

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/20/2015

Reviewed on 11/20/2015

1 Identification

- **Product identifier**
- **Trade name:** TMB, Tetramethylbenzidine
- **Article number:** 13070
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Information department:** Product safety department
- **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS07

- **Signal word** Warning
- **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
- **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves.
Wear eye protection / face protection.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Specific treatment (see on this label).

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IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Call a poison center/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

If on skin: Wash with plenty of water.

Take off contaminated clothing and wash it before reuse.

Store locked up.

Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 2

Fire = 0

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

124-04-9	adipic acid	50-100%
9003-39-8	Polyvinylpyrrolidone	10-25%
54827-17-7	3,3',5,5'-tetramethylbenzidine	2.5-10%

4 First-aid measures

· **Description of first aid measures**

· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:** If symptoms persist consult doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

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5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

124-04-9 adipic acid

TLV | Long-term value: 5 mg/m³

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:**

Form:	Tablets
Color:	Colorless
Odor:	Characteristic
Odour threshold:	Not determined.

· **pH-value:** Not applicable.· **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

· **Flash point:** Not applicable.· **Flammability (solid, gaseous):** Not determined.· **Ignition temperature:** 420 °C (788 °F)· **Decomposition temperature:** Not determined.· **Auto igniting:** Product is not selfigniting.· **Danger of explosion:** Product does not present an explosion hazard.· **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· **Vapor pressure:** Not applicable.· **Density:** Not determined.

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· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with Water:	Insoluble.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Solvent content:	
Organic solvents:	0.0 %
Solids content:	100.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

124-04-9 adipic acid

Oral	LD50	11000 mg/kg (rat)
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· Primary irritant effect:

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

9003-39-8	Polyvinylpyrrolidone	3
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· NTP (National Toxicology Program)

None of the ingredients is listed.

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· **OSHA-Ca (Occupational Safety Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user** Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

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· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS07

· **Signal word** Warning

· **Hazard statements**

Causes skin irritation.

Causes serious eye irritation.

May cause respiratory irritation.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves.

Wear eye protection / face protection.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Specific treatment (see on this label).

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Call a poison center/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

If on skin: Wash with plenty of water.

Take off contaminated clothing and wash it before reuse.

Store locked up.

Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/container in accordance with local/regional/national/international regulations.

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· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 11/20/2015 / -

· **Abbreviations and acronyms:**

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.11.2015

Revision: 20.11.2015

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

- **Product identifier**
- **Trade name:** TMB, Tetramethylbenzidine
- **Article number:** 13070
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- ProSciTech Pty Ltd
11 Carlton Street, Kirwan QLD 4817 Australia
Telephone Number: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)
Emergency Contact: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)
- Emgrid Australia Pty. Ltd.
P.O. Box 118
The Patch VIC 3792
Australia
Tel: 03 9752 1785
Fax: 03 9752 1784
Website: www.emgrid.com.au
- **Further information obtainable from:** Product safety department
- **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazards identification

- **Classification of the substance or mixture**



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**
- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).
- **Hazard pictograms**



GHS07

- **Signal word** Warning

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· Hazard statements

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

· Precautionary statements

- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Wear protective gloves.
- Wear eye protection / face protection.
- Wash thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Specific treatment (see on this label).
- IF INHALED:** Remove person to fresh air and keep comfortable for breathing.
- Call a **POISON CENTER/doctor** if you feel unwell.
- If skin irritation occurs: Get medical advice/attention.
- If eye irritation persists: Get medical advice/attention.
- IF ON SKIN:** Wash with plenty of water.
- Take off contaminated clothing and wash it before reuse.
- Store locked up.
- Store in a well-ventilated place. Keep container tightly closed.
- Dispose of contents/container in accordance with local/regional/national/international regulations.

· Other hazards**· Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterisation: Mixtures**
- **Description:** Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

124-04-9	adipic acid	50-100%
9003-39-8	Polyvinylpyrrolidone	10-25%
54827-17-7	3,3',5,5'-tetramethylbenzidine	2.5-10%

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

- **Description of first aid measures**
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

AU

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Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.11.2015

Revision: 20.11.2015

Trade name: TMB, Tetramethylbenzidine

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5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about fire - and explosion protection:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep container tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

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Trade name: TMB, Tetramethylbenzidine

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· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:**

· Form:	Tablets
· Colour:	Colourless
· Odour:	Characteristic
· Odour threshold:	Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

· Melting point/Melting range:	Undetermined.
· Boiling point/Boiling range:	Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **Ignition temperature:** 420 °C

· **Decomposition temperature:** Not determined.

· **Self-igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

· Lower:	Not determined.
· Upper:	Not determined.

· **Vapour pressure:** Not applicable.

· **Density:** Not determined.

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Trade name: TMB, Tetramethylbenzidine

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· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with water:	Insoluble.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Solvent content:	
Organic solvents:	0.0 %
VOC (EC)	0.00 %
· Solids content:	100.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity**

· **LD/LC50 values relevant for classification:**

124-04-9 adipic acid

Oral	LD50	11000 mg/kg (rat)
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- **Primary irritant effect:**
- **Skin corrosion/irritation** Irritant to skin and mucous membranes.
- **Serious eye damage/irritation** Irritating effect.
- **Respiratory or skin sensitisation** No sensitising effects known.
- **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.

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Trade name: TMB, Tetramethylbenzidine

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- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|--|-----------------|
| · Environmental hazards: | |
| · Marine pollutant: | No |
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Australian Inventory of Chemical Substances**
All ingredients are listed.
- **Standard for the Uniform Scheduling of Medicines and Poisons**
None of the ingredients is listed.
- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).
- **Hazard pictograms**



GHS07

- **Signal word** Warning
- **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.

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May cause respiratory irritation.

· Precautionary statements

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wear protective gloves.

Wear eye protection / face protection.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Specific treatment (see on this label).

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of water.

Take off contaminated clothing and wash it before reuse.

Store locked up.

Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· Directive 2012/18/EU

· Named dangerous substances - ANNEX I None of the ingredients is listed.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Abbreviations and acronyms:

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

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Printing date 11/20/2015

Reviewed on 11/20/2015

1 Identification

- **Product identifier**
- **Trade name:** TMB, Tetramethylbenzidine
- **Article number:** 13070
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Information department:** Product safety department
- **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2A H319 Causes serious eye irritation.
 STOT SE 3 H335 May cause respiratory irritation.

.....
 Aquatic Acute 3 H402 Harmful to aquatic life.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Not applicable.



Irritant

Irritating to eyes, respiratory system and skin.

- **Information concerning particular hazards for human and environment:**
The product has to be labeled due to the calculation procedure of international guidelines.
- **Classification system:**
The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

- **Label elements**

- **Labelling according to EU guidelines:**
The product has been classified and marked in accordance with directives on hazardous materials.
- **Code letter and hazard designation of product:**



Irritant

(Contd. on page 2)

CA

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/20/2015

Reviewed on 11/20/2015

Trade name: TMB, Tetramethylbenzidine

(Contd. of page 1)

Hazard-determining components of labeling:

3,3',5,5'-tetramethylbenzidine

Risk phrases:

Irritating to eyes, respiratory system and skin.

Safety phrases:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Wear suitable gloves.

This material and its container must be disposed of as hazardous waste.

Hazard description:
WHMIS-symbols:

D1A - Very toxic material causing immediate and serious toxic effects

D2B - Toxic material causing other toxic effects


Classification system:
NFPA ratings (scale 0 - 4)


Health = 2

Fire = 0

Reactivity = 0

HMIS-ratings (scale 0 - 4)


Health = 2

Fire = 0

Reactivity = 0

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures
Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

124-04-9	adipic acid	40-70%
9003-39-8	Polyvinylpyrrolidone	10-30%
54827-17-7	3,3',5,5'-tetramethylbenzidine	5-10%

4 First-aid measures

Description of first aid measures
After inhalation: In case of unconsciousness place patient stably in side position for transportation.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

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Trade name: TMB, Tetramethylbenzidine

(Contd. of page 2)

- **After swallowing:** *If symptoms persist consult doctor.*
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** *No further relevant information available.*
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** *No further relevant information available.*
- **Advice for firefighters**
- **Protective equipment:** *No special measures required.*

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** *Not required.*
- **Environmental precautions:** *Do not allow to enter sewers/ surface or ground water.*
- **Methods and material for containment and cleaning up:** *Ensure adequate ventilation.*
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** *No special precautions are necessary if used correctly.*
- **Information about protection against explosions and fires:** *No special measures required.*
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** *No special requirements.*
- **Information about storage in one common storage facility:** *Not required.*
- **Further information about storage conditions:** *Keep receptacle tightly sealed.*
- **Specific end use(s)** *No further relevant information available.*

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** *No further data; see item 7.*
- **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

124-04-9 adipic acid

EL Long-term value: 5 mg/m³

EV Long-term value: 5 mg/m³

- **Additional information:** *The lists that were valid during the creation were used as basis.*

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Safety Data Sheet

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Trade name: TMB, Tetramethylbenzidine

(Contd. of page 3)

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing.
 Wash hands before breaks and at the end of work.
 Avoid contact with the eyes and skin.
- **Breathing equipment:**
 In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
 Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**
 The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
 The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Tablets
Color:	Colorless
Odor:	Characteristic
Odour threshold:	Not determined.

· **pH-value:** Not applicable.

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **Ignition temperature:** 420 °C

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Trade name: TMB, Tetramethylbenzidine

(Contd. of page 4)

· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure:	Not applicable.
· Density:	Not determined.
· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with Water:	Insoluble.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Solvent content:	
Organic solvents:	0.0 %
Solids content:	100.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

124-04-9 adipic acid

Oral LD50 11000 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

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Safety Data Sheet

acc. to OSHA HCS

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Reviewed on 11/20/2015

Trade name: TMB, Tetramethylbenzidine

(Contd. of page 5)

Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

9003-39-8	Polyvinylpyrrolidone	3
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· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety Health Administration)**

None of the ingredients is listed.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability:** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential:** No further relevant information available.

· **Mobility in soil:** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects:** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **Environmental hazards:**

· **Marine pollutant:** No

· **Special precautions for user:** Not applicable.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.

CA

(Contd. on page 7)

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Trade name: TMB, Tetramethylbenzidine

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

124-04-9 adipic acid

· **Product related hazard informations:**

The product has been classified and marked in accordance with directives on hazardous materials.

· **Hazard symbols:**



Irritant

· **Hazard-determining components of labeling:**

3,3',5,5'-tetramethylbenzidine

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CA

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acc. to OSHA HCS

Printing date 11/20/2015

Reviewed on 11/20/2015

Trade name: TMB, Tetramethylbenzidine

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· Risk phrases:*Irritating to eyes, respiratory system and skin.***· Safety phrases:***In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.**Wear suitable gloves.**This material and its container must be disposed of as hazardous waste.***· Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Date of preparation / last revision 11/20/2015 / -**· Abbreviations and acronyms:***ACGIH: American Conference of Governmental Industrial Hygienists**EINECS: European Inventory of Existing Commercial Chemical Substances**ELINCS: European List of Notified Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**NFPA: National Fire Protection Association (USA)**HMIS: Hazardous Materials Identification System (USA)**WHMIS: Workplace Hazardous Materials Information System (Canada)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2**Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A**STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3**Aquatic Acute 3: Hazardous to the aquatic environment - AcuteHazard, Category 3*

CA

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.11.2015

Revision: 20.11.2015

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

- **1.1 Product identifier**
- **Trade name:** TMB, Tetramethylbenzidine
- **Article number:** 13070
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Further information obtainable from:** Product safety department
- **1.4 Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS07

- Skin Irrit. 2 H315 Causes skin irritation.
- Eye Irrit. 2 H319 Causes serious eye irritation.
- STOT SE 3 H335 May cause respiratory irritation.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS07

- **Signal word** Warning
- **Hazard statements**
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
- **Precautionary statements**
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment (see on this label).

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Safety data sheet

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Trade name: TMB, Tetramethylbenzidine

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P405 Store locked up.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- 2.3 Other hazards
- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

- 3.2 Chemical characterisation: Mixtures
- Description: Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

CAS: 124-04-9 EINECS: 204-673-3	adipic acid ⚠ Eye Irrit. 2, H319	50-100%
CAS: 9003-39-8	Polyvinylpyrrolidone ⚠ Eye Irrit. 2, H319	10-25%
CAS: 54827-17-7 EINECS: 259-364-6	3,3',5,5'-tetramethylbenzidine ⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 2, H330	2.5-10%

- Additional information: For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

- 4.1 Description of first aid measures
- After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact:
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: If symptoms persist consult doctor.
- 4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.
- 4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures

- 5.1 Extinguishing media
- Suitable extinguishing agents:
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- 5.2 Special hazards arising from the substance or mixture No further relevant information available.
- 5.3 Advice for firefighters
- Protective equipment: No special measures required.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures Not required.
- 6.2 Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- 6.3 Methods and material for containment and cleaning up: Ensure adequate ventilation.
- 6.4 Reference to other sections
See Section 7 for information on safe handling.

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(Contd. of page 2)

See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep container tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **Protection of hands:**



Protective gloves

- The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
 - **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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Safety data sheet
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Trade name: TMB, Tetramethylbenzidine

(Contd. of page 3)

· Eye protection:



Tightly sealed goggles

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Tablets
Colour:	Colourless
Odour:	Characteristic
Odour threshold:	Not determined.

· pH-value: Not applicable.

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not determined.

· Ignition temperature: 420 °C

· Decomposition temperature: Not determined.

· Self-igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

· Vapour pressure: Not applicable.

· Density: Not determined.

· Relative density: Not determined.

· Vapour density: Not applicable.

· Evaporation rate: Not applicable.

