



## SAFETY DATA SHEET

# Red-It Marker Dye

Version: 1

Revision Date: 02/02/2019

Author: Peter Wrigley

Uncontrolled once printed

Approved: Malcolm Dodson

**PROUDLY AUSTRALIAN OWNED AND MANUFACTURED**

### Hazardous Substance, Dangerous Goods

#### 1. MATERIAL AND SUPPLY COMPANY IDENTIFICATION

**Product name:** Red-It Marker Dye

**Recommended use:** Liquid marking dye and foam marker colouring agent.

**Part Numbers:** 8310, 8314, 8315

**Supplier:** Australian Adjuvants Pty Ltd

**ACN:** 614 361 705

**Street Address:** 5 -7 Maria Street  
Laverton North, VIC, 3026

**Telephone:** +613 9369 4333

**Facsimile:** +613 9105 6508

**E-mail:** admin@ausadjuvants.net.au

**Emergency Telephone number:** Australia 1800 334 556

Emergency information Non-Emergency Phone Number : (03) 9369 4333  
In case of emergency call : (03) 9369 4333 (Business Hrs)  
: 0413 839 023 (After Hrs)

#### 2. HAZARDS IDENTIFICATION

This material is hazardous according to health criteria of Safe Work Australia.



**Signal Word:** Danger

**Hazard Classifications** Acute Toxicity - Oral - Category 4  
Serious Eye Damage/Irritation - Category 1  
Germ Cell Mutagenicity – Category 1  
Carcinogenicity – Category 1  
Acute Hazard to the Aquatic Environment - Category 3

#### Hazard Statements

H302 Harmful if swallowed.  
H318 Causes serious eye damage.  
H341 Suspected of causing genetic defects.  
H351 Suspected of causing cancer.  
H402 Harmful to aquatic life.

#### Prevention Precautionary Statements

P201 Obtain special instructions before use.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P281 Use personal protective equipment as required.  
P270 Do not eat, drink or smoke when using this product.  
P273 Avoid release to the environment  
P280 Wear protective clothing, gloves and eye/face protection.

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Australian Adjuvants Pty Ltd

5 -7 Maria Street, Laverton North, Victoria 3026, Australia

Ph: + 61 3 9369 4333 Fax: +61 3 9015 6508 Email: [admin@ausadjuvants.net.au](mailto:admin@ausadjuvants.net.au) Website: [www.ausadjuvants.net.au](http://www.ausadjuvants.net.au)



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### Response Precautionary Statements

|                |  |
|----------------|--|
| P101+P312      | IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.   |
| P308+P313      | IF exposed or concerned: Get medical advice/attention.   |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310           | Immediately call a POISON CENTER or doctor/physician.  |
| P330           | Rinse mouth.   |

### Storage Precautionary Statement

P405 Store locked up.

### Disposal Precautionary Statement

P501 Dispose of contents/container in accordance with local, regional, national and international regulations.

**Poison Schedule:** Not Applicable

### DANGEROUS GOOD CLASSIFICATION

Not classified as Dangerous Goods by the criteria of the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and the "New Zealand NZS5433: Transport of Dangerous Goods on Land".

## 3. COMPOSITION INFORMATION

| CHEMICAL ENTITY                            | CAS NO   | PROPORTION      |
|--|----------|-----------------|
| Diethylene Glycol                          | 111-46-6 | 60 - 90 % (w/v) |
| Rhodamine B                                | 81-88-9  | 10 - 15 % (w/v) |
| Ingredients determined to be non-hazardous |          | Balance         |

## 4. FIRST AID MEASURES

If poisoning occurs, contact a doctor or Poisons Information Centre (Phone Australia 131 126, New Zealand 0800 764 766).

### Inhalation:

If fumes or combustion products are inhaled remove from contaminated area.

Lay patient down. Keep warm and rested.

Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.

Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

Transport to hospital, or doctor.

### Skin Contact:

If skin contact occurs:

Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available).

