

# SAFETY DATA SHEET


## 4,4-DIAMINODIPHENYLMETHANE

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

<b>1.1 Product identifier:</b>	
<b>CAS Number:</b>	101-77-9
<b>EC number:</b>	202-974-4
<b>1.2 SYNONYMS:</b>	<ul style="list-style-type: none"> <li>• 4,4'-Methylenedianiline</li> <li>• Methylene dianiline</li> <li>• 4,4'-Diaminobenzylamine</li> <li>• Diaminodiphenylmethane</li> <li>• 4,4'-Diphenylmethanediamine</li> <li>• 4,4'-Methylenedianiline</li> </ul>

### SECTION 2: Hazards identification:

<b>2.1 Classification of the substance or mixture:</b>	Classification according to Regulation (EC) No 1272/2008 The substance is classified according to the CLP regulation.
<b>2.2 Label elements:</b>	<p>Labelling according to Regulation (EC) No 1272/2008</p> <p>Acute toxicity- Oral (Category 4)</p> <p>Acute toxicity- Dermal (Category 3)</p> <p>Serious eye damage/eye irritation (Category 2)</p> <p>Skin sensitization (Category 1)</p> <p>Germ cell mutagenicity (Category 2)</p> <p>Carcinogenicity (Category 1B)</p> <p>Specific target organ toxicity - Single exposure, Organs (Category 1)</p> <p>Specific target organ toxicity - Repeated exposure, Organs (Category 1)</p> <p>Acute aquatic hazard (Category 1)</p> <p>Long-term aquatic hazard (Category 1)</p>

<b>Hazard Pictograms:</b>	
<b>Signal Word:</b>	Danger
<b>Hazard statements:</b>	<p><b>H302:</b> Harmful if swallowed.  <b>H311:</b> Toxic in contact with skin.  <b>H319:</b> Causes serious eye irritation.  <b>H317:</b> May cause an allergic skin reaction.  <b>H341:</b> Suspected of causing genetic defects.  <b>H350:</b> May cause cancer.  <b>H361fd:</b> Suspected of damaging fertility. Suspected of damaging the unborn child.  <b>H370:</b> Causes damage to organs.  <b>H372:</b> Causes damage to organs through prolonged or repeated exposure.  <b>H400:</b> Very toxic to aquatic life.  <b>H410:</b> Very toxic to aquatic life with long lasting effects.</p>
<b>Precautionary Statements:</b>	<p><b>P260:</b> Do not breathe dust/fume/gas/mist/vapours/spray.  <b>P270:</b> Do not eat, drink or smoke when using this product.  <b>P280:</b> Wear protective gloves, protective clothing, face protection.  <b>P302+P352+P312+P361+P364:</b> IF ON SKIN: Wash with plenty of soap and water. Call a POISONCENTER or doctor if you feel unwell. Take off immediately all contaminated clothing and wash it before reuse.  <b>P305+P351+P338+P337+P313:</b> IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation</p>

	<p>persists: Get medical advice or attention.</p> <p><b>P308+P311:</b> If exposed or concerned: Call a POISON CENTER or doctor.</p> <p><b>P391:</b> Collect spillage.</p> <p><b>P405:</b> Store locked up.</p> <p><b>P501:</b> Dispose of contents/ container to an approved waste disposal plant.</p>
<b>2.3 Other hazards:</b>	
<b>Inhalation:</b>	can cause respiratory irritation, coughing, and shortness of breath, and prolonged exposure may lead to more severe health effects.
<b>Ingestion:</b>	can cause gastrointestinal irritation, nausea, vomiting, and abdominal pain, and may lead to more serious effects if consumed in large quantities.
<b>Skin Contact:</b>	can cause irritation, redness, and dermatitis, and prolonged exposure may lead to sensitization or allergic reactions.
<b>Eye contact:</b>	can cause severe irritation, redness, and pain, and may lead to eye damage with prolonged or repeated exposure.
<b>Chronic Exposure:</b>	may lead to adverse health effects such as liver or kidney damage, respiratory issues, and potential sensitization or allergic reactions, particularly through prolonged skin contact or inhalation.
<b>Aggravation of pre-existing conditions:</b>	may aggravate pre-existing conditions such as asthma, respiratory disorders, or skin sensitivities, potentially leading to worsened symptoms or allergic reactions.