· Solubility in / Miscibility with water:

Insoluble.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic:	Not applicable.
Kinematic:	Not applicable.

· Solvent content:

Organic solvents:	0.0 %
VOC (EC)	0.00 %

Solids content: 100.0 %

(Contd. on page 5)

GB

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.11.2015

Revision: 20.11.2015

Trade name: TMB, Tetramethylbenzidine

(Contd. of page 4)

· **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**

· **LD/LC50 values relevant for classification:**

124-04-9 adipic acid

Oral	LD50	11000 mg/kg (rat)
------	------	-------------------

- **Primary irritant effect:**
- **Skin corrosion/irritation** Irritant to skin and mucous membranes.
- **Serious eye damage/irritation** Irritating effect.
- **Respiratory or skin sensitisation** No sensitising effects known.

· **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Irritant

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

GB

(Contd. on page 6)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.11.2015

Revision: 20.11.2015

Trade name: TMB, Tetramethylbenzidine

(Contd. of page 5)

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- | | |
|---|-----------------|
| · 14.5 Environmental hazards: | |
| · Marine pollutant: | No |
| · 14.6 Special precautions for user | Not applicable. |
| · 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**
H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
- **Abbreviations and acronyms:**
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Acute Tox. 3: Acute toxicity, Hazard Category 3
Acute Tox. 2: Acute toxicity, Hazard Category 2
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 20.11.2015

Herziening van: 20.11.2015

RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

· 1.1 Productidentificatie

· **Handelsnaam:** TMB, Tetramethylbenzidine

· **Artikelnummer:** 13070

· 1.2 Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik

Geen verdere relevante informatie verkrijgbaar.

· **Toepassing van de stof / van de bereiding** Laboratoriumchemicaliën

· 1.3 Details betreffende de verstrekker van het veiligheidsinformatieblad

· **Fabrikant/leverancier:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: sgkcck@aol.com

www.emsdiasum.com

Aurion

Binnenhaven 5

6709 PD Wageningen

The Netherlands

Tel: 31 317 415094

Fax: 31 317 415955

email: info@aurion.nl

· **Inlichtingengevende sector:** Product safety department

· 1.4 Telefoonnummer voor noodgevallen:

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

RUBRIEK 2: Identificatie van de gevaren

· 2.1 Indeling van de stof of het mengsel

· **Indeling overeenkomstig Verordening (EG) nr. 1272/2008**



GHS07

Skin Irrit. 2 H315 Veroorzaakt huidirritatie.

Eye Irrit. 2 H319 Veroorzaakt ernstige oogirritatie.

STOT SE 3 H335 Kan irritatie van de luchtwegen veroorzaken.

· 2.2 Etiketteringselementen

· **Etikettering overeenkomstig Verordening (EG) nr. 1272/2008**

Het product is geïdentificeerd en geëtiketteerd volgens de CLP-verordening.

· **Gevarenpictogrammen**



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· **Signaalwoord** Waarschuwing

· **Gevarenaanduidingen**

H315 Veroorzaakt huidirritatie.

H319 Veroorzaakt ernstige oogirritatie.

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H335 Kan irritatie van de luchtwegen veroorzaken.

· Veiligheidsaanbevelingen

P261 Inademing van stof/rook/gas/nevel/damp/spuitnevel vermijden.

P280 Beschermende handschoenen/beschermende kleding/oogbescherming/gelaatsbescherming dragen.

P305+P351+P338 BIJ CONTACT MET DE OGEN: voorzichtig afspoelen met water gedurende een aantal minuten; contactlenzen verwijderen, indien mogelijk; blijven spoelen.

P321 Specifieke behandeling vereist (zie op dit etiket).

P405 Achter slot bewaren.

P501 De inhoud en de verpakking verwerken volgens de plaatselijke/regionale/nationale/internationale voorschriften.

· 2.3 Andere gevaren**· Resultaten van PBT- en zPzB-beoordeling**· **PBT:** Niet bruikbaar.· **zPzB:** Niet bruikbaar.

RUBRIEK 3: Samenstelling en informatie over de bestanddelen

· 3.2 Chemische karakterisering: Mengsels· **Beschrijving:** Mengsel van na elkaar aangevoerde stoffen met ongevaarlijke bijmengingen.**· Gevaarlijke inhoudstoffen:**

CAS: 124-04-9	adipinezuur	50-100%
EINECS: 204-673-3	⚠ Eye Irrit. 2, H319	
CAS: 9003-39-8	Polyvinylpyrrolidone	10-25%
	⚠ Eye Irrit. 2, H319	
CAS: 54827-17-7	3,3',5,5'-tetramethylbenzidine	2,5-10%
EINECS: 259-364-6	⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 2, H330	

· Aanvullende gegevens:

De woordelijke inhoud van de opgegeven aanwijzingen inzake de mogelijke gevaren is te vinden in hoofdstuk 16.

RUBRIEK 4: Eerstehulpmaatregelen

· 4.1 Beschrijving van de eerstehulpmaatregelen· **Na het inademen:** Bij bewusteloosheid ligging en vervoer in stabiele zijligging.· **Na huidcontact:** Onmiddellijk met water en zeep afwassen en goed naspoelen.**· Na oogcontact:**

De ogen gedurende verscheidene minuten onder stromend water afspoelen terwijl de oogspleet geopend blijft. Bij aanhoudende klachten een dokter raadplegen.

· **Na inslikken:** Als de klachten niet minderen, een arts raadplegen· **4.2 Belangrijkste acute en uitgestelde symptomen en effecten** Geen verdere relevante informatie verkrijgbaar.**· 4.3 Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling**

Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 5: Brandbestrijdingsmaatregelen

· 5.1 Blusmiddelen**· Geschikte blusmiddelen:**CO₂, bluspoeder of waterstraal. Grotere brand met waterstraal bestrijden of met schuim, dat tegen alcohol bestand is.

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- **5.2 Speciale gevaren die door de stof of het mengsel worden veroorzaakt**
Geen verdere relevante informatie verkrijgbaar.
- **5.3 Advies voor brandweertieners**
- **Speciale beschermende kleding:** Geen bijzondere maatregelen nodig.

RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

- **6.1 Persoonlijke voorzorgsmaatregelen, beschermde uitrusting en noodprocedures** Niet nodig.
- **6.2 Milieuvoorzorgsmaatregelen:** Niet in de riolering/het oppervlaktewater/het grondwater laten terechtkomen.
- **6.3 Insluitings- en reinigingsmethoden en -materiaal:** Voor voldoende ventilatie zorgen.
- **6.4 Verwijzing naar andere rubrieken**
Informatie inzake veilig gebruik - zie hoofdstuk 7.
Informatie inzake persoonlijke beschermingsuitrusting - zie hoofdstuk 8.
Informatie inzake berging - zie hoofdstuk 13.

RUBRIEK 7: Hantering en opslag

- **7.1 Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel**
Bij een deskundig gebruik zijn geen bijzondere maatregelen vereist.
- **Informatie m.b.t. brand- en ontploffingsgevaar:** Geen bijzondere maatregelen noodzakelijk.
- **7.2 Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten**
- **Opslag:**
- **Eisen ten opzichte van opslagruimte en tanks:** Geen bijzondere eisen.
- **Informatie m.b.t. gezamenlijke opslag:** Niet noodzakelijk.
- **Verdere inlichtingen over eisen m.b.t. de opslag:** Tanks ondoordringbaar gesloten houden.
- **7.3 Specifiek eindgebruik** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

- **Aanvullende gegevens m.b.t. de inrichting van technische installaties:** Geen aanvullende gegevens. Zie 7.
- **8.1 Controleparameters**
- **Bestanddelen met grenswaarden die m.b.t. de werkruimte in acht genomen moeten worden:**
Het produkt bevat geen relevante hoeveelheden van stoffen, die met betrekking tot de werkplaatsen, qua grenswaarden gecontroleerd moeten worden.
- **Aanvullende gegevens:** Als basis dienden lijsten die bij opstelling geldig waren.
- **8.2 Maatregelen ter beheersing van blootstelling**
- **Persoonlijke beschermingsvoorzieningen:**
- **Algemene beschermings- en gezondheidsmaatregelen:**
Verwijderd houden van eet- en drinkwaren.
Verontreinigde kleding onmiddellijk uittrekken.
Vóór de pauze en aan het einde van werktijd handen wassen.
Aanraking met de ogen en de huid vermijden.
- **Ademhalingsbescherming:**
Bij korte of geringe belasting ademfiltertoestel; bij intensieve resp. langdurige expositie een van de omringende lucht onafhankelijk ademhalingstoestel gebruiken.

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· Handbescherming:



Veiligheidshandschoenen

Het handschoenmateriaal moet ondoorlatend en bestand zijn tegen het product / de stof / de bereiding.
Op grond van falende testen kan geen aanbeveling voor handschoenmateriaal voor het product / de bereiding / het chemicaliënmengsel afgegeven worden.

Kies handschoenmateriaal rekening houdend met de penetratietijden, de permeatiegraden en de degradatie.

· Handschoenmateriaal

De keuze van een geschikte handschoen is niet alleen afhankelijk van het materiaal, maar ook van andere kwaliteitskenmerken en verschilt van fabrikant tot fabrikant. Aangezien het product uit meerdere stoffen is samengesteld, is de duurzaamheid van de handschoenmaterialen niet vooraf berekenbaar en moet derhalve vóór het gebruik worden getest.

· Doordringingstijd van het handschoenmateriaal

De precieze penetratietijd kunt u te weten komen bij de handschoenfabrikant; houd er rekening mee.

· Oogbescherming:



Nauw aansluitende veiligheidsbril

RUBRIEK 9: Fysische en chemische eigenschappen

· 9.1 Informatie over fysische en chemische basiseigenschappen

· Algemene gegevens

· Voorkomen:

Vorm:	Tabletten
Kleur:	Kleurloos
Reuk:	Karakteristiek
Geurdrempelwaarde:	Niet bepaald.

· pH-waarde: Niet bruikbaar.

· Toestandsverandering

Smeltpunt/smeltbereik:	Niet bepaald.
Kookpunt/kookpuntbereik:	Niet bepaald.

· Vlampunt: Niet bruikbaar.

· Ontvlambaarheid (vast, gasvormig): Niet bepaald.

· Ontstekingstemperatuur: 420 °C

· Ontbindingstemperatuur: Niet bepaald.

· Zelfonsteking: Het produkt ontbrandt niet uit zichzelf.

· Ontploffingsgevaar: Het produkt is niet ontploffingsgevaarlijk.

· Ontploffingsgrenzen:

Onderste:	Niet bepaald.
Bovenste:	Niet bepaald.

· Dampspanning: Niet bruikbaar.

Dichtheid: Niet bepaald.

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· Relatieve dichtheid	Niet bepaald.
· Dampdichtheid	Niet bruikbaar.
· Verdampingssnelheid	Niet bruikbaar.
· Oplosbaarheid in/mengbaarheid met Water:	Niet oplosbaar.
· Verdelingscoëfficiënt (n-octanol/water):	Niet bepaald.
· Viscositeit	
Dynamisch:	Niet bruikbaar.
Kinematisch:	Niet bruikbaar.
· Oplosmiddelgehalte:	
Organisch oplosmiddel:	0,0 %
VOC (EG)	0,00 %
Gehalte aan vaste bestanddelen:	100,0 %
· 9.2 Overige informatie	Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 10: Stabiliteit en reactiviteit

- **10.1 Reactiviteit**
- **10.2 Chemische stabiliteit**
- **Thermische afbraak / te vermijden omstandigheden:** Geen afbraak bij gebruik volgens voorschrift.
- **10.3 Mogelijke gevaarlijke reacties** Geen gevaarlijke reacties bekend.
- **10.4 Te vermijden omstandigheden** Geen verdere relevante informatie verkrijgbaar.
- **10.5 Chemisch op elkaar inwerkende materialen:** Geen verdere relevante informatie verkrijgbaar.
- **10.6 Gevaarlijke ontledingsproducten:** Geen gevaarlijke ontbindingsproducten bekend.

RUBRIEK 11: Toxicologische informatie

- **11.1 Informatie over toxicologische effecten**
- **Acute toxiciteit**

· Indelingsrelevantie LD/LC50-waarden:

124-04-9 adipinezuur

Oraal | LD50 | 11000 mg/kg (rat)

- **Primaire aandoening:**
- **Huidcorrosie/-irritatie** Prikkelde de huid en de slijmvliezen.
- **Ernstig oogletsel/oogirritatie** Prikkeling
- **Sensibilisatie van de luchtwegen/de huid** Geen effect van overgevoeligheid bekend.
- **Aanvullende toxicologische informatie:**

Het produkt vertoont op grond van het berekeningsprocédé van de algemene classificatie-richtlijnen van de EG voor toebereidingen in de laatste geldige redactie de volgende gevaren:
Irriterend

RUBRIEK 12: Ecologische informatie

- **12.1 Toxiciteit**
- **Aquatische toxiciteit:** Geen verdere relevante informatie verkrijgbaar.
- **12.2 Persistentie en afbreekbaarheid** Geen verdere relevante informatie verkrijgbaar.
- **12.3 Bioaccumulatie** Geen verdere relevante informatie verkrijgbaar.

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- **12.4 Mobiliteit in de bodem** Geen verdere relevante informatie verkrijgbaar.
- **Verdere ecologische informatie:**
- **Algemene informatie:**
Waterbezwaarlijkheid (NL) 10: Kan in het aquatisch milieu op lange termijn schadelijke effecten veroorzaken.
Gevaar voor water klasse 2 (D) (Zelfclassificatie): gevaar voor water
Niet lozen in grondwater, in oppervlaktewater of in riolering.
Gevaar voor drinkwater zelfs bij uitlopen van geringe hoeveelheden in de ondergrond.
- **12.5 Resultaten van PBT- en zPzB-beoordeling**
- **PBT:** Niet bruikbaar.
- **zPzB:** Niet bruikbaar.
- **12.6 Andere schadelijke effecten** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 13: Instructies voor verwijdering

- **13.1 Afvalverwerkingsmethoden**
- **Aanbeveling:** Mag niet tesamen met huisvuil gestort worden of in de riolering terechtkomen.
- **Niet gereinigde verpakkingen:**
- **Aanbeveling:** Afvalverwijdering volgens overheidsbepalingen.

