
A	ATTO NHS-ester	AD XXX-3005	2
B	PBS buffer pH 7.4 with 0.02 % sodium azide	ALK_PBS-C01	10
C	DMSO	ALK_DMSO-C02	18
D	Sodium bicarbonate	ALK_BC-C03	26

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

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

### 1.1. Product identifier

Product form : ATTO Antibody Labeling Kit  
Product Component A ATTO NHS-ester

Product Component	Product Code	Product #
ATTO 343H NHS-Ester	ALK 343H-3R	AD 343H-3005
ATTO 386H NHS-Ester	ALK 386H-3R	AD 386H-3005
ATTO 436H NHS-Ester	ALK 436H-3R	AD 436H-3005
ATTO 488 NHS-Ester	ALK 488-3R	AD 488-3005
ATTO 553H NHS-Ester	ALK 553H-3R	AD 553H-3005
ATTO 576H NHS-Ester	ALK 576H-3R	AD 576H-3005
ATTO 584H NHS-Ester	ALK 584H-3R	AD 584H-3005
ATTO 589H NHS-Ester	ALK 589-3R	AD 589H-3005
ATTO 594 NHS-Ester	ALK 594-3R	AD 594-3005
ATTO 614H NHS-Ester	ALK 614H-3R	AD 614H-3005
ATTO 643 NHS-Ester	ALK 643-3R	AD 643-3005
ATTO 678H NHS-Ester	ALK 678H-3R	AD 678H-3005

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

#### 1.2.1. Relevant identified uses

Laboratory chemicals, Fluorescent label, labeling of bio-molecules

#### 1.2.2. Uses advised against

No additional information available

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

#### Manufacturer

ATTO-TEC GmbH  
Martinshardt 7  
57074 Siegen  
T +49-271-23853-0 - F +49-271-23853-11  
[info@atto-tec.com](mailto:info@atto-tec.com)  
[www.atto-tec.com](http://www.atto-tec.com)

### 1.4. Emergency telephone number

Emergency number : +49-271-23853-0 (8:30 - 16:30)

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Not classified

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## Adverse physicochemical, human health and environmental effects

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

## 2.2. Label elements

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

Precautionary statements (CLP) : P102 - Keep out of reach of children.  
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.  
EUH-statements : EUH210 - Safety data sheet available on request.

## 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%
ATTO NHS-ester	AD XXX-3005	100

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.  
First-aid measures after skin contact : Wash skin with plenty of water.  
First-aid measures after eye contact : Rinse eyes with water as a precaution.  
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

No additional information available

### 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 powder. Foam.

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

Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

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

#### 6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area.

#### 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".

### 6.2. Environmental precautions

Avoid release to the environment.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

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

Methods for cleaning up : Mechanically recover the product.  
Other information : Dispose of materials or solid residues at an authorized site.

## 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.  
Hygiene measures : 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

Storage conditions : Store at -20°C

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

No additional information available

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



##### 8.2.2.1. Eye and face protection

Eye protection:

Protective goggles (EN 166)

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## 8.2.2.2. Skin protection

<b>Skin and body protection:</b>
Wear suitable protective clothing

Hand protection:					
Protective gloves					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0,2	1 (< 4.0)	EN 374-3, EN 374-2

## 8.2.2.3. Respiratory protection

<b>Respiratory protection:</b>
No respiratory protection needed under normal use conditions

## 8.2.2.4. Thermal hazards

No additional information available

## 8.2.3. Environmental exposure controls

**Environmental exposure controls:**  
Avoid release to the environment.

## SECTION 9: Physical and chemical properties

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

Physical state	: Solid	
Colour	: Various colours	
Odour	: Odourless	
Odour threshold	: Not available	
Melting point	: Not available	
Freezing point	: Not available	
Boiling point	: Not available	
Flammability	: Not available	
Explosive limits	: Not applicable	
Lower explosion limit	: Not applicable	
Upper explosion limit	: Not applicable	
Flash point	: Not applicable	
Auto-ignition temperature	: Not applicable	
Decomposition temperature	: Not available	
pH	: Not available	
pH solution	: Not available	
Viscosity, kinematic	: Not applicable	
Solubility	: In water: Very good	Soluble in: dimethyl sulfoxide, dimethylformamide
Partition coefficient n-octanol/water (Log Kow)	: Not available	
Vapour pressure	: Not available	
Vapour pressure at 50 °C	: Not available	
Density	: Not available	
Relative density	: Not available	
Relative vapour density at 20 °C	: Not applicable	
Particle size	: Not available	
Particle size distribution	: Not available	
Particle shape	: Not available	

