

# CRC (NZ) 2087 Bright Zinc Aerosol

CRC Industries (CRC Industries New Zealand)

Chemwatch Hazard Alert Code: 4

Chemwatch: 4826-38

Version No: 8.1.1.1

Safety Data Sheet according to WHS and ADG requirements

Issue Date: 01/11/2019

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## SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

### Product Identifier

|                               |                                   |
|-------------------------------|-----------------------------------|
| Product name                  | CRC (NZ) 2087 Bright Zinc Aerosol |
| Synonyms                      | Not Available                     |
| Proper shipping name          | AEROSOLS                          |
| Other means of identification | Not Available                     |

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

|                          |  |
|--------------------------|--|
| Relevant identified uses | To provide a bright silver anticorrosive coating to metal surfaces.<br>Application is by spray atomisation from a hand held aerosol pack |
|--------------------------|--|

### Details of the supplier of the safety data sheet

|                         |   |
|-------------------------|---|
| Registered company name | CRC Industries (CRC Industries New Zealand)         |
| Address                 | 10 Highbrook Drive East Tamaki Auckland New Zealand |
| Telephone               | +64 9 272 2700                                      |
| Fax                     | +64 9 274 9696                                      |
| Website                 | www.crc.co.nz                                       |
| Email                   | customerservices@crc.co.nz                          |

### Emergency telephone number

|                                   |  |
|-----------------------------------|--|
| Association / Organisation        | CRC Industries (CRC Industries New Zealand)  |
| Emergency telephone numbers       | NZ Poisons Centre 0800 POISON (0800 764 766) |
| Other emergency telephone numbers | 111 (NZ Emergency Services)                  |

## SECTION 2 HAZARDS IDENTIFICATION

### Classification of the substance or mixture

|                    |   |
|--------------------|---|
| Poisons Schedule   | Not Applicable  |
| Classification [1] | Flammable Aerosols Category 1, Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Reproductive Toxicity Category 2, Specific target organ toxicity - single exposure Category 3 (narcotic effects), Specific target organ toxicity - repeated exposure Category 2, Aspiration Hazard Category 1, Chronic Aquatic Hazard Category 1 |
| Legend:            | 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI   |

### Label elements

|                     |   |
|---------------------|---|
| Hazard pictogram(s) |  |
| SIGNAL WORD         | <b>DANGER</b>   |

### Hazard statement(s)

|        |  |
|--------|--|
| H222   | Extremely flammable aerosol.                                       |
| H302   | Harmful if swallowed.  |
| H315   | Causes skin irritation.  |
| H319   | Causes serious eye irritation.                                     |
| H361d  | Suspected of damaging the unborn child.                            |
| H336   | May cause drowsiness or dizziness.                                 |
| H373   | May cause damage to organs through prolonged or repeated exposure. |
| H304   | May be fatal if swallowed and enters airways.                      |
| H410   | Very toxic to aquatic life with long lasting effects.              |
| AUH044 | Risk of explosion if heated under confinement.                     |

Continued...

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**Precautionary statement(s) Prevention**

|      |  |
|------|--|
| P201 | Obtain special instructions before use.                                    |
| P210 | Keep away from heat/sparks/open flames/hot surfaces. - No smoking.         |
| P211 | Do not spray on an open flame or other ignition source.                    |
| P251 | Pressurized container: Do not pierce or burn, even after use.              |
| P260 | Do not breathe mist/vapours/spray.   |
| P271 | Use only outdoors or in a well-ventilated area.                            |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P270 | Do not eat, drink or smoke when using this product.                        |
| P273 | Avoid release to the environment.  |

**Precautionary statement(s) Response**

|                |  |
|----------------|--|
| P301+P310      | IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  |
| P308+P313      | IF exposed or concerned: Get medical advice/attention.   |
| P321           | Specific treatment (see advice on this label).   |
| P331           | Do NOT induce vomiting.  |
| P362           | Take off contaminated clothing and wash before reuse.  |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P337+P313      | If eye irritation persists: Get medical advice/attention.  |
| P391           | Collect spillage.  |
| P301+P312      | IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.   |
| P302+P352      | IF ON SKIN: Wash with plenty of water and soap.  |
| P304+P340      | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.                                 |
| P330           | Rinse mouth.   |
| P332+P313      | If skin irritation occurs: Get medical advice/attention.   |

**Precautionary statement(s) Storage**

|           |  |
|-----------|--|
| P405      | Store locked up.   |
| P410+P412 | Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. |
| P403+P233 | Store in a well-ventilated place. Keep container tightly closed.             |

**Precautionary statement(s) Disposal**

|      |  |
|------|--|
| P501 | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |
|------|--|

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**

**Substances**

See section below for composition of Mixtures

**Mixtures**

| CAS No      | %[weight] | Name                          |
|-------------|-----------|-------------------------------|
| 7440-66-6   | 10-25     | <u>zinc powder</u>            |
| 108-88-3    | 10-25     | <u>toluene</u>                |
| 1330-20-7   | 1-9       | <u>xylene</u>                 |
| 7429-90-5   | 1-3       | <u>aluminium flake</u>        |
| 68476-85-7. | 25-35     | <u>hydrocarbon propellant</u> |

**SECTION 4 FIRST AID MEASURES**

**Description of first aid measures**

|                     |   |
|---------------------|---|
| <b>Eye Contact</b>  | <p>If aerosols come in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Immediately hold the eyelids apart and flush the eye continuously for at least 15 minutes with fresh running water.</li> <li>▶ 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.</li> <li>▶ Transport to hospital or doctor without delay.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul> |
| <b>Skin Contact</b> | <p>If solids or aerosol mists are deposited upon the skin:</p> <ul style="list-style-type: none"> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Remove any adhering solids with industrial skin cleansing cream.</li> <li>▶ <b>DO NOT use solvents.</b></li> <li>▶ Seek medical attention in the event of irritation.</li> </ul>   |
| <b>Inhalation</b>   | <p>If aerosols, fumes or combustion products are inhaled:</p> <ul style="list-style-type: none"> <li>▶ Remove to fresh air.</li> <li>▶ Lay patient down. Keep warm and rested.</li> </ul>   |

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|                  |   |
|------------------|---|
|                  | <ul style="list-style-type: none"> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>  |
| <b>Ingestion</b> | <ul style="list-style-type: none"> <li>▶ Not considered a normal route of entry.</li> <li>▶ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.</li> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> <li>▶ Avoid giving milk or oils.</li> <li>▶ Avoid giving alcohol.</li> </ul> |

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

Treat symptomatically.

## SECTION 5 FIREFIGHTING MEASURES

### Extinguishing media

#### SMALL FIRE:

- ▶ Water spray, dry chemical or CO2

#### LARGE FIRE:

- ▶ Water spray or fog.