RUBRIEK 14: Informatie met betrekking tot het vervoer

- **14.5 Milieugevaren:**
- **Marine pollutant:** *Neen*
- **14.6 Bijzondere voorzorgen voor de gebruiker** *Niet bruikbaar.*
- **14.7 Vervoer in bulk overeenkomstig bijlage II bij MARPOL 73/78 en de IBC-code** *Niet bruikbaar.*

RUBRIEK 15: Regelgeving

- **15.1 Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel**

- **SZW-lijst van kankerverwekkende stoffen**

geen der bestanddelen staat op de lijst.

- **SZW-lijst van mutagene stoffen**

geen der bestanddelen staat op de lijst.

- **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Vruchtbaarheid**

geen der bestanddelen staat op de lijst.

- **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Ontwikkeling**

geen der bestanddelen staat op de lijst.

- **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Borstvoeding**

geen der bestanddelen staat op de lijst.

- **Richtlijn 2012/18/EU**

- **Gevaarlijke stoffen die met naam genoemd worden - BIJLAGE I** geen der bestanddelen staat op de lijst.

- **Nationale voorschriften:**

- **Gevaarklasse v. water:** Waterbezwaarlijkheid (NL) 10: Saneringsinspanning A

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· **15.2 Chemischeveiligheidsbeoordeling:** Een chemische veiligheidsbeoordeling is niet uitgevoerd.**RUBRIEK 16: Overige informatie**

Deze gegevens zijn gebaseerd op de huidige stand van onze kennis. Zij beschrijven echter geen garantie van produkteigenschappen en vestigen geen contractuele rechtsbetrekking.

· **Relevante zinnen***H301 Giftig bij inslikken.**H311 Giftig bij contact met de huid.**H319 Veroorzaakt ernstige oogirritatie.**H330 Dodelijk bij inademing.*· **Afkortingen en acroniemen:***GHS: Globally Harmonised System of Classification and Labelling of Chemicals**EINECS: European Inventory of Existing Commercial Chemical Substances**ELINCS: European List of Notified Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**VOC: Volatile Organic Compounds (USA, EU)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**Acute Tox. 3: Acute toxicity, Hazard Category 3**Acute Tox. 2: Acute toxicity, Hazard Category 2**Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2**Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2**STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3*

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SECTION 1: Identification de la substance/du mélange et de la société/l'entreprise

- **1.1 Identificateur de produit**
- **Nom du produit:** TMB, Tetramethylbenzidine
- **Code du produit:** 13070
- **1.2 Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées**
Pas d'autres informations importantes disponibles.
- **Emploi de la substance / de la préparation** Produits chimiques pour laboratoires
- **1.3 Renseignements concernant le fournisseur de la fiche de données de sécurité**
- **Producteur/fournisseur:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Service chargé des renseignements:** Product safety department
- **1.4 Numéro d'appel d'urgence:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SECTION 2: Identification des dangers

- **2.1 Classification de la substance ou du mélange**
- **Classification selon le règlement (CE) n° 1272/2008**



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- Skin Irrit. 2 H315 Provoque une irritation cutanée.
- Eye Irrit. 2 H319 Provoque une sévère irritation des yeux.
- STOT SE 3 H335 Peut irriter les voies respiratoires.

- **2.2 Éléments d'étiquetage**
- **Étiquetage selon le règlement (CE) n° 1272/2008** Le produit est classifié et étiqueté selon le règlement CLP.
- **Pictogrammes de danger**



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- **Mention d'avertissement** Attention
- **Mentions de danger**
H315 Provoque une irritation cutanée.
H319 Provoque une sévère irritation des yeux.
H335 Peut irriter les voies respiratoires.
- **Conseils de prudence**
P261 Éviter de respirer les poussières/fumées/gaz/brouillards/vapeurs/aérosols.
P280 Porter des gants de protection/des vêtements de protection/un équipement de protection des yeux/du visage.
P305+P351+P338 **EN CAS DE CONTACT AVEC LES YEUX:** rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.
P321 Traitement spécifique (voir sur cette étiquette).

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P405 Garder sous clef.
P501 Éliminer le contenu/réceptacle conformément à la réglementation locale/régionale/nationale/internationale.

- **2.3 Autres dangers**
- **Résultats des évaluations PBT et vPvB**
- **PBT:** Non applicable.
- **vPvB:** Non applicable.

SECTION 3: Composition/informations sur les composants

- **3.2 Caractérisation chimique: Mélanges**
- **Description:** Mélange des substances mentionnées à la suite avec des additifs non dangereux.

· **Composants dangereux:**

CAS: 124-04-9 EINECS: 204-673-3	acide adipique ⚠ Eye Irrit. 2, H319	50-100%
CAS: 9003-39-8	Polyvinylpyrrolidone ⚠ Eye Irrit. 2, H319	10-25%
CAS: 54827-17-7 EINECS: 259-364-6	3,3',5,5'-tétraméthylbenzidine ⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 2, H330	2,5-10%

- **Indications complémentaires:** Pour le libellé des phrases de risque citées, se référer au chapitre 16.

SECTION 4: Premiers secours

- **4.1 Description des premiers secours**
- **Après inhalation:** En cas d'inconscience, coucher et transporter la personne en position latérale stable.
- **Après contact avec la peau:** Laver immédiatement à l'eau et au savon et bien rincer.
- **Après contact avec les yeux:**
Rincer les yeux, pendant plusieurs minutes, sous l'eau courante en écartant bien les paupières. Si les troubles persistent, consulter un médecin.
- **Après ingestion:** Si les troubles persistent, consulter un médecin.
- **4.2 Principaux symptômes et effets, aigus et différés** Pas d'autres informations importantes disponibles.
- **4.3 Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires**
Pas d'autres informations importantes disponibles.

SECTION 5: Mesures de lutte contre l'incendie

- **5.1 Moyens d'extinction**
- **Moyens d'extinction:**
CO₂, poudre d'extinction ou eau pulvérisée. Combattre les foyers importants avec de l'eau pulvérisée ou de la mousse résistant à l'alcool.
- **5.2 Dangers particuliers résultant de la substance ou du mélange**
Pas d'autres informations importantes disponibles.
- **5.3 Conseils aux pompiers**
- **Équipement spécial de sécurité:** Aucune mesure particulière n'est requise.

SECTION 6: Mesures à prendre en cas de dispersion accidentelle

- **6.1 Précautions individuelles, équipement de protection et procédures d'urgence** Pas nécessaire.

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- **6.2 Précautions pour la protection de l'environnement:**
Ne pas rejeter dans les canalisations, dans les eaux de surface et dans les nappes d'eau souterraines.
- **6.3 Méthodes et matériel de confinement et de nettoyage:** Assurer une aération suffisante.
- **6.4 Référence à d'autres sections**
Afin d'obtenir des informations pour une manipulation sûre, consulter le chapitre 7.
Afin d'obtenir des informations sur les équipements de protection personnels, consulter le chapitre 8.
Afin d'obtenir des informations sur l'élimination, consulter le chapitre 13.

SECTION 7: Manipulation et stockage

- **7.1 Précautions à prendre pour une manipulation sans danger**
Aucune mesure particulière n'est nécessaire en cas de bonne utilisation.
- **Préventions des incendies et des explosions:** Aucune mesure particulière n'est requise.
- **7.2 Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités**
· **Stockage:**
· **Exigences concernant les lieux et conteneurs de stockage:** Aucune exigence particulière.
· **Indications concernant le stockage commun:** Pas nécessaire.
· **Autres indications sur les conditions de stockage:** Tenir les emballages hermétiquement fermés.
- **7.3 Utilisation(s) finale(s) particulière(s)** Pas d'autres informations importantes disponibles.

SECTION 8: Contrôles de l'exposition/protection individuelle

- **Indications complémentaires pour l'agencement des installations techniques:**
Sans autre indication, voir point 7.
- **8.1 Paramètres de contrôle**
- **Composants présentant des valeurs-seuil à surveiller par poste de travail:**
Le produit ne contient pas en quantité significative des substances présentant des valeurs-seuil à surveiller par poste de travail.
- **Remarques supplémentaires:**
Le présent document s'appuie sur les listes en vigueur au moment de son élaboration.
- **8.2 Contrôles de l'exposition**
- **Équipement de protection individuel:**
- **Mesures générales de protection et d'hygiène:**
Tenir à l'écart des produits alimentaires, des boissons et de la nourriture pour animaux.
Retirer immédiatement les vêtements souillés ou humectés.
Se laver les mains avant les pauses et en fin de travail.
Éviter tout contact avec les yeux et avec la peau.
- **Protection respiratoire:**
En cas d'exposition faible ou de courte durée, utiliser un filtre respiratoire; en cas d'exposition intense ou durable, utiliser un appareil de respiration indépendant de l'air ambiant.
- **Protection des mains:**



Gants de protection

Le matériau des gants doit être imperméable et résistant au produit / à la substance / à la préparation.
À cause du manque de tests, aucune recommandation pour un matériau de gants pour le produit / la préparation / le mélange de produits chimiques ne peut être donnée.
Choix du matériau des gants en fonction des temps de pénétration, du taux de perméabilité et de la dégradation.

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· **Matériau des gants**

Le choix de gants appropriés dépend non seulement du matériau, mais aussi d'autres critères de qualité qui peuvent varier d'un fabricant à l'autre. Puisque le produit représente une préparation composée de plusieurs substances, la résistance des matériaux des gants ne peut pas être calculée à l'avance et doit, alors, être contrôlée avant l'utilisation.

· **Temps de pénétration du matériau des gants**

Le temps de pénétration exact est à déterminer par le fabricant des gants de protection et à respecter.

· **Protection des yeux:**



Lunettes de protection hermétiques

SECTION 9: Propriétés physiques et chimiques

· **9.1 Informations sur les propriétés physiques et chimiques essentielles**

· **Indications générales**

· **Aspect:**

Forme:	Tablettes
Couleur:	Incolore
Odeur:	Caractéristique
Seuil olfactif:	Non déterminé.

· **valeur du pH:** Non applicable.

· **Changement d'état**

Point de fusion:	Non déterminé.
Point d'ébullition:	Non déterminé.

· **Point d'éclair** Non applicable.

· **Inflammabilité (solide, gazeux):** Non déterminé.

· **Température d'inflammation:** 420 °C

· **Température de décomposition:** Non déterminé.

· **Auto-inflammation:** Le produit ne s'enflamme pas spontanément.

· **Danger d'explosion:** Le produit n'est pas explosif.

· **Limites d'explosion:**

Inférieure:	Non déterminé.
Supérieure:	Non déterminé.

· **Pression de vapeur:** Non applicable.

· **Densité:** Non déterminée.

· **Densité relative** Non déterminé.

· **Densité de vapeur.** Non applicable.

· **Vitesse d'évaporation** Non applicable.

· **Solubilité dans/miscibilité avec**

l'eau: Insoluble

· **Coefficient de partage (n-octanol/eau):** Non déterminé.

· **Viscosité:**

Dynamique: Non applicable.

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Cinématique:	Non applicable.
Teneur en solvants:	
Solvants organiques:	0,0 %
VOC (CE)	0,00 %
Teneur en substances solides:	100,0 %
9.2 Autres informations	Pas d'autres informations importantes disponibles.

SECTION 10: Stabilité et réactivité

- **10.1 Réactivité**
- **10.2 Stabilité chimique**
- **Décomposition thermique/conditions à éviter:** Pas de décomposition en cas d'usage conforme.
- **10.3 Possibilité de réactions dangereuses** Aucune réaction dangereuse connue.
- **10.4 Conditions à éviter** Pas d'autres informations importantes disponibles.
- **10.5 Matières incompatibles:** Pas d'autres informations importantes disponibles.
- **10.6 Produits de décomposition dangereux:** Pas de produits de décomposition dangereux connus

SECTION 11: Informations toxicologiques

- **11.1 Informations sur les effets toxicologiques**
- **Toxicité aiguë**

- **Valeurs LD/LC50 déterminantes pour la classification:**

124-04-9 acide adipique

Oral	LD50	11000 mg/kg (rat)
------	------	-------------------

- **Effet primaire d'irritation:**
- **Corrosion cutanée/irritation cutanée** Irrite la peau et les muqueuses.
- **Lésions oculaires graves/irritation oculaire** Effet d'irritation.
- **Sensibilisation respiratoire ou cutanée** Aucun effet de sensibilisation connu.
- **Indications toxicologiques complémentaires:**
Selon le procédé de calcul de la dernière version en vigueur de la directive générale CEE sur la classification des préparations, le produit présente les dangers suivants:
Irritant

SECTION 12: Informations écologiques

- **12.1 Toxicité**
- **Toxicité aquatique:** Pas d'autres informations importantes disponibles.
- **12.2 Persistance et dégradabilité** Pas d'autres informations importantes disponibles.
- **12.3 Potentiel de bioaccumulation** Pas d'autres informations importantes disponibles.
- **12.4 Mobilité dans le sol** Pas d'autres informations importantes disponibles.
- **Autres indications écologiques:**
- **Indications générales:**
Catégorie de pollution des eaux 2 (D) (Classification propre): polluant
Ne pas laisser pénétrer dans la nappe phréatique, les eaux ou les canalisations.
Danger pour l'eau potable dès fuite d'une petite quantité dans le sous-sol.
- **12.5 Résultats des évaluations PBT et VPVB**
- **PBT:** Non applicable.
- **vPvB:** Non applicable.