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Particle aspect ratio	: Not available
Particle aggregation state	: Not available
Particle agglomeration state	: Not available
Particle specific surface area	: Not available
Particle dustiness	: Not available

## 9.2. Other information

### 9.2.1. Information with regard to physical hazard classes

No additional information available

### 9.2.2. Other safety characteristics

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

No additional information available

### 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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Reproductive toxicity	: Not classified
-----------------------	------------------

STOT-single exposure	: Not classified
----------------------	------------------

STOT-repeated exposure	: Not classified
------------------------	------------------

Aspiration hazard	: Not classified
-------------------	------------------

### 11.2. Information on other hazards

No additional information available

## 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.
-------------------	---

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

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. Endocrine disrupting properties

No additional information available

## 12.7. Other adverse effects

No additional information available

# SECTION 13: Disposal considerations

## 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

# SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

## 14.6. Special precautions for user

### Overland transport

Not regulated

### Transport by sea

Not regulated

### Air transport

Not regulated

### Inland waterway transport

Not regulated

### Rail transport

Not regulated

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

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

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

ATTO NHS-ester is not on the REACH Candidate List

ATTO NHS-ester is not on the REACH Annex XIV List

ATTO NHS-ester is not 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.

ATTO NHS-ester is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

#### 15.1.2. National regulations

No additional information available

### 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
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
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
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
OEL	Occupational Exposure Limit



# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

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
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
EUH210	Safety data sheet available on request.

The classification complies with : ATP 12  
SDS EU (REACH Annex II)  
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

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

### 1.1. Product identifier

Product form : ATTO 488 Antibody Labeling Kit  
Product component : B  
Product component name : PBS buffer with 0.02% azide  
Product component code : ALK\_PBS-C01

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

#### 1.2.1. Relevant identified uses

Laboratory chemicals

#### 1.2.2. Uses advised against

No additional information available

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

#### Manufacturer

ATTO-TEC GmbH  
Martinshardt 7  
57074 Siegen  
T +49-271-23853-0 - F +49-271-23853-11  
[info@atto-tec.com](mailto:info@atto-tec.com)  
[www.atto-tec.com](http://www.atto-tec.com)

### 1.4. Emergency telephone number

Emergency number : +49-271-23853-0 (8:30 - 16:30)

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

The substance is not classified, according to the CLP regulation.

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

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

### 2.2. Label elements

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

Precautionary statements (CLP) : void  
EUH-statements : void

### 2.3. Other hazards

No additional information available

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%
PBS Buffer with 0.02% azide	ALK_PBS-C01	100

### 3.2. Mixtures

Dangerous components		%
CAS: 26628-22-8	<b>Sodium azide</b> Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; STOT RE 2, H373; Aquatic Chronic 1, H410	0.02

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
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

No additional information available

### 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	: Use fire extinguishing methods suitable to surrounding conditions.
------------------------------	--

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

Hazardous decomposition products in case of fire	: Toxic fumes may be released.
--	--------------------------------

### 5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
--------------------------------	--

## SECTION 6: Accidental release measures

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

#### 6.1.1. For non-emergency personnel

Emergency procedures	: Ventilate spillage area.
----------------------	----------------------------

#### 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".
----------------------	---

### 6.2. Environmental precautions

Avoid release to the environment.

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

Methods for cleaning up	: Absorb with liquid binding material (sand, diatomite, acid binders, universal binders sawdust).
Other information	: Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling
- : Ensure good ventilation of the work station. Wear personal protective equipment.
- Hygiene measures
- : 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

- Storage conditions
- : Store at +4°C

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

No additional information available

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

Appropriate engineering controls:  
Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



##### 8.2.2.1. Eye and face protection

Eye protection:
Protective goggles (EN 166)

##### 8.2.2.2. Skin protection

Skin and body protection:
Wear suitable protective clothing

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Hand protection:					
Protective gloves					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0,2	1 (< 4.0)	EN 374-3, EN 374-2

### 8.2.2.3. Respiratory protection

Respiratory protection:
No respiratory protection needed under normal use conditions

### 8.2.2.4. Thermal hazards

No additional information available

### 8.2.3. Environmental exposure controls

Environmental exposure controls:  
Avoid release to the environment.

