# Safety Data Sheet

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|---|---|---|---|
| **Document group:** | 10-6251-2 | **Version number:** | 26.00 |
| **Revision date:** | 07/09/2026 | **Supersedes date:** | 26/05/2025 |

This Safety Data Sheet has been prepared in accordance with the REACH Regulation (1907/2006), as amended for GB.

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

### 1.1. Product identifier
3M Scotch-Weld AF-3109-2 High Tack Structural Adhesive Film

**Product Identification Numbers**

| | | | | |
|---|---|---|---|---|
| 62-2625-6009-7 | 62-3158-6003-1 | 62-3158-6009-8 | 62-3370-6009-9 | 87-2500-0344-6 |
| 7000121225 | 7000000842 | 7000046428 | 7000046465 | 7000058938 |

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

**Identified uses**
Structural adhesive film.

### 1.3. Details of the supplier of the safety data sheet
**Address:** 3M United Kingdom PLC, 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT.
**Telephone:** +44 (0)1344 858 000
**E Mail:** ner-productstewardship@mmm.com
**Website:** www.3M.com/uk

### 1.4. Emergency telephone number
+44 (0)1344 858 000

## SECTION 2: Hazard identification

### 2.1. Classification of the substance or mixture
**The retained CLP Regulation (EU) No 1272/2008 as amended for Great Britain**

The health and environmental classifications of this material have been derived using the calculation method, except in cases where test data are available or the physical form impacts classification. Classification(s) based on test data or physical form are noted below, if applicable.
A similar mixture has been tested for skin corrosion/irritation and the test results do not meet the criteria for classification.
A similar mixture has been tested for skin sensitization and the test results do not meet the criteria for classification.

The eye damage/irritation classification is not applied due to the nature of this product (adhesive film).

**CLASSIFICATION:**
Germ Cell Mutagenicity, Category 2 - Muta. 2; H341
Hazardous to the Aquatic Environment (Chronic), Category 2 - Aquatic Chronic 2; H411

For full text of H phrases, see Section 16.

**2.2. Label elements**
**The retained CLP Regulation (EU) No 1272/2008 as amended for Great Britain**

**SIGNAL WORD**
WARNING.

**Symbols**
GHS08 (Health Hazard) |GHS09 (Environment) |

**Pictograms**



| Ingredient | Identifier(s) | EC No. | % by Wt |
|---|---|---|---|
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | 28390-91-2 | 500-062-3 | 15 - 25 |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | | 946-427-4 | 5 - 10 |

**HAZARD STATEMENTS:**

| | |
|---|---|
| H341 | Suspected of causing genetic defects. |
| H411 | Toxic to aquatic life with long lasting effects. |

**PRECAUTIONARY STATEMENTS**

**Prevention:**

| | |
|---|---|
| P273 | Avoid release to the environment. |
| P280E | Wear protective gloves. |
| P280K | Wear protective gloves and respiratory protection. |

**Response:**

| | |
|---|---|
| P391 | Collect spillage. |

**SUPPLEMENTAL INFORMATION:**

**Supplemental Hazard Statements:**

| | |
|---|---|
| EUH208 | Contains Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane - EU. \| Adipohydrazide. \| Bisphenol A Diglycidyl Ether . \| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4- |

diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane - EU. May produce an allergic reaction.

Contains 52% of components with unknown hazards to the aquatic environment.

**2.3. Other hazards**

None known.
This material does not contain any substances that are assessed to be a PBT or vPvB

