

Material Safety Data Sheet according to EC 1907/2006

Trade name: Substrate Solution

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the preparation:

Identification on the label / trade name: Substrate Solution

Additional identification: TMB

1.2 Use of the preparation:

This preparation causes a coloured reaction whose intensity depends on the concentration of the substance which has to be determined.

1.3 Company/undertaking identification:

Bender MedSystems GmbH

Campus Vienna Biocenter 2

1030 Vienna, Austria

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fax: +43 1 796 40 40 400

E-Mail: europa@ebioscience.com

Information contact: europa@ebioscience.com

1.4 EMERGENCY TELEPHONE:

phone: +43 1 796 40 40 100 (Austria)

phone: +1 (888) 999 1371 (USA)

These phone numbers are available during office hours.

2. HAZARDS IDENTIFICATION

Hazards description:

According to the regulation there are no hazardous substances. Therefore no classification and labelling is necessary.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Preparation / mixture related informations

Description: Mixture of tetramethylbenzidin TMB, hydrogen peroxide, detergent Tween 20, citrate, EDTA, preserving agent kathon CG.

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3.2 Hazard Ingredients:

Chemical name	EG-Nr.	CAS-Nr.	Amount (%) in the preparation	Classification according Regulation (EC) No 1272/2008 [CLP] (Related to the conc. form)		Classification according 67/548/EEC (related to the conc. form)
				Hazard class/ Hazard categories	Hazard- statement	
3,3',5,5'-Tetramethylbenzidin	2593646	54827-17-7	< 0.04	3.1/4	H302,312,332	Xn; R20/21/22-36/37/38-40
EDTA	2053583	6381-92-6	< 0.1	3.2/2	H315	Xi; R36
5-Chlor-2-methyl-4-isothiazolin-3-on	N/ A	26172-55-4	< 0.0001	3.1/3; 4.1/1	H301,311,331,410	T, N; R23/24/25-34-43-50/53
2-Methyl-4-isothiazolin-3-on	N/ A	2682-20-4	< 0.00004	3.1/3; 4.1/1	H301,311,331,410	T, N; R23/24/25-34-43-50/53
Hydrogen peroxide	231-765-0	7722-84-1	< 0.005	2.13/1; 3.1/4; 3.2/1A	H271,302,314,332	O, C; R: 5-8-20/22-35

4. FIRST AID MEASURES

- 4.1 General informations:** Because of the low concentrations of the ingredients seeing a doctor is not necessary.
- 4.2 In case of skin contact:** Wash affected bodyparts with plenty amount of water.
- 4.3 In case of eye contact:** Wash the affected eye with water for 10 minutes.
- 4.4 In case of ingestion:** Immediately wash your mouth with plenty of water. Furthermore swallow water in small amounts (dilution).

5. FIRE-FIGHTING MEASURES

- 5.1 Suitable extinguishing media:** water, dry powder extinguisher, carbondioxid
- 5.2 Extinguishing media which must not be used for safety reasons:** Attention with dry powder extinguisher. It's not appropriate for in door fire because raised foam causes lack of sight.

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5.3 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:

The Substrate Solution itself is not flammable.

In case of fire usual flue gas will be produced. Because of the very low concentration of this preparation it is very unlikely that gases in a hazered amount will be produced.

Further data are not known.

5.4 Special protective equipment for fire-fighters:

In case of heavy smoke a respirator shall be used.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions:

In case of spilled mixture safety gloves have to be worn to prevent skin contact.

6.2 Environmental precautions:

Mixture must not discard in sewage system/ residual waste.

Dilute residues cautiously with water and clean it up with a paper towel.

6.3 Methods for cleaning up:

Spilled mixture can be cleaned up with a paper towel and discarded in an appropriate waste.

Afterwards clean bench with water.

7. HANDLING AND STORAGE

7.1 Handling

Advices on safe handling:

Protective measures: wear protective clothing

Precautions against fire and explosion:

Development of explosive atmosphere is not possible

7.2 Storage

Technical measures and storage conditions:

Storage in light-proof, well closed containers.

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Packaging materials:

Containers made of polyethylen are suitable.

Requirements for storage rooms and vessels:

Prevent direct sunlight and heat.

Store in well aired storage rooms.