### Special hazards arising from the substrate or mixture

|                             |  |
|-----------------------------|--|
| <b>Fire Incompatibility</b> | ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
|-----------------------------|--|

### Advice for firefighters

|                              |   |
|------------------------------|---|
| <b>Fire Fighting</b>         | <ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ May be violently or explosively reactive.</li> <li>▶ Wear breathing apparatus plus protective gloves.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ If safe, switch off electrical equipment until vapour fire hazard removed.</li> <li>▶ Use water delivered as a fine spray to control fire and cool adjacent area.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> <li>▶ If safe to do so, remove containers from path of fire.</li> <li>▶ Equipment should be thoroughly decontaminated after use.</li> </ul>  |
| <b>Fire/Explosion Hazard</b> | <ul style="list-style-type: none"> <li>▶ Liquid and vapour are highly flammable.</li> <li>▶ Severe fire hazard when exposed to heat or flame.</li> <li>▶ Vapour forms an explosive mixture with air.</li> <li>▶ Severe explosion hazard, in the form of vapour, when exposed to flame or spark.</li> <li>▶ Vapour may travel a considerable distance to source of ignition.</li> <li>▶ Heating may cause expansion or decomposition with violent container rupture.</li> <li>▶ Aerosol cans may explode on exposure to naked flames.</li> <li>▶ Rupturing containers may rocket and scatter burning materials.</li> <li>▶ Hazards may not be restricted to pressure effects.</li> <li>▶ May emit acrid, poisonous or corrosive fumes.</li> <li>▶ On combustion, may emit toxic fumes of carbon monoxide (CO).</li> </ul> <p>Other combustion products include:<br/>carbon dioxide (CO2)<br/>other pyrolysis products typical of burning organic material.</p> |
| <b>HAZCHEM</b>               | Not Applicable  |

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

|                     |   |
|---------------------|---|
| <b>Minor Spills</b> | <ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Wear protective clothing, impervious gloves and safety glasses.</li> <li>▶ Shut off all possible sources of ignition and increase ventilation.</li> <li>▶ Wipe up.</li> <li>▶ If safe, damaged cans should be placed in a container outdoors, away from all ignition sources, until pressure has dissipated.</li> <li>▶ Undamaged cans should be gathered and stowed safely.</li> </ul> |
| <b>Major Spills</b> | <ul style="list-style-type: none"> <li>▶ Remove leaking cylinders to a safe place if possible.</li> <li>▶ Release pressure under safe, controlled conditions by opening the valve.</li> <li>▶ <b>DO NOT exert excessive pressure on valve; DO NOT attempt to operate damaged valve.</b></li> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ May be violently or explosively reactive.</li> </ul>  |

Continued...

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- ▶ Wear breathing apparatus plus protective gloves.
- ▶ Prevent, by any means available, spillage from entering drains or water courses
- ▶ No smoking, naked lights or ignition sources.
- ▶ Increase ventilation.
- ▶ Stop leak if safe to do so.
- ▶ Water spray or fog may be used to disperse / absorb vapour.
- ▶ Absorb or cover spill with sand, earth, inert materials or vermiculite.
- ▶ If safe, damaged cans should be placed in a container outdoors, away from ignition sources, until pressure has dissipated.
- ▶ Undamaged cans should be gathered and stowed safely.
- ▶ Collect residues and seal in labelled drums for disposal.

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

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

|                          |   |
|--------------------------|---|
| <b>Safe handling</b>     | <ul style="list-style-type: none"> <li>▶ Containers, even those that have been emptied, may contain explosive vapours.</li> <li>▶ Do NOT cut, drill, grind, weld or perform similar operations on or near containers.</li> <li>▶ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> <li>▶ Electrostatic discharge may be generated during pumping - this may result in fire.</li> <li>▶ Ensure electrical continuity by bonding and grounding (earthing) all equipment.</li> <li>▶ Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<math>\leq 1</math> m/sec until fill pipe submerged to twice its diameter, then <math>\leq 7</math> m/sec).</li> <li>▶ Avoid splash filling.</li> <li>▶ Do NOT use compressed air for filling discharging or handling operations.</li> <li>▶ Atmospheres must be tested and O.K. before work resumes after leakage.</li> <li>▶ Obtain a work permit before attempting any repairs.</li> <li>▶ <b>Do not</b> attempt repair work on lines, vessels under pressure.</li> <li>▶ Avoid generation of static electricity. Earth all lines and equipment.</li> <li>▶ <b>DO NOT transfer gas from one cylinder to another.</b></li> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> <li>▶ Prevent concentration in hollows and sumps.</li> <li>▶ <b>DO NOT enter confined spaces until atmosphere has been checked.</b></li> <li>▶ Avoid smoking, naked lights or ignition sources.</li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ <b>When handling, DO NOT eat, drink or smoke.</b></li> <li>▶ <b>DO NOT incinerate or puncture aerosol cans.</b></li> <li>▶ <b>DO NOT spray directly on humans, exposed food or food utensils.</b></li> <li>▶ Avoid physical damage to containers.</li> <li>▶ Always wash hands with soap and water after handling.</li> <li>▶ Work clothes should be laundered separately.</li> <li>▶ Use good occupational work practice.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.</li> </ul> |
| <b>Other information</b> | <ul style="list-style-type: none"> <li>▶ Store in an upright position.</li> <li>▶ Outside or detached storage is preferred.</li> <li>▶ Store below 38 deg. C.</li> <li>▶ Keep dry to avoid corrosion of cans. Corrosion may result in container perforation and internal pressure may eject contents of can</li> <li>▶ Store in original containers in approved flammable liquid storage area.</li> <li>▶ <b>DO NOT store in pits, depressions, basements or areas where vapours may be trapped.</b></li> <li>▶ No smoking, naked lights, heat or ignition sources.</li> <li>▶ Keep containers securely sealed. Contents under pressure.</li> <li>▶ Store away from incompatible materials.</li> <li>▶ Store in a cool, dry, well ventilated area.</li> <li>▶ Avoid storage at temperatures higher than 40 deg C.</li> <li>▶ Store in an upright position.</li> <li>▶ Protect containers against physical damage.</li> <li>▶ Check regularly for spills and leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul>   |

### Conditions for safe storage, including any incompatibilities

|                                |   |
|--------------------------------|---|
| <b>Suitable container</b>      | <ul style="list-style-type: none"> <li>▶ Aerosol dispenser.</li> <li>▶ Check that containers are clearly labelled.</li> </ul>   |
| <b>Storage incompatibility</b> | <ul style="list-style-type: none"> <li>▶ Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.</li> <li>▶ Reacts violently with caustic soda, other alkalis - generating heat, highly flammable hydrogen gas.</li> <li>▶ If alkali is dry, heat generated may ignite hydrogen - if alkali is in solution may cause violent foaming</li> <li>▶ Segregate from alcohol, water.</li> <li>▶ Avoid reaction with oxidising agents</li> </ul> |

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control parameters

#### OCCUPATIONAL EXPOSURE LIMITS (OEL)

#### INGREDIENT DATA

| Source                       | Ingredient | Material name | TWA                | STEL                | Peak          | Notes         |
|------------------------------|------------|---------------|--------------------|---------------------|---------------|---------------|
| Australia Exposure Standards | toluene    | Toluene       | 50 ppm / 191 mg/m3 | 574 mg/m3 / 150 ppm | Not Available | Not Available |