## SECTION 3: Composition/information on ingredients

**3.1. Substances**
Not applicable

**3.2. Mixtures**

| Ingredient | Identifier(s) | % | Classification according to Regulation (EC) No. 1272/2008 [CLP], as amended for GB |
|---|---|---|---|
| Polymeric Epoxy Reaction Product (MW >1200) | Trade Secret | 30 - 60 | Substance not classified as hazardous |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | (CAS-No.) 28390-91-2<br>(EC-No.) 500-062-3 | 15 - 25 | Aquatic Chronic 2, H411<br>Skin Sens. 1, H317<br>Muta. 2, H341 |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | (CAS-No.) 1675-54-3<br>(EC-No.) 216-823-5 | 5 - 10 | Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Skin Sens. 1, H317<br>Aquatic Chronic 2, H411 |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | (EC-No.) 946-427-4 | 5 - 10 | Acute Tox. 4, H302<br>Skin Irrit. 2, H315<br>Skin Sens. 1, H317<br>Muta. 2, H341<br>Aquatic Chronic 3, H412 |
| Dicyandiamide | (CAS-No.) 461-58-5<br>(EC-No.) 207-312-8 | 3 - 7 | Substance not classified as hazardous |
| Adipohydrazide | (CAS-No.) 1071-93-8<br>(EC-No.) 213-999-5 | 1 - 5 | Aquatic Chronic 2, H411<br>Skin Sens. 1B, H317 |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | (CAS-No.) 17526-94-2<br>(EC-No.) 241-523-6 | 1 - 5 | Substance not classified as hazardous |

Any entry in the Identifier(s) column that begins with the numbers 6, 7, 8, or 9 are a Provisional List Number provided by ECHA pending publication of the official EC Inventory Number for the substance.
Please see section 16 for the full text of any H statements referred to in this section

**Specific Concentration Limits**

| Ingredient | Identifier(s) | Specific Concentration Limits |
|---|---|---|
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | (CAS-No.) 1675-54-3<br>(EC-No.) 216-823-5 | (C >= 5%) Skin Irrit. 2, H315<br>(C >= 5%) Eye Irrit. 2, H319 |

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS

## SECTION 4: First aid measures

**4.1. Description of first aid measures**

**Inhalation**
Remove person to fresh air. If you feel unwell, get medical attention.

**Skin contact**
Wash with soap and water. If you are concerned, get medical advice.

**Eye contact**
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

**If swallowed**
Rinse mouth. If you feel unwell, get medical attention.

**4.2. Most important symptoms and effects, both acute and delayed**
No critical symptoms or effects. See Section 11.1, information on toxicological effects.

**4.3. Indication of any immediate medical attention and special treatment required**
Not applicable

## SECTION 5: Fire-fighting measures

**5.1. Extinguishing media**
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

**5.2. Special hazards arising from the substance or mixture**
Exposure to extreme heat can give rise to thermal decomposition.

**Hazardous Decomposition or By-Products**

| Substance | Condition |
|---|---|
| Aldehydes. | During combustion. |
| Carbon monoxide | During combustion. |
| Carbon dioxide. | During combustion. |
| Hydrogen Chloride | During combustion. |
| Hydrogen cyanide. | During combustion. |
| Hydrogen Fluoride | During combustion. |
| Ammonia | During combustion. |
| Oxides of nitrogen. | During combustion. |

**5.3. Advice for fire-fighters**
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

# SECTION 6: Accidental release measures

**6.1. Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS. Evacuate area. Ventilate the area with fresh air.

**6.2. Environmental precautions**
Avoid release to the environment.

**6.3. Methods and material for containment and cleaning up**
Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible.

**6.4. Reference to other sections**
Refer to Section 8 and Section 13 for more information

# SECTION 7: Handling and storage

**7.1. Precautions for safe handling**
For industrial/occupational use only. Not for consumer sale or use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Use personal protective equipment (eg. gloves, respirators…) as required.

**7.2. Conditions for safe storage including any incompatibilities**
Store away from heat. Store away from amines.

**7.3. Specific end use(s)**
See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

# SECTION 8: Exposure controls/personal protection

**8.1 Control parameters**

**Occupational exposure limits**
No occupational exposure limit values exist for any of the components listed in Section 3 of this Safety Data Sheet.

**Biological limit values**
No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

**8.2. Exposure controls**

**8.2.1. Engineering controls**
Provide ventilated enclosure for heat curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device. For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use

respiratory protection equipment.