Seek medical attention in event of irritation.



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### Eye contact:

If this product comes in contact with the eyes:

Immediately hold eyelids apart and flush the eye continuously with running water.

Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.

Transport to hospital or doctor without delay.

Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

### Ingestion:

If swallowed do **NOT** induce vomiting.

If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

Observe the patient carefully.

Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.

Seek medical advice.

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

Treat symptomatically.

Polyethylene glycols are generally poorly absorbed orally and are mostly unchanged by the kidney.

Dermal absorption can occur across damaged skin (e.g. through burns) leading to increased osmolality, anion gap metabolic acidosis, elevated calcium, low ionised calcium, CNS depression and renal failure.

Treatment consists of supportive care.

[Ellenhorn and Barceloux: Medical Toxicology]

## 5. FIRE FIGHTING MEASURES

**Hazchem Code:** Not applicable.

### Extinguishing media

Alcohol stable foam.

Dry chemical powder.

BCF (where regulations permit).

Carbon dioxide.

Water spray or fog - Large fires only.

### Special hazards arising from the substrate or mixture

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

### Fire fighting further advice:

#### Fire Fighting:

Alert Fire Brigade and tell them location and nature of hazard.

Wear full body protective clothing with breathing apparatus.

Prevent, by any means available, spillage from entering drains or water course.

Use water delivered as a fine spray to control fire and cool adjacent area.

Avoid spraying water onto liquid pools.

**DO NOT** approach containers suspected to be hot.

Cool fire exposed containers with water spray from a protected location.

If safe to do so, remove containers from path of fire.



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#### **Fire/Explosion Hazard:**

Combustible.

Slight fire hazard when exposed to heat or flame.

Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit toxic fumes of carbon monoxide (CO).

May emit acrid smoke.

Mists containing combustible materials may be explosive.

Combustion products include:

carbon dioxide (CO<sub>2</sub>)

hydrogen chloride

phosgene

nitrogen oxides (NO<sub>x</sub>)

other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

May emit corrosive fumes.

#### **6. ACCIDENTAL RELEASE MEASURES**

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

See section 8

##### **Environmental precautions**

See section 12

##### **MINOR SPILLS**

Slippery when spilt.

Remove all ignition sources. Clean up all spills immediately.

Avoid breathing vapours and contact with skin and eyes.

Control personal contact with the substance, by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite.

Wipe up.

Place in a suitable, labelled container for waste disposal.

##### **MAJOR SPILLS**

Slippery when spilt. Moderate hazard.

Clear area of personnel and move upwind.

Alert Fire Brigade and tell them location and nature of hazard.

Wear breathing apparatus plus protective gloves.

Prevent, by any means available, spillage from entering drains or water course.

No smoking, naked lights or ignition sources.

Increase ventilation.

Stop leak if safe to do so.

Contain spill with sand, earth or vermiculite.

Collect recoverable product into labelled containers for recycling.

Absorb remaining product with sand, earth or vermiculite.

Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains.

If contamination of drains or waterways occurs, advise emergency services.

##### **Dangerous Goods – Initial Emergency Response Guide No: Not applicable**

Personal Protective Equipment advice is contained in Section 8 of the SDS.



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## 7. HANDLING AND STORAGE

### Precautions for safe handling:

#### Safe Handling

**DO NOT allow clothing wet with material to stay in contact with skin**

Avoid all personal contact, including inhalation.

Wear protective clothing when risk of exposure occurs.

Use in a well-ventilated area.

Prevent concentration in hollows and sumps.

**DO NOT enter confined spaces until atmosphere has been checked.**

Avoid smoking, naked lights or ignition sources.

Avoid contact with incompatible materials.

When handling, **DO NOT eat, drink or smoke.**

Keep containers securely sealed when not in use.

Avoid physical damage to containers.

Always wash hands with soap and water after handling. Work

clothes should be laundered separately.

Use good occupational work practice.

