




**Classification** : T, R23/24  
Xn, R22  
C, R35  
N, R51/53

**Adverse effects**

Toxic in contact with skin. Harmful if swallowed. Causes severe skin burns and eye damage. Toxic to aquatic life with long lasting effects.

See Section 16 for the full text of the H statements and R phrases declared above.

**2.2. Label elements**

**Hazard pictograms** : 

**Signal word** : Danger

**Hazard statements** : Toxic in contact with skin. Harmful if swallowed. Causes severe skin burns and eye damage. Toxic to aquatic life with long lasting effects.

**Precautionary statements**

**Prevention** : Wear protective gloves. Wear eye/face protection. Wear protective clothing. Avoid release to the environment. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

**Response** : Immediately call a POISON CENTER or doctor/physician.  
**IF INHALED:** Immediately call a POISON CENTER or doctor/physician. Remove to fresh air and keep at rest in a position comfortable for breathing.  
**IF SWALLOWED:** Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell.  
**IF ON SKIN (or hair):** Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash with plenty of soap and water. Wash contaminated clothing before reuse. Call a POISON CENTER or doctor/physician if you feel unwell.  
**IF IN EYES:** Immediately call a POISON CENTER or doctor/physician. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Collect spillage.

**Storage** : Store locked up.

**Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

**2.3. Other hazards**

The data show that the properties of the substance do not meet the specific criteria detailed in Annex XIII and, consequently, that the substance is not considered a PBT/vPvB.

**SECTION 3: Composition/information on ingredients**

**Substance/mixture** : Mono-constituent substance

Ingredient name	REG # /CAS #/EC #	Classification	%

		Symbol(s)/Hazard Class and Category Code(s)	R-Phrases /Hazard statement Code(s)	
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	6864-37-5/ 229-962-1	T; C; N;	T; R23/24 C; R35 Xn; R22 N; R51/53	100
		Skin Corr./Irrit. 1A Aquatic Chronic 2 Acute Tox. 4 Acute Tox. 3 Acute Tox. 3	H314 H411 H302 H311 H331	
1,4-bis(butylamino)anthraquinone (Impurity)	17354-14-2/ 241-379-4			

See Section 16 for the full text of the H statements and R phrases declared above.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### First aid measures

##### **Inhalation**

- : Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

##### **Ingestion**

- : Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

##### **Skin contact**

- : Get medical attention immediately. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated

promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

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

##### **Over-exposure signs/symptoms**

- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.
- Skin** : No known significant effects or critical hazards.
- Eyes** : No known significant effects or critical hazards.

See section 11 for more detailed information on health effects and symptoms.

#### **4.3. Indication of immediate medical attention and special treatment needed**

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Protection of first aid personnel** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

## **SECTION 5: Fire-fighting measures**

### **5.1. Extinguishing media**

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.

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

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides,

### **5.3. Special protective actions for fire-fighters**

- Special precautions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## **SECTION 6: Accidental release measures**

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

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8). Do not breathe vapor or mist.

### **6.2. Environmental precautions**

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

### **6.3. Methods and material for containment and cleaning up**

- Small spill** : Move containers from spill area. Dispose of via a licensed waste disposal contractor. Stop leak if without risk. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal. Stop leak if without risk. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Contaminated absorbent material may pose the same hazard as the spilled product.

## **SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

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

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled

containers. Use appropriate containment to avoid environmental contamination.

**Packaging materials**

**Recommended** : Use original container.

**Specific uses** : Epoxy Resin Systems

**7.3. Specific end use(s)**

Not applicable.

## SECTION 8: Exposure controls/personal protection

**8.1. Control parameters**

**Exposure limit values**

**Ingredient name**

**Occupational exposure limits**

**Europe**

No exposure limit value known.

**Sweden**

No exposure limit value known.

**Denmark**

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)

**Arbejdstilsynet**

Time Weighted Average (TWA) 1 ppm

**Norway**

No exposure limit value known.

**France**

No exposure limit value known.

**Netherlands**

No exposure limit value known.

**Germany**

No exposure limit value known.

**Finland**

No exposure limit value known.