**8.2.2. Personal protective equipment (PPE)**

**Eye/face protection**
None required.

**Skin/hand protection**
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.
Gloves made from the following material(s) are recommended:

| Material | Thickness (mm) | Breakthrough Time |
|---|---|---|
| Chemical Protective glove of any material type | No data available | No data available |

*Applicable Norms/Standards*
Use gloves tested to EN 374

**Respiratory protection**

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use a positive pressure supplied-air respirator.
Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

*Applicable Norms/Standards*
Use a respirator conforming to EN 140 or EN 136: filter types A & P

## SECTION 9: Physical and chemical properties

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

| | |
|---|---|
| **Physical state** | Solid. |
| **Specific Physical Form:** | Film |
| **Colour** | Blue |
| **Odor** | Odourless |
| **Odour threshold** | *No data available.* |
| **Melting point/freezing point** | *No data available.* |
| **Boiling point/boiling range** | *Not applicable.* |
| **Flammability** | Not applicable. |
| **Flammable Limits(LEL)** | *Not applicable.* |
| **Flammable Limits(UEL)** | *Not applicable.* |
| **Flash point** | No flash point |
| **Autoignition temperature** | *Not applicable.* |
| **Decomposition temperature** | *No data available.* |
| **pH** | *substance/mixture is non-soluble (in water)* |
| **Kinematic Viscosity** | *Not applicable.* |

| | |
|---|---|
| **Water solubility** | Nil |
| **Solubility- non-water** | *No data available.* |
| **Partition coefficient: n-octanol/water** | *No data available.* |
| **Vapour pressure** | *Not applicable.* |
| **Density** | *No data available.* |
| **Relative density** | *No data available.* |
| **Relative Vapour Density** | *Not applicable.* |
| **Particle Characteristics** | *Not applicable.* |

**9.2. Other information**

**9.2.2 Other safety characteristics**

| | |
|---|---|
| **EU Volatile Organic Compounds** | *No data available.* |
| **Evaporation rate** | *Not applicable.* |
| **Molecular weight** | *No data available.* |
| **Percent volatile** | *No data available.* |
| **Percent volatile** | Negligible |

## SECTION 10: Stability and reactivity

**10.1 Reactivity**
This material is considered to be non reactive under normal use conditions

**10.2 Chemical stability**
Stable.

**10.3 Possibility of hazardous reactions**
Hazardous polymerisation will not occur.

**10.4 Conditions to avoid**
Heat.

**10.5 Incompatible materials**
Amines.

**10.6 Hazardous decomposition products**

| **Substance** | **Condition** |
|---|---|
| None known. | |

Refer to section 5.2 for hazardous decomposition products during combustion.

Extreme heat arising from situations such as misuse or equipment failure can generate hydrogen fluoride as a decomposition product.

## SECTION 11: Toxicological information

**The information below may not agree with the material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 11 are based on UN GHS calculation rules and classifications derived from 3M assessments.**

**11.1. Information on hazard classes as defined in the retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain.**

**Signs and Symptoms of Exposure**

**Based on test data and/or information on the components, this material may produce the following health effects:**

**Inhalation**
Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

**Skin contact**
Contact with the skin during product use is not expected to result in significant irritation.

**Eye contact**
Contact with the eyes during product use is not expected to result in significant irritation.

**Ingestion**
Physical Blockage: Signs/symptoms may include cramping, abdominal pain, and constipation.

**Additional Health Effects:**

**Genotoxicity:**
Genotoxicity and Mutagenicity: May interact with genetic material and possibly alter gene expression.

**Toxicological Data**
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

**Acute Toxicity**

| Name | Route | Species | Value |
|---|---|---|---|
| Overall product | Ingestion | | No data available; calculated ATE >5,000 mg/kg |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | Dermal | Rabbit | LD50 > 3,000 mg/kg |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | Ingestion | Rat | LD50 > 5,000 mg/kg |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Dermal | Rat | LD50 > 1,600 mg/kg |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Ingestion | Rat | LD50 > 1,000 mg/kg |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | Ingestion | Rat | LD50 1,000 mg/kg |
| Dicyandiamide | Dermal | Rabbit | LD50 > 10,000 mg/kg |
| Dicyandiamide | Ingestion | Rat | LD50 > 30,000 mg/kg |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | Dermal | Rat | LD50 > 2,000 mg/kg |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | Ingestion | Rat | LD50 > 2,000 mg/kg |
| Adipohydrazide | Ingestion | Mouse | LD50 > 5,000 mg/kg |