Observe manufacturer's storage and handling recommendations contained within this SDS.

Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

#### Other Information

Store in original containers.

Keep containers securely sealed.

No smoking, naked lights or ignition sources.

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.

Observe manufacturer's storage and handling recommendations contained within this SDS.

### Conditions for Safe Storage, including any incompatibilities

#### Suitable Container

Metal can or drum

Packaging as recommended by manufacturer.

Check all containers are clearly labelled and free from leaks.

#### Storage Incompatibility

Glycols and their ethers undergo violent decomposition in contact with 70% perchloric acid. This seems likely to involve formation of the glycol perchlorate esters (after scission of ethers) which are explosive, those of ethylene glycol and 3-chloro-1,2-propanediol being more powerful than glyceryl nitrate, and the former so sensitive that it explodes on addition of water.

#### Alcohols

- are incompatible with strong acids, acid chlorides, acid anhydrides, oxidising and reducing agents.
- reacts, possibly violently, with alkaline metals and alkaline earth metals to produce hydrogen
- react with strong acids, strong caustics, aliphatic amines, isocyanates, acetaldehyde, benzoyl peroxide, chromic acid, chromium oxide, dialkylzincs, dichlorine oxide, ethylene oxide, hypochlorous acid, isopropyl chlorocarbonate, lithium tetrahydroaluminate, nitrogen dioxide, pentafluoroguanidine, phosphorus halides, phosphorus pentasulfide, tangerine oil, triethylaluminium, triisobutylaluminium
- should not be heated above 49 deg. C. when in contact with aluminium equipment
- Avoid strong acids, bases.



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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### CONTROL PARAMETERS

#### OCCUPATIONAL EXPOSURE LIMITS (OEL)

##### INGREDIENT DATA

| <u>Source</u>                | <u>Ingredient</u> | <u>Material name</u> | <u>TWA</u>                     | <u>STEL</u>   | <u>Peak</u>   | <u>Notes</u>  |
|------------------------------|-------------------|----------------------|--------------------------------|---------------|---------------|---------------|
| Australia Exposure Standards | diethylene glycol | 2,2'-Oxybis[ethanol] | 100 mg/m <sup>3</sup> / 23 ppm | Not Available | Not Available | Not Available |

##### EMERGENCY LIMITS

| <u>Ingredient</u> | <u>Material name</u> | <u>TEEL-1</u> | <u>TEEL-2</u> | <u>TEEL-3</u> |
|-------------------|----------------------|---------------|---------------|---------------|
| diethylene glycol | Diethylene glycol    | 6.9 ppm       | 140 ppm       | 860 ppm       |

| <u>Ingredient</u>                          | <u>Original IDLH</u> | <u>Revised IDLH</u> |
|--|----------------------|---------------------|
| diethylene glycol                          | Not Available        | Not Available       |
| Rhodamine B                                | Not Available        | Not Available       |
| Ingredients determined not to be hazardous | Not Available        | Not Available       |

### MATERIAL DATA

#### Exposure controls

##### Appropriate Engineering Controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.

An approved self contained breathing apparatus (SCBA) may be required in some situations.

Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

| Type of Contaminant:  | Air Speed:                      |
|---|---------------------------------|
| solvent, vapours, degreasing etc., evaporating from tank (in still air).  | 0.25-0.5 m/s<br>(50-100 f/min.) |
| aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5-1 m/s<br>(100-200 f/min.)   |
| direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)  | 1-2.5 m/s<br>(200-500 f/min.)   |
| grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).  | 2.5-10 m/s<br>(500-2000 f/min.) |

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Within each range the appropriate value depends on:

| Lower end of the range                                     | Upper end of the range           |
|--|----------------------------------|
| 1: Room air currents minimal or favourable to capture      | 1: Disturbing room air currents  |
| 2: Contaminants of low toxicity or of nuisance value only. | 2: Contaminants of high toxicity |
| 3: Intermittent, low production.                           | 3: High production, heavy use    |
| 4: Large hood or large air mass in motion                  | 4: Small hood-local control only |

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

**Personal protection**



**Eye and face protection**

Safety glasses with side shields.