**United Kingdom (UK)**

No exposure limit value known.

**Austria**

No exposure limit value known.

**Switzerland**

No exposure limit value known.

**Belgium**

No exposure limit value known.

**Spain**

No exposure limit value known.

**Turkey**

No exposure limit value known.

**Czech Republic**

No exposure limit value known.

**Ireland**

No exposure limit value known.

**Italy**

No exposure limit value known.

**Estonia**

No exposure limit value known.

**Lithuania**

No exposure limit value known.

**Slovakia**

No exposure limit value known.

**Hungary**

No exposure limit value known.

**Poland**

No exposure limit value known.

**Slovenia**

No exposure limit value known.

**Latvia**

No exposure limit value known.

**Greece**

No exposure limit value known.

**Portugal**

No exposure limit value known.

**Bulgaria**

No exposure limit value known.

**Romania**

No exposure limit value known.

**8.2. Exposure controls**

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances. If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Occupational exposure controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other

	: engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
<b>Hygiene measures</b>	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
<b>Respiratory protection</b>	: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
<b>Hand protection</b>	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
<b>Eye protection</b>	: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
<b>Skin protection</b>	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
<b>Environmental exposure controls</b>	: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

## **SECTION 9: Physical and chemical properties**

### **9.1. Information on basic physical and chemical properties**

#### **Appearance**

Physical state	: Liquid
Color	: Bluish-grey.
Odor	: Amine-like.
Odor threshold	: Not determined
pH	: Not determined
Initial boiling point and boiling range	: Approx. 347 °C (657 °F)
Flash point	: Approx. 173 °C (343 °F)
Evaporation rate	: Not determined
Flammability	: Not determined
<b>Explosion limits</b>	
Upper:	: Not determined
Lower:	: Not determined
Vapor pressure	: Not determined
Vapor density	: Not determined
Relative density	: Not determined
Solubility	: Insoluble
Partition coefficient: n-octanol/water	: Not determined



Auto-ignition temperature	:	Not determined
Decomposition temperature	:	Not determined
Viscosity	:	Kinematic-Not determined Dynamic- 142 mPa·s @20 °C (68 °F) ISO 9371
Explosive properties	:	Not determined
Oxidising properties	:	Not determined

#### 9.2. Other information

Not applicable.

## **SECTION 10: Stability and reactivity**

### 10.1. Reactivity

Stable under normal conditions.

### 10.2. Chemical stability

The product is stable.

### 10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

### 10.4. Conditions to avoid

Avoid release to the environment.

### 10.5. Incompatible materials

No specific data.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## **SECTION 11: Toxicological information**

### 11.1. Information on toxicological effects

#### *2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)*

#### Acute toxicity

##### Oral

LD50: Rat > 320 mg/kg;

##### Dermal

LD50: Rabbit > 200 mg/kg;

##### Inhalation

LC50: Rat 0.42 mg/l/4 h;

##### Other routes

No applicable toxicity data. No known significant effects or critical hazards.

#### Skin corrosion/irritation

No applicable toxicity data. No known significant effects or critical hazards.

**Serious eye damage/irritation**

No applicable toxicity data. No known significant effects or critical hazards.

**Skin sensitization**

No applicable toxicity data. No known significant effects or critical hazards.

**Respiratory sensitization**

No applicable toxicity data. No known significant effects or critical hazards.

**Germ cell mutagenicity**

No applicable toxicity data. No known significant effects or critical hazards.

**Carcinogenicity**

No applicable toxicity data. No known significant effects or critical hazards.

**Reproductive toxicity**

No applicable toxicity data. No known significant effects or critical hazards.

**Developmental / Teratogenicity**

No applicable toxicity data. No known significant effects or critical hazards.

**STOT-single exposure**

No applicable toxicity data. No known significant effects or critical hazards.

**STOT-repeated exposure**

No applicable toxicity data. No known significant effects or critical hazards.

**Aspiration hazard**

No applicable toxicity data. No known significant effects or critical hazards.

**Other information**

No applicable toxicity data. No known significant effects or critical hazards.