ATE = acute toxicity estimate

**Skin Corrosion/Irritation**

| Name | Species | Value |
|---|---|---|
| Overall product | Multiple animal species | No significant irritation |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | Rabbit | No significant irritation |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Rabbit | Mild irritant |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | In vitro data | Irritant |

| | | |
|---|---|---|
| Dicyandiamide | Human and animal | Minimal irritation |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | Rabbit | No significant irritation |
| Adipohydrazide | Rabbit | No significant irritation |

**Serious Eye Damage/Irritation**

| Name | Species | Value |
|---|---|---|
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | Rabbit | Mild irritant |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Rabbit | Moderate irritant |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | In vitro data | No significant irritation |
| Dicyandiamide | Professional judgement | Mild irritant |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | Rabbit | No significant irritation |

**Skin Sensitisation**

| Name | Species | Value |
|---|---|---|
| Overall product | Guinea pig | Not classified |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | Human and animal | Sensitising |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Human and animal | Sensitising |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | similar compounds | Sensitising |
| Dicyandiamide | Guinea pig | Not classified |
| Adipohydrazide | Guinea pig | Sensitising |

**Respiratory Sensitisation**

| Name | Species | Value |
|---|---|---|
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Human | Not classified |

**Germ Cell Mutagenicity**

| Name | Route | Value |
|---|---|---|
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | In Vitro | Some positive data exist, but the data are not sufficient for classification |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | In vivo | Mutagenic |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | In vivo | Not mutagenic |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | In Vitro | Some positive data exist, but the data are not sufficient for classification |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | In Vitro | Mutagenic; structurally related to germ cell mutagens |
| Dicyandiamide | In Vitro | Not mutagenic |
| Adipohydrazide | In vivo | Not mutagenic |

**Carcinogenicity**

| Name | Route | Species | Value |
|---|---|---|---|
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Dermal | Mouse | Some positive data exist, but the data are not sufficient for classification |
| Dicyandiamide | Ingestion | Rat | Not carcinogenic |

## Reproductive Toxicity

### Reproductive and/or Developmental Effects

| Name | Route | Value | Species | Test result | Exposure Duration |
|---|---|---|---|---|---|
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | Ingestion | Not classified for development | Rat | NOAEL 90 mg/kg/day | during gestation |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Ingestion | Not classified for female reproduction | Rat | NOAEL 750 mg/kg/day | 2 generation |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Ingestion | Not classified for male reproduction | Rat | NOAEL 750 mg/kg/day | 2 generation |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Dermal | Not classified for development | Rabbit | NOAEL 300 mg/kg/day | during organogenesis |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Ingestion | Not classified for development | Rat | NOAEL 750 mg/kg/day | 2 generation |
| Dicyandiamide | Ingestion | Not classified for female reproduction | Rat | NOAEL 1,000 mg/kg/day | premating & during gestation |
| Dicyandiamide | Ingestion | Not classified for male reproduction | Rat | NOAEL 1,000 mg/kg/day | 44 days |
| Dicyandiamide | Ingestion | Not classified for development | Rat | NOAEL 1,000 mg/kg/day | premating & during gestation |

## Target Organ(s)

### Specific Target Organ Toxicity - single exposure

| Name | Route | Target Organ(s) | Value | Species | Test result | Exposure Duration |
|---|---|---|---|---|---|---|
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Inhalation | respiratory irritation | Some positive data exist, but the data are not sufficient for classification | similar health hazards | NOAEL Not available | |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | Inhalation | respiratory irritation | Some positive data exist, but the data are not sufficient for classification | similar health hazards | NOAEL Not available | |