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|                              |                        |                                   |                       |                     |               |               |
|------------------------------|------------------------|-----------------------------------|-----------------------|---------------------|---------------|---------------|
| Australia Exposure Standards | xylene                 | Xylene (o-, m-, p- isomers)       | 80 ppm / 350 mg/m3    | 655 mg/m3 / 150 ppm | Not Available | Not Available |
| Australia Exposure Standards | aluminium flake        | Aluminium (metal dust)            | 10 mg/m3              | Not Available       | Not Available | Not Available |
| Australia Exposure Standards | aluminium flake        | Aluminium, pyro powders (as Al)   | 5 mg/m3               | Not Available       | Not Available | Not Available |
| Australia Exposure Standards | aluminium flake        | Aluminium (welding fumes) (as Al) | 5 mg/m3               | Not Available       | Not Available | Not Available |
| Australia Exposure Standards | hydrocarbon propellant | LPG (liquified petroleum gas)     | 1000 ppm / 1800 mg/m3 | Not Available       | Not Available | Not Available |

## EMERGENCY LIMITS

| Ingredient             | Material name                     | TEEL-1        | TEEL-2        | TEEL-3        |
|------------------------|-----------------------------------|---------------|---------------|---------------|
| zinc powder            | Zinc                              | 6 mg/m3       | 21 mg/m3      | 120 mg/m3     |
| toluene                | Toluene                           | Not Available | Not Available | Not Available |
| xylene                 | Xylenes                           | Not Available | Not Available | Not Available |
| hydrocarbon propellant | Liquified petroleum gas; (L.P.G.) | 65,000 ppm    | 2.30E+05 ppm  | 4.00E+05 ppm  |

| Ingredient             | Original IDLH | Revised IDLH  |
|------------------------|---------------|---------------|
| zinc powder            | Not Available | Not Available |
| toluene                | 500 ppm       | Not Available |
| xylene                 | 900 ppm       | Not Available |
| aluminium flake        | Not Available | Not Available |
| hydrocarbon propellant | 2,000 ppm     | Not Available |

## OCCUPATIONAL EXPOSURE BANDING

| Ingredient  | Occupational Exposure Band Rating | Occupational Exposure Band Limit |
|-------------|-----------------------------------|----------------------------------|
| zinc powder | E                                 | ≤ 0.01 mg/m <sup>3</sup>         |

## Notes:

Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

## MATERIAL DATA

Odour Safety Factor(OSF) OSF=0.16 (hydrocarbon propellant)

Exposed individuals are **NOT** reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

ClassOSF Description

A 550 Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV-TWA for example) is being reached, even when distracted by working activities

B 26-550 As "A" for 50-90% of persons being distracted

C 1-26 As "A" for less than 50% of persons being distracted

D 0.18-1 10-50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached

E <0.18 As "D" for less than 10% of persons aware of being tested

NOTE K: The classification as a carcinogen need not apply if it can be shown that the substance contains less than 0.1%w/w 1,3-butadiene (EINECS No 203-450-8). - European Union (EU) List of harmonised classification and labelling hazardous substances, Table 3.1, Annex VI, Regulation (EC) No 1272/2008 (CLP) - up to the latest ATP

## Exposure controls

|  |   |                        |   |   |           |   |                            |
|--|---|------------------------|---|---|-----------|---|----------------------------|
| Appropriate engineering controls   | <p>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.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>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.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> |                        |   |   |           |   |                            |
|  | <p>General exhaust is adequate under normal conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection.</p> <p>Provide adequate ventilation in warehouse or closed storage areas.</p> <p>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.</p>  |                        |   |   |           |   |                            |
|  | <table border="0"> <tr> <td>Type of Contaminant:</td> <td>Speed:</td> </tr> <tr> <td>aerosols, (released at low velocity into zone of active generation)</td> <td>0.5-1 m/s</td> </tr> <tr> <td>direct spray, spray painting in shallow booths, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min.)</td> </tr> </table>   | Type of Contaminant:   | Speed:  | aerosols, (released at low velocity into zone of active generation) | 0.5-1 m/s | direct spray, spray painting in shallow booths, gas discharge (active generation into zone of rapid air motion) | 1-2.5 m/s (200-500 f/min.) |
|  | Type of Contaminant:  | Speed:                 |   |   |           |   |                            |
|  | aerosols, (released at low velocity into zone of active generation)   | 0.5-1 m/s              |   |   |           |   |                            |
| direct spray, spray painting in shallow booths, gas discharge (active generation into zone of rapid air motion)  | 1-2.5 m/s (200-500 f/min.)  |                        |   |   |           |   |                            |
| <p>Within each range the appropriate value depends on:</p> <table border="0"> <tr> <td>Lower end of the range</td> <td>Upper end of the range</td> </tr> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> </table> | Lower end of the range  | Upper end of the range | 1: Room air currents minimal or favourable to capture | 1: Disturbing room air currents                                     |           |   |                            |
| Lower end of the range   | Upper end of the range  |                        |   |   |           |   |                            |
| 1: Room air currents minimal or favourable to capture  | 1: Disturbing room air currents   |                        |   |   |           |   |                            |
|  |   |                        |   |   |           |   |                            |

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|                         |  |
|-------------------------|--|
|                         | <p>2: Contaminants of low toxicity or of nuisance value only.      2: Contaminants of high toxicity</p> <p>3: Intermittent, low production.      3: High production, heavy use</p> <p>4: Large hood or large air mass in motion      4: Small hood-local control only</p> <p>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.</p>  |
| Personal protection     |   |
| Eye and face protection | <ul style="list-style-type: none"> <li>▶ Safety glasses with side shields.</li> <li>▶ Chemical goggles.</li> <li>▶ 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]</li> </ul>  |
| Skin protection         | See Hand protection below  |
| Hands/feet protection   | <p>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.</p> <p>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.</p> <p>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 moisturiser is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> <li>• frequency and duration of contact,</li> <li>• chemical resistance of glove material,</li> <li>• glove thickness and</li> <li>• dexterity</li> </ul> <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</li> <li>• Contaminated gloves should be replaced.</li> </ul> <p>As defined in ASTM F-739-96 in any application, gloves are rated as:</p> <ul style="list-style-type: none"> <li>• Excellent when breakthrough time &gt; 480 min</li> <li>• Good when breakthrough time &gt; 20 min</li> <li>• Fair when breakthrough time &lt; 20 min</li> <li>• Poor when glove material degrades</li> </ul> <p>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.</p> <p>It should be emphasised 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.</p> <p>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.</p> <p>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>▶ No special equipment needed when handling small quantities.</li> <li>▶ <b>OTHERWISE:</b></li> <li>▶ For potentially moderate exposures:</li> <li>▶ Wear general protective gloves, eg. light weight rubber gloves.</li> <li>▶ For potentially heavy exposures:</li> <li>▶ Wear chemical protective gloves, eg. PVC. and safety footwear.</li> </ul> |
| Body protection         | See Other protection below   |
| Other protection        | <ul style="list-style-type: none"> <li>▶ The clothing worn by process operators insulated from earth may develop static charges far higher (up to 100 times) than the minimum ignition energies for various flammable gas-air mixtures. This holds true for a wide range of clothing materials including cotton.</li> <li>▶ Avoid dangerous levels of charge by ensuring a low resistivity of the surface material worn outermost.</li> </ul> <p>BRETHERRICK: Handbook of Reactive Chemical Hazards.</p> <p>No special equipment needed when handling small quantities.</p> <p><b>OTHERWISE:</b></p> <ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ Skin cleansing cream.</li> <li>▶ Eyewash unit.</li> <li>▶ Do not spray on hot surfaces.</li> </ul>  |

## Recommended material(s)

GLOVE SELECTION INDEX

## Respiratory protection

Type AX Filter of sufficient capacity. (AS/NZS 1716 &amp; 1715, EN 143:2000 &amp; 149:2001,

Continued...