## SECTION 9: Physical and chemical properties

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

Physical state	: Liquid
Appearance	: No information available
Odour	: No information available
Odour threshold	: No information available
Melting point	: No information available
Freezing point	: No information available
Boiling point	: No information available
Flammability	: No information available
Explosive limits	: No information available
Lower explosion limit	: No information available
Upper explosion limit	: No information available
Flash point	: No information available
Auto-ignition temperature	: No information available
Decomposition temperature	: No information available
pH	: No information available
pH solution	: 7.4
Viscosity, kinematic	: No information available
Solubility	: No information available
Partition coefficient n-octanol/water (Log Kow)	: No information available
Vapour pressure	: No information available
Vapour pressure at 50 °C	: No information available
Density	: No information available
Relative density	: No information available
Relative vapour density at 20 °C	: No information available
Particle size	: Not available
Particle size distribution	: Not available
Particle shape	: Not available
Particle aspect ratio	: Not available
Particle aggregation state	: Not available
Particle agglomeration state	: Not available
Particle specific surface area	: Not available
Particle dustiness	: Not available

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## 9.2. Other information

### 9.2.1. Information with regard to physical hazard classes

No additional information available

### 9.2.2. Other safety characteristics

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

None under normal processing.

### 10.4. Conditions to avoid

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

### 10.5. Incompatible materials

No additional information available

### 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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Reproductive toxicity	: Not classified
-----------------------	------------------

STOT-single exposure	: Not classified
----------------------	------------------

STOT-repeated exposure	: Not classified
------------------------	------------------

Aspiration hazard	: Not classified
-------------------	------------------

### 11.2. Information on other hazards

No additional information available

## 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
---	------------------

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## 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. Endocrine disrupting properties

No additional information available

## 12.7. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

## SECTION 14: Transport information

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

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

### 14.6. Special precautions for user

#### Overland transport

Not regulated

#### Transport by sea

Not regulated

#### Air transport

Not regulated

#### Inland waterway transport

Not regulated

#### Rail transport

Not regulated

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

Not applicable

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

No REACH Annex XVII restrictions

PBS-buffer is not on the REACH Candidate List

PBS-buffer is not on the REACH Annex XIV List

PBS-buffer not 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.

PBS-buffer is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

#### 15.1.2. National regulations

No additional information available

### 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
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
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
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
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration



# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
EUH210	Safety data sheet available on request.

The classification complies with : ATP 12  
SDS EU (REACH Annex II)  
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

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

### 1.1. Product identifier

Product form : ATTO 488 Antibody Labeling Kit  
Product component : C  
Product component name : DMSO  
Product component code : ALK\_DMSO-C02

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

#### 1.2.1. Relevant identified uses

Laboratory chemicals

#### 1.2.2. Uses advised against

No additional information available

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

#### Manufacturer

ATTO-TEC GmbH  
Martinshardt 7  
57074 Siegen  
T +49-271-23853-0 - F +49-271-23853-11  
[info@atto-tec.com](mailto:info@atto-tec.com)  
[www.atto-tec.com](http://www.atto-tec.com)

### 1.4. Emergency telephone number

Emergency number : +49-271-23853-0 (8:30 - 16:30)

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

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

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

### 2.2. Label elements

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

Precautionary statements (CLP) : void  
EUH-statements : void

### 2.3. Other hazards

Rapidly absorbed through skin.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%
DMSO (Dimethylsulfoxide) CAS: 67-68-5	ALK_DMSO-C02	100

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
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

The most important known symptoms and effects are described in the labelling in section 11

### 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 foam carbon dioxide (CO <sub>2</sub> ) dry powder.
------------------------------	--

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

Hazardous decomposition products in case of fire	: Toxic fumes may be released.
--	--------------------------------

### 5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
--------------------------------	--

## SECTION 6: Accidental release measures

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

#### 6.1.1. For non-emergency personnel

Emergency procedures	: Do not breathe vapors, aerosols. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
----------------------	--

#### 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".
----------------------	---

### 6.2. Environmental precautions

Avoid release to the environment.