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- **12.6 Autres effets néfastes** Pas d'autres informations importantes disponibles.

SECTION 13: Considérations relatives à l'élimination

- **13.1 Méthodes de traitement des déchets**
- **Recommandation:** Ne doit pas être évacué avec les ordures ménagères. Ne pas laisser pénétrer dans les égouts.
- **Emballages non nettoyés:**
- **Recommandation:** Evacuation conformément aux prescriptions légales.

SECTION 14: Informations relatives au transport

- | | |
|--|-----------------|
| · 14.5 Dangers pour l'environnement: | |
| · Marine Polluant: | Non |
| · 14.6 Précautions particulières à prendre par l'utilisateur | Non applicable. |
| · 14.7 Transport en vrac conformément à l'annexe II de la convention Marpol 73/78 et au recueil IBC | Non applicable. |

SECTION 15: Informations réglementaires

- **15.1 Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d'environnement**
- **Directive 2012/18/UE**
- **Substances dangereuses désignées - ANNEXE I** Aucun des composants n'est compris.
- **15.2 Évaluation de la sécurité chimique:** Une évaluation de la sécurité chimique n'a pas été réalisée.

SECTION 16: Autres informations

Ces indications sont fondées sur l'état actuel de nos connaissances, mais ne constituent pas une garantie quant aux propriétés du produit et ne donnent pas lieu à un rapport juridique contractuel.

- **Phrases importantes**
- H301 Toxique en cas d'ingestion.
- H311 Toxique par contact cutané.
- H319 Provoque une sévère irritation des yeux.
- H330 Mortel par inhalation.
- **Acronymes et abréviations:**
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- Acute Tox. 3: Acute toxicity, Hazard Category 3
- Acute Tox. 2: Acute toxicity, Hazard Category 2
- Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
- Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
- STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

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ABSCHNITT 1: Bezeichnung des Stoffs bzw. des Gemischs und des Unternehmens

- **1.1 Produktidentifikator**
- **Handelsname:** TMB, Tetramethylbenzidine
- **Artikelnummer:** 13070
- **1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird**
Keine weiteren relevanten Informationen verfügbar.
- **Verwendung des Stoffes / des Gemisches** Laborchemikalien
- **1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt**
- **Hersteller/Lieferant:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com

Science Services GmbH
Unterhachinger Str. 75
81737 München Germany
Tel: +49(0)89 18 93 668-0
safety@scienceservices.de

24h Giftnotruf Munchen: +49 (0)89 19240
Toxikologische Abteilung der II. Medizinischen Klinik
rechts der Isar, Munchen. - www.toxinfo.org
- **Auskunftgebender Bereich:** Product safety department
- **1.4 Notrufnummer:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

ABSCHNITT 2: Mögliche Gefahren

- **2.1 Einstufung des Stoffs oder Gemischs**
- **Einstufung gemäß Verordnung (EG) Nr. 1272/2008**



GHS07

- Skin Irrit. 2 H315 Verursacht Hautreizungen.
- Eye Irrit. 2 H319 Verursacht schwere Augenreizung.
- STOT SE 3 H335 Kann die Atemwege reizen.

- **2.2 Kennzeichnungselemente**
- **Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008**
Das Produkt ist gemäß CLP-Verordnung eingestuft und gekennzeichnet.
- **Gefahrenpiktogramme**



GHS07

- **Signalwort** Achtung

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· Gefahrenhinweise

- H315 Verursacht Hautreizungen.
- H319 Verursacht schwere Augenreizung.
- H335 Kann die Atemwege reizen.

· Sicherheitshinweise

- P261 Einatmen von Staub/Rauch/Gas/Nebel/Dampf/Aerosol vermeiden.
- P280 Schutzhandschuhe/Schutzkleidung/Augenschutz/Gesichtsschutz tragen.
- P305+P351+P338 **BEI KONTAKT MIT DEN AUGEN:** Einige Minuten lang behutsam mit Wasser spülen. Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen.
- P321 Besondere Behandlung (siehe auf diesem Kennzeichnungsetikett).
- P405 Unter Verschluss aufbewahren.
- P501 Entsorgung des Inhalts / des Behälters gemäß den örtlichen / regionalen / nationalen / internationalen Vorschriften.

· 2.3 Sonstige Gefahren**· Ergebnisse der PBT- und vPvB-Beurteilung**

- **PBT:** Nicht anwendbar.
- **vPvB:** Nicht anwendbar.

ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen

· 3.2 Chemische Charakterisierung: Gemische

- **Beschreibung:** Gemisch aus nachfolgend angeführten Stoffen mit ungefährlichen Beimengungen.

· Gefährliche Inhaltsstoffe:

CAS: 124-04-9 EINECS: 204-673-3	Adipinsäure ⚠ Eye Irrit. 2, H319	50-100%
CAS: 9003-39-8	Polyvinylpyrolidone ⚠ Eye Irrit. 2, H319	10-25%
CAS: 54827-17-7 EINECS: 259-364-6	3,3',5,5'-Tetramethylbenzidin ⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 2, H330	2,5-10%

- **Zusätzliche Hinweise:** Der Wortlaut der angeführten Gefahrenhinweise ist dem Abschnitt 16 zu entnehmen.

ABSCHNITT 4: Erste-Hilfe-Maßnahmen

· 4.1 Beschreibung der Erste-Hilfe-Maßnahmen

- **Nach Einatmen:** Bei Bewußtlosigkeit Lagerung und Transport in stabiler Seitenlage.
- **Nach Hautkontakt:** Sofort mit Wasser und Seife abwaschen und gut nachspülen.
- **Nach Augenkontakt:**
Augen mehrere Minuten bei geöffnetem Lidspalt unter fließendem Wasser spülen. Bei anhaltenden Beschwerden Arzt konsultieren.
- **Nach Verschlucken:** Bei anhaltenden Beschwerden Arzt konsultieren.
- **4.2 Wichtigste akute und verzögert auftretende Symptome und Wirkungen**
Keine weiteren relevanten Informationen verfügbar.
- **4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung**
Keine weiteren relevanten Informationen verfügbar.

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ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

- **5.1 Löschmittel**
- **Geeignete Löschmittel:**
CO₂, Löschpulver oder Wassersprühstrahl. Größeren Brand mit Wassersprühstrahl oder alkoholbeständigem Schaum bekämpfen.
- **5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren**
Keine weiteren relevanten Informationen verfügbar.
- **5.3 Hinweise für die Brandbekämpfung**
- **Besondere Schutzausrüstung:** Keine besonderen Maßnahmen erforderlich.

ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

- **6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren**
Nicht erforderlich.
- **6.2 Umweltschutzmaßnahmen:** Nicht in die Kanalisation/Oberflächenwasser/Grundwasser gelangen lassen.
- **6.3 Methoden und Material für Rückhaltung und Reinigung:** Für ausreichende Lüftung sorgen.
- **6.4 Verweis auf andere Abschnitte**
Informationen zur sicheren Handhabung siehe Abschnitt 7.
Informationen zur persönlichen Schutzausrüstung siehe Abschnitt 8.
Informationen zur Entsorgung siehe Abschnitt 13.

ABSCHNITT 7: Handhabung und Lagerung

- **7.1 Schutzmaßnahmen zur sicheren Handhabung**
Bei sachgemäßer Verwendung keine besonderen Maßnahmen erforderlich.
- **Hinweise zum Brand- und Explosionsschutz:** Keine besonderen Maßnahmen erforderlich.
- **7.2 Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten**
- **Lagerung:**
- **Anforderung an Lagerräume und Behälter:** Keine besonderen Anforderungen.
- **Zusammenlagerungshinweise:** Nicht erforderlich.
- **Weitere Angaben zu den Lagerbedingungen:** Behälter dicht geschlossen halten.
- **Lagerklasse:**
- **Klassifizierung nach Betriebsicherheitsverordnung (BetrSichV):** -
- **7.3 Spezifische Endanwendungen** Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen

- **Zusätzliche Hinweise zur Gestaltung technischer Anlagen:** Keine weiteren Angaben, siehe Abschnitt 7.
- **8.1 Zu überwachende Parameter**
- **Bestandteile mit arbeitsplatzbezogenen, zu überwachenden Grenzwerten:**
Das Produkt enthält keine relevanten Mengen von Stoffen mit arbeitsplatzbezogenen, zu überwachenden Grenzwerten.
- **Zusätzliche Hinweise:** Als Grundlage dienen die bei der Erstellung gültigen Listen.
- **8.2 Begrenzung und Überwachung der Exposition**
- **Persönliche Schutzausrüstung:**
- **Allgemeine Schutz- und Hygienemaßnahmen:**
Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.

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Beschmutzte, getränkte Kleidung sofort ausziehen.
Vor den Pausen und bei Arbeitsende Hände waschen.
Berührung mit den Augen und der Haut vermeiden.

· **Atemschutz:**

Bei kurzzeitiger oder geringer Belastung Atemfiltergerät; bei intensiver bzw. längerer Exposition unluftunabhängiges Atemschutzgerät verwenden.

· **Handschutz:**



Schutzhandschuhe

Das Handschuhmaterial muss undurchlässig und beständig gegen das Produkt / den Stoff / die Zubereitung sein. Aufgrund fehlender Tests kann keine Empfehlung zum Handschuhmaterial für das Produkt / die Zubereitung / das Chemikaliengemisch abgegeben werden.

Auswahl des Handschuhmaterials unter Beachtung der Durchbruchzeiten, Permeationsraten und der Degradation.

· **Handschuhmaterial**

Die Auswahl eines geeigneten Handschuhs ist nicht nur vom Material, sondern auch von weiteren Qualitätsmerkmalen abhängig und von Hersteller zu Hersteller unterschiedlich. Da das Produkt eine Zubereitung aus mehreren Stoffen darstellt, ist die Beständigkeit von Handschuhmaterialien nicht vorausberechenbar und muß deshalb vor dem Einsatz überprüft werden.

· **Durchdringungszeit des Handschuhmaterials**

Die genaue Durchbruchzeit ist beim Schutzhandschuhhersteller zu erfahren und einzuhalten.

· **Augenschutz:**



Dichtschließende Schutzbrille

ABSCHNITT 9: Physikalische und chemische Eigenschaften

· **9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften**

· **Allgemeine Angaben**

· **Aussehen:**

Form: Tabletten

Farbe: Farblos

· **Geruch:** Charakteristisch

· **Geruchsschwelle:** Nicht bestimmt.

· **pH-Wert:** Nicht anwendbar.

· **Zustandsänderung**

Schmelzpunkt/Schmelzbereich: Nicht bestimmt.

Siedepunkt/Siedebereich: Nicht bestimmt.

· **Flammpunkt:** Nicht anwendbar.

· **Entzündlichkeit (fest, gasförmig):** Nicht bestimmt.

· **Zündtemperatur:** 420 °C

· **Zersetzungstemperatur:** Nicht bestimmt.

· **Selbstentzündlichkeit:** Das Produkt ist nicht selbstentzündlich.

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· Explosionsgefahr:	Das Produkt ist nicht explosionsgefährlich.
· Explosionsgrenzen:	
Untere:	Nicht bestimmt.
Obere:	Nicht bestimmt.
· Dampfdruck:	Nicht anwendbar.
· Dichte:	Nicht bestimmt.
· Relative Dichte	Nicht bestimmt.
· Dampfdichte	Nicht anwendbar.
· Verdampfungsgeschwindigkeit	Nicht anwendbar.
· Löslichkeit in / Mischbarkeit mit Wasser:	Unlöslich.
· Verteilungskoeffizient (n-Octanol/Wasser):	Nicht bestimmt.
· Viskosität:	
Dynamisch:	Nicht anwendbar.
Kinematisch:	Nicht anwendbar.
· Lösemittelgehalt:	
Organische Lösemittel:	0,0 %
VOC (EU)	0,00 %
Festkörpergehalt:	100,0 %
· 9.2 Sonstige Angaben	Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 10: Stabilität und Reaktivität

- **10.1 Reaktivität**
- **10.2 Chemische Stabilität**
- **Thermische Zersetzung / zu vermeidende Bedingungen:**
Keine Zersetzung bei bestimmungsgemäßer Verwendung.
- **10.3 Möglichkeit gefährlicher Reaktionen** Keine gefährlichen Reaktionen bekannt.
- **10.4 Zu vermeidende Bedingungen** Keine weiteren relevanten Informationen verfügbar.
- **10.5 Unverträgliche Materialien:** Keine weiteren relevanten Informationen verfügbar.
- **10.6 Gefährliche Zersetzungsprodukte:** Keine gefährlichen Zersetzungsprodukte bekannt.

