

**SAFETY DATA SHEET**

According to 1907/2006/EC, Article 31

Revision number: 1

Revision date: 10/03/2018

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

**Product name:** 4,4'-Diaminodiphenylmethane  
**Product code:** M0220

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

**Identified uses:** Reagents.

**1.3 Details of the supplier of the safety data sheet****Supplier:**

TCI EUROPE N.V.  
 Boerenveldseweg 6  
 Haven 1063  
 B-2070 Zwijndrecht  
 Telephone: +32(0)3 735 07 00  
 E-mail: sales-eu@tcichemicals.com

**1.4 Emergency telephone number:** +32(0)70 245 245

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

<b>Acute toxicity (Oral)</b>	Category 4
<b>Acute toxicity (Dermal)</b>	Category 3
<b>Serious eye damage/eye irritation</b>	Category 2
<b>Skin sensitization</b>	Category 1
<b>Germ cell mutagenicity</b>	Category 2
<b>Carcinogenicity</b>	Category 1B
<b>Specific target organ toxicity - Single exposure [Category 1]</b>	Organs
<b>Specific target organ toxicity - Repeated exposure [Category 1]</b>	Organs
<b>Acute aquatic hazard</b>	Category 1
<b>Long-term aquatic hazard</b>	Category 1

**2.2 Label elements****Pictograms or hazard symbols****Signal word**

Danger

**Hazard statements**

H302-Harmful if swallowed.  
 H311-Toxic in contact with skin.  
 H319-Causes serious eye irritation.  
 H317-May cause an allergic skin reaction.  
 H341-Suspected of causing genetic defects.  
 H350-May cause cancer.  
 H361fd-Suspected of damaging fertility. Suspected of damaging the unborn child.  
 H370-Causes damage to organs.  
 H372-Causes damage to organs through prolonged or repeated exposure.  
 H400-Very toxic to aquatic life.

**Precautionary statements**

H410-Very toxic to aquatic life with long lasting effects.  
 P260-Do not breathe dust/fume/gas/mist/vapours/spray.  
 P270-Do not eat, drink or smoke when using this product.  
 P280-Wear protective gloves, protective clothing, face protection.  
 P302+P352+P312+P361+P364-IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor if you feel unwell. Take off immediately all contaminated clothing and wash it before reuse.  
 P305+P351+P338+P337+P313-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice

or attention.  
P308+P311-If exposed or concerned: Call a POISON CENTER or doctor.

### 2.3 Other hazards

#### Results of PBT and vPvB assessment

**PBT:** Not applicable  
**vPvB:** Not applicable

### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

**Components:** 4,4'-Diaminodiphenylmethane  
**Percent:** >98.0%(T)  
**CAS RN:** 101-77-9  
**EC-No:** 202-974-4  
**Synonyms:** 4,4'-Methylenedianiline  
**Chemical Formula:** C<sub>13</sub>H<sub>14</sub>N<sub>2</sub>

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

**Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.  
**Skin contact:** Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Call a POISON CENTER or doctor/physician.  
**Eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Call a POISON CENTER or doctor/physician.  
**Ingestion:** Call a POISON CENTER or doctor/physician. Rinse mouth.  
**Protection of first-aiders:** A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

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

No data available

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

No data available

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

**Suitable extinguishing media:** Dry chemical, foam, water spray, carbon dioxide.

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

Take care as it may decompose upon combustion or in high temperatures to generate poisonous fume. Carbon dioxide, Carbon monoxide, Nitrogen oxides (NO<sub>x</sub>)

#### 5.3 Advice for firefighters

Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Remove movable containers if safe to do so. When extinguishing fire, be sure to wear personal protective equipment

### SECTION 6: Accidental release measures

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

Use personal protective equipment. Keep people away from and upwind of spill/leak. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc

#### 6.2 Environmental precautions

Be careful not to let it flow into rivers, etc., since adverse effects on the environment are concerned

#### 6.3 Methods and materials for containment and cleaning up

Sweep dust to collect it into an airtight container, taking care not to disperse it. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

#### 6.4 Reference to other sections

For disposal see section 13.

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent dispersion of dust. Wash hands and face thoroughly after handling. Use a closed system if possible. Use a local exhaust if dust or aerosol will be generated. Avoid all contact!

#### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in a cool and dark place. Store under inert gas. Store locked up. Store away from incompatible materials such as oxidizing agents. Air-sensitive

#### 7.3 Specific end use(s)

No further relevant information available.

## SECTION 8: Exposure controls/personal protection

<b>8.1 Control parameters</b>	
<b>ACGIH TLV(TWA):</b>	0.1 ppm (skin)
<b>JSOH OELs(TWA):</b>	0.4 mg/m <sup>3</sup> (skin)
<b>8.2 Exposure controls</b>	Install a closed system or local exhaust. Also install safety shower and eye bath.
<b>Respiratory protection:</b>	Dust respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.
<b>Hand protection:</b>	Impervious gloves.
<b>Eye protection:</b>	Safety goggles. A face-shield, if the situation requires.
<b>Skin and body protection:</b>	Impervious protective clothing. Protective boots, if the situation requires.