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

Methods for cleaning up	: Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.
Other information	: Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling
- : Ensure good ventilation of the work station. Wear personal protective equipment.
- Hygiene measures
- : 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

- Storage conditions
- : Tightly closed. Store under inert gas. Substance is hygroscopic.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

No additional information available

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

Appropriate engineering controls:  
Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



##### 8.2.2.1. Eye and face protection

Eye protection:
Protective goggles (EN 166)

##### 8.2.2.2. Skin protection

Skin and body protection:
Wear suitable protective clothing

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Hand protection:					
Protective gloves					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Latex	240 minutes	0,6	1 (< 4.0)	EN 16523-1

## 8.2.2.3. Respiratory protection

Respiratory protection:
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds. The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

## 8.2.2.4. Thermal hazards

No additional information available

## 8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

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

Physical state	: Liquid
Appearance	: Clear
Odour	: odorless
Odour threshold	: No information available
Melting point	: Melting point/range: 16 - 19 °C
Freezing point	: No information available
Boiling point	: 189°C
Flammability	: No data available
Explosive limits	: No information available
Lower explosion limit	: Lower explosion limit: 2,6 %(V)
Upper explosion limit	: Upper explosion limit: 28,5 %(V)
Flash point	: 87°C - closed cup - ASTM D 93
Auto-ignition temperature	: 300 - 302°C
Decomposition temperature	: >190°C
pH	: Not applicable
pH solution	: Not applicable
Viscosity, kinematic	: No information available
Water solubility	: completely miscible
Partition coefficient n-octanol/water (Log Kow)	: No information available
Vapour pressure	: No data available
Vapour pressure at 20 °C	: 0,55 hPa
Density	: 1.1 g/ml
Relative density	: No data available
Relative vapour density at 20 °C	: No data available
Particle size	: No data available
Particle size distribution	: No data available
Particle shape	: No data available
Particle aspect ratio	: No data available
Particle aggregation state	: No data available
Particle agglomeration state	: No data available
Particle specific surface area	: No data available
Particle dustiness	: No data available

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## 9.2. Other information

### 9.2.1. Information with regard to physical hazard classes

No additional information available

### 9.2.2. Other safety characteristics

Surface tension 43,5 mN/m at 20 °C, Dissociation constant 35,1, No additional information available, Relative vapor density 2,70 - (Air = 1.0).

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

no hazardous reactions known

### 10.4. Conditions to avoid

Strong heating.

### 10.5. Incompatible materials

Alkali metals  
Strong oxidizing agents  
Strong reducing agents  
Strong acids  
Acid chlorides  
Organic halides

### 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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: LD50 Oral - Rat - 28.300 mg/kg
Acute toxicity (dermal)	: LD50 Dermal - Rat - 40.000 mg/kg
Acute toxicity (inhalation)	: LC50 Inhalation - Rat - 4 h - > 5,33 mg/l
Skin corrosion/irritation	: Skin - Rabbit - Result: slight irritation - 4 h
Serious eye damage/irritation	: Eyes - Rabbit - Result: slight irritation - 24 h
Respiratory or skin sensitisation	: No sensitizing effect known
Germ cell mutagenicity	: No information available
Carcinogenicity	: No information available
Reproductive toxicity	: NOAEL 1000 mg/kg Oral - Rat
STOT-single exposure	: No data available
STOT-repeated exposure	: NOAEL 0.964 mg/l (3 month) Inhalation Rat
Aspiration hazard	: No data available

### 11.2. Information on other hazards

#### Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Repeated dose toxicity - Rat - male and female - Oral - 18 Months - NOAEL (No observed adverse effect level) - 3.300 mg/kg - LOAEL (Lowest observed adverse effect level) - 9.900 mg/kg Repeated dose toxicity - Monkey - male and female - Dermal - 18 Months - NOAEL (No observed adverse effect level) - >= 8.910 mg/kg - LOAEL (Lowest observed adverse effect level) - 990 mg/kg