Chemical goggles.

Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

**Skin protection**

See Hand protection below

**Hands/feet protection**

Wear chemical protective gloves, e.g. PVC.

Wear safety footwear or safety gumboots, e.g. Rubber

**NOTE:**

The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.



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Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
- Contaminated gloves should be replaced.

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.

It should be emphasized that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

**Note:** Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.

- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

#### Body protection

See Other protection below

#### Other protection

Overalls.

P.V.C. apron. Barrier cream.

Skin cleansing cream.

Eye wash unit.

#### Thermal hazards

Not available

#### Recommended material(s)

#### GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

**"Forsberg Clothing Performance Index".**

The effect(s) of the following substance(s) are taken into account in the

**computer-generated** selection:

Red-It Marker Dye

| Material | CPI |
|----------|-----|
| BUTYL    | C   |
| NITRILE  | C   |





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\* CPI - Chemwatch Performance Index A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion C: Poor to Dangerous Choice for other than short term immersion

**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

#### Respiratory protection

Type AK-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator   |
|------------------------------------|----------------------|----------------------|--------------------------|
| up to 5 x ES                       | AK-AUS / Class 1 P2  | -                    | AK-PAPR-AUS / Class 1 P2 |
| up to 25 x ES                      | Air-line*            | AK-2 P2              | AK-PAPR-2 P2             |
| up to 50 x ES                      | -                    | AK-3 P2              | -                        |
| 50+ x ES                           | -                    | Air-line**           | -                        |

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.



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### 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                       |                                    |
|---------------------------------------|------------------------------------|
| Appearance                            | Deep red liquid; mixes with water. |
| Physical State                        | Liquid                             |
| Odour:                                | Not Available                      |
| Odour threshold:                      | Not Available                      |
| pH:                                   | Not Available                      |
| Solubility:                           | Miscible in water                  |
| Melting Point/Range (°C):             | <0                                 |
| Initial Boiling Point/Range (°C):     | >240                               |
| Flash Point (°C):                     | >96                                |
| Relative density (Water = 1)          | 0.945                              |
| Partition coefficient n-octanol/water | Not Available                      |
| Auto-ignition temperature(°C)         | Not Available                      |
| Decomposition temperature             | Not Available                      |
| Viscosity (cSt)                       | Not Available                      |
| Molecular weight (g/mol)              | Not Applicable                     |
| Taste                                 | Not Available                      |
| Evaporation rate                      | Not Available                      |
| Flammability                          | Not Applicable                     |
| Upper Explosive Limit (%)             | Not Available                      |
| Lower Explosive Limit (%)             | Not Available                      |
| Vapour pressure (kPa)                 | 0.0013 @ 20C                       |
| Solubility in water (g/L)             | Miscible                           |
| Vapour density (Air = 1)              | Not Available                      |
| Explosive properties                  | Not Available                      |
| Oxidising properties                  | Not Available                      |
| Surface Tension (dyn/cm or mN/m)      | Not Available                      |
| Volatile Component (%vol)             | Not Available                      |
| Gas group                             | Not Available                      |
| pH as a solution (1%)                 | Not Available                      |
| VOC g/L                               | 1006.2                             |

### 10. STABILITY AND REACTIVITY

|                                    |  |
|------------------------------------|--|
| Reactivity                         | See section 7  |
| Chemical stability                 | Unstable in the presence of incompatible materials.<br>Product is considered stable.<br>Hazardous polymerisation will not occur. |
| Possibility of hazardous reactions | See section 7  |
| Conditions to avoid                | See section 7  |
| Incompatible materials             | See section 7  |
| Hazardous decomposition products   | See section 5  |



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## 11. TOXICOLOGICAL INFORMATION

### Information on toxicological effects

The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models).