## SECTION 9: Physical and chemical properties

<b>9.1 Information on basic physical and chemical properties</b>	
<b>Physical state (20°C):</b>	Solid
<b>Form:</b>	Pellet
<b>Colour:</b>	White - Pale yellow
<b>Odour:</b>	Weakly Amine-like
<b>pH:</b>	No data available
<b>Melting point/freezing point:</b>	91°C
<b>Boiling point/range:</b>	257°C /2.4kPa
<b>Flash point:</b>	No data available
<b>Evaporation rate(Butyl Acetate=1):</b>	No data available
<b>Flammability(solid, gas):</b>	No data available
<b>Flammability or explosive limits:</b>	
<b>Lower:</b>	No data available
<b>Upper:</b>	No data available
<b>Vapour pressure:</b>	133Pa/197°C
<b>Vapour density:</b>	6.8
<b>Relative density:</b>	No data available
<b>Solubility(ies):</b>	
<b>[Water]</b>	Very slightly soluble (1g/L, 25°C)
<b>[Other solvents]</b>	
<b>Very soluble:</b>	Ether, Alcohols, Benzene, Acetone
<b>Partition coefficient:</b>	1.59
<b>n-octanol/water:</b>	
<b>Autoignition temperature:</b>	No data available
<b>Decomposition temperature:</b>	No data available
<b>Dynamic Viscosity:</b>	No data available
<b>Kinematic viscosity:</b>	No data available
<b>9.2 Other safety information</b>	No data available

## SECTION 10: Stability and reactivity

<b>10.1 Reactivity</b>	No data available
<b>10.2 Chemical stability</b>	Stable under proper conditions.
<b>10.3 Possibility of hazardous reactions</b>	No special reactivity has been reported.
<b>10.4 Conditions to avoid</b>	No data available
<b>10.5 Incompatible materials</b>	Oxidizing agents
<b>10.6 Hazardous decomposition products</b>	Carbon dioxide, Carbon monoxide, Nitrogen oxides (NO <sub>x</sub> )

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

<b>Acute Toxicity:</b>	orl-rat LD50:517 mg/kg skn-rbt LD50:200 mg/kg ipr-rat LD50:193 mg/kg
<b>Skin corrosion/irritation:</b>	No data available
<b>Serious eye damage/irritation:</b>	eye-rbt 100 mg/24H MOD
<b>Respiratory or skin sensitization:</b>	No data available
<b>Germ cell mutagenicity:</b>	dnd-rat-ipr 370 umol/kg mmo-sat 1 nmol/plate/20M mmo-sat 250 ug/plate (+S9) sce-mus-ipr 9 mg/kg
<b>Carcinogenicity:</b>	orl-rat TDLo:320 mg/kg scu-rat TDLo:1410 mg/kg
<b>IARC =</b>	Group 2B (Possibly carcinogenic to humans)
<b>NTP =</b>	b (Reasonably anticipated to be carcinogens)
<b>Reproductive toxicity:</b>	No data available
<b>STOT-single exposure:</b>	No data available
<b>STOT-repeated exposure:</b>	No data available
<b>Aspiration hazard:</b>	No data available
<b>RTECS Number:</b>	BY5425000

## SECTION 12: Ecological information

### 12.1 Toxicity

<b>Fish:</b>	48h LC50:32 ppm (Oryzias latipes) 96h LC50:21 mg/L (Oryzias latipes)
<b>Crustacea:</b>	48h EC50:2.5 mg/L (Daphnia magna)
<b>Algae:</b>	72h EC50:5.3 mg/L (Selenastrum capricornutum)

**12.2 Persistence and degradability** 0 % (by BOD) , 5 % (by HPLC) , 0 % (by TOC)

**12.3 Bioaccumulative potential** 3.0 - 14 (conc. 200 ppb) , 3.1 - 15 (conc. 20 ppb)

### 12.4 Mobility in soil

<b>Log Pow:</b>	1.59
<b>Soil adsorption (Koc):</b>	3825 - 5681
<b>Henry's Law (PaM<sup>3</sup>/mol):</b>	5.4

### 12.5 Results of PBT and vPvB assessment

<b>PBT:</b>	Not applicable
<b>vPvB:</b>	Not applicable

**12.6 Other adverse effects** No data available

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

**SECTION 14: Transport information**

<b>14.1 UN number</b>	2651
<b>14.2 UN proper shipping name</b>	
ADR/RID	4,4'-Diaminodiphenylmethane
IMDG/IMO	4,4'-Diaminodiphenylmethane
ICAO/IATA	4,4'-Diaminodiphenylmethane
<b>14.3 Transport hazard class(es)</b>	
ADR/RID	6.1: Toxic substance
IMDG/IMO	6.1: Toxic substance
ICAO/IATA	6.1: Toxic substance
<b>14.4 Packaging group</b>	
ADR/RID	III
IMDG/IMO	III
ICAO/IATA	III
<b>14.5 Environmental hazards</b>	
Marine pollutant	Y
<b>14.6 Special precautions for user</b>	No data available

**SECTION 15: Regulatory information**

<b>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture</b>	
Water Hazard Classes (WGK) :	Class 3 - Severe hazard to waters
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No.1907/2006	Listed (Annex XIV)
<b>15.2 Chemical safety assessment</b>	A chemical safety assessment has not been carried out.

**SECTION 16: Other information**

<b>Prepared by:</b>	TCI EUROPE N.V.
<b>Issue date:</b>	10/03/2018

This SDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.

**End of Safety Data Sheet**