## CRC (NZ) 2087 Bright Zinc Aerosol

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:

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| Material          | CPI |
|-------------------|-----|
| PE/EVAL/PE        | A   |
| PVA               | A   |
| VITON             | A   |
| TEFLON            | B   |
| BUTYL             | C   |
| BUTYL/NEOPRENE    | C   |
| CPE               | C   |
| HYPALON           | C   |
| NAT+NEOPR+NITRILE | C   |
| NATURAL+NEOPRENE  | C   |
| NEOPRENE          | C   |
| NEOPRENE/NATURAL  | C   |
| NITRILE           | C   |
| NITRILE+PVC       | C   |
| PVC               | C   |
| PVDC/PE/PVDC      | C   |
| SARANEX-23        | C   |
| SARANEX-23 2-PLY  | C   |
| VITON/CHLOROBUTYL | C   |
| VITON/NEOPRENE    | C   |

\* 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.

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 10 x ES                      | AX-AUS               | -                    | AX-PAPR-AUS / Class 1  |
| up to 50 x ES                      | -                    | AX-AUS / Class 1     | -                      |
| up to 100 x ES                     | -                    | AX-2                 | AX-PAPR-2 ^            |

^ - 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(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

|   |   |  |                |
|---|---|--|----------------|
| <b>Appearance</b>                                   | Viscous bright silver highly flammable liquid aerosol; does not mix with water. Supplied as an aerosol pack. Contents under <b>PRESSURE</b> . Contains highly flammable hydrocarbon propellant. |  |                |
| <b>Physical state</b>                               | Liquid  | <b>Relative density (Water = 1)</b>            | Not Available  |
| <b>Odour</b>  | Not Available   | <b>Partition coefficient n-octanol / water</b> | Not Available  |
| <b>Odour threshold</b>                              | Not Available   | <b>Auto-ignition temperature (°C)</b>          | Not Available  |
| <b>pH (as supplied)</b>                             | Not Applicable  | <b>Decomposition temperature</b>               | Not Available  |
| <b>Melting point / freezing point (°C)</b>          | Not Available   | <b>Viscosity (cSt)</b>                         | Not Available  |
| <b>Initial boiling point and boiling range (°C)</b> | Not Available   | <b>Molecular weight (g/mol)</b>                | Not Applicable |
| <b>Flash point (°C)</b>                             | -81 (propellant)  | <b>Taste</b>                                   | Not Available  |
| <b>Evaporation rate</b>                             | Not Available   | <b>Explosive properties</b>                    | Not Available  |
| <b>Flammability</b>                                 | HIGHLY FLAMMABLE.   | <b>Oxidising properties</b>                    | Not Available  |
| <b>Upper Explosive Limit (%)</b>                    | Not Available   | <b>Surface Tension (dyn/cm or mN/m)</b>        | Not Available  |
| <b>Lower Explosive Limit (%)</b>                    | Not Available   | <b>Volatile Component (%vol)</b>               | Not Available  |
| <b>Vapour pressure (kPa)</b>                        | Not Available   | <b>Gas group</b>                               | Not Available  |
| <b>Solubility in water</b>                          | Immiscible  | <b>pH as a solution (1%)</b>                   | Not Applicable |
| <b>Vapour density (Air = 1)</b>                     | Not Available   | <b>VOC g/L</b>                                 | Not Available  |

## SECTION 10 STABILITY AND REACTIVITY

|                   |               |
|-------------------|---------------|
| <b>Reactivity</b> | See section 7 |
|-------------------|---------------|

## CRC (NZ) 2087 Bright Zinc Aerosol

|   |  |
|---|--|
| <b>Chemical stability</b>                 | <ul style="list-style-type: none"> <li>▶ Elevated temperatures.</li> <li>▶ Presence of open flame.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul> |
| <b>Possibility of hazardous reactions</b> | See section 7  |
| <b>Conditions to avoid</b>                | See section 7  |
| <b>Incompatible materials</b>             | See section 7  |
| <b>Hazardous decomposition products</b>   | See section 5  |

## SECTION 11 TOXICOLOGICAL INFORMATION

## Information on toxicological effects

|                     |  |
|---------------------|--|
| <b>Inhaled</b>      | <p>Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.</p> <p>Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.</p> <p>Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination</p> <p>Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p> <p>If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.</p> <p><b>WARNING: Intentional misuse by concentrating/inhaling contents may be lethal.</b></p> <p>Xylene is a central nervous system depressant. Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p>   |
| <b>Ingestion</b>    | <p>Not normally a hazard due to physical form of product.</p> <p>Considered an unlikely route of entry in commercial/industrial environments</p> <p>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.</p> <p>Considered an unlikely route of entry in commercial/industrial environments The liquid may produce considerable gastrointestinal discomfort and may be harmful or toxic if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis</p> <p>Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p>   |
| <b>Skin Contact</b> | <p>Skin contact with the material may be harmful; systemic effects may result following absorption.</p> <p>The material may accentuate any pre-existing dermatitis condition</p> <p>Spray mist may produce discomfort</p> <p>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.</p> <p>The material produces moderate skin irritation; evidence exists, or practical experience predicts, that the material either</p> <ul style="list-style-type: none"> <li>▶ produces moderate inflammation of the skin in a substantial number of individuals following direct contact, and/or</li> <li>▶ produces significant, but moderate, 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.</li> </ul> <p>Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). 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.</p>  |
| <b>Eye</b>          | <p>It has either been demonstrated or it is expected that when the material is applied to the eye(s) of animals, it produces severe ocular lesions which are present twenty-four hours or more after instillation.</p> <p>The liquid produces a high level of eye discomfort and is capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated.</p>   |
| <b>Chronic</b>      | <p>Principal route of occupational exposure to the gas is by inhalation.</p> <p>On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body 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.</p> <p>Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.</p> <p>Harmful: danger of serious damage to health by prolonged exposure through inhalation.</p> <p>Serious damage (clear functional disturbance or morphological change which may have toxicological significance) is likely to be caused by repeated or prolonged exposure. As a rule the material produces, or contains a substance which produces severe lesions. Such damage may become apparent following direct application in subchronic (90 day) toxicity studies or following sub-acute (28 day) or chronic (two-year) toxicity tests.</p> <p>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.</p> <p>Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).</p> <p>Metallic dusts generated by the industrial process give rise to a number of potential health problems. The larger particles, above 5 micron, are nose and throat irritants. Smaller particles however, may cause lung deterioration. Particles of less than 1.5 micron can be trapped in the lungs and, dependent on the nature of the particle, may give rise to further serious health consequences.</p> <p>Metals are widely distributed in the environment and are not biodegradable. Biologically, many metals are essential to living systems and are involved in a variety of cellular, physiological, and structural functions. They often are cofactors of enzymes, and play a role in transcriptional control, muscle contraction, nerve transmission, blood clotting, and oxygen transport and delivery. Although all metals are potentially toxic at</p> |

## CRC (NZ) 2087 Bright Zinc Aerosol

some level, some are highly toxic at relatively low levels. Moreover, in some cases the same metal can be essential at low levels and toxic at higher levels, or it may be toxic via one route of entry but not another. Toxic effects of some metals are associated with disruption of functions of essential metals. Metals may have a range of effects, including cancer, neurotoxicity, immunotoxicity, cardiotoxicity, reproductive toxicity, teratogenicity, and genotoxicity. Biological half lives of metals vary greatly, from hours to years. Furthermore, the half life of a given metal varies in different tissues. Lead has a half life of 14 days in soft tissues and 20 years in bone.