### Specific Target Organ Toxicity - repeated exposure

| Name | Route | Target Organ(s) | Value | Species | Test result | Exposure Duration |
|---|---|---|---|---|---|---|
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | Ingestion | hematopoietic system | Some positive data exist, but the data are not sufficient for classification | Rat | NOAEL 50 mg/kg/day | 13 weeks |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | Ingestion | gastrointestinal tract \| liver \| immune system \| nervous system \| eyes \| kidney and/or bladder | Not classified | Rat | NOAEL 200 mg/kg/day | 13 weeks |
| bis-[4-(2,3-epoxipropoxi)phenyl]prop | Dermal | liver | Not classified | Rat | NOAEL 1,000 | 2 years |

| | | | | | | |
|---|---|---|---|---|---|---|
| ane | | | | | mg/kg/day | |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Dermal | nervous system | Not classified | Rat | NOAEL 1,000 mg/kg/day | 13 weeks |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | Ingestion | auditory system \| heart \| endocrine system \| hematopoietic system \| liver \| eyes \| kidney and/or bladder | Not classified | Rat | NOAEL 1,000 mg/kg/day | 28 days |
| Dicyandiamide | Ingestion | kidney and/or bladder | Not classified | Rat | NOAEL 6,822 mg/kg/day | 13 weeks |

**Aspiration Hazard**
For the component/components, either no data is currently available or the data is not sufficient for classification.

**Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.**

### 11.2. Information on other hazards

This material does not contain any substances that are assessed to be an endocrine disruptor for human health.

## SECTION 12: Ecological information

**The information below may not agree with the material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 12 are based on UN GHS calculation rules and classifications derived from 3M assessments.**

### 12.1. Toxicity

No product test data available.

| Material | Identifier(s) | Organism | Type | Exposure | Test endpoint | Test result |
|---|---|---|---|---|---|---|
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | 28390-91-2 | Bacteria | Experimental | 24 hours | IC50 | >10,000 mg/l |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | 28390-91-2 | Common Carp | Experimental | 96 hours | LC50 | 7 mg/l |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | 28390-91-2 | Green algae | Experimental | 72 hours | EC50 | >11 mg/l |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | 28390-91-2 | Water flea | Experimental | 48 hours | EC50 | 4.7 mg/l |
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | 28390-91-2 | Green algae | Experimental | 72 hours | EC10 | 2.4 mg/l |
| bis-[4-(2,3-epoxipropoxi)phen | 1675-54-3 | Activated sludge | Analogous Compound | 3 hours | IC50 | >100 mg/l |

| | | | | | | |
|---|---|---|---|---|---|---|
| yl]propane | | | | | | |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 | Rainbow trout | Estimated | 96 hours | LC50 | 2 mg/l |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 | Water flea | Estimated | 48 hours | EC50 | 1.8 mg/l |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 | Green algae | Experimental | 72 hours | ErC50 | >11 mg/l |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 | Green algae | Experimental | 72 hours | NOEC | 4.2 mg/l |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 | Water flea | Experimental | 21 days | NOEC | 0.3 mg/l |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | 946-427-4 | Green algae | Experimental | 72 hours | EC50 | 38 mg/l |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | 946-427-4 | Water flea | Experimental | 72 hours | EC50 | 71 mg/l |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | 946-427-4 | Green algae | Experimental | 72 hours | EC10 | 18 mg/l |

