

# Material Safety Data Sheet according to EC 1907/2006

Trade name: Stop Solution

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## SECTION 1: IDENTIFICATION OF THE PREPERATION AND OF THE COMPANY/ UNDERTAKING

### 1.1 Identification of the preperation:

Identification on the label/ trade name: Stop Solution

Additional identification: 1M phosphoric acid, phosphoric acid 9%, 1M H<sub>3</sub>PO<sub>4</sub>

### 1.2 Use oft he preperation:

The stop solution is used to terminate an enzyme reaction.

### 1.3 Company/ undertaking identification:

Novus Biologicals, LLC

8100 Southpark Way

Littleton, CO 80120

Phone: 1-888-506-6887

Fax: 1-303-730-1966

E-Mail: technical@novusbio.com

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification:

No classification in a hazard category according to (EC) No. 1272/2008 (CLP) or 1999/45/EC is necessary because of the low concentration of the critical parameter phosphoric acid.

*(Notes: a classification has to be done from a phosphoric acid concentration  $\geq$  10%).*

### 2.2 Labelling according to the Regulation EC No 1272/2008 (CLP)

Hazard components for labelling: n/a

Hazard pictogram: n/a

Signal word: n/a

Hazard statements: n/a

Precautionary statements: n/a

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## 2.3 Further Hazards

No further hazards known

## SECTION 3: COMPOSITION/ INFORMATION ON INGREDIENTS

### 3.1 Preperation/ mixture related informations:

Mixture of mentioned below ingredients:

### 3.2 Ingredients:

Chemical name	EC-No.	Index-No.	CAS-No.	Amount (%)	Classification according Regulation (EC) No. 1272/2008 [CLP]		Classification according 67/548/EWG
					Hazard class/ Hazard categories	Gefahrenhinweise	
Phosphoric Acid	231-633-2	015-011-00-6	7664-38-2	85	3.2/ Category 1B 2.16/ Category 1	H314 H290	C (acidly); R34
Water, dest.	231-791-2	-	7732-18-5	-	-	-	

Notes: Fulltext of H- and R- phrases: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1 General informations:

Skin- and eyecontact causes irritation.

In case of indisposition contact a doctor, show this datasheet.

### 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 a minimum of 10 minutes. In case of indisposition contact an eye-specialist.

### 4.4 In case of ingestion:

Immediately wash your mouth with plenty of water. Furthermore swallow water in small amounts (dilution).

## SECTION 5: FIRE FIGHTING MEASURES

### 5.1.1 Extinguishing media:

- Suitable extinguishing media:
  - water, dry powder extinguisher, carbondioxide

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- **extinguishing media which shall 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

## 5.2 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases

In case of fire, despite flue gas also dangerous, product specific gases might be produced (phosphorus oxide). Because of the very low concentration of this mixture it is very unlikely that above mentioned oxides will be produced in a hazared amount.  
Further data are not known.

## 5.3 Special protective equipment for fire-fighters:

In case of heavy smoke a respirator shall be used.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions:

In case of spilled mixture safety gloves have to be worn to prevent skin contact. In case of big amounts an additional inhalation protection is recommended.

### 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 paper towel and discarded in an appropriate waste. Afterwards clean bench with water.

## SECTION 7: HANDLING AND STORAGE

### 7.1 Handling

- **Advice 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 well closed containers

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- **Packaging materials:**  
Acid resistant containers (e.g.: glas, 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: 2°C to 8°C  
Storage stability: stabil  
Maximale storage periode: 2 years

## SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION

### 8.1 Exposure limit values:

Components with occupational exposure limits requiring monitoring: phosphoric acid

Maximum allowable concentration:

EU:	Short term value (15 min):	2 mg/m <sup>3</sup>
	Long term value (8 h):	1 mg/m <sup>3</sup>
USA:	Short term value (15 min):	no data available
	Long term value (8 h):	1mg/m <sup>3</sup>

### 8.2 Personal protection equipment

Respiration protection:	not necessary
Hand protection:	disposable protective gloves
Eye protection:	not necessary
Body protection:	lab coat, lab shoes

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 General information

- Apperance:
  - Physical state: liquid
  - Colour: colourless
  - Odour: odourless

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## 9.2 Safety relevant data

	Value	Remark
pH (20°C), 9% Solution	pH 2, acid	pH-paper
Melting point (°C)	about. 150°C	-
Boiling point (°C)	no data	-
Ignition temperature (°C)	no data	-
Density (20°C), 9% Solution	1,05 g/ml	-
Water solubility	Very well soluble	-
Explosion limits	-	Mixture is not explosive

## SECTION 10: STABILITY AND REACTIVITY

Stable under mentioned storage conditions

### 10.1 Conditions to avoid:

Direct sunlight, high temperature

### 10.2 Materials to avoid:

Bases (cause heat developmet), powdery metals  
(heat development and dynamics of the reaction depends on the acid concentration)

### 10.3 Hazardous decomposition products:

No data available.