In considering how to evaluate the toxicity of metals of potential concern, a number of aspects of metal toxicity should be kept in mind: Different species vary in their responses to different metals; in some cases, humans are more sensitive than rodents. Thus, there is a need for broad-based testing of metals;

- ▶ The route of exposure may affect the dose and site where the metal concentrates, and thus the observed toxic effects;
- ▶ Metal-metal interactions can reduce or enhance toxicity; biotransformation can reduce or enhance toxicity;
- ▶ It is difficult to predict the toxicity of one metal based on the adverse effects of another; in trying to evaluate the toxicity of one particular metal compound, predictions based on similar compounds of the same metal may be valid.

Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes. [PATTYS]

|                                   |  |  |
|-----------------------------------|--|--|
| CRC (NZ) 2087 Bright Zinc Aerosol | <b>TOXICITY</b>  | <b>IRRITATION</b>  |
|                                   | Not Available  | Not Available  |
| zinc powder                       | <b>TOXICITY</b>  | <b>IRRITATION</b>  |
|                                   | dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>  | Eye: no adverse effect observed (not irritating) <sup>[1]</sup>  |
|                                   | Inhalation (rat) LC50: >1.79 mg/l/4 h <sup>[1]</sup>   | Skin: no adverse effect observed (not irritating) <sup>[1]</sup> |
| toluene                           | <b>TOXICITY</b>  | <b>IRRITATION</b>  |
|                                   | dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>  | Eye (rabbit): 2mg/24h - SEVERE                                   |
|                                   | Inhalation (rat) LC50: 49 mg/l/4h <sup>[2]</sup>   | Eye (rabbit):0.87 mg - mild                                      |
|                                   | Oral (rat) LD50: 636 mg/kg <sup>[2]</sup>  | Eye (rabbit):100 mg/30sec - mild                                 |
|                                   |  | Eye: adverse effect observed (irritating) <sup>[1]</sup>         |
|                                   |  | Skin (rabbit):20 mg/24h-moderate                                 |
| xylene                            | <b>TOXICITY</b>  | <b>IRRITATION</b>  |
|                                   | Dermal (rabbit) LD50: >1700 mg/kg <sup>[2]</sup>   | Eye (human): 200 ppm irritant                                    |
|                                   | Inhalation (rat) LC50: 4994.295 mg/l/4h <sup>[2]</sup>   | Eye (rabbit): 5 mg/24h SEVERE                                    |
|                                   | Oral (rat) LD50: 3523-8700 mg/kg <sup>[2]</sup>  | Eye (rabbit): 87 mg mild   |
|                                   |  | Eye: adverse effect observed (irritating) <sup>[1]</sup>         |
|                                   |  | Skin (rabbit):500 mg/24h moderate                                |
| aluminium flake                   | <b>TOXICITY</b>  | <b>IRRITATION</b>  |
|                                   | Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup>  | Eye: no adverse effect observed (not irritating) <sup>[1]</sup>  |
| hydrocarbon propellant            | <b>TOXICITY</b>  | <b>IRRITATION</b>  |
|                                   | Not Available  | Not Available  |
| <b>Legend:</b>                    | 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 |  |

|                    |   |
|--------------------|---|
| <b>ZINC POWDER</b> | Inhalation (human) TCLo: 124 mg/m3/50min. Skin (human):0.3mg/3DaysInt. mild   |
| <b>TOLUENE</b>     | <p>For toluene:<br/><b>Acute Toxicity</b><br/>Humans exposed to intermediate to high levels of toluene for short periods of time experience adverse central nervous system effects ranging from headaches to intoxication, convulsions, narcosis, and death. Similar effects are observed in short-term animal studies.<br/><b>Humans</b> - Toluene ingestion or inhalation can result in severe central nervous system depression, and in large doses, can act as a narcotic. The ingestion of about 60 mL resulted in fatal nervous system depression within 30 minutes in one reported case. Constriction and necrosis of myocardial fibers, markedly swollen liver, congestion and haemorrhage of the lungs and acute tubular necrosis were found on autopsy.<br/>Central nervous system effects (headaches, dizziness, intoxication) and eye irritation occurred following inhalation exposure to 100 ppm toluene 6 hours/day for 4 days.<br/>Exposure to 600 ppm for 8 hours resulted in the same and more serious symptoms including euphoria, dilated pupils, convulsions, and nausea .<br/>Exposure to 10,000-30,000 ppm has been reported to cause narcosis and death<br/>Toluene can also strip the skin of lipids causing dermatitis<br/><b>Animals</b> - The initial effects are instability and incoordination, lachrymation and sniffles (respiratory exposure), followed by narcosis. Animals die of respiratory failure from severe nervous system depression. Cloudy swelling of the kidneys was reported in rats following inhalation exposure to 1600 ppm, 18-20 hours/day for 3 days<br/><b>Subchronic/Chronic Effects:</b><br/>Repeat doses of toluene cause adverse central nervous system effects and can damage the upper respiratory system, the liver, and the kidney.</p> |