| | | | | | | |
|---|---|---|---|---|---|---|
| Dicyandiamide | 461-58-5 | Bluegill | Experimental | 96 hours | LC50 | >1,000 mg/l |
| Dicyandiamide | 461-58-5 | Green algae | Experimental | 72 hours | EC50 | >1,000 mg/l |
| Dicyandiamide | 461-58-5 | Water flea | Experimental | 48 hours | EC50 | 3,177 mg/l |
| Dicyandiamide | 461-58-5 | Green algae | Experimental | 72 hours | NOEC | 310 mg/l |
| Dicyandiamide | 461-58-5 | Water flea | Experimental | 21 days | NOEC | 25 mg/l |
| Dicyandiamide | 461-58-5 | Redworm | Experimental | 14 days | LC50 | >3,200 mg/kg (Dry Weight) |
| Adipohydrazide | 1071-93-8 | Activated sludge | Experimental | 3 hours | EC50 | >1,000 mg/l |
| Adipohydrazide | 1071-93-8 | Common Carp | Experimental | 96 hours | LC50 | >100 mg/l |
| Adipohydrazide | 1071-93-8 | Green algae | Experimental | 72 hours | ErC50 | 8.7 mg/l |
| Adipohydrazide | 1071-93-8 | Water flea | Experimental | 48 hours | EC50 | >=106 mg/l |
| Adipohydrazide | 1071-93-8 | Green algae | Experimental | 72 hours | NOEC | 0.22 mg/l |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | 17526-94-2 | Activated sludge | Experimental | 3 hours | EC50 | >1,000 mg/l |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | 17526-94-2 | Common Carp | Experimental | 96 hours | LC50 | >100 mg/l |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | 17526-94-2 | Green algae | Experimental | 72 hours | ErC50 | >100 mg/l |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | 17526-94-2 | Water flea | Experimental | 48 hours | EC50 | >100 mg/l |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | 17526-94-2 | Green algae | Experimental | 72 hours | NOEC | 100 mg/l |

### 12.2. Persistence and degradability

| Material | Identifier(s) | Test type | Duration | Study Type | Test result | Protocol |
|---|---|---|---|---|---|---|
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | 28390-91-2 | Experimental Biodegradation | 28 days | CO2 evolution | 10 %CO2 evolution/THCO2 evolution | OECD 301B - Modified sturm or CO2 |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 | Experimental Biodegradation | 28 days | BOD | 5 %BOD/COD | OECD 301F - Manometric respirometry |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 | Experimental Hydrolysis | | Hydrolytic half-life (pH 7) | 117 hours (t 1/2) | OECD 111 Hydrolysis func of pH |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneo | 946-427-4 | Experimental Biodegradation | 28 days | CO2 evolution | 1.3 %CO2 evolution/THCO2 evolution | OECD 301B - Modified sturm or CO2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| xymethylene)]biso xirane | | | | | | |
| Dicyandiamide | 461-58-5 | Experimental Biodegradation | 28 days | Dissolv. Organic Carbon Deplet | 0 %removal of DOC | OECD 301E - Modif. OECD Screen |
| Dicyandiamide | 461-58-5 | Experimental Aquatic Inherent Biodegrad. | 14 days | Dissolv. Organic Carbon Deplet | 0 %removal of DOC | OECD 302B Zahn-Wellens/EVPA |
| Dicyandiamide | 461-58-5 | Experimental Biodegradation | 61 days | CO2 evolution | 1.1 %CO2 evolution/THCO2 evolution | OECD 309 Aero Sim Biod Water |
| Adipohydrazide | 1071-93-8 | Experimental Biodegradation | 28 days | Dissolv. Organic Carbon Deplet | 62.1 %removal of DOC | OECD 301E - Modif. OECD Screen |
| Adipohydrazide | 1071-93-8 | Experimental Hydrolysis | | Hydrolytic half-life (pH 7) | >1 years (t 1/2) | OECD 111 Hydrolysis func of pH |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | 17526-94-2 | Experimental Aquatic Inherent Biodegrad. | 28 days | Dissolv. Organic Carbon Deplet | 10 %removal of DOC (does not pass 10-day window) | similar to OECD 302B |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | 17526-94-2 | Experimental Hydrolysis | | Hydrolytic half-life (pH 7) | 33 days (t 1/2) | OECD 111 Hydrolysis func of pH |