ABSCHNITT 11: Toxikologische Angaben

- **11.1 Angaben zu toxikologischen Wirkungen**
- **Akute Toxizität**

· Einstufungsrelevante LD/LC50-Werte:

124-04-9 Adipinsäure

Oral LD50 11000 mg/kg (rat)

· Primäre Reizwirkung:

- **Ätz-/Reizwirkung auf die Haut** Reizt die Haut und die Schleimhäute.
- **Schwere Augenschädigung/-reizung** Reizwirkung.
- **Sensibilisierung der Atemwege/Haut** Keine sensibilisierende Wirkung bekannt.
- **Zusätzliche toxikologische Hinweise:**

Das Produkt weist aufgrund des Berechnungsverfahrens der Allgemeinen Einstufungsrichtlinie der EG für Zubereitungen in der letztgültigen Fassung folgende Gefahren auf:

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Reizend

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ABSCHNITT 12: Umweltbezogene Angaben

- **12.1 Toxizität**
- **Aquatische Toxizität:** Keine weiteren relevanten Informationen verfügbar.
- **12.2 Persistenz und Abbaubarkeit** Keine weiteren relevanten Informationen verfügbar.
- **12.3 Bioakkumulationspotenzial** Keine weiteren relevanten Informationen verfügbar.
- **12.4 Mobilität im Boden** Keine weiteren relevanten Informationen verfügbar.
- **Weitere ökologische Hinweise:**
- **Allgemeine Hinweise:**
Wassergefährdungsklasse 2 (Selbsteinstufung): wassergefährdend
Nicht in das Grundwasser, in Gewässer oder in die Kanalisation gelangen lassen.
Trinkwassergefährdung bereits beim Auslaufen geringer Mengen in den Untergrund.
- **12.5 Ergebnisse der PBT- und vPvB-Beurteilung**
- **PBT:** Nicht anwendbar.
- **vPvB:** Nicht anwendbar.
- **12.6 Andere schädliche Wirkungen** Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 13: Hinweise zur Entsorgung

- **13.1 Verfahren der Abfallbehandlung**
- **Empfehlung:** Darf nicht zusammen mit Hausmüll entsorgt werden. Nicht in die Kanalisation gelangen lassen.
- **Ungereinigte Verpackungen:**
- **Empfehlung:** Entsorgung gemäß den behördlichen Vorschriften.

ABSCHNITT 14: Angaben zum Transport

- | | |
|---|------------------|
| · 14.5 Umweltgefahren: | |
| · Marine pollutant: | Nein |
| · 14.6 Besondere Vorsichtsmaßnahmen für den Verwender | Nicht anwendbar. |
| · 14.7 Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens 73/78 und gemäß IBC-Code | Nicht anwendbar. |

ABSCHNITT 15: Rechtsvorschriften

- **15.1 Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch**
- **Richtlinie 2012/18/EU**
- **Namentlich aufgeführte gefährliche Stoffe - ANHANG I** Keiner der Inhaltsstoffe ist enthalten.

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- **Nationale Vorschriften:**
- **Technische Anleitung Luft:**

Klasse	Anteil in %
I	10,0

- **Wassergefährdungsklasse: WGK 2 (Selbsteinstufung):** wassergefährdend.
- **15.2 Stoffsicherheitsbeurteilung:** Eine Stoffsicherheitsbeurteilung wurde nicht durchgeführt.

ABSCHNITT 16: Sonstige Angaben

Die Angaben stützen sich auf den heutigen Stand unserer Kenntnisse, sie stellen jedoch keine Zusicherung von Produkteigenschaften dar und begründen kein vertragliches Rechtsverhältnis.

- **Relevante Sätze**
H301 Giftig bei Verschlucken.
H311 Giftig bei Hautkontakt.
H319 Verursacht schwere Augenreizung.
H330 Lebensgefahr bei Einatmen.
- **Abkürzungen und Akronyme:**
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Acute Tox. 3: Acute toxicity, Hazard Category 3
Acute Tox. 2: Acute toxicity, Hazard Category 2
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 20.11.2015

Revisione: 20.11.2015

SEZIONE 1: Identificazione della sostanza o della miscela e della società/impresa

- **1.1 Identificatore del prodotto**
- **Denominazione commerciale:** TMB, Tetramethylbenzidine
- **Articolo numero:** 13070
- **1.2 Usi pertinenti identificati della sostanza o miscela e usi sconsigliati** Non sono disponibili altre informazioni.
- **Utilizzazione della Sostanza / del Preparato** Prodotti chimici per laboratorio
- **1.3 Informazioni sul fornitore della scheda di dati di sicurezza**
- **Produttore/fornitore:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Società Italiana Chimici**
Via Rio Nell Ellba 140
00138 Rome, Italy
Tel: 39 06 8800211
Fax: 39 30 06 8815313
Web: www.sichim.com
- **Informazioni fornite da:** Product safety department
- **1.4 Numero telefonico di emergenza:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SEZIONE 2: Identificazione dei pericoli

- **2.1 Classificazione della sostanza o della miscela**
- **Classificazione secondo il regolamento (CE) n. 1272/2008**



GHS07

- **Skin Irrit. 2 H315** Provoca irritazione cutanea.
- **Eye Irrit. 2 H319** Provoca grave irritazione oculare.
- **STOT SE 3 H335** Può irritare le vie respiratorie.

- **2.2 Elementi dell'etichetta**
- **Etichettatura secondo il regolamento (CE) n. 1272/2008**
Il prodotto è classificato ed etichettato conformemente al regolamento CLP.
- **Pittogrammi di pericolo**



GHS07

- **Avvertenza** Attenzione
- **Indicazioni di pericolo**
H315 Provoca irritazione cutanea.
H319 Provoca grave irritazione oculare.
H335 Può irritare le vie respiratorie.

(continua a pagina 2)

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· **Consigli di prudenza**

- P261 Evitare di respirare la polvere/i fumi/i gas/la nebbia/i vapori/gli aerosol.
 P280 Indossare guanti/indumenti protettivi/Proteggere gli occhi/il viso.
 P305+P351+P338 IN CASO DI CONTATTO CON GLI OCCHI: sciacquare accuratamente per parecchi minuti. Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare.
 P321 Trattamento specifico (vedere su questa etichetta).
 P405 Conservare sotto chiave.
 P501 Smaltire il prodotto/recipiente in conformità con le disposizioni locali / regionali / nazionali / internazionali.

· **2.3 Altri pericoli**

· **Risultati della valutazione PBT e vPvB**

- **PBT:** Non applicabile.
 · **vPvB:** Non applicabile.

SEZIONE 3: Composizione/informazioni sugli ingredienti

· **3.2 Caratteristiche chimiche: Miscela**

- **Descrizione:** Miscela delle seguenti sostanze con additivi non pericolosi.

· **Sostanze pericolose:**

CAS: 124-04-9 EINECS: 204-673-3	acido adipico Eye Irrit. 2, H319	50-100%
CAS: 9003-39-8	Polyvinylpyrrolidone Eye Irrit. 2, H319	10-25%
CAS: 54827-17-7 EINECS: 259-364-6	3,3',5,5'-tetrametilbenzidina Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 2, H330	2,5-10%

- **Ulteriori indicazioni:** Il testo dell'avvertenza dei pericoli citati può essere appreso dal capitolo 16

SEZIONE 4: Misure di primo soccorso

· **4.1 Descrizione delle misure di primo soccorso**

- **Inalazione:** Se il soggetto è svenuto provvedere a tenerlo durante il trasporto in posizione stabile su un fianco.
 · **Contatto con la pelle:** Lavare immediatamente con acqua e sapone sciacquando accuratamente.
 · **Contatto con gli occhi:**
 Lavare con acqua corrente per diversi minuti tenendo le palpebre ben aperte. Se persiste il dolore consultare il medico.
 · **Ingestione:** Se il dolore persiste consultare il medico.
 · **4.2 Principali sintomi ed effetti, sia acuti che ritardati** Non sono disponibili altre informazioni.
 · **4.3 Indicazione della eventuale necessità di consultare immediatamente un medico e di trattamenti speciali**
 Non sono disponibili altre informazioni.

SEZIONE 5: Misure antincendio

· **5.1 Mezzi di estinzione**

· **Mezzi di estinzione idonei:**

CO₂, polvere o acqua nebulizzata. Estinguere gli incendi di grosse dimensioni con acqua nebulizzata o con schiuma resistente all'alcool.

- **5.2 Pericoli speciali derivanti dalla sostanza o dalla miscela** Non sono disponibili altre informazioni.

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- **5.3 Raccomandazioni per gli addetti all'estinzione degli incendi**
- **Mezzi protettivi specifici:** Non sono richiesti provvedimenti particolari.

SEZIONE 6: Misure in caso di rilascio accidentale

- **6.1 Precauzioni personali, dispositivi di protezione e procedure in caso di emergenza** Non necessario.
- **6.2 Precauzioni ambientali:** Impedire infiltrazioni nella fognatura/nelle acque superficiali/nelle acque freatiche.
- **6.3 Metodi e materiali per il contenimento e per la bonifica:** Provvedere ad una sufficiente areazione.
- **6.4 Riferimento ad altre sezioni**
Per informazioni relative ad un manipolazione sicura, vedere capitolo 7.
Per informazioni relative all'equipaggiamento protettivo ad uso personale vedere Capitolo 8.
Per informazioni relative allo smaltimento vedere Capitolo 13.

SEZIONE 7: Manipolazione e immagazzinamento

- **7.1 Precauzioni per la manipolazione sicura** Per un uso corretto non sono necessari provvedimenti particolari.
- **Indicazioni in caso di incendio ed esplosione:** Non sono richiesti provvedimenti particolari.
- **7.2 Condizioni per l'immagazzinamento sicuro, comprese eventuali incompatibilità**
- **Stoccaggio:**
- **Requisiti dei magazzini e dei recipienti:** Non sono richiesti requisiti particolari.
- **Indicazioni sullo stoccaggio misto:** Non necessario.
- **Ulteriori indicazioni relative alle condizioni di immagazzinamento:** Mantenere i recipienti ermeticamente chiusi.
- **7.3 Usi finali specifici** Non sono disponibili altre informazioni.

SEZIONE 8: Controllo dell'esposizione/protezione individuale

- **Ulteriori indicazioni sulla struttura di impianti tecnici:** Nessun dato ulteriore, vedere punto 7.
- **8.1 Parametri di controllo**

· **Componenti i cui valori limite devono essere tenuti sotto controllo negli ambienti di lavoro:**

124-04-9 acido adipico

TWA Valore a lungo termine: 5 mg/m³

- **Ulteriori indicazioni:** Le liste valide alla data di compilazione sono state usate come base.

- **8.2 Controlli dell'esposizione**
- **Mezzi protettivi individuali:**
- **Norme generali protettive e di igiene del lavoro:**
Tenere lontano da cibo, bevande e foraggi.
Togliere immediatamente gli abiti contaminati.
Lavarsi le mani prima dell'intervallo o a lavoro terminato.
Evitare il contatto con gli occhi e la pelle.
- **Maschera protettiva:**
Nelle esposizioni brevi e minime utilizzare la maschera; nelle esposizioni più intense e durature indossare l'autorespiratore.
- **Guanti protettivi:**



Guanti protettivi

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Il materiale dei guanti deve essere impermeabile e stabile contro il prodotto/ la sostanza/ la formulazione.

A causa della mancanza di tests non può essere consigliato alcun tipo di materiale per i guanti con cui manipolare il prodotto / la formulazione / la miscela di sostanze chimiche.

Scelta del materiale dei guanti in considerazione dei tempi di passaggio, dei tassi di permeazione e della degradazione.

· **Materiale dei guanti**

La scelta dei guanti adatti non dipende soltanto dal materiale bensì anche da altre caratteristiche di qualità variabili da un produttore a un altro. Poiché il prodotto rappresenta una formulazione di più sostanze, la stabilità dei materiali dei guanti non è calcolabile in anticipo e deve essere testata prima dell'impiego

· **Tempo di permeazione del materiale dei guanti**

Richiedere dal fornitore dei guanti il tempo di passaggio preciso il quale deve essere rispettato.

· **Occhiali protettivi:**



Occhiali protettivi a tenuta

SEZIONE 9: Proprietà fisiche e chimiche

· **9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali**

· **Indicazioni generali**

· **Aspetto:**

Forma: Compresse

Colore: Incolore

· **Odore:** Caratteristico

· **Soglia olfattiva:** Non definito.

· **valori di pH:** Non applicabile.

· **Cambiamento di stato**

Temperatura di fusione/ambito di fusione: Non definito.

Temperatura di ebollizione/ambito di ebollizione: Non definito.

· **Punto di infiammabilità:** Non applicabile.

· **Infiammabilità (solido, gassoso):** Non definito.

· **Temperatura di accensione:** 420 °C

· **Temperatura di decomposizione:** Non definito.

· **Autoaccensione:** Prodotto non autoinfiammabile.

· **Pericolo di esplosione:** Prodotto non esplosivo.

· **Limiti di infiammabilità:**

Inferiore: Non definito.

Superiore: Non definito.

· **Tensione di vapore:** Non applicabile.

· **Densità:** Non definito.

· **Densità relativa** Non definito.

· **Densità del vapore** Non applicabile.

· **Velocità di evaporazione** Non applicabile.

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· Solubilità in/Miscibilità con acqua:	Insolubile.
· Coefficiente di distribuzione (n-Octanol/acqua):	Non definito.
· Viscosità:	
Dinamica:	Non applicabile.
Cinematica:	Non applicabile.
· Tenore del solvente:	
Solventi organici:	0,0 %
VOC (CE)	0,00 %
· Contenuto solido:	100,0 %
· 9.2 Altre informazioni	Non sono disponibili altre informazioni.

SEZIONE 10: Stabilità e reattività

- 10.1 Reattività
- 10.2 Stabilità chimica
- Decomposizione termica/ condizioni da evitare: Il prodotto non si decompone se utilizzato secondo le norme.
- 10.3 Possibilità di reazioni pericolose Non sono note reazioni pericolose.
- 10.4 Condizioni da evitare Non sono disponibili altre informazioni.
- 10.5 Materiali incompatibili: Non sono disponibili altre informazioni.
- 10.6 Prodotti di decomposizione pericolosi: Non sono noti prodotti di decomposizione pericolosi.

