BMT Solution (0.25 M ; 0.3 M)

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 12/18/2013 Revision date: 12/5/2023 Supersedes version of: 10/26/2023 Version: 3.2

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

1.1. Product identifier

Product form	:	Mixture
Trade name	:	BMT Solution (0.25 M ; 0.3 M)
UFI	:	2NM3-70AY-9007-Q9P1
Product code	:	NC-0102; NC-0103
Type of product	:	Synthesis Reagent
Synonyms	:	5-(Benzylthio)-1H-tetrazole (BTT) in anhydrous acetonitrile
Product group	:	End product

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

1.2.1. Relevant identified uses

Main use category	:	Industrial use,Laboratory chemical
Industrial/Professional use spec	:	Industrial For professional use only
Use of the substance/mixture	:	Laboratory chemicals Substance manufacture
Function or use category	:	Laboratory chemicals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer
emp Biotech GmbH GmbH
Robert-Rössle-Str. 10
DE 13125 Berlin
Deutschland
T +49 (0)30 94 89 22 01 (Monday-Friday, 9:00 am-5:00 pm), F +49 (0)30 94 89 32 01
info@empbiotech.com, www.empbiotech.com

1.4. Emergency telephone number

Emergency number	:	Giftnotruf Berlin +49 30 30686700 (Beratung in Deutsch), 24 Stunden, 7 Tage/Woche; International: INFOTRAC +1-352-323-3500 (Phone) or in the US 800-535-5053 (toll-free), 24 hours/day, 7 days/week

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flam. Liq. 2	H225
Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Dermal)	H312
Acute Tox. 4 (Inhalation)	H332
Eye Irrit. 2	H319

Full text of hazard classes, H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

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

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS02 GHS07

Signal word (CLP) : Danger

Hazard statements (CLP) : H225 - Highly flammable liquid and vapour.
H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled.
H319 - Causes serious eye irritation.

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312 - IF SWALLOWED: Call a POISON CENTER, doctor if you feel unwell.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 - Call a POISON CENTER, doctor if you feel unwell.
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

Contains no PBT/vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Acetonitrile (Anhydrous)	CAS-No.: 75-05-8 EC-No.: 200-835-2 EC Index-No.: 608-001-00-3 REACH-no: 01-2119471307-38-XXXX	85 – 98	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319
5-Benzyl-1H-thiotetrazole	CAS-No.: 21871-47-6 EC-No.: 606-853-0	2 – 15	Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Consult a doctor. Show this safety data sheet to the doctor in attendance.

First-aid measures after inhalation : Move person to fresh air and ensure comfortable breathing. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
. Get immediate medical advice/attention.

First-aid measures after skin contact : Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention.

First-aid measures after eye contact : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses, if possible. Continue rinsing.

First-aid measures after ingestion : Drink water immediatly (max. 2 cups). Ask for medical advice.

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

Symptoms/effects : The most important known symptoms and effects are described on the label (see 2.2) and / or in section 11.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Carbon dioxide (CO2). Dry powder.

Unsuitable extinguishing media : There are no extinguishing agent restrictions for this substance.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Combustible.

Explosion hazard : Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

Hazardous decomposition products in case of fire : Products of decomposition can be formed in case of fire:
Carbon oxides
Nitrogen oxides (NOx)
Sulfur oxides. Toxic fumes may be released. Be careful to flashback of fire.

5.3. Advice for firefighters

Firefighting instructions : Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Protection during firefighting : Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : For personal protection see section 8. EN 166. ISO 374-1. EN 143.

Emergency procedures : Avoid substance contact. Avoid breathing vapours, spray. Ensure adequate ventilation, observe emergency procedures, consult an expert. Evacuate unnecessary personnel. Keep away from heat and sources of ignition.

6.1.2. For emergency responders

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Do not allow to enter drains or water courses. Be careful of explosion risk.

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 carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4. Reference to other sections

Information on exposure controls/personal protective equipment and on Instructions for disposal can be found in sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Use under laboratory hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge. For precautions see section 2.2.

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

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed in a dry, well-ventilated place. Keep away from heat and sources of ignition. Keep contents under inert gas.