### 12.3 : Bioaccumulative potential

| Material | Identifier(s) | Test type | Duration | Study Type | Test result | Protocol |
|---|---|---|---|---|---|---|
| Benzenamine, 4,4'-methylenebis-, polymer with (chloromethyl)oxirane | 28390-91-2 | Data not available or insufficient for classification | N/A | N/A | N/A | N/A |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 | Experimental Bioconcentration | | Log Kow | 3.242 | OECD 117 log Kow HPLC method |
| Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane | 946-427-4 | Experimental Bioconcentration | | Log Kow | 2.05 | |
| Dicyandiamide | 461-58-5 | Experimental BCF - Fish | 42 days | Bioaccumulation factor | <=3.1 | OECD305-Bioconcentration |
| Dicyandiamide | 461-58-5 | Experimental Bioconcentration | | Log Kow | -0.52 | OECD 107 log Kow shke flsk mtd |
| Adipohydrazide | 1071-93-8 | Experimental Bioconcentration | | Log Kow | -2.7 | OECD 107 log Kow shke flsk mtd |
| N,N'''-(4-methyl-m-phenylene)bis[N',N'-dimethylurea] | 17526-94-2 | Experimental Bioconcentration | | Log Kow | <0.23 | OECD 117 log Kow HPLC method |

### 12.4. Mobility in soil

| Material | Identifier(s) | Test type | Study Type | Test result | Protocol |
|---|---|---|---|---|---|
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 | Modeled Mobility in Soil | Koc | 450 l/kg | Episuite™ |

| | | | | | |
|---|---|---|---|---|---|
| Dicyandiamide | 461-58-5 | Modeled Mobility in Soil | Koc | 9 l/kg | Episuite™ |
| Adipohydrazide | 1071-93-8 | Modeled Mobility in Soil | Koc | 10 l/kg | Episuite™ |

**12.5. Results of the PBT and vPvB assessment**

This material does not contain any substances that are assessed to be a PBT or vPvB

**12.6. Other adverse effects**

This material does not contain any substances that are assessed to be an endocrine disruptor for environmental effects

## SECTION 13: Disposal considerations

**13.1 Waste treatment methods**
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of completely cured (or polymerized) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include halogen acid (HCl/HF/HBr). Facility must be capable of handling halogenated materials. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of 3M, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/EC and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor.

**EU waste code (product as sold)**

08 04 09* Waste adhesives and sealants containing organic solvents or other dangerous substances
20 01 27* Paint, inks, adhesives and resins containing dangerous substances

## SECTION 14: Transportation information

| | Ground Transport (ADR) | Air Transport (IATA) | Marine Transport (IMDG) |
|---|---|---|---|
| **14.1 - UN Number or ID number** | UN3077 | UN3077 | UN3077 |
| **14.2 UN proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(EPOXY RESIN) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(EPOXY RESIN) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(EPOXY RESIN) |
| **14.3 Transport hazard class(es)** | 9 | 9 | 9 |
| **14.4 Packing group** | III | III | III |

| | | | |
|---|---|---|---|
| **14.5 Environmental hazards** | Environmentally Hazardous | Not applicable. | Marine Pollutant |
| **14.6 Special precautions for user** | Please refer to the other sections of the SDS for further information. | Please refer to the other sections of the SDS for further information. | Please refer to the other sections of the SDS for further information. |
| **14.7 Marine Transport in bulk according to IMO instruments** | No data available. | No data available. | No data available. |
| **Control Temperature** | No data available. | No data available. | No data available. |
| **Emergency Temperature** | No data available. | No data available. | No data available. |
| **ADR Classification Code** | M7 | Not applicable. | Not applicable. |
| **IMDG Segregation Code** | Not applicable. | Not applicable. | NONE |

Please contact the address or phone number listed on the first page of the SDS for additional information on the transport/shipment of the material by rail (RID) or inland waterways (ADN).

