

Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
1800 802 402

Curing Agent - RF-24, Part Number 8829890300

1. Identification of the material and supplier

Names

Product name : Curing Agent - RF-24, Part Number 8829890300
Part No. : 8829890300
ADG : TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (Cyclohexanamine, 4,4'-methylenebis[2-methyl-])

Supplier

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
1800 802 402

Emergency telephone number : CHEMTREC®: +(61)-290372994

Uses

Area of application : Industrial applications, Professional applications.
Material uses : Analytical chemistry.
1 x 1 Pt

2. Hazards identification

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

Risk 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.

Safety phrases : S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

Statement of hazardous/dangerous nature : HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

3. Composition/information on ingredients

Mixture : No.
Chemical name : Cyclohexanamine, 4,4'-methylenebis[2-methyl-]
CAS number : 6864-37-5
Molecular formula : C15-H30-N2

| Ingredient name | CAS number | % |
|--|------------|-----|
| Cyclohexanamine, 4,4'-methylenebis[2-methyl- | 6864-37-5 | >60 |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First-aid measures

- Inhalation** : Get medical attention immediately. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
- Protection of first-aiders** : 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.
- Advice to doctor** : 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.

5 . Fire-fighting measures

Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : 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. This material is toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
- 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.
- Hazchem code** : 2XE

6 . Accidental release measures

- Personal precautions** : 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 spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilt 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.
- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. 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. Dispose of via a licensed waste disposal contractor.

7 . Handling and storage

- 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. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Refer to special instructions/safety data sheet. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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.
- Storage** : Store between the following temperatures: 15 to 25°C (59 to 77°F). 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 unlabelled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

- Occupational exposure limits** : **No exposure standard allocated.**
- 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 appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Exposure controls**
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : 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.
- Eyes** : 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 or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

8 . Exposure controls/personal protection

- Hands** : 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Respiratory** : 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.
- Skin** : 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.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

- Physical state** : Liquid.
- Colour** : Yellow. [Light]
- Odour** : Amine-like.
- Boiling point** : >212°C (>413.6°F)
- Melting point** : -7.1°C (19.2°F)
- Vapour pressure** : <0.013 kPa (<0.1 mm Hg) [room temperature]
- Relative density** : 0.95 [Water = 1]
- Flash point** : Closed cup: 140.56°C (285°F)
- Flammable limits** : Lower: 0.5%
Upper: 2.8%
- Vapour density** : 30.1266 [Air = 1]
- pH** : 11
- Viscosity** : Dynamic (room temperature): 32.9 mPa·s (32.9 cP)
Kinematic (room temperature): 1.62 cm²/s (162 cSt)
Kinematic (40°C (104°F)): 0.354 cm²/s (35.4 cSt)
- Auto-ignition temperature** : 275°C (527°F)
- Solubility** : Very slightly soluble in the following materials: cold water and hot water.

10 . Stability and reactivity

- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : No specific data.
- Materials to avoid** : Reactive or incompatible with the following materials: oxidizing materials and acids.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Potential acute health effects

- Inhalation** : Toxic by inhalation. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** : Harmful if swallowed. May cause burns to mouth, throat and stomach.
- Skin contact** : Severely corrosive to the skin. Causes severe burns. Toxic in contact with skin.

11 . Toxicological information

Eye contact : Severely corrosive to the eyes. Causes severe burns.

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|--|---------------------------------|---------|-----------------------|----------|
| Cyclohexanamine, 4,4'-methylenebis[2-methyl- | LC50 Inhalation Dusts and mists | Rat | 420 mg/m ³ | 4 hours |

Conclusion/Summary : Not available.

Potential chronic health effects

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity

Not available.

Chronic effects : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation : No specific data.

Ingestion : Adverse symptoms may include the following:
stomach pains

Skin : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Eyes : Adverse symptoms may include the following:
pain
watering
redness

Target organs : May cause damage to the following organs: blood, kidneys, the nervous system, liver, heart, gastrointestinal tract, upper respiratory tract, skin, eyes, adrenal.

12 . Ecological information

Ecotoxicity : Not readily biodegradable. This product shows a low bioaccumulation potential. This material is toxic to aquatic life with long lasting effects.

Aquatic ecotoxicity

| Product/ingredient name | Result | Species | Exposure |
|--|------------------------------|---------------------------------|----------|
| Cyclohexanamine, 4,4'-methylenebis[2-methyl- | Acute EC50 2.1 mg/l | Algae - Scenedesmus subspicatus | 72 hours |
| | Acute EC50 15.2 mg/l | Daphnia - Daphnia magna | 48 hours |
| | Acute LC50 21.5 to 46.4 mg/l | Fish - Leuciscus idus | 96 hours |

Other ecological information

| Product/ingredient name | Test | Result | Dose | Inoculum |
|--|--|----------------|------|----------|
| Cyclohexanamine, 4,4'-methylenebis[2-methyl- | 302B Inherent Biodegradability: Zahn-Wellens/EMPA Test | <1 % - 28 days | - | - |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|--|-------------------|------------|------------------|
| Cyclohexanamine, 4,4'-methylenebis[2-methyl- | - | - | Not readily |

12 . Ecological information

Bioaccumulative potential

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|--|--------------------|-----|-----------|
| Cyclohexanamine, 4,4'-methylenebis[2-methyl- | 1.8 | <60 | low |






Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations



Methods of disposal : The generation of waste should be avoided or minimised wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14 . Transport information

Additional information : Special provisions
274

| Regulation | UN number | Proper shipping name | Classes | PG* | Label | Additional information |
|-------------|-----------|---|---------|-----|---|---|
| ADG | UN2927 | TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (Cyclohexanamine, 4,4'-methylenebis[2-methyl-) | 6.1 (8) | II |   | Hazchem code 2XE Special provisions 274 |
| IMDG | UN2927 | TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (Cyclohexanamine, 4,4'-methylenebis[2-methyl-)) Marine pollutant (Cyclohexanamine, 4,4'- methylenebis[2-methyl-) | 6.1 (8) | II |    | The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. Emergency schedules (EmS) F-A, S-B Special provisions 274 |

14 . Transport information

| | | | | | | |
|------|--------|---|---------|----|--|--|
| IATA | UN2927 | Toxic liquid, corrosive, organic, n.o.s. (Cyclohexanamine, 4,4'-methylenebis[2-methyl-]) | 6.1 (8) | II |   | The environmentally hazardous substance mark may appear if required by other transportation regulations. Passenger and Cargo Aircraft Quantity limitation: 1 L Packaging instructions: 653 Cargo Aircraft Only Quantity limitation: 30 L Packaging instructions: 660 Limited Quantities - Passenger Aircraft Quantity limitation: 0.5 L Packaging instructions: Y640 Special provisions A4, A137 |
|------|--------|---|---------|----|--|--|

PG* : Packing group

15 . Regulatory information

Standard Uniform Schedule of Medicine and Poisons

Not regulated.

Control of Scheduled Carcinogenic Substances

| <u>Ingredient name</u> | <u>Schedule</u> |
|------------------------|-----------------|
| No listed substance | |

Australia inventory (AICS) : This material is listed or exempted.

16 . Other information

Date of issue : 20/08/2014

Date of previous issue : 21/06/2012.

✔ Indicates information that has changed from previously issued version.

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.