Nevertheless inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

#### Inhaled

Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

Exposure to aliphatic alcohols with more than 3 carbons may produce central nervous system effects such as headache, dizziness, drowsiness, muscle weakness, delirium, CNS depression, coma, seizure, and neurobehavioural changes.

Symptoms are more acute with higher alcohols. Respiratory tract involvement may produce irritation of the mucosa, respiratory insufficiency, respiratory depression secondary to CNS depression, pulmonary oedema, chemical pneumonitis and bronchitis. Cardiovascular involvement may result in arrhythmias and hypotension. Gastrointestinal effects may include nausea and vomiting. Kidney and liver damage may result following massive exposures. The alcohols are potential irritants being, generally, stronger irritants than similar organic structures that lack functional groups (e.g. alkanes) but are much less irritating than the corresponding amines, aldehydes or ketones. Alcohols and glycols (diols) rarely represent serious hazards in the workplace, because their vapour concentrations are usually less than the levels which produce significant irritation which, in turn, produce significant central nervous system effects as well.

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

The toxic effects of glycols (dihydric alcohols), following ingestion are similar to those of alcohol, with depression of the central nervous system (CNS), nausea, vomiting and degenerative changes in liver and kidney.

Ingestion of rhodamine B may cause the urine to turn red or pink. Rhodamine B is extensively absorbed from the gastrointestinal tract and has a high affinity for proteins. Rats fed high concentrations show liver damage.

Effects on the nervous system characterise over-exposure to higher aliphatic alcohols. These include headache, muscle weakness, giddiness, ataxia, (loss of muscle coordination), confusion, delirium and coma. Gastrointestinal effects may include nausea, vomiting and diarrhoea. In the absence of effective treatment, respiratory arrest is the most common cause of death in animals acutely poisoned by the higher alcohols. Aspiration of liquid alcohols produces an especially toxic response as they are able to penetrate deeply in the lung where they are absorbed and may produce pulmonary injury.

Those possessing lower viscosity elicit a greater response. The result is a high blood level and prompt death at doses otherwise tolerated by ingestion without aspiration. In general the secondary alcohols are less toxic than the corresponding primary isomers. As a general observation, alcohols are more powerful central nervous system depressants than their aliphatic analogues. In sequence of decreasing depressant potential, tertiary alcohols with multiple substituent OH groups are more potent than secondary alcohols, which, in turn, are more potent than primary alcohols. The potential for overall systemic toxicity increases with molecular weight (up to C7), principally because the water solubility is diminished and lipophilicity is increased.

#### Ingestion

Within the homologous series of aliphatic alcohols, narcotic potency may increase even faster than lethality

Only scanty toxicity information is available about higher homologues of the aliphatic alcohol series (greater than C7) but animal data establish that lethality does not continue to increase with increasing chain length. Aliphatic alcohols with 8 carbons are less toxic than those immediately preceding them in the series. 10 -Carbon n-decyl alcohol has low toxicity as do the solid fatty alcohols (e.g. lauryl, myristyl, cetyl and stearyl). However the rat aspiration test suggests that decyl and melted dodecyl (lauryl) alcohols are dangerous if they enter the trachea. In the rat even a small quantity (0.2 ml) of these behaves like a hydrocarbon solvent in causing death from pulmonary oedema.

Primary alcohols are metabolised to corresponding aldehydes and acids; a significant metabolic acidosis may occur.

Secondary alcohols are converted to ketones, which are also central nervous system depressants and which, in the case of the higher homologues persist in the blood for many hours. Tertiary alcohols are metabolised slowly and incompletely so their toxic effects are generally persistent.



## SAFETY DATA SHEET

# Red-It Marker Dye

Version: 1

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**PROUDLY AUSTRALIAN OWNED AND MANUFACTURED**

Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.  
Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

The material may produce mild skin irritation; limited evidence or practical experience suggests, that the material either:  
produces mild inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant, but mild, inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period.