## SECTION 3: Composition/information on ingredients

<b>3.1 Chemical characterisation:</b>	Substances
<b>CAS No:</b>	Description: 101-77-9 4,4-DIAMINODIPHENYLMETHANE
<b>Identification number(s):</b>	EC number: 202-974-4

## SECTION 4: First aid measures

<b>4.1 Description of first aid measures</b>	
<b>General information:</b>	
<b>After inhalation:</b>	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
<b>After skin contact:</b>	Remove contaminated clothing immediately. Wash with plenty of water. Consult a physician.
<b>After eye contact:</b>	Immediately flush eyes with plenty of water for at least 15 minutes. consult a physician.
<b>After swallowing:</b>	Rinse mouth with water. Immediately after ingestion. If conscious, make victim drink two glasses at most immediately. Never give anything by mouth to an unconscious person. Do not induce vomiting. Consult a physician.
<b>4.2 Most important symptoms and effects, both acute and delayed:</b>	Acute symptoms of exposure to 4,4-diaminodiphenylmethane include respiratory irritation, gastrointestinal discomfort, and skin or eye irritation, while delayed effects may include sensitization, allergic reactions, and damage to the liver, kidneys, or respiratory system with prolonged exposure.
<b>4.3 Indication of any immediate medical attention and special treatment needed:</b>	Treat symptomatically.

## SECTION 5: Firefighting measures

<b>5.1 Extinguishing media:</b>	Carbon dioxide. Water spray Alcohol-resistant foam.
<b>5.2 Special hazards arising from the substance or mixture:</b>	Carbon oxides, nitrogen oxides.
<b>5.3 Advice for firefighters:</b>	Wear fully protective suit, safety glasses and respiratory device. Cool tanks/drums with water spray/remove them into safety.
<b>5.4 further information:</b>	no data available

## SECTION 6: Accidental release measures

<b>6.1 Personal precautions, protective equipment and emergency procedures:</b>	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Avoid dust accumulation. Seek medical attention.
<b>6.2 Environmental precautions:</b>	Do not enter this chemical into drains.
<b>6.3 Methods and material for containment and cleaning up:</b>	Take up spill into absorbent material, e.g.: sand, earth, vermiculite, powdered limestone. Scoop absorbed substance into closing containers. Spill must not return in its original container. Wash clothing and equipment after handling.

## SECTION 7: Handling and storage

<b>7.1 Precautions for safe handling:</b>	For use in are with adequate ventilation. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material Do not use in confined spaces. Electrostatic discharge protection. Minimize dust generation and accumulation. Avoid ingestion and inhalation.
<b>7.2 Conditions for safe storage, including any incompatibilities:</b>	Store in original containers. Keep containers securely sealed Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Store in a dry and dark area.
<b>Requirements to be met by storerooms and receptacles:</b>	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
<b>7.3 Specific end uses:</b>	no data available

## SECTION 8: Exposure controls/personal protection

<b>8.1 Control parameters</b>	
<b>Additional information about design of technical facilities:</b>	A system of local and general exhaust is recommended.
<b>8.2 Exposure controls</b>	
<b>Appropriate engineering controls</b>	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
<b>Personal protective equipment:</b>	Dust respirator, protective masks, wearing anti chemical gloves, rubber gloves, etc.

<b>General protective and hygienic measures:</b>	Eyes, body and hand protection, maintain indoor air unobstructed. Wear protective equipment.
<b>Protection of hands:</b>	<b>Respiratory protection:</b> Required. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands.
	<b>Eye protection:</b> Required
<b>Protection of Body:</b>	Complete suit protecting against chemicals, Flame retardant antistatic protective clothing.

## SECTION 9: Physical and chemical properties

<b>9.1 Information on basic physical and chemical properties</b>	
<b>General Information</b>	
<b>Appearance: Form:</b>	Solid
<b>Colour:</b>	White
<b>Odour:</b>	Aromatic odour
<b>pH-value:</b>	Not applicable
<b>Melting point/Melting range:</b>	153°C
<b>Boiling point/Boiling range:</b>	390°C
<b>Flammability (solid, gaseous):</b>	Flammable
<b>Ignition temperature:</b>	380°C
<b>Decomposition temperature:</b>	Not determined
<b>Self-igniting:</b>	None
<b>Flash point:</b>	200°C
<b>Danger of explosion:</b>	None
<b>Explosion limits: Lower:</b>	No data available
<b>Explosion limits: Upper:</b>	No data available
<b>Vapour pressure:</b>	Not determined
<b>Density at 20 °C:</b>	1.24 g/cm <sup>3</sup>