Storage temperature : +16 - 25 °C

Storage area : Storage class (TRGS 510): See section 15.1.2.

7.3. Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

Acetonitrile (Anhydrous) (75-05-8)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Acetonitrile
IOEL TWA	70 mg/m³
	40 ppm Indicative: Indicates the possibility of significant absorption of the substance through the skin.
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Acetonitril
AGW (OEL TWA)	17 mg/m³
	10 ppm Remark: Skin resorptive: There is no reason to fear a risk of damage to the developing embryo or foetus when AGW and BGW are adhered to. Source: DFG, EU

5-Benzyl-1H-thiotetrazole (21871-47-6)	
Germany - Occupational Exposure Limits (Generic OEL data)	
	Contains no substances with occupational exposure limits

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:
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):

8.2.2.1. Eye and face protection

Eye protection:
Wear eye protection. Wear closed safety glasses. EN 166

8.2.2.2. Skin protection

Skin and body protection:
Wear protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Flame retardant antistatic protective clothing

Hand protection:
Wear protective gloves. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.
. Full contact-Material: butyl-rubber
Minimum layer thickness: 0,7 mm
Break through time: 480 min

8.2.2.3. Respiratory protection

Respiratory protection:
Wear respiratory protection. Required when vapours/aerosols 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 ABEK.

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:
Do not let product enter drains. Risk of explosion.

Other information:
Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	Colourless.

Appearance	:	Clear.
Odour	:	Not available
Odour threshold	:	Not available
Melting point	:	-46 °C (Main component)
Freezing point	:	Not available
Boiling point	:	81 °C at 1013 hPa (Main component)
Flammability	:	Not available
Lower explosion limit	:	3 vol % (Main component)
Upper explosion limit	:	16 vol % (Main component)
Flash point	:	2 °C (Main component)
Auto-ignition temperature	:	Not available
Decomposition temperature	:	> 330 °C (Main component)
pH	:	Not available
Viscosity, kinematic	:	Not available
Solubility	:	Not available
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	97 hPa (Main component)
Vapour pressure at 50°C	:	Not available
Density	:	Not available
Relative density	:	Not available
Relative vapour density at 20°C	:	Not available
Particle characteristics	:	Not applicable

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

Vapors can form an explosive mixture with air.

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Heat. Sparks. Direct sunlight.

10.5. Incompatible materials

Bases, Oxidizing agents, Alkali metals, Reducing agents, Acids. Several plastics. Rubber.

10.6. Hazardous decomposition products

In the event of fire: see section 5.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	:	Harmful if swallowed.
Acute toxicity (dermal)	:	Harmful in contact with skin.
Acute toxicity (inhalation)	:	Harmful if inhaled.

Additional information : Acetonitrile:
LD50 Oral - Mouse - male and female: 617 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Mouse - male and female - 4 h: 6,022 mg/l
(OECD Test Guideline 403)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Acetonitrile (Anhydrous) (75-05-8)	
LD50 oral rat	2460 mg/kg - Union Carbide Data Sheet. Vol. 3/18/1965.
LD50 dermal rabbit	> 2000 mg/kg - International Journal of Toxicology. Vol. 19, Pg. 363, 2000.

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Mixture causes serious eye irritation.

Additional information : Acetonitrile: Eyes - Rabbit
Result: Causes serious eye irritation.
(OECD Test Guideline 405)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Additional information : Acetonitrile:
Test system: Saccharomyces cerevisiae
Result: positive
Remarks: Cytogenetic analysis
(ECHA)

Carcinogenicity : Not classified

BMT Solution (0.25 M ; 0.3 M)	
IARC group	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

5-Benzyl-1H-thiotetrazole (21871-47-6)	
IARC group	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity : Not classified

STOT-single exposure : Inhalation: May cause respiratory irritation.
- Respiratory system

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

Acetonitrile (Anhydrous) (75-05-8)	
Viscosity, kinematic	0.405 mm²/s

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by 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.