|  |  |
|--|--|
|  | <p>Adverse effects occur as a result from both oral and the inhalation exposures. A reported lowest-observed-effect level in humans for adverse neurobehavioral effects is 88 ppm.</p> <p><b>Humans</b> - Chronic occupational exposure and incidences of toluene abuse have resulted in hepatomegaly and liver function changes. It has also resulted in nephrotoxicity and, in one case, was a cardiac sensitiser and fatal cardiotoxin.</p> <p>Neural and cerebellar dystrophy were reported in several cases of habitual "glue sniffing." An epidemiological study in France on workers chronically exposed to toluene fumes reported leukopenia and neutropenia. Exposure levels were not given in the secondary reference; however, the average urinary excretion of hippuric acid, a metabolite of toluene, was given as 4 g/L compared to a normal level of 0.6 g/L</p> <p><b>Animals</b> - The major target organs for the subchronic/chronic toxicity of toluene are the nervous system, liver, and kidney. Depressed immune response has been reported in male mice given doses of 105 mg/kg/day for 28 days. Toluene in corn oil administered to F344 male and female rats by gavage 5 days/week for 13 weeks, induced prostration, hypoactivity, ataxia, piloerection, lachrymation, excess salivation, and body tremors at doses 2500 mg/kg. Liver, kidney, and heart weights were also increased at this dose and histopathologic lesions were seen in the liver, kidneys, brain and urinary bladder. The no-observed-adverse effect level (NOAEL) for the study was 312 mg/kg (223 mg/kg/day) and the lowest-observed-adverse effect level (LOAEL) for the study was 625 mg/kg (446 mg/kg/day) .</p> <p><b>Developmental/Reproductive Toxicity</b></p> <p>Exposures to high levels of toluene can result in adverse effects in the developing human foetus. Several studies have indicated that high levels of toluene can also adversely affect the developing offspring in laboratory animals.</p> <p><b>Humans</b> - Variable growth, microcephaly, CNS dysfunction, attentional deficits, minor craniofacial and limb abnormalities, and developmental delay were seen in three children exposed to toluene in utero as a result of maternal solvent abuse before and during pregnancy</p> <p><b>Animals</b> - Sternebral alterations, extra ribs, and missing tails were reported following treatment of rats with 1500 mg/m<sup>3</sup> toluene 24 hours/day during days 9-14 of gestation. Two of the dams died during the exposure. Another group of rats received 1000 mg/m<sup>3</sup> 8 hours/day during days 1-21 of gestation. No maternal deaths or toxicity occurred, however, minor skeletal retardation was present in the exposed fetuses. CFLP Mice were exposed to 500 or 1500 mg/m<sup>3</sup> toluene continuously during days 6-13 of pregnancy. All dams died at the high dose during the first 24 hours of exposure, however none died at 500 mg/m<sup>3</sup>. Decreased foetal weight was reported, but there were no differences in the incidences of skeletal malformations or anomalies between the treated and control offspring.</p> <p><b>Absorption</b> - Studies in humans and animals have demonstrated that toluene is readily absorbed via the lungs and the gastrointestinal tract. Absorption through the skin is estimated at about 1% of that absorbed by the lungs when exposed to toluene vapor.</p> <p>Dermal absorption is expected to be higher upon exposure to the liquid; however, exposure is limited by the rapid evaporation of toluene .</p> <p><b>Distribution</b> - In studies with mice exposed to radiolabeled toluene by inhalation, high levels of radioactivity were present in body fat, bone marrow, spinal nerves, spinal cord, and brain white matter. Lower levels of radioactivity were present in blood, kidney, and liver. Accumulation of toluene has generally been found in adipose tissue, other tissues with high fat content, and in highly vascularised tissues .</p> <p><b>Metabolism</b> - The metabolites of inhaled or ingested toluene include benzyl alcohol resulting from the hydroxylation of the methyl group. Further oxidation results in the formation of benzaldehyde and benzoic acid. The latter is conjugated with glycine to yield hippuric acid or reacted with glucuronic acid to form benzoyl glucuronide. o-cresol and p-cresol formed by ring hydroxylation are considered minor metabolites</p> <p><b>Excretion</b> - Toluene is primarily (60-70%) excreted through the urine as hippuric acid. The excretion of benzoyl glucuronide accounts for 10-20%, and excretion of unchanged toluene through the lungs also accounts for 10-20%. Excretion of hippuric acid is usually complete within 24 hours after exposure.</p> |
| <p style="text-align: center;"><b>XYLENE</b></p>                     | <p>Reproductive effector in rats</p> <p>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The substance is classified by IARC as Group 3:<br/> <b>NOT</b> classifiable as to its carcinogenicity to humans.<br/> Evidence of carcinogenicity may be inadequate or limited in animal testing.</p>   |
| <p style="text-align: center;"><b>HYDROCARBON<br/>PROPELLANT</b></p> | <p>for Petroleum Hydrocarbon Gases:</p> <p>In many cases, there is more than one potentially toxic constituent in a refinery gas. In those cases, the constituent that is most toxic for a particular endpoint in an individual refinery stream is used to characterize the endpoint hazard for that stream. The hazard potential for each mammalian endpoint for each of the petroleum hydrocarbon gases is dependent upon each petroleum hydrocarbon gas constituent endpoint toxicity values (LC50, LOAEL, etc.) and the relative concentration of the constituent present in that gas. It should also be noted that for an individual petroleum hydrocarbon gas, the constituent characterizing toxicity may be different for different mammalian endpoints, again, being dependent upon the concentration of the different constituents in each, distinct petroleum hydrocarbon gas.</p> <p>All Hydrocarbon Gases Category members contain primarily hydrocarbons (i.e., alkanes and alkenes) and occasionally asphyxiant gases like hydrogen. The inorganic components of the petroleum hydrocarbon gases are less toxic than the C1 - C4 and C5 - C6 hydrocarbon components to both mammalian and aquatic organisms. Unlike other petroleum product categories (e.g. gasoline, diesel fuel, lubricating oils, etc.), the inorganic and hydrocarbon constituents of hydrocarbon gases can be evaluated for hazard individually to then predict the screening level hazard of the Category members</p> <p><b>Acute toxicity:</b> No acute toxicity LC50 values have been derived for the C1 -C4 and C5- C6 hydrocarbon (HC) fractions because no mortality was observed at the highest exposure levels tested (~ 5 mg/l) for these petroleum hydrocarbon gas constituents. The order of acute toxicity of petroleum hydrocarbon gas constituents from most to least toxic is:<br/> C5-C6 HCs (LC50 &gt; 1063 ppm) &gt; C1-C4 HCs (LC50 &gt; 10,000 ppm) &gt; benzene (LC50 = 13,700 ppm) &gt; butadiene (LC50 = 129,000 ppm) &gt; asphyxiant gases (hydrogen, carbon dioxide, nitrogen).</p> <p><b>Repeat dose toxicity:</b> With the exception of the asphyxiant gases, repeated dose toxicity has been observed in individual selected petroleum hydrocarbon gas constituents. Based upon LOAEL values, the order of order of repeated-dose toxicity of these constituents from most toxic to the least toxic is:<br/> Benzene (LOAEL .&gt;=10 ppm) &gt;C1-C4 HCs (LOAEL = 5,000 ppm; assumed to be 100% 2-butene) &gt; C5-C6 HCs (LOAEL = 6,625 ppm) &gt; butadiene (LOAEL = 8,000 ppm) &gt; asphyxiant gases (hydrogen, carbon dioxide, nitrogen).</p> <p><b>Genotoxicity:</b></p> <p><b>In vitro:</b> The majority of the Petroleum Hydrocarbon Gases Category components are negative for <i>in vitro</i> genotoxicity. The exceptions are: benzene and 1,3-butadiene, which are genotoxic in bacterial and mammalian <i>in vitro</i> test systems.</p> <p><b>In vivo:</b> The majority of the Petroleum Hydrocarbon Gases Category components are negative for <i>in vivo</i> genotoxicity. The exceptions are benzene and 1,3-butadiene, which are genotoxic in <i>in vivo</i> test systems</p> <p><b>Developmental toxicity:</b> Developmental effects were induced by two of the petroleum hydrocarbon gas constituents, benzene and the C5 -C6 hydrocarbon fraction. No developmental toxicity was observed at the highest exposure levels tested for the other petroleum hydrocarbon gas constituents tested for this effect. The asphyxiant gases have not been tested for developmental toxicity. Based on LOAEL and NOAEL values, the order of acute toxicity of these constituents from most to least toxic is:<br/> Benzene (LOAEL = 20 ppm) &gt; butadiene (NOAEL .&gt;=1,000 ppm) &gt; C5-C6 HCs (LOAEL = 3,463 ppm) &gt; C1-C4 HCs (NOAEL &gt;=5,000 ppm; assumed to be 100% 2-butene) &gt; asphyxiant gases (hydrogen, carbon dioxide, nitrogen).</p> <p><b>Reproductive toxicity:</b> Reproductive effects were induced by only two petroleum hydrocarbon gas constituents, benzene and isobutane (a constituent of the C1-C4 hydrocarbon fraction). No reproductive toxicity was observed at the highest exposure levels tested for the other petroleum hydrocarbon gas constituents tested for this effect. The asphyxiant gases have not been tested for reproductive toxicity. Based on LOAEL and NOAEL values, the order of reproductive toxicity of these constituents from most to least toxic is:<br/> Benzene (LOAEL = 300 ppm) &gt; butadiene (NOAEL .&gt;=6,000 ppm) &gt; C5-C6 HCs (NOAEL .&gt;=6,521 ppm) &gt; C1-C4 HCs (LOAEL = 9,000 ppm; assumed to be 100% isobutane) &gt; asphyxiant gases (hydrogen, carbon dioxide, nitrogen)</p>  |
| <p style="text-align: center;"><b>TOLUENE &amp; XYLENE</b></p>       | <p>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 the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.</p>  |