### Skin Contact

Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (non allergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

Most liquid alcohols appear to act as primary skin irritants in humans. Significant percutaneous absorption occurs in rabbits but not apparently in man.

Open cuts, abraded or irritated skin should not be exposed to this material

Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

### Eye

When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

Rhodamine B reportedly produces injury in rabbit and human eyes.

### Chronic

On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Exposure to the material may result in a possible risk of irreversible effects. The material may produce mutagenic effects in man. This concern is raised, generally, on the basis of appropriate studies using mammalian somatic cells in vivo. Such findings are often supported by positive results from in vitro mutagenicity studies.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Limited evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a significant number of individuals at a greater frequency than would be expected from the response of a normal population.

Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be accompanied by fatigue, malaise and aching. Significant symptoms of exposure may persist for extended periods, even after exposure ceases. Symptoms can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes and passive smoking.

There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals.

There is some evidence that human exposure to the material may result in developmental toxicity. This evidence is based on animal studies where effects have been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects.

In lifetime feeding studies rhodamine caused liver tumours in mice and tumours of the thyroid and parathyroid gland in rats.

Subcutaneous injection of rhodamine B produced local sarcomas in mice and rats.

Rhodamine B chloride, produced intestinal tumours, polyposis and lymphomas in mice exposed through drinking water at a concentration of 0.05% for 52 weeks. Liver damage in animals has been reported.

Classified by IARC as Group 3 - evidence of carcinogenicity may be inadequate or limited in animal testing



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### Red-It Marker Dye

#### TOXICITY

Not Available

#### IRRITATION

Not Available

### diethylene glycol

#### TOXICITY

Dermal (rabbit) LD50: 11890

mg/kg<sup>[2]</sup> Oral (rat) LD50: 12000

mg/kg<sup>[2]</sup>

#### IRRITATION

Eye (rabbit) 50 mg mild

Skin (human): 112 mg/3d-I mild Skin

(rabbit): 500 mg mild

### Rhodamine B

#### TOXICITY

dermal (rat) LD50: >5000 mg/kg<sup>[2]</sup>

Oral (rat) LD50: 400 mg/kg<sup>[2]</sup>

#### IRRITATION

Not Available

#### Legend:

1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. \* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

### diethylene glycol

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis.

Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

**NOTE:** Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.

The substance is classified by IARC as Group 3:

**NOT** classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

Oral (rat) LD50: 400-800 mg/kg \*\* Equivocal tumorigen by RTECS criteria Reproductive effector in rats Lymphoma, tumours at sites of application, foetotoxicity recorded.

### Rhodamine B

#### Acute Toxicity



#### Carcinogenicity



#### Skin Irritation/Corrosion



#### Reproductivity



#### Serious Eye Damage/Irritation



#### STOT - Single Exposure



#### Respiratory or Skin sensitisation



#### STOT - Repeated Exposure



#### Mutagenicity



#### Aspiration Hazard



Legend: **X** – Data available but does not fill the criteria for classification

– Data available to make classification

– Data Not Available to make classification



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## 12. ECOLOGICAL INFORMATION

### Toxicity

|                          | ENDPOINT      | TEST DURATION (HR) | SPECIES                       | VALUE         | SOURCE        |
|--------------------------|---------------|--------------------|-------------------------------|---------------|---------------|
| <b>Red-It Marker Dye</b> | Not Available | Not Available      | Not Available                 | Not Available | Not Available |
|                          | Available     |                    |                               | Available     | Available     |
| <b>diethylene glycol</b> | LC50          | 96                 | Fish                          | >1000mg/L     | 1             |
|                          | EC50          | 48                 | Crustacea                     | =84000mg/L    | 1             |
|                          | NOEC          | 168                | Algae or other aquatic plants | =100mg/L      | 1             |
| <b>Rhodamine B</b>       | LC50          | 96                 | Fish                          | 58.3mg/L      | 4             |

### Legend:

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

**DO NOT discharge into sewer or waterways.**

Harmful to aquatic organisms.