<b>Relative density:</b>	1.24
<b>Vapour density:</b>	Not applicable
<b>Evaporation rate:</b>	No data available
<b>Solubility in / Miscibility with-water at 20 °C:</b>	Insoluble
<b>Partition coefficient:(n-octanol/water)</b>	2.75
<b>Viscosity:</b>	No data available

## SECTION 10: Stability and reactivity

<b>10.1 Reactivity</b>	Stable at room temperature
<b>10.2 Chemical stability</b>	This chemical is stable under storage conditions.
<b>10.3 Possibility of hazardous reactions</b>	May react with strong oxidizers to form hazardous products.
<b>10.4 Conditions to avoid</b>	Heat, flames and direct sunlight.
<b>10.5 Incompatible materials</b>	Strong oxidizing agents ,Strong acids or bases, certain halogenated compounds under extreme conditions.
<b>10.6 Hazardous decomposition products</b>	Can release ammonia, carbon monoxide and nitrogen oxides upon decomposition.

## SECTION 11: Toxicological information

<b>11.1 Information on toxicological effects</b>	
<b>Acute Toxicity:</b>	<b>LD50</b> (Oral, Rat): 517 mg/kg <b>LD50</b> (Dermal, Rabbit): 200 mg/kg <b>LC50</b> (Inhalation Rat): 193 mg/kg
<b>Skin corrosion/Irritation:</b>	Causes skin sensitization
<b>Serious eye damage/irritation:</b>	Causes serious eye irritation
<b>Respiratory damage/irritation:</b>	No data available
<b>Ingestion:</b>	No data available
<b>Germ cell mutagenicity:</b>	No data available
<b>Carcinogenicity:</b>	Suspected of carcinogen inheriting properties



<b>Reproductive toxicity:</b>	Suspected of damaging fertility
<b>Specific target organ toxicity - single exposure:</b>	May cause organ damage
<b>Specific target organ toxicity - repeated exposure:</b>	May cause organ damage
<b>Aspiration hazard:</b>	No data available
<b>Signs and Symptoms of Exposure:</b>	Refer section 2.3
<b>11.2 Additional toxicological information</b>	
<b>Biodegradability:</b>	Not Biodegradable

## SECTION 12: Ecological information

<b>12.1 Toxicity Aquatic toxicity:</b>	LC50(fish): 21 mg/l (96 hr) EC50(daphnia): 2.5 mg/l (48 hr) ErC50(algae): 9.3 mg/l (72hr)
<b>12.2 Persistence and degradability:</b>	Not Biodegradable
<b>12.3 Bioaccumulative potential:</b>	Low bioaccumulative
<b>12.4 Mobility in soil:</b>	Low mobility
<b>12.5 Other adverse effects:</b>	No data available

## SECTION 13: Disposal considerations

<b>13.1 Waste treatment methods</b>	
<b>Uncleaned packaging Recommendation:</b>	dispose of in accordance with local hazardous waste regulations
<b>Recommended cleansing agents:</b>	Water, isopropyl alcohol, acetone, diluted acids and bases.

## SECTION 14: Transport information

<b>14.1 UN-Number · ADR, ADN, IMDG, IATA:</b>	2735
<b>14.2 UN proper shipping name · ADR, ADN, IMDG, IATA:</b>	4,4-DIAMINODIPHENYLMETHANE
<b>14.3 Transport hazard class(es) · ADR, ADN, IMDG, IATA :</b>	9

<b>14.4 Packing group · ADR, IMDG, IATA:</b>	3
<b>14.5 Environmental hazards:</b>	None
<b>14.6 Special precautions for user:</b>	Handle responsibly.

## SECTION 15: Regulatory information

<b>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture Directive 2012/18/EU</b>	Directive 2012/18/EU, under that this substance is not classified in listed substance.
<b>Named dangerous substances:</b>	This substance is not listed in the annex 1 to the directive.
<b>15.2 Chemical safety assessment:</b>	Chemical assessment has not been carried out.

## SECTION 16: Other information

The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and limitations of our knowledge, this document is only for reference. Users should make their independent judgment suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

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