SEZIONE 11: Informazioni tossicologiche

- 11.1 Informazioni sugli effetti tossicologici
- Tossicità acuta

· Valori LD/LC50 rilevanti per la classificazione:

124-04-9 acido adipico

Orale	LD50	11000 mg/kg (rat)
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- Irritabilità primaria:
- Corrosione/irritazione cutanea Irrita la pelle e le mucose.
- Lesioni oculari gravi/irritazioni oculari gravi Irritante.
- Sensibilizzazione respiratoria o cutanea Non si conoscono effetti sensibilizzanti.
- Ulteriori dati tossicologici:

Il prodotto, in base al metodo di calcolo della direttiva generale della Comunità sulla classificazione dei preparati nella sua ultima versione valida, presenta i seguenti rischi:
Irritante

SEZIONE 12: Informazioni ecologiche

- 12.1 Tossicità
- Tossicità acquatica: Non sono disponibili altre informazioni.
- 12.2 Persistenza e degradabilità Non sono disponibili altre informazioni.
- 12.3 Potenziale di bioaccumulo Non sono disponibili altre informazioni.
- 12.4 Mobilità nel suolo Non sono disponibili altre informazioni.

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- **Ulteriori indicazioni in materia ambientale:**
- **Ulteriori indicazioni:**
Pericolosità per le acque classe 2 (D) (Autoclassificazione): pericoloso
Non immettere nelle acque freatiche, nei corsi d'acqua o nelle fognature.
Pericolo per le acque potabili anche in caso di perdite nel sottosuolo di piccole quantità di prodotto.
- **12.5 Risultati della valutazione PBT e vPvB**
- **PBT:** Non applicabile.
- **vPvB:** Non applicabile.
- **12.6 Altri effetti avversi** Non sono disponibili altre informazioni.

SEZIONE 13: Considerazioni sullo smaltimento

- **13.1 Metodi di trattamento dei rifiuti**
- **Consigli:** Non smaltire il prodotto insieme ai rifiuti domestici Non immettere nelle fognature.
- **Imballaggi non puliti:**
- **Consigli:** Smaltimento in conformità con le disposizioni amministrative.

SEZIONE 14: Informazioni sul trasporto

- **14.5 Pericoli per l'ambiente:**
- **Marine pollutant:** No
- **14.6 Precauzioni speciali per gli utilizzatori** Non applicabile.
- **14.7 Trasporto di rinfuse secondo l'allegato II di MARPOL 73/78 ed il codice IBC** Non applicabile.

SEZIONE 15: Informazioni sulla regolamentazione

- **15.1 Norme e legislazione su salute, sicurezza e ambiente specifiche per la sostanza o la miscela**
- **Direttiva 2012/18/UE**
- **Sostanze pericolose specificate - ALLEGATO I** Nessuno dei componenti è contenuto.
- **15.2 Valutazione della sicurezza chimica:** Una valutazione della sicurezza chimica non è stata effettuata.

SEZIONE 16: Altre informazioni

I dati sono riportati sulla base delle nostre conoscenze attuali, non rappresentano tuttavia alcuna garanzia delle caratteristiche del prodotto e non motivano alcun rapporto giuridico contrattuale.

- **Frasi rilevanti**
H301 Tossico se ingerito.
H311 Tossico per contatto con la pelle.
H319 Provoca grave irritazione oculare.
H330 Letale se inalato.
- **Abbreviazioni e acronimi:**
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

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Acute Tox. 3: Acute toxicity, Hazard Category 3
Acute Tox. 2: Acute toxicity, Hazard Category 2
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

(Segue da pagina 6)

IT

안전지침서

제31조의 1907/2006/EC에 따라

기압점: 2015.11.20

개정: 2015.11.20

1 화학제품과 회사에 관한 정보

- 제품 식별자
- 제품명: **TMB, Tetramethylbenzidine**
- 상품번호: 13070
- 해당 순물질이나 혼합물의 관련 하위용도 및 사용금지용도 추가적인 정보가 존재하지 않습니다.
- 제품의 권고 용도와 사용상의 제한: 실험실화학품
- 안전데이터표(Safety Data Sheet)내 공급업체 관련 상세 정보
- 제조자/수입자/유통업자 정보:
 Electron Microscopy Sciences
 1560 Industry Road
 USA-Hatfield, PA 19440
 Tel: 215-412-8400 Fax: 215-412-8450
 email: sgkcck@aol.com
 www.emsdiasum.com
- Samchang Commercial Co., Ltd.
 Yeo Eui Do
 PO Box 1110
 Seoul, Korea
 Tel: 82 2 703 3040
 Fax: 82 2 717 3298
- 추가적인 정보 획득 가능: Product safety department
- 비상연락 전화번호:
 ChemTrec 1-800-424-9300 Contract CCN7661
 1-703-527-3887

2 유해성.위험성

- 순물질 또는 혼합물의 분류



피부 부식성/자극성 구분2 H315 피부에 자극을 일으킴
 심한 눈 손상/자극성 구분2 H319 눈에 심한 자극을 일으킴
 표적장기-1회노출 구분3 H335 호흡기계 자극을 일으킬 수 있음

- 라벨표기 요소
- GHS 라벨 요소
 본 제품은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.
- 그림문자



GHS07

- 신호어 경고
- 유해.위험 문구
 피부에 자극을 일으킴
 눈에 심한 자극을 일으킴
 호흡기계 자극을 일으킬 수 있음
- 예방조치 문구
 (분진·흙·가스·미스트·증기·스프레이)의 흡입을 피하십시오.

(2 쪽에 계속)

안전지침서

제31조의 1907/2006/EC에 따라

기압점: 2015.11.20

개정: 2015.11.20

제품명: TMB, Tetramethylbenzidine

(1 쪽부터계속)

- (보호장갑·보호의·보안경·안면보호구)를(을) 착용하십시오.
- 눈에 묻으면 몇 분간 물로 조심해서 씻으시오. 가능하면콘택트렌즈를 제거하십시오. 계속 씻으시오.
- (라벨 참조) 처치를 하시오.
- 잠금장치가 있는 저장장소에 저장 하시오.
- 현지/지역/국가/국제 규정에 따라서 내용물/용기 노출
- 기타 유해성
- PBT(잔류성, 생물농축성, 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과
- PBT(잔류성, 생물농축성, 독성 물질): 해당사항 없음.
- vPvB(고 잔류성, 고 생물농축성 물질): 해당사항 없음.

3 구성성분의 명칭 및 함유량

- 화학적 특성: 혼합물
- 설명: 무해한 첨가물이 함유된 아래에 열거된 물질로 만들어진 혼합물.

· 위험요소:

124-04-9	adipic acid ⚠ 심한 눈 손상/자극성 구분2, H319	50-100%
9003-39-8	Polyvinylpyrrolidone ⚠ 심한 눈 손상/자극성 구분2, H319	10-25%
54827-17-7	3,3',5,5'-tetramethylbenzidine ⚠ 급성 독성(경구) 구분2, H300; 급성 독성(경피) 구분2, H310; 급성 독성(흡입) 구분2, H330	2.5-10%

4 응급조치 요령

- 응급조치요령 내용
- 흡입했을 때: 환자가 의식을 잃었을 경우에는 안전한 자세에서 환자를 운반한다.
- 피부에 접촉했을 때: 즉시물과비누로씻고잘행군다.
- 눈에 들어갔을 때: 흐르는 물에 눈을 몇분동안 씻어내고나서, 증상이 지속될 경우에는 의사와 상담한 다
- 먹었을 때: 증상이 지속될 경우에는 의사와 상 담 한 다.
- 기타 의사의 주의사항:
- 가장 중요한 급·만성 증상 및 영향 추가적인 정보가 존재하지 않습니다.
- 즉각적인 의료처리 및 특별치료가 필요함을 시사하는 징후 추가적인 정보가 존재하지 않습니다.

5 폭발·화재시 대처방법

- 소화제
- 적절한 소화제:
이산화탄소, 진화용석회가루 또는 물방사를 사용하고, 더큰 화재는 물을 분사 하거나 알코올이 함유된 거품으로 끈다.
- 본 화학물질이나 혼합물에서 발생하는 특별 유해성 추가적인 정보가 존재하지 않습니다.
- 소방관에 대한 권고사항
- 화재 진압 시 착용할 보호구 및 예방조치: 특 별 한 조 치 가 필요없음.

6 누출 사고 시 대처방법

- 개인적 예방조치, 보호장비 및 응급처리 절차 필요없음.
- 환경 관련 예방조치: 하수도망/해수면위외물/지하수로도달하지않게한다.
- 밀폐 및 정화 방법과 소재: 충분한 환기가 되도록 한다.

(3 쪽에계속)

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(2 쪽부터 계속)

- 타 섹션 참조
- 안전 관리에 대한 정보는 제7 장 을 참고하시오.
- 개인 보호 장비에 대한 정보는 제8 장 을 참고하시오.
- 쓰레기 처리에 대한 정보는 제13 장 을 참고하시오.

7 취급 및 저장방법

- 취급:
- 안전 취급을 위한 예방조치 올바르게 사용할 경우에는 특별한 주의가 필요없다.
- 화재 및 폭발 사고 예방대책에 관한 정보: 특별한 조치가 필요없음.
- 혼합위험성 등 안전 저장 조건
- 보관:
- 안전한 저장 방법: 특 별 한 요구사항이 없음.
- 하나의 공동 보관 시설에 대한 보관 관련 정보: 필 요없음
- 보관 조건에 관한 추가적인 정보: 용기를새지않게밀폐한채보관한다.
- 구체적인 최종 사용자 추가적인 정보가 존재하지 않습니다.

8 노출방지 및 개인보호구

- 첨단시설 디자인에 대한 추가정보: 더 이상 의 자료는 없음. 항 목 7 을 참고하시오.

· 통제 변수

- 화학물질의 노출기준, 생물학적 노출기준 등:

124-04-9 adipic acid

TLV (USA) 장기간의값: 5 mg/m³

- 추 가 정보: 제 조 할 당시에 유 효 한 목 록을 기초로 사용했다.

· 노출 통제

· 개인 보호구

· 일반적보호조치및위생조치:

- 식료품, 음료수와 사료로부터 멀리 떨어져 두는 다.
- 더러워지거나 음료수가 묻은 옷은 즉시 탈의한다.
- 휴식전 이나 작업이 끝날때마다 손을 씻는다.
- 눈과 피부와의 접촉은 피한다.

· 호흡기 보호:

- 단 시간 또는 경 미 한 오염의 경우에는 호흡 여과 기 를 사 용 한 다. 심각한 또는 장 기 간 노출시에는 호흡보호장비를 사용한다.

· 손 보호:



보 호용 장갑

- 장갑재질은제품 / 원료 / 조제를투과시키지않아야하고, 내구성이있어야한다.
- 테스트를 하지 않았기 때문에 제품 / 조제 / 화학 혼합 물에 적합한 장갑재질에 대한 추천이 없다.
- 투과 시간, 침투율 과 저하를 고려해서 장 갑 재 료를 선택한다.

· 장갑의재료

- 적합한장갑의선택은재질차이뿐만아니라품질기준의차이도고려하여이루어져야하고제조업종에따라서도다르게선택되어야한다. 제품은다양한재료로부터의조제로이루어지는것이기때문에, 장갑재질의안정성은사전에예측되어질수있는것이아니고, 반드시사용전에 (그안전성이) 체크되어야한다.

- 장 갑 재 료 의 투과시 간 정확 한 관 통 시 간 은 보 호 장 갑 제 조 자 에 의 하 여 인 지 되 고, 준 수 되 어 야 한 다.

(4 쪽에 계속)

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· **눈 보호:**

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· **확조이는보안경**

9 물리화학적 특성

· 기본 물리 및 화학적 특성에 대한 정보	
· 일반정보	
· 외형	
· 물리적 상태:	정제약
· 색:	색소가없는
· 냄새:	특색있는
· 후각역치	알맞지않다.
· pH:	해당사항 없음.
· 상태변화	
· 녹는점/어는점:	맞지않는
· 초기 끓는점과 끓는점 범위:	맞지않는
· 인화점:	해당사항 없음.
· 인화성(고체, 기체):	알맞지않다.
· 점화온도:	420 °C
· 분해 온도:	알맞지않다.
· 자기점화:	이제품은자연발화성이없다.
· 폭발위험:	이제품은폭발위험성이없다
· 인화 또는 폭발 범위의 상한/하한	
· 아래로:	알맞지않다.
· 위로:	알맞지않다.
· 증기압:	해당사항 없음.
· 밀도:	맞지않는다.
· 비중:	알맞지않다.
· 증기밀도:	해당사항 없음.
· 증발 속도:	해당사항 없음.
· 용해도:	
· 물:	불용해성의
· n 옥탄올/물 분배계수:	알맞지않다.
· 점도:	
· 역학적:	해당사항 없음.
· 동점성:	해당사항 없음.
· 용매내용물	
· 유기용매:	0.0 %
· VOC (EU)	0.00 %
· 고체의 함량:	100.0 %

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13 폐기시 주의사항

- 폐기물 처리 방법
- 권고: 생활쓰레기와함께처리되어서는안된다. 하수도망으로유입되어서는안된다.
- 비위생적 포장:
- 권고: 당국의지침에입각한쓰레기처리.

14 운송에 필요한 정보

- 환경적 유해물질:
- 해양오염물질: 아니오
- 이용자 특별 예방조치 해당사항 없음.
- MARPOL73/78(선박으로부터의 해양오염방지협약) 부속서2 및 IBC Code(국제선적화물코드)에 따른 벌크(bulk) 운송 해당사항 없음.