CRC (NZ) 2087 Bright Zinc Aerosol

|   |  |                          |   |  |
|---|--|--------------------------|---|--|
| <b>ALUMINIUM FLAKE &amp; HYDROCARBON PROPELLANT</b> | No significant acute toxicological data identified in literature search. |                          |   |  |
| 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: ✗ – Data either not available or does not fill the criteria for classification  
✓ – Data available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

| CRC (NZ) 2087 Bright Zinc Aerosol | ENDPOINT      | TEST DURATION (HR) | SPECIES                       | VALUE           | SOURCE        |
|-----------------------------------|---------------|--------------------|-------------------------------|-----------------|---------------|
|                                   | Not Available | Not Available      | Not Available                 | Not Available   | Not Available |
| zinc powder                       | ENDPOINT      | TEST DURATION (HR) | SPECIES                       | VALUE           | SOURCE        |
|                                   | LC50          | 96                 | Fish                          | 0.001-0.58mg/L  | 2             |
|                                   | EC50          | 48                 | Crustacea                     | 0.001-0.014mg/L | 2             |
|                                   | EC50          | 72                 | Algae or other aquatic plants | 0.106mg/L       | 4             |
|                                   | BCF           | 360                | Algae or other aquatic plants | 9mg/L           | 4             |
|                                   | NOEC          | 72                 | Algae or other aquatic plants | 0.00006537mg/L  | 2             |
| toluene                           | ENDPOINT      | TEST DURATION (HR) | SPECIES                       | VALUE           | SOURCE        |
|                                   | LC50          | 96                 | Fish                          | 0.0073mg/L      | 4             |
|                                   | EC50          | 48                 | Crustacea                     | 3.78mg/L        | 5             |
|                                   | EC50          | 72                 | Algae or other aquatic plants | 12.5mg/L        | 4             |
|                                   | BCF           | 24                 | Algae or other aquatic plants | 10mg/L          | 4             |
|                                   | NOEC          | 168                | Crustacea                     | 0.74mg/L        | 5             |
| xylene                            | ENDPOINT      | TEST DURATION (HR) | SPECIES                       | VALUE           | SOURCE        |
|                                   | LC50          | 96                 | Fish                          | 2.6mg/L         | 2             |
|                                   | EC50          | 48                 | Crustacea                     | 1.8mg/L         | 2             |
|                                   | EC50          | 72                 | Algae or other aquatic plants | 3.2mg/L         | 2             |
|                                   | NOEC          | 73                 | Algae or other aquatic plants | 0.44mg/L        | 2             |
| aluminium flake                   | ENDPOINT      | TEST DURATION (HR) | SPECIES                       | VALUE           | SOURCE        |
|                                   | LC50          | 96                 | Fish                          | 0.001-0.134mg/L | 2             |
|                                   | EC50          | 48                 | Crustacea                     | 0.7364mg/L      | 2             |
|                                   | EC50          | 72                 | Algae or other aquatic plants | 0.001-0.799mg/L | 2             |
|                                   | BCF           | 360                | Algae or other aquatic plants | 9mg/L           | 4             |
|                                   | NOEC          | 168                | Crustacea                     | 0.001-mg/L      | 2             |
| hydrocarbon propellant            | ENDPOINT      | TEST DURATION (HR) | SPECIES                       | VALUE           | SOURCE        |
|                                   | LC50          | 96                 | Fish                          | 24.11mg/L       | 2             |
|                                   | EC50          | 96                 | Algae or other aquatic plants | 7.71mg/L        | 2             |
|                                   | LC50          | 96                 | Fish                          | 24.11mg/L       | 2             |
|                                   | EC50          | 96                 | Algae or other aquatic plants | 7.71mg/L        | 2             |

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

For hydrocarbons:

**Environmental fate:**

The lower molecular weight hydrocarbons are expected to form a "slick" on the surface of waters after release in calm sea conditions. This is expected to evaporate and enter the atmosphere where it will be degraded through reaction with hydroxy radicals.

Some hydrocarbon will become associated with benthic sediments, and it is likely to be spread over a fairly wide area of sea floor. Marine sediments may be either aerobic or anaerobic. The material, in probability, is biodegradable, under aerobic conditions (isomerised olefins and alkenes show variable results). Evidence also suggests that the hydrocarbons may be degradable under anaerobic conditions although such degradation in benthic sediments may be a relatively slow process.

Under aerobic conditions hydrocarbons degrade to water and carbon dioxide, while under anaerobic processes they produce water, methane and carbon dioxide.

Alkenes have low log octanol/water partition coefficients (Kow) of about 1 and estimated bioconcentration factors (BCF) of about 10; aromatics have intermediate values (log Kow values of 2-3 and BCF values of 20-200), while C5 and greater alkanes have fairly high values (log Kow values of about 3-4.5 and BCF values of 100-1,500

The estimated volatilisation half-lives for alkanes and benzene, toluene, ethylbenzene, xylene (BTEX) components were predicted as 7 days in ponds, 1.5 days in rivers, and 6 days in lakes. The volatilisation rate of naphthalene and its substituted derivatives were estimated to be slower.

Continued...

Indigenous microbes found in many natural settings (e.g., soils, groundwater, ponds) have been shown to be capable of degrading organic compounds. Unlike other fate processes that disperse contaminants in the environment, biodegradation can eliminate the contaminants without transferring them across media.

The final products of microbial degradation are carbon dioxide, water, and microbial biomass. The rate of hydrocarbon degradation depends on the chemical composition of the product released to the environment as well as site-specific environmental factors. Generally the straight chain hydrocarbons and the aromatics are degraded more readily than the highly branched aliphatic compounds. The n-alkanes, n-alkyl aromatics, and the aromatics in the C10-C22 range are the most readily biodegradable; n-alkanes, n-alkyl aromatics, and aromatics in the C5-C9 range are biodegradable at low concentrations by some microorganisms, but are generally preferentially removed by volatilisation and thus are unavailable in most environments; n-alkanes in the C1-C4 ranges are biodegradable only by a narrow range of specialised hydrocarbon degraders; and n-alkanes, n-alkyl aromatics, and aromatics above C22 are generally not available to degrading microorganisms. Hydrocarbons with condensed ring structures, such as PAHs with four or more rings, have been shown to be relatively resistant to biodegradation. PAHs with only 2 or 3 rings (e.g., naphthalene, anthracene) are more easily biodegraded. In almost all cases, the presence of oxygen is essential for effective biodegradation of oil. The ideal pH range to promote biodegradation is close to neutral (6-8). For most species, the optimal pH is slightly alkaline, that is, greater than 7. All biological transformations are affected by temperature. Generally, as the temperature increases, biological activity tends to increase up to a temperature where enzyme denaturation occurs.