**SECTION 12: Ecological information****12.1. Toxicity*****2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)***

No applicable toxicity data. No known significant effects or critical hazards.

**12.2. Persistence and degradability*****2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)***

No data available.

**12.3. Bioaccumulative potential*****2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)***

No data available.

**12.4. Mobility in soil*****2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)***

No data available.

### 12.5. Results of PBT and vPvB assessment

#### *2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)*

No data available.

### 12.6. Other adverse effects

#### *2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)*

No known adverse effects.

## **SECTION 13: Disposal considerations**

### 13.1. Waste treatment methods

- Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

## **SECTION 14: Transport information**

Regulatory information	14.1. UN number	14.2. UN proper shipping name	14.3. Transport hazard class(es)	14.4. Packing group
ADR	2922	CORROSIVE LIQUID, TOXIC, N.O.S. (3,3'-DIMETHYL-4,4'-DIAMINODI CYCLOHEXYLMETHANE)	8 (6.1)	I
RID	2922	CORROSIVE LIQUID, TOXIC, N.O.S. (3,3'-DIMETHYL-4,4'-DIAMINODI CYCLOHEXYLMETHANE)	8 (6.1)	I
ICAO/IATA	2922	CORROSIVE LIQUID, TOXIC, N.O.S. (3,3'-DIMETHYL-4,4'-DIAMINODI CYCLOHEXYLMETHANE)	8 (6.1)	I
IMO/IMDG	2922	CORROSIVE LIQUID, TOXIC, N.O.S. (3,3'-DIMETHYL-4,4'-DIAMINODI CYCLOHEXYLMETHANE)	8 (6.1)	I

### 14.5. Environmental hazards

Environmentally hazardous and/or Marine Pollutant : Yes.



#### 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

##### EU regulations

<u>SEVESO Directive 96/82/EC</u>	<u>Ingredient name</u>	<u>Listed</u>
	<i>2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)</i>	No.

REACH Annex XVII : Not listed

Biocides - Annex I to Directive 98/8/EC : Not listed

Prior Informed Consent. List of chemicals subject to the international PIC procedure (Part I, II, III) : None required.

Integrated pollution prevention and control list (IPPC) - Air : Not listed

Integrated pollution prevention and control list (IPPC) - Water : Not listed

##### National regulations

##### Germany

Hazard class for water : WGK 3, Appendix No. 2

##### International regulations

**Chemical inventories** REACH Status The substance(s) in this product has (have) been Pre-Registered and/or Registered, or are exempted from registration, according to Regulation (EC) No. 1907/2006 (REACH).  
 Canada inventory All components are listed or exempted.  
 Australia inventory (AICS) This material is listed or exempted.  
 Canada inventory This material is listed or exempted.  
 Japan inventory This material is listed or exempted.  
 China inventory (IECSC) This material is listed or exempted.  
 Korea inventory This material is listed or exempted.  
 New Zealand Inventory (NZIoC) Not determined.  
 Philippines inventory (PICCS) This material is listed or exempted.  
 United States inventory (TSCA 8b) This material is listed or exempted.

#### 15.2. Chemical Safety Assessment

Chemical Safety Assessment not applicable.

## SECTION 16: Other information

- Full text of abbreviated H statements** : H314 - Causes severe skin burns and eye damage.  
H411 - Toxic to aquatic life with long lasting effects.  
H302 - Harmful if swallowed.  
H311 - Toxic in contact with skin.  
H331 - Toxic if inhaled.
- Full text of classifications (CLP)** : SKIN CORROSION/IRRITATION Category 1A - H314  
AQUATIC TOXICITY (CHRONIC) Category 2 - H411  
Acute toxicity Oral Category 4 - H302  
Acute toxicity Dermal Category 3 - H311  
Acute toxicity Inhalation (unknown test type) Category 3 - H331
- Full text of abbreviated R phrases** : R23/24- Toxic by inhalation and in contact with skin.  
R22- Harmful if swallowed.  
R35- Causes severe burns.  
R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Full text of classification (DSD/DPD)** : T Toxic  
C Corrosive  
Xn Harmful  
N Dangerous for the environment.

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

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