### Persistence and degradability

| <u>Ingredient</u>        | <u>Persistence: Water/Soil</u> | <u>Persistence: Air</u> |
|--------------------------|--------------------------------|-------------------------|
| <b>diethylene glycol</b> | LOW                            | LOW                     |

### Bioaccumulative potential

| <u>Ingredient</u>        | <u>Bioaccumulation</u> |
|--------------------------|------------------------|
| <b>diethylene glycol</b> | LOW (BCF = 180)        |
| <b>Rhodamine B</b>       | LOW (BCF = 1.7)        |

### Mobility in soil

| <u>Ingredient</u>        | <u>Persistence: Water/Soil</u> |
|--------------------------|--------------------------------|
| <b>diethylene glycol</b> | HIGH (KOC =1)                  |





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## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

Containers may still present a chemical hazard/ danger when empty. Return to supplier for reuse/ recycling if possible.

Otherwise:

If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.

Where possible retain label warnings and SDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

Reduction

Reuse

Recycling

Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

**DO NOT allow wash water from cleaning or process equipment to enter drains.**

It may be necessary to collect all wash water for treatment before disposal.

In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.

Where in doubt contact the responsible authority.

Recycle wherever possible or consult manufacturer for recycling options.

Consult State Land Waste Authority for disposal.

Bury or incinerate residue at an approved site.

Recycle containers if possible, or dispose of in an authorised landfill.

### Product / Packaging disposal

## 14. TRANSPORT INFORMATION

### Labels Required

Marine Pollutant

NO

HAZCHEM

Not Applicable

Land transport (ADG): **NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

Air transport (ICAO-IATA / DGR): **NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

Sea transport (IMDG-Code / GGVSee): **NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

## 15. REGULATORY INFORMATION

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

**DIETHYLENE GLYCOL(111-46-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

Australia Hazardous Substances Information System - Consolidated Lists

**RHODAMINE B(81-88-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Inventory of Chemical Substances (AICS)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs



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| <u>National Inventory</u>     | <u>Status</u>  |
|-------------------------------|--|
| Australia - AICS              | Y  |
| Canada - DSL                  | Y  |
| Canada - NDSL                 | N (diethylene glycol; Rhodamine B)   |
| China - IECSC                 | Y  |
| Europe - EINEC / ELINCS / NLP | Y  |
| Japan - ENCS                  | Y  |
| Korea - KECI                  | Y  |
| New Zealand - NZIoC           | Y  |
| Philippines - PICCS           | Y  |
| USA - TSCA                    | Y  |
| <b>Legend:</b>                | <i>Y = All ingredients are on the inventory<br/>N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)</i> |

## 16. OTHER INFORMATION

### Ingredients with multiple cas numbers

| Name        | CAS No   |
|-------------|--|
| Rhodamine B | 81-88-9, 3521-79-7, 11111-29-8, 53664-59-8, 69319-23-9, 86513-49-7, 86893-15-4, 105480-59-9, 248928-56-5, 408346-58-7, 412909-17-2, 433215-26-0, 539821-35-7, 850856-47-2, 859039-47-7, 875572-56-8, 918962-66-0, 925914-34-7, 956491-27-3, 1023342-65-5, 1051370-49-0, 69381-99-3 |

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time

Weighted Average PC—STEL: Permissible

Concentration-Short Term Exposure Limit IARC:

International Agency for Research on Cancer

ACGIH: American Conference of Governmental

Industrial Hygienists STEL: Short Term

Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or

Health Concentrations OSF: Odour Safety

Factor

NOAEL :No Observed Adverse

Effect Level LOAEL: Lowest

Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of

Detection

OTV: Odour

Threshold



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Value  
BCF:  
BioConcentration  
Factors BEI:  
Biological  
Exposure Index

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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