11.2.2. Other information

Potential adverse human health effects and symptoms : Treat as cyanide poisoning. Always have on hand a cyanide first-aid kit, together with proper instructions. The onset of symptoms is generally delayed pending conversion to cyanide. Headache, Dizziness, Rash, Cyanosis, excitement, depression, Drowsiness. Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

Other information : To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1. Toxicity

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

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

Acetonitrile (Anhydrous) (75-05-8)	
LC50 - Fish [1]	1640 mg/l - Brooke, L.T., D.J. Call, D.L. Geiger, and C.E. Northcott 1984. Acute Toxicities of Organic Chemicals to Fathead Minnows(Pimephales promelas), Vol. 1. Center for Lake Superior Environmental Stud., Univ.of Wisconsin-Superior, Superior, WI :414
EC50 - Crustacea [1]	3600 mg/l - Tong, Z., Z. Huailan, and J. Hongjun 1996. Chronic Toxicityof Acrylonitrile and Acetonitrile to Daphnia magna in 14-d and 21-d Toxicity Tests. Bull.Environ.Contam.Toxicol. 57(4):655-659

12.2. Persistence and degradability

BMT Solution (0.25 M ; 0.3 M)	
Persistence and degradability	Rapidly degradable

Acetonitrile (Anhydrous) (75-05-8)	
Persistence and degradability	Rapidly degradable
Biodegradation	70 % - Result: Readily biodegradable. (OECD Test Guideline 310)

5-Benzyl-1H-thiotetrazole (21871-47-6)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

Acetonitrile (Anhydrous) (75-05-8)	
Partition coefficient n-octanol/water (Log Pow)	-0.34
Bioaccumulative potential	No bioaccumulation is to be expected (log Pow <= 4).

12.4. Mobility in soil

Acetonitrile (Anhydrous) (75-05-8)	
Mobility in soil	Not expected to adsorb on soil.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by 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.

12.7. Other adverse effects

Acetonitrile : Toxicity to fish:
Flow-through test LC50 - Pimephales promelas (fathead minnow): 1.640 mg/l - 96 h
Remarks: (ECHA)
Toxicity to algae:
Static test NOEC - Phaeodactylum tricornutum: 400 mg/l - 72 h
Remarks: (ISO 10253)
Static test ErC50 - Phaeodactylum tricornutum: 9.696 mg/l - 72 h
Remarks: (ISO 10253)

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Product residues are to be disposed of in compliance with national and regional regulations dispose. Keep chemicals in original containers. Not with other waste mix. Uncleaned containers are to be treated according to the product. Pay attention to the waste policy 2008/98/EG.

Product/Packaging disposal recommendations : Contaminated packaging to be disposed as unused product.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA

ADR	IMDG	IATA
14.1. UN number or ID number		
UN 1993	UN 1993	UN 1993
14.2. UN proper shipping name		
FLAMMABLE LIQUID, N.O.S. (Solution of 5-Benzylmercaptotetrazole in Acetonitrile)	FLAMMABLE LIQUID, N.O.S. (Solution of 5-Benzylmercaptotetrazole in Acetonitrile)	FLAMMABLE LIQUID, N.O.S. (Solution of 5-Benzylmercaptotetrazole in Acetonitrile)
14.3. Transport hazard class(es)		
3	3	3
		
14.4. Packing group		
II	II	II
14.5. Environmental hazards		
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available		

14.6. Special precautions for user

Overland transport

Tunnel restriction code (ADR) : D/E

Transport by sea

EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-E

Air transport
No data available

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

REACH Annex XVII (Restriction List)

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Dual-Use Regulation (428/2009)

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

Seveso Directive (Disaster Risk Reduction)

Seveso Additional information	:	Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	: FLAMMABLE LIQUIDS

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Germany

Employment restrictions	:	Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable. Take note of Dir 94/33/EC on the protection of young people at work.
Water hazard class (WGK)	:	WGK 3, Highly hazardous to water (Classification according to AwSV, Annex 1).
Storage class (LGK, TRGS 510)	:	LGK 3 - Flammable liquids.
Hazardous Incident Ordinance (12. BImSchV)	:	Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

15.2. Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Full text of H- and EUH-statements:	
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

Safety Data Sheet (SDS), EU

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.