**Atmospheric fate:** Alkanes, isoalkanes, and cycloalkanes have half-lives on the order of 1-10 days, whereas alkenes, cycloalkenes, and substituted benzenes have half-lives of 1 day or less. Photochemical oxidation products include aldehydes, hydroxy compounds, nitro compounds, and peroxyacyl nitrates. Alkenes, certain substituted aromatics, and naphthalene are potentially susceptible to direct photolysis.

**Ecotoxicity:**

Hydrocarbons are hydrophobic (high log Kow and low water solubility). Such substances produce toxicity in aquatic organisms by a mechanism referred to as "non-polar narcosis" or "baseline" toxicity. The hydrophobicity increases and water solubility decreases with increasing carbon number for a particular class of hydrocarbon. Substances with the same carbon number show increased hydrophobicity and decreased solubility with increasing saturation. Quantitative structure activity relationships (QSAR), relating both solubility and toxicity to Kow predict that the water solubility of single chemical substances decreases more rapidly with increasing Kow than does the acute toxicity.

Based on test results, as well as theoretical considerations, the potential for bioaccumulation may be high. Toxic effects are often observed in species such as blue mussel, daphnia, freshwater green algae, marine copepods and amphipods.

The values of log Kow for individual hydrocarbons increase with increasing carbon number within homologous series of generic types. Quantitative structure activity relationships (QSAR), relating log Kow values of single hydrocarbons to toxicity, show that water solubility decreases more rapidly with increasing Kow than does the concentration causing effects. This relationship varies somewhat with species of hydrocarbon, but it follows that there is a log Kow limit for hydrocarbons, above which, they will not exhibit acute toxicity; this limit is at a log Kow value of about 4 to 5. It has been confirmed experimentally that for fish and invertebrates, paraffinic hydrocarbons with a carbon number of 10 or higher (log Kow >5) show no acute toxicity and that alkylbenzenes with a carbon number of 14 or greater (log Kow >5) similarly show no acute toxicity.

QSAR equations for chronic toxicity also suggest that there should be a point where hydrocarbons with high log Kow values become so insoluble in water that they will not cause chronic toxicity, that is, that there is also a solubility cut-off for chronic toxicity. Thus, paraffinic hydrocarbons with carbon numbers of greater than 14 (log Kow >7.3) should show no measurable chronic toxicity. Experimental support for this cut-off is demonstrated by chronic toxicity studies on lubricant base oils and one "heavy" solvent grade (substances composed of paraffins of C20 and greater) which show no effects after exposures to concentrations well above solubility.

The initial criteria for classification of substances as dangerous to the aquatic environment are based upon acute toxicity data in fish, daphnids and algae. However, for substances that have low solubility and show no acute toxicity, the possibility of a long-term or chronic hazard to the environment is recognised in the R53 phrase or so-called "safety net". The R53 assignment for possible long-term harm is a surrogate for chronic toxicity test results and is triggered by substances that are both bioaccumulative and persistent. The indicators of bioaccumulation and persistence are taken as a BCF > 100 (or log Kow > 3 if no BCF data) and lack of ready biodegradability. For low solubility substances which have direct chronic toxicity data demonstrating no chronic toxicity at 1 mg/L or higher, these data take precedence such that no classification for long term toxicity is required.

Drinking Water Standards: hydrocarbon total: 10 ug/l (UK max.).

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

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

### Persistence and degradability

| Ingredient | Persistence: Water/Soil     | Persistence: Air            |
|------------|-----------------------------|-----------------------------|
| toluene    | LOW (Half-life = 28 days)   | LOW (Half-life = 4.33 days) |
| xylene     | HIGH (Half-life = 360 days) | LOW (Half-life = 1.83 days) |

### Bioaccumulative potential

| Ingredient | Bioaccumulation    |
|------------|--------------------|
| toluene    | LOW (BCF = 90)     |
| xylene     | MEDIUM (BCF = 740) |

### Mobility in soil

| Ingredient | Mobility        |
|------------|-----------------|
| toluene    | LOW (KOC = 268) |

## SECTION 13 DISPOSAL CONSIDERATIONS

### Waste treatment methods

|                                     |   |
|-------------------------------------|---|
| <b>Product / Packaging disposal</b> | <ul style="list-style-type: none"> <li>▶ Consult State Land Waste Management Authority for disposal.</li> <li>▶ Discharge contents of damaged aerosol cans at an approved site.</li> <li>▶ Allow small quantities to evaporate.</li> <li>▶ <b>DO NOT incinerate or puncture aerosol cans.</b></li> <li>▶ Bury residues and emptied aerosol cans at an approved site.</li> </ul> |
|-------------------------------------|---|

## SECTION 14 TRANSPORT INFORMATION

### Labels Required

|  |   |
|--|---|
|  |  |
|--|---|

|                         |   |
|-------------------------|---|
| <b>Marine Pollutant</b> |  |
| <b>HAZCHEM</b>          | Not Applicable  |

**Land transport (ADG)**

|                                     |  |
|-------------------------------------|--|
| <b>UN number</b>                    | 1950   |
| <b>UN proper shipping name</b>      | AEROSOLS   |
| <b>Transport hazard class(es)</b>   | Class : 2.1<br>Subrisk : Not Applicable                                  |
| <b>Packing group</b>                | Not Applicable   |
| <b>Environmental hazard</b>         | Environmentally hazardous  |
| <b>Special precautions for user</b> | Special provisions : 63 190 277 327 344 381<br>Limited quantity : 1000ml |

**Air transport (ICAO-IATA / DGR)**

|                                     |  |
|-------------------------------------|--|
| <b>UN number</b>                    | 1950   |
| <b>UN proper shipping name</b>      | Aerosols, flammable  |
| <b>Transport hazard class(es)</b>   | ICAO/IATA Class : 2.1<br>ICAO / IATA Subrisk : Not Applicable<br>ERG Code : 10L  |
| <b>Packing group</b>                | Not Applicable   |
| <b>Environmental hazard</b>         | Environmentally hazardous  |
| <b>Special precautions for user</b> | Special provisions : A145 A167 A802<br>Cargo Only Packing Instructions : 203<br>Cargo Only Maximum Qty / Pack : 150 kg<br>Passenger and Cargo Packing Instructions : 203<br>Passenger and Cargo Maximum Qty / Pack : 75 kg<br>Passenger and Cargo Limited Quantity Packing Instructions : Y203<br>Passenger and Cargo Limited Maximum Qty / Pack : 30 kg G |

**Sea transport (IMDG-Code / GGVSee)**

|                                     |   |
|-------------------------------------|---|
| <b>UN number</b>                    | 1950  |
| <b>UN proper shipping name</b>      | AEROSOLS  |
| <b>Transport hazard class(es)</b>   | IMDG Class : 2.1<br>IMDG Subrisk : Not Applicable   |
| <b>Packing group</b>                | Not Applicable  |
| <b>Environmental hazard</b>         | Marine Pollutant  |
| <b>Special precautions for user</b> | EMS Number : F-D , S-U<br>Special provisions : 63 190 277 327 344 381 959<br>Limited Quantities : 1000 ml |

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

Not Applicable

**SECTION 15 