15 법적 규제현황

- 해당 순물질 또는 혼합물에 대한 안전, 보건 및 환경 규제/법률

· Korean Existing Chemical Inventory		
124-04-9	adipic acid	KE-03754
9003-39-8	Polyvinylpyrrolidone	KE-13324

- GHS 라벨 요소
- 본 제품은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.
- 위험 도표



GHS07

- 표지어 경고
- 위험 문구
 - 피부에 자극을 일으킴
 - 눈에 심한 자극을 일으킴
 - 호흡기계 자극을 일으킬 수 있음
- 주의 문구
 - (분진·흙·가스·미스트·증기·스프레이)의 흡입을 피하십시오.
 - (보호장갑·보호의·보안경·안면보호구)를(을) 착용하십시오.
 - 눈에 묻으면몇 분간 물로 조심해서 씻으시오. 가능하면콘택트렌즈를 제거하십시오. 계속 씻으시오.
 - (라벨 참조) 처치를 하시오.
 - 잠금장치가 있는 저장장소에 저장 하시오.
 - 현지/지역/국가/국제 규정에 따라서 내용물/용기 노출
- 화학물질 안전성 평가: 화학물질 안전성 평가가 수행되지 않음

KR

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16 그 밖의 참고사항

이보고는우리지식에대한오늘날의상태에대하여평가하고있다, 하지만이보고서는생산특성에관한보증은
기술하지않았으며계약적인법률관계에기반을두고있지도않다

- **최초 작성일자:** 2015.11.20
- **개정 횟수 및 최종 개정일자:** 1 / 2015.11.20
- **약어와 두문자어:**
 - EINECS: European Inventory of Existing Commercial Chemical Substances
 - ELINCS: European List of Notified Chemical Substances
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)
 - VOC: Volatile Organic Compounds (USA, EU)
 - LC50: Lethal concentration, 50 percent
 - LD50: Lethal dose, 50 percent
 - 급성 독성(경구) 구분2: Acute toxicity, Hazard Category 2
 - 피부 부식성/자극성 구분2: Skin corrosion/irritation, Hazard Category 2
 - 심한 눈 손상/자극성 구분2: Serious eye damage/eye irritation, Hazard Category 2
 - 표적장기-1회노출 구분3: Specific target organ toxicity - Single exposure, Hazard Category 3

KR

物質安全資料表

根據 GB/T 16483-2008, GB/T 17519-2013

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1 化學品及企業標識

- 產品識別者
- 化學品中文(英文)名稱, 化學品俗名或商品名: TMB, Tetramethylbenzidine
- 商品編號: 13070
- 相應純物質或者混合物的相關下位用途及禁止用途 無相關詳細資料。
- 原材料的應用/準備工作進行 實驗室化學物
- 安全技術說明書內供應商詳細信息
- 企業名稱:
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- 可獲取更多資料的部門: Product safety department
- 緊急聯繫電話號碼:
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 危險性概述

- 緊急情況概述:
無色的, 藥片, 引起皮膚刺激。引起嚴重的眼睛刺激。可刺激呼吸道。

- GHS危險性類別



腐蝕/刺激皮膚物質 第2級 H315 引起皮膚刺激
嚴重損傷/刺激眼睛物質 第2A級 H319 引起嚴重的眼睛刺激
特定標的器官系統毒性物質(單一暴露) 第3級 H335 可刺激呼吸道。

- 標籤因素

- GHS標籤元素 本產品根據化學物質分類及標記全球協調制度(GHS)進行了分類及標記。

- 圖示



GHS07

- 名稱 警告
- 危險字句
引起皮膚刺激
引起嚴重的眼睛刺激
可刺激呼吸道。
- 警戒字句
- 預防措施
避免吸入粉塵/煙/氣體/煙霧/蒸氣/噴霧
戴防護手套/穿防護服/戴防護眼罩/戴防護面具。
- 事故響應
如進入眼睛: 用水小心沖洗幾分鐘。如戴隱型眼鏡並可方便地取出, 取出隱型眼鏡。繼續沖洗。
具體治療(見本標籤上的)

(在 2 頁繼續)

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(在 1 頁繼續)

- **安全貯存**
存放處須加鎖。
- **廢棄處置**
按照本地 / 地區 / 國家 / 國際規例處理內含物 / 容器。
- **其他有害性**
- **PBT(殘留性、生物濃縮性、毒性物質) 及 vPvB(高殘留性、高生物濃縮性物質) 評價結果**
- **PBT(殘留性、生物濃縮性、毒性物質)** 不適用的
- **vPvB(高殘留性、高生物濃縮性物質):** 不適用的

3 成分/組成資訊

- **混合物**
- **描述:** 由以下含有無害添加劑的成分組成的混合物

· **危險的成分:**

124-04-9	己二酸 ⚠ 嚴重損傷/刺激眼睛物質 第2A級, H319	50-100%
9003-39-8	1-乙基-2-吡咯啉酮均聚物 急毒性物質(吞食) 第5級, H303; 急毒性物質(皮膚) 第5級, H313; 急毒性物質(吸入) 第5級, H333; 嚴重損傷/刺激眼睛物質 第2B級, H320	10-25%
54827-17-7	3,3',5,5'-四甲基聯苯-4,4'-二胺 ⚠ 急毒性物質(吞食) 第2級, H300; 急毒性物質(皮膚) 第2級, H310; 急毒性物質(吸入) 第2級, H330	2.5-10%

4 急救措施

- **應急措施要領**
- **吸入:** 萬一病人不清醒時,請讓病人側躺以便移動。
- **皮膚接觸:** 馬上用水和肥皂進行徹底的沖洗。
- **眼睛接觸:** 張開眼睛在流水下沖洗數分鐘. 如果症狀仍然持續,請諮詢醫生。
- **食入:** 如果症狀仍然持續,請諮詢醫生。
- **給醫生的資料:**
- **最重要的急慢性症狀及其影響** 無相關詳細資料。
- **需要及時的醫療處理及特別處理的症狀** 無相關詳細資料。

5 消防措施

- **滅火方法**
- **滅火的方法和滅火劑:** 二氧化碳 (CO₂)、滅火粉末或灑水. 使用灑水或抗酒精泡沫滅火劑撲滅較大的火種。
- **特別危險性** 無相關詳細資料。
- **特殊滅火方法**
- **消防人員特殊的防護裝備:** 沒有要求特別的措施。

6 洩漏應急處理

- **保護措施** 沒有要求。
- **環境保護措施:** 切勿讓其進入下水道/水面或地下水。
- **密封及淨化方法和材料:** 確保有足夠的通風裝置。
- **參照其他部分**
有關安全處理的資料請參閱第 7 節。

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有關個人保護裝備的資料請參閱第 8 節。
有關棄置的資料請參閱第 13 節。

(在 2 頁繼續)

7 操作處置與儲存

- **操作處置**
- **儲存** 如果正確使用便不需特別的預防措施。
- **有關火災及防止爆炸的資料:** 不需特別的措施。
- **混合危險性等安全儲存條件**
- **儲存:**
- **儲存庫和容器須要達到的要求:** 沒有特別的要求。
- **有關使用一個普通的儲存設施來儲存的資料:** 不需要。
- **有關儲存條件的更多資料:** 將容器密封。
- **具體的最終用戶** 無相關詳細資料。

8 接觸控制和個體防護

- **工程控制方法:** 沒有進一步數據,見第 7 項。
- **控制變數**
- **在工作場需要監控的限值成分** 該產品不含任何必須在工作間受到監視的重要價值的材料。
- **額外的資料:** 制作期間有效的清單將作為基礎來使用。
- **遺漏控制**
- **個人防護設備:**
- **一般保護和衛生措施:**
- 遠離食品、飲料和飼料。
- 立即除去所有的不潔的和被汙染的衣服。
- 在休息之前和工作完畢後請清洗雙手。
- 避免和眼睛及皮膚接觸。
- **呼吸系統防護:**
- 如果曾短暫接觸或在低汙染的情況下,請使用呼吸過濾裝置。如果曾深入或較長時間接觸,請使用獨立的呼吸保護裝置。
- **手防護:**



保護手套

手套的物料必須是不滲透性的,且能抵抗該產品/物質/添加劑。
基於缺乏測試,對於產品/制劑/化學混合物,並不會提供手套材料的建議
選擇手套材料時,請注意材料的滲透時間,滲濾率和降解參數

· 手套材料

選擇合適的手套不單取決於材料,亦取決於質量特征,以及來自哪一間生產廠家,因為該產品是由很多材料
配制而成,手套材料的抵抗力並不可預計,所以,必須在使用之前進行檢查

- **滲入手套材料的時間** 請向勞保手套生產廠家獲取準確的破裂時間並觀察實際的破裂時間

(在 4 頁繼續)

物質安全資料表

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(在 3 頁繼續)

· 眼睛防護:



密封的護目鏡

9 理化特性

· 有關基本物理及化學特性的資訊

· 一般說明

· 外觀:

· 形狀: 藥片

· 顏色: 無色的

· 氣味: 有特性的

· 嗅覺閾限: 未決定.

· pH值: 不適用的

· 條件的更改

· 熔點: 未確定的

· 沸點/初沸點和沸程: 未確定的

· 閃點: 不適用的

· 可燃性(固體、氣體): 未決定.

· 點火溫度: 420 °C

· 分解溫度: 未決定.

· 自燃溫度: 該產品是不自燃的

· 爆炸的危險性: 該產品並沒有爆炸的危險

· 爆炸極限:

· 較低: 未決定.

· 較高: 未決定.

· 蒸氣壓: 不適用的

· 密度: 未決定的

· 相對密度: 未決定.

· 蒸氣密度: 不適用的

· 蒸發速率: 不適用的

· 溶解性

· 水: 不能溶解的

· n-辛醇/水分配係數: 未決定.

· 黏性:

· 動態: 不適用的

· 運動學的: 不適用的

· 溶劑成份:

· 有機溶劑: 0.0 %

· 固體成份: 100.0 %

(在 5 頁繼續)

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· 其他資訊 無相關詳細資料。

10 穩定性和反應性

- 反應性
- 穩定性
- 熱分解/要避免的情況: 如果遵照規格使用則不會分解。
- 有害反應可能性 未有已知的危險反應。
- 應避免的條件 無相關詳細資料。
- 不相容的物質: 無相關詳細資料。
- 危險的分解產物: 未知有危險的分解產品。

11 毒理學資訊

- 對毒性學影響的資訊
- 急性毒性:

· 與分類相關的 LD/LC50 值:

124-04-9 己二酸

口腔	LD50	11000 mg/kg (rat)
----	------	-------------------

- 主要的刺激性影響:
- 皮膚: 刺激皮膚和粘膜。
- 在眼睛上面: 刺激的影響。
- 致敏作用: 沒有已知的敏化影響。
- 更多毒物的資料:
根據有關配制的一般歐盟分類指南的計算方法(刊印在最新版本),該產品顯示以下的危險:
刺激性的

12 生態學資訊

- 生態毒性
- 水生毒性: 無相關詳細資料。
- 持久性和降解性 無相關詳細資料。
- 環境系統習性:
- 潛在的生物累積性 無相關詳細資料。
- 土壤內移動性 無相關詳細資料。
- 額外的生態學資料:
- 總括注解:
水危害級別 2 (德國規例) (通過名單進行自我評估): 對水是危害的
不要讓該產品接觸地下水、水道或汗水系統。
即使是少量的產品滲入地下也會對飲用水造成危險。
- PBT(殘留性、生物濃縮性、毒性物質) 及 vPvB(高殘留性、高生物濃縮性物質) 評價結果
- PBT(殘留性、生物濃縮性、毒性物質) 不適用的
- vPvB(高殘留性、高生物濃縮性物質): 不適用的
- 其他副作用 無相關詳細資料。

-TW

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13 廢棄處置

- **廢棄處置方法**
- **建議:** 不能將該產品和家居垃圾一起丟棄. 不要讓該產品接觸汗水系統.
- **受污染的容器和包裝:**
- **建議:** 必須根據官方的規章來丟棄.

14 運輸資訊

- **危害環境:**
- **海運汙染物質:** 不是
- **用戶特別預防措施** 不適用的
- **MARPOL73/78(針對船舶引起的海洋汙染預防協約) 附件書2及根據IBC Code(國際裝船貨物編碼)的大量運送** 不適用的

15 法規資訊

- **對相應純物質或者混合物的安全、保健及環境法規/法律**

- **中國現有化學物質名錄**

列出所有成分

- **GHS標籤元素** 本產品根據化學物質分類及標記全球協調制度(GHS)進行了分類及標記。
- **危險象形圖表**



GHS07

- **名稱** 警告
- **危險字句**
引起皮膚刺激
引起嚴重的眼睛刺激
可刺激呼吸道。
- **警戒字句**
- **預防措施**
避免吸入粉塵/煙/氣體/煙霧/蒸氣/噴霧
戴防護手套/穿防護服/戴防護眼罩/戴防護面具。
- **事故響應**
如進入眼睛：用水小心沖洗幾分鐘。如戴隱型眼鏡並可方便地取出，取出隱型眼鏡。繼續沖洗。
具體治療(見本標籤上的)
- **安全貯存**
存放處須加鎖。
- **廢棄處置**
按照本地 / 地區 / 國家 / 國際規例處理內含物 / 容器。
- **化學物質安全性評價:** 尚未進行化學物質安全性評價

TW

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16 其他資訊

該資料是基於我們目前的知識。然而,這並不構成對任何特定產品特性的擔保並且不建立一個法律上有效的合同關係。

縮寫:

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

急毒性物質(吞食) 第2級: Acute toxicity, Hazard Category 2

急毒性物質(吞食) 第5級: Acute toxicity, Hazard Category 5

腐蝕/刺激皮膚物質 第2級: Skin corrosion/irritation, Hazard Category 2

嚴重損傷/刺激眼睛物質 第2A級: Serious eye damage/eye irritation, Hazard Category 2A

嚴重損傷/刺激眼睛物質 第2B級: Serious eye damage/eye irritation, Hazard Category 2B

特定標的器官系統毒性物質(單一暴露) 第3級: Specific target organ toxicity - Single exposure, Hazard Category 3

Ficha de datos de seguridad

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SECCIÓN 1: Identificación de la sustancia o la mezcla y de la sociedad o la empresa

- **1.1 Identificador del producto**
- **Nombre comercial:** TMB, Tetramethylbenzidine
- **Número del artículo:** 13070
- **1.2 Usos pertinentes identificados de la sustancia o de la mezcla y usos desaconsejados**
No existen más datos relevantes disponibles.
- **Utilización del producto / de la elaboración** Sustancias químicas de laboratorio
- **1.3 Datos del proveedor de la ficha de datos de seguridad**
- **Fabricante/distribuidor:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Aname**
C/ Perez Galdos no. 2
28693 Quijorna
Madrid, Spain
Tel: +34.91.816.89.50
Fax: +34.91.816.85.94
email: ventas@aname.es
- **Área de información:** Product safety department
- **1.4 Teléfono de emergencia:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SECCIÓN 2: Identificación de los peligros

- **2.1 Clasificación de la sustancia o de la mezcla**
- **Clasificación con arreglo al Reglamento (CE) n° 1272/2008**



GHS07

- Skin Irrit. 2 H315 Provoca irritación cutánea.
- Eye Irrit. 2 H319 Provoca irritación ocular grave.
- STOT SE 3 H335 Puede irritar las vías respiratorias.