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Exposure to large amounts can cause: redness of skin, Itching, burning, sedation, Headache, Nausea, Dizziness. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## SECTION 12: Ecological information

### 12.1. Toxicity

Toxicity to fish : static test LC50 - Danio rerio (zebra fish) - > 25.000 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates : static test EC50 - Daphnia magna (Water flea) - 24.600 mg/l - 48 h

Toxicity to algae : static test EC50 - Pseudokirchneriella subcapitata (green algae) - 17.000 mg/l - 72 h

### 12.2. Persistence and degradability

Biodegradability : aerobic - Exposure time 28 d Result: 31 % - Not readily biodegradable.

### 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

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6. Endocrine disrupting properties

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

## SECTION 14: Transport information

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

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

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## 14.6. Special precautions for user

### Overland transport

Not regulated

### Transport by sea

Not regulated

### Air transport

Not regulated

### Inland waterway transport

Not regulated

### Rail transport

Not regulated

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

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

DMSO is not on the REACH Candidate List

DMSO is not on the REACH Annex XIV List

DMSO not 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.

DMSO is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

#### 15.1.2. National regulations

No additional information available

### 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
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association



# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
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
OEL	Occupational Exposure Limit
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
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
EUH210	Safety data sheet available on request.

The classification complies with : ATP 12  
SDS EU (REACH Annex II)  
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

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

### 1.1. Product identifier

Product form : ATTO Antibody Labeling Kit  
Product component : D  
Product component name : Sodium bicarbonate  
Product component code : ALK\_BC-C03

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

#### 1.2.1. Relevant identified uses

Laboratory chemicals

#### 1.2.2. Uses advised against

No additional information available

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

#### Manufacturer

ATTO-TEC GmbH  
Martinshardt 7  
57074 Siegen  
T +49-271-23853-0 - F +49-271-23853-11  
[info@atto-tec.com](mailto:info@atto-tec.com)  
[www.atto-tec.com](http://www.atto-tec.com)

### 1.4. Emergency telephone number

Emergency number : +49-271-23853-0 (8:30 - 16:30)

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

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

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

### 2.2. Label elements

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

Precautionary statements (CLP) : void  
EUH-statements : void

### 2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%
Sodium bicarbonate CAS: 144-55-8	ALK_BC-C03	100

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

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

The most important known symptoms and effects are described in the labelling in section 11

### 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	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
------------------------------	---

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

Hazardous decomposition products in case of fire	: Carbon oxides, Sodium oxides, Not combustible. Ambient fire may liberate hazardous vapours.
--	--

### 5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
--------------------------------	--

### 5.4. Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## SECTION 6: Accidental release measures

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

#### 6.1.1. For non-emergency personnel

Emergency procedures	: Do not breathe vapors, aerosols dust. Evacuate the danger area, observe emergency procedures, consult an expert.
----------------------	--

#### 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".
----------------------	---

### 6.2. Environmental precautions

Avoid release to the environment.

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

Methods for cleaning up	: Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry, dispose properly. Clean up affected area.
Other information	: Dispose of materials or solid residues at an authorized site.

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.

Hygiene measures : 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

Storage conditions : Tightly closed. Dry. Storage class (TRGS 510): 13: Non Combustible Solids.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

No additional information available

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

**Appropriate engineering controls:**  
Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



##### 8.2.2.1. Eye and face protection

Eye protection:

Protective goggles (EN 166)

##### 8.2.2.2. Skin protection

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## Skin and body protection:

Wear suitable protective clothing

## Hand protection:

Protective gloves

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Nitrile rubber	480 minutes	0,11	1 (< 4.0)	EN 374

### 8.2.2.3. Respiratory protection

#### Respiratory protection:

Required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter type P1.