## SECTION 15: Regulatory information

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

**Carcinogenicity**

| Ingredient | Identifier(s) | Classification | Regulation |
|---|---|---|---|
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 | Gr. 3: Not classifiable | International Agency for Research on Cancer |

**Restrictions on the manufacture, placing on the market and use:**
The following substance(s) contained in this product is/are subject to Annex XVII of regulation (EC) 1907/2006, as amended for GB, with regard to restrictions on the manufacture, placing on the market and use when present in certain dangerous conditions. Users of this product are required to comply with the restrictions placed upon it by the aforementioned provision.

| Ingredient | Identifier(s) |
|---|---|
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | 1675-54-3 |

Restriction status: listed in UK REACH Annex XVII
Restricted uses: See Annex XVII to Regulation (EC) No 1907/2006 as amended for Great Britain for Conditions of Restriction

**Global inventory status**
Contact 3M for more information. The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory.

**COMAH Regulation, SI 2015/483**
Seveso hazard categories, Annex 1, Part 1

| Hazard Categories | Qualifying quantity (tonnes) for the application of | |
|---|---|---|
| | Lower-tier requirements | Upper-tier requirements |
| E2 Hazardous to the Aquatic environment | 200 | 500 |

Seveso named dangerous substances, Annex 1, Part 2
None

**Regulation (EU) No 649/2012, as amended for GB**
No chemicals listed

**15.2. Chemical Safety Assessment**
A chemical safety assessment has not been carried out for this substance/mixture in accordance with Regulation (EC) No 1907/2006, as amended for GB.

## SECTION 16: Other information

**List of relevant H statements**

| | |
|---|---|
| H302 | Harmful if swallowed. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H319 | Causes serious eye irritation. |
| H341 | Suspected of causing genetic defects. |
| H411 | Toxic to aquatic life with long lasting effects. |
| H412 | Harmful to aquatic life with long lasting effects. |

**Revision information:**
Section 14 - Not Hazardous for Transportation information was added.
EU Section 14 - Table Data information was added.
EU Section 14 - Table Headers information was added.
GBSDS Section 14 Transport in bulk - Main Heading information was deleted.
GBSDS Section 14 UN Number information was deleted.
Label: Graphic information was modified.
List of sensitizers information was modified.
Section 9: Vapour pressure value information was added.
Section 9: Vapour pressure value information was deleted.
Section 11: Health Effects - Inhalation information information was modified.
Section 11: Target Organs - Single Table information was modified.
Section 13: Standard Phrase Category Waste GHS information was modified.
Section 14 Classification Code – Main Heading information was deleted.
Section 14 Classification Code – Regulation Data information was deleted.
Section 14 Control Temperature – Main Heading information was deleted.
Section 14 Control Temperature – Regulation Data information was deleted.
Section 14 Emergency Temperature – Main Heading information was deleted.

Section 14 Emergency Temperature – Regulation Data information was deleted.
Section 14 Hazard Class + Sub Risk – Main Heading information was deleted.
Section 14 Hazard Class + Sub Risk – Regulation Data information was deleted.
Section 14 Other Dangerous Goods – Main Heading information was deleted.
Section 14 Other Dangerous Goods – Regulation Data information was deleted.
Section 14 Packing Group – Main Heading information was deleted.
Section 14 Packing Group – Regulation Data information was deleted.
Section 14 Proper Shipping Name information was deleted.
Section 14 Regulations – Main Headings information was deleted.
Section 14 Segregation – Regulation Data information was deleted.
Section 14 Segregation Code – Main Heading information was deleted.
Section 14 Special Precautions – Main Heading information was deleted.
Section 14 Special Precautions – Regulation Data information was deleted.
Section 14 Transport in bulk – Regulation Data information was deleted.
Section 14 UN Number Column data information was deleted.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into the European Union, you are responsible for all regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration.

**3M SDSs for Great Britain are available at www.3M.com/uk**
For Northern Ireland documents, please contact your 3M representative to obtain a copy.