- **2.2 Elementos de la etiqueta**
- **Etiquetado con arreglo al Reglamento (CE) n° 1272/2008**
El producto se ha clasificado y etiquetado de conformidad con el reglamento CLP.
- **Pictogramas de peligro**



GHS07

- **Palabra de advertencia** Atención
- **Indicaciones de peligro**
H315 Provoca irritación cutánea.
H319 Provoca irritación ocular grave.

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H335 Puede irritar las vías respiratorias.

· **Consejos de prudencia**

P261 Evitar respirar el polvo/el humo/el gas/la niebla/los vapores/el aerosol.

P280 Llevar guantes/prendas/gafas/máscara de protección.

P305+P351+P338 **EN CASO DE CONTACTO CON LOS OJOS: Aclarar cuidadosamente con agua durante varios minutos. Quitar las lentes de contacto, si lleva y resulta fácil. Seguir aclarando.**

P321 Se necesita un tratamiento específico (ver en esta etiqueta).

P405 Guardar bajo llave.

P501 Eliminar el contenido o el recipiente conforme a la reglamentación local/regional/nacional/internacional.

· **2.3 Otros peligros**

· **Resultados de la valoración PBT y mPmB**

· **PBT:** No aplicable.

· **mPmB:** No aplicable.

SECCIÓN 3: Composición/información sobre los componentes

· **3.2 Caracterización química: Mezclas**

· **Descripción:** Mezcla formada por las sustancias especificadas a continuación con adiciones no peligrosas.

· **Componentes peligrosos:**

CAS: 124-04-9 EINECS: 204-673-3	ácido adípico ⚠ Eye Irrit. 2, H319	50-100%
CAS: 9003-39-8	Polyvinylpyrrolidone ⚠ Eye Irrit. 2, H319	10-25%
CAS: 54827-17-7 EINECS: 259-364-6	3,3',5,5'-tetrametilbencidina ⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 2, H330	2,5-10%

· **Indicaciones adicionales:** El texto de los posibles riesgos aquí indicados se puede consultar en el capítulo 16.

SECCIÓN 4: Primeros auxilios

· **4.1 Descripción de los primeros auxilios**

· **En caso de inhalación del producto:**

Las personas desmayadas deben tenderse y transportarse de lado con la suficiente estabilidad.

· **En caso de contacto con la piel:** Lavar inmediatamente con agua y jabón y enjuagar bien.

· **En caso de con los ojos:**

Limpia los ojos abiertos durante varios minutos con agua corriente. En caso de trastornos persistentes consultar un médico.

· **En caso de ingestión:** Consultar un médico si los trastornos persisten.

· **4.2 Principales síntomas y efectos, agudos y retardados** No existen más datos relevantes disponibles.

· **4.3 Indicación de toda atención médica y de los tratamientos especiales que deban dispensarse inmediatamente**

No existen más datos relevantes disponibles.

SECCIÓN 5: Medidas de lucha contra incendios

· **5.1 Medios de extinción**

· **Sustancias extintoras apropiadas:**

CO₂, polvo extintor o chorro de agua rociada. Combatir incendios mayores con chorro de agua rociada o espuma resistente al alcohol.

· **5.2 Peligros específicos derivados de la sustancia o la mezcla** No existen más datos relevantes disponibles.

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- **5.3 Recomendaciones para el personal de lucha contra incendios**
- **Equipo especial de protección:** No se requieren medidas especiales.

SECCIÓN 6: Medidas en caso de vertido accidental

- **6.1 Precauciones personales, equipo de protección y procedimientos de emergencia** No es necesario.
- **6.2 Precauciones relativas al medio ambiente:**
Evitar que penetre en la canalización /aguas de superficie /agua subterráneas.
- **6.3 Métodos y material de contención y de limpieza:** Asegurar suficiente ventilación.
- **6.4 Referencia a otras secciones**
Ver capítulo 7 para mayor información sobre una manipulación segura.
Ver capítulo 8 para mayor información sobre el equipo personal de protección.
Para mayor información sobre cómo desechar el producto, ver capítulo 13.

SECCIÓN 7: Manipulación y almacenamiento

- **7.1 Precauciones para una manipulación segura**
Si se manipulan correctamente, no se requieren medidas especiales.
- **Prevención de incendios y explosiones:** No se requieren medidas especiales.
- **7.2 Condiciones de almacenamiento seguro, incluidas posibles incompatibilidades**
- **Almacenamiento:**
- **Exigencias con respecto al almacén y los recipientes:** No se requieren medidas especiales.
- **Normas en caso de un almacenamiento conjunto:** No es necesario.
- **Indicaciones adicionales sobre las condiciones de almacenamiento:**
Mantener el recipiente cerrado herméticamente.
- **7.3 Usos específicos finales** No existen más datos relevantes disponibles.

SECCIÓN 8: Controles de exposición/protección individual

- **Instrucciones adicionales para el acondicionamiento de instalaciones técnicas:**
Sin datos adicionales, ver punto 7.

· 8.1 Parámetros de control

- **Componentes con valores límite admisibles que deben controlarse en el puesto de trabajo:**

124-04-9 ácido adípico

LEP Valor de larga duración: 5 mg/m³

- **Indicaciones adicionales:** Como base se han utilizado las listas vigentes en el momento de la elaboración.

· 8.2 Controles de la exposición

- **Equipo de protección individual:**

- **Medidas generales de protección e higiene:**

Mantener alejado de alimentos, bebidas y alimentos para animales.

Quitarse de inmediato la ropa ensuciada o impregnada.

Lavarse las manos antes de las pausas y al final del trabajo.

Evitar el contacto con los ojos y la piel.

- **Protección respiratoria:**

Si la exposición va a ser breve o de poca intensidad, colocarse una máscara respiratoria. Para una exposición más intensa o de mayor duración, usar un aparato de respiración autónomo.

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· **Protección de manos:**

Guantes de protección

El material del guante deberá ser impermeable y resistente al producto / sustancia / preparado.

Ante la ausencia de tests específicos, no se puede recomendar ningún material específico para guantes de protección contra el producto / preparado / mezcla de sustancias químicas.

Selección del material de los guantes en función de los tiempos de rotura, grado de permeabilidad y degradación.

· **Material de los guantes**

La elección del guante adecuado no depende únicamente del material, sino también de otras características de calidad, que pueden variar de un fabricante a otro. Teniendo en cuenta que el producto está fabricado a partir de diferentes materiales, su calidad no puede ser evaluada de antemano, de modo que los guantes deberán ser controlados antes de su utilización.

· **Tiempo de penetración del material de los guantes**

El tiempo de resistencia a la penetración exacto deberá ser pedido al fabricante de los guantes. Este tiempo debe ser respetado.

· **Protección de ojos:**

Gafas de protección herméticas

SECCIÓN 9: Propiedades físicas y químicas

· **9.1 Información sobre propiedades físicas y químicas básicas**· **Datos generales**· **Aspecto:**

Forma:	Tabletas
Color:	Incoloro
Olor:	Característico
Umbral olfativo:	No determinado.

· **valor pH:** No aplicable.· **Cambio de estado**

Punto de fusión /campo de fusión:	Indeterminado.
Punto de ebullición /campo de ebullición:	Indeterminado.

· **Punto de inflamación:** No aplicable.· **Inflamabilidad (sólido, gaseiforme):** No determinado.· **Temperatura de ignición:** 420 °C· **Temperatura de descomposición:** No determinado.· **Autoinflamabilidad:** El producto no es autoinflamable.· **Peligro de explosión:** El producto no es explosivo.· **Límites de explosión:**

Inferior:	No determinado.
Superior:	No determinado.

· **Presión de vapor:** No aplicable.

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· Densidad:	Indeterminado.
· Densidad relativa	No determinado.
· Densidad de vapor	No aplicable.
· Velocidad de evaporación	No aplicable.
· Solubilidad en / miscibilidad con agua:	Insoluble.
· Coeficiente de reparto (n-octanol/agua):	No determinado.
· Viscosidad:	
Dinámica:	No aplicable.
Cinemática:	No aplicable.
· Concentración del disolvente:	
Disolventes orgánicos:	0,0 %
VOC (CE)	0,00 %
· Contenido de cuerpos sólidos:	100,0 %
· 9.2 Información adicional	No existen más datos relevantes disponibles.

SECCIÓN 10: Estabilidad y reactividad

- **10.1 Reactividad**
- **10.2 Estabilidad química**
- **Descomposición térmica / condiciones que deben evitarse:** No se descompone al emplearse adecuadamente.
- **10.3 Posibilidad de reacciones peligrosas** No se conocen reacciones peligrosas.
- **10.4 Condiciones que deben evitarse** No existen más datos relevantes disponibles.
- **10.5 Materiales incompatibles:** No existen más datos relevantes disponibles.
- **10.6 Productos de descomposición peligrosos:** No se conocen productos de descomposición peligrosos.

SECCIÓN 11: Información toxicológica

- **11.1 Información sobre los efectos toxicológicos**
- **Toxicidad aguda**

· **Valores LD/LC50 (dosis letal /dosis letal = 50%) relevantes para la clasificación:**

124-04-9 ácido adípico

Oral	LD50	11000 mg/kg (rat)
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- **Efecto estimulante primario:**
- **Corrosión o irritación cutáneas** Irrita la piel y las mucosas.
- **Lesiones o irritación ocular graves** Produce irritaciones.
- **Sensibilización respiratoria o cutánea** No se conoce ningún efecto sensibilizante.
- **Indicaciones toxicológicas adicionales:**

En conformidad con el procedimiento de cálculo contenido en la última versión de la Normativa General de Clasificación de la CE para Preparados, el producto tiene los siguientes riesgos:
Irritante

SECCIÓN 12: Información ecológica

- **12.1 Toxicidad**
- **Toxicidad acuática:** No existen más datos relevantes disponibles.

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- **12.2 Persistencia y degradabilidad** No existen más datos relevantes disponibles.
- **12.3 Potencial de bioacumulación** No existen más datos relevantes disponibles.
- **12.4 Movilidad en el suelo** No existen más datos relevantes disponibles.
- **Indicaciones medioambientales adicionales:**
- **Indicaciones generales:**
 Nivel de riesgo para el agua 2 (autoclasificación): peligroso para el agua
 No dejar que se infiltre en aguas subterráneas, aguas superficiales o en alcantarillados.
 Una cantidad mínima vertida en el subsuelo ya representa un peligro para el agua potable.
- **12.5 Resultados de la valoración PBT y mPmB**
- **PBT:** No aplicable.
- **mPmB:** No aplicable.
- **12.6 Otros efectos adversos** No existen más datos relevantes disponibles.

SECCIÓN 13: Consideraciones relativas a la eliminación

- **13.1 Métodos para el tratamiento de residuos**
- **Recomendación:** No debe desecharse con la basura doméstica. No debe llegar al alcantarillado.
- **Embalajes sin limpiar:**
- **Recomendación:** Eliminar conforme a las disposiciones oficiales.

SECCIÓN 14: Información relativa al transporte

- **14.5 Peligros para el medio ambiente:**
- **Contaminante marino:** No
- **14.6 Precauciones particulares para los usuarios** No aplicable.
- **14.7 Transporte a granel con arreglo al anexo II del Convenio Marpol 73/78 y del Código IBC** No aplicable.

SECCIÓN 15: Información reglamentaria

- **15.1 Reglamentación y legislación en materia de seguridad, salud y medio ambiente específicas para la sustancia o la mezcla**
- **Directiva 2012/18/UE**
- **Sustancias peligrosas nominadas - ANEXO I** ninguno de los componentes está incluido en una lista
- **15.2 Evaluación de la seguridad química:** Una evaluación de la seguridad química no se ha llevado a cabo.

SECCIÓN 16: Otra información

Los datos se fundan en el estado actual de nuestros conocimientos, pero no constituyen garantía alguna de cualidades del producto y no generan ninguna relación jurídica contractual.

- **Frases relevantes**
 H301 Tóxico en caso de ingestión.
 H311 Tóxico en contacto con la piel.
 H319 Provoca irritación ocular grave.
 H330 Mortal en caso de inhalación.
- **Abreviaturas y acrónimos:**
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances

(se continua en página 7)

Ficha de datos de seguridad
según 1907/2006/CE, Artículo 31

fecha de impresión 20.11.2015

Revisión: 20.11.2015

Nombre comercial: TMB, Tetramethylbenzidine

(se continua en página 6)

*ELINCS: European List of Notified Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**VOC: Volatile Organic Compounds (USA, EU)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**Acute Tox. 3: Acute toxicity, Hazard Category 3**Acute Tox. 2: Acute toxicity, Hazard Category 2**Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2**Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2**STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3*

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