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

### 8.2.2.4. Thermal hazards

No additional information available

### 8.2.3. Environmental exposure controls

#### Environmental exposure controls:

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

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

Physical state	: Crystalline solid
Appearance	: White
Odour	: odorless
Odour threshold	: No information available
Melting point	: Melting point/range: 270°C
Freezing point	: No information available
Boiling point	: Not applicable
Flammability	: The product is not flammable
Explosive limits	: No data available
Lower explosion limit	: No data available
Upper explosion limit	: No data available
Flash point	: Not applicable
Auto-ignition temperature	: 300 - 302°C
Decomposition temperature	: >50°C
pH	: Not applicable
pH solution	: Ca. 8.6 at 50 g/l at 20°C
Viscosity, kinematic	: No data available
Water solubility	: 93,4 g/l at 20 °C - OECD Test Guideline 105
Partition coefficient n-octanol/water (Log Kow)	: Not applicable for inorganic substances
Vapour pressure	: No data available
Vapour pressure at 20 °C	: 0,669 hPa at 20 °C - Regulation (EC) No. 440/2008, Annex, A.4
Density	: 2.160 g/cm <sup>3</sup>
Relative density	: 2,22 at 20 °C - OECD Test Guideline 109
Relative vapour density at 20 °C	: No data available
Particle size	: No data available

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Particle size distribution	: No data available
Particle shape	: No data available
Particle aspect ratio	: No data available
Particle aggregation state	: No data available
Particle agglomeration state	: No data available
Particle specific surface area	: No data available
Particle dustiness	: No data available

## 9.2. Other information

### 9.2.1. Information with regard to physical hazard classes

No additional information available

### 9.2.2. Other safety characteristics

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No data available

### 10.2. Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

### 10.3. Possibility of hazardous reactions

Violent reactions possible with:

Alkali metals

acids

Generates dangerous gases or fumes in contact with:

ammonium compounds

### 10.4. Conditions to avoid

No information available.

### 10.5. Incompatible materials

No additional information available

### 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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: LD50 Oral - Rat - male and female - 4.000 mg/kg (US-EPA)
Acute toxicity (dermal)	: No data available
Acute toxicity (inhalation)	: LC0 Inhalation - Rat - male and female – 4,5 h - > 4,74 mg/l - dust/mist (US-EPA)
Skin corrosion/irritation	: Skin - Rabbit Result: slight irritation - 4 h (US-EPA)
Serious eye damage/irritation	: Eyes - Rabbit Result: slight irritation (US-EPA)
Respiratory or skin sensitisation	: No data available
Germ cell mutagenicity	: No data available
Carcinogenicity	: No data available
Reproductive toxicity	: No data available
STOT-single exposure	: No data available
STOT-repeated exposure	: No data available
Aspiration hazard	: No data available

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

## 11.2. Information on other hazards

### Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: VZ0950000

Exposure to large amounts can cause:, Gastrointestinal disturbance, Heavy or prolonged skin exposure may result in the absorption of harmful amounts of material. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. However, when the product is handled appropriately, hazardous effects are unlikely to occur.

Handle in accordance with good industrial hygiene and safety practice.

## SECTION 12: Ecological information

### 12.1. Toxicity

Toxicity to fish : flow-through test LC50 - Lepomis macrochirus - 7.100 mg/l - 96 h (US-EPA)

Toxicity to daphnia and other aquatic invertebrates : flow-through test EC50 - Daphnia magna (Water flea) - 3.100 mg/l - 48 h (US-EPA)

Toxicity to daphnia and other aquatic invertebrates : semi-static test NOEC - Daphnia magna (Water flea) - > 576 mg/l - 21 d (Chronic toxicity) Remarks: (ECHA)

### 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

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6. Endocrine disrupting properties

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

## SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number or ID number</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.2. UN proper shipping name</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated

# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				
14.6. Special precautions for user				

**Overland transport**

Not regulated

**Transport by sea**

Not regulated

**Air transport**

Not regulated

**Inland waterway transport**

Not regulated

**Rail transport**

Not regulated

14.7. Maritime transport in bulk according to IMO instruments

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  
Sodium bicarbonate is not on the REACH Candidate List  
Sodium bicarbonate is not on the REACH Annex XIV List  
Sodium bicarbonate not 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.  
Sodium bicarbonate is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

No additional information available

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
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)



# Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
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
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
OEL	Occupational Exposure Limit
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
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
EUH210	Safety data sheet available on request.

The classification complies with : ATP 12  
SDS EU (REACH Annex II)  
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.