Because of the low acid concentration in the mixture, no hazardous gases are expected.

## SECTION 11: TOXICOLOGICAL INFORMATION

- Acute effects (toxicity tests)

7664-38-2/ phosphoric acid	Effect dose	Species
Acute oral toxicity	LD50 = 1530 mg/kg	rat
Acute dermal toxicity	LD50 = 2730 mg/kg	rat
Acute inhalative toxicity	LC50 = 850 mg/m <sup>3</sup>	rat

Specific symptoms in animal studies: no data

- Irritant and corrosive effects:

	Exposure time	Species	Evaluation
Primary irritation to the skin	24 h	rabbit	strong irritation
Irritation to eyes	No data	rabbit	strong irritation

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- **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-Wirkung** (carcinogenicity, mutagenicity and toxicity for reproduction)  
No CMR effects

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Ecotoxicity:

No data

### 12.2 Mobility: Known or predicted distribution to environmental compartments:

In case of shifting the pH value there might be some damaging effects for aquatic organism.

The mixture must not dispose in the sewage system without pretreatment.

### 12.3 Persistence and decomposability

No data

## SECTION 13: DISPOSAL CONSIDERATION

### 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.

## SECTION 14: TRANSPORT INFORMATION

Official transport designation: Stop Solution, Research reagent

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

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## SECTION 15: REGULATORY INFORMATION

15.1. EU-regulations n/a

15.2. Chemical Safety assessment: n/a

## SECTION 16: OTHER INFORMATION

### 16.1 Relevant H-phrases/ R-phrases

*(Remark: Those phrases relate to the concentrated form)*

H314: Causes severe skin burns and eye damage

H290: May be corrosive to metals

R34: Causes burns

### 16.2 Training instructions:

No data

### 16.3 Recommended restriction on use:

no restrictions known

### 16.4 Data sources:

BDI Helpdesk (Germany), ECHA, GESTIS (IFA), VO (EG) 1907/2006,

bmwfi – Das GHS System in der Praxis, RIS Gesamte Rechtsvorschrift für Grenzwerte

Verordnung (Anhang I/ 2011 Stoffliste – MAK)

### 16.5 Further Informationen

The above information has been assembled to the best of our knowledge but might not be complete. Novus Biologicals can not be held liable for any damages resulting from handling with the product.

## 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:

Novus Biologicals, LLC

8100 Southpark Way

Littleton, CO 80120

Phone: 1-888-506-6887

Fax: 1-303-730-1966

E-Mail: [technical@novusbio.com](mailto:technical@novusbio.com)

### 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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**Trade name: Substrate Solution**

## 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:** In case of indisposition contact a doctor, show this datasheet.
- 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. In case of indisposition contact an eye-specialist.
- 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, carbondioxide
- 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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**Trade name: Substrate Solution**

**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 be discarded 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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**Trade name: Substrate Solution**

## **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 15 mins. no data available

long term (8hs): 0.05 mg/m<sup>3</sup>

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/m<sup>3</sup>

USA: short/ long term: no data available

  Hydrogen peroxide:

Austria: short term value: 2.8 mg/m<sup>3</sup>

long term (8hs): 1.4 mg/m<sup>3</sup>

USA: short term value: no data available

long term (8hs): 1.4 mg/m<sup>3</sup>

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Trade name: Substrate Solution

## 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

<b>Physical state:</b>	liquid
<b>Colour:</b>	yellowish or bluish
<b>Odour:</b>	odourless

### 9.2 Important health, safety and environmental information

#### 9.2.1 Safety relevant data

	Value	Remark
<b>pH (20 °C):</b>	about pH 3, acid	pH paper
<b>Melting point: (°C):</b>	no data	
<b>Boiling point (°C):</b>	no data	
<b>Ignition temperature (°C):</b>	no data	
<b>Vapour pressure (°C):</b>	no data	
<b>Density (g/cm<sup>3</sup>):</b>	no data	
<b>Water solubility:</b>	very well soluble	
<b>Viscosity, dynamic (mPa s):</b>	no data	
<b>Explosion limits:</b>	-	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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# Material Safety Data Sheet according to EC 1907/2006

**Trade name: Substrate Solution**

## 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

known

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# Material Safety Data Sheet according to EC 1907/2006

**Trade name: Substrate Solution**

## 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 labels are necessary.

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# Material Safety Data Sheet according to EC 1907/2006

**Trade name: Substrate Solution**

## 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.

Novus Biologicals can not be held liable for any damages resulting from handling with the product

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