Further information on storage conditions:

Storage temperature: -20°C - 8°C

Storage stability: stabil

Maximal storage periode: 12 months

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure limit values:

8.1.1 Components with occupational exposure limits requiring monitoring:

maximum allowable concentration

- ✓ TMB: Austria, EU, USA: no data available
- ✓ EDTA: Austria, EU, USA: no data available
- ✓ 5-Chlor-2-methyl-4-isothiazolin-3-on:
 - Austria: short term value: no data available
 - long term (8hs): 0.05 mg/m³
 - USA: short/ long term: no data available
- ✓ 2-Methyl-4-isothiazolin-3-on:
 - Austria: short term value: no data available
 - long term (8hs): 0.05 mg/m³
 - USA: short/ long term: no data available
- ✓ Hydrogen peroxide:
 - Austria: short term value: 2.8 mg/m³
 - long term (8hs): 1.4 mg/m³
 - USA: short term value: no data available
 - long term (8hs): 1.4 mg/m³

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8.2 Personal protection equipment:

<u>Respiratory protection:</u>	not necessary
<u>Hand protection:</u>	disposable protective gloves
<u>Eye protection:</u>	not necessary
<u>Body protection:</u>	lab coat, lab shoes

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance

Physical state:	liquid
Colour:	yellowish or bluish
Odour:	odourless

9.2 Important health, safety and environmental information

9.2.1 Safety relevant data

	Value	Remark
pH (20 °C):	about pH 3, acid	pH paper
Melting point: (°C):	no data	
Boiling point (°C):	no data	
Ignition temperature (°C):	no data	
Vapour pressure (°C):	no data	
Density (g/cm³):	no data	
Water solubility:	very well soluble	
Viscosity, dynamic (mPa s):	no data	
Explosion limits:	-	mixture is not explosive

10. STABILITY AND REACTIVITY

stable under mentioned storage conditions

10.1 Conditions to avoid:

Direct sunlight, high temperature

There's no dangerous reaction but the Substrate Solution will be defective.

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10.2 Materials to avoid:

Heavy metal salt

There's no dangerous reaction but the Substrate Solution will be defective.

10.3 Hazardous decomposition products:

No data available

11. TOXICOLOGICAL INFORMATION

11.2 Acute effects (toxicity tests)

Chemical name		Wirkdosis	Spezies
3,3',5,5'-Tetramethylbenzidin	Acute oral toxicity	No data	
EDTA-di-Natriumsalz	Acute oral toxicity	LD50 = 2000 mg/kg	rat
5-Chlor-2-methyl-4-isothiazolin-3-on	Acute oral toxicity	LD50 = 3350 mg/kg	rat
2-Methyl-4-isothiazolin-3-on	Acute oral toxicity	LD50 = 550 mg/kg	rat
Hydrogen peroxide	Acute oral toxicity Akute dermal toxicity	LD50 = 1232 mg/kg LD50 = 3000 mg/kg	rat rabbit

Specific symptoms in animal studies:

No data available

Irritant and corrosive effects:

No data available

Sensitisation

In case of skin contact: no data

In case of inhalation: no data

Repeated dose toxicity (sub-acute, sub-chronic, chronic)

No data available

CMR effects

(carcinogenicity, mutagenicity and toxicity for reproduction)

No CMR effects

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12. Ecological information

12.1 Ecotoxicity:

Aquatic toxicity	Effectdose	Exposure time	Species
Acute fish toxicity	LC50=0.19 mg/l	No data	Trout
Acute daphnia toxicity	EC50=0.16 mg/l	No data	Daphnia magna
Acute algae toxicity	EC50=0.018 mg/l	No data	Selenastrum capricornutum

These data are only related to the preserving agents 5-Chlor-2-methyl-4-isothiazolin-3-on and 2-Methyl-4-isothiazolin-3-on.

12.2 Mobility:

Known or predicted distribution to environmental compartments:

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Appropriate disposal / Product:

All national and local laws have to be considered. This product is only allowed to be discarded by a licensed waste management company.

13.2 Waste codes / waste designations according to EWC / AVV (Austria):

Medical waste: Waste code: 97101

In other countries different conditions might be valid. All national and local laws have to be considered.

13.3 Appropriate packaging:

Rinse container with water, dispose as the product.

14. TRANSPORT INFORMATION

Official transport designation: Substrate Solution

Because product is no dangerous good, no specific codes or labes are necessary.

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15. REGULATORY INFORMATION

15.1 EU regulations

Labelling (Regulation (EC) No 1272/2008)

Hazard components for labelling: -
Signal words: not applicable
Hazard pictograms: not applicable
Hazard statements: not applicable

16. OTHER INFORMATION

16.1 **Training instructions:** no data

16.3 **Data sources:**
BDI Helpdesk (Germany), ECHA, GESTIS (IFA)

16.4 **Further information:**
The above information has been assembled to the best of our knowledge but might not be complete.
Bender MedSystems GmbH can not be held liable for any damages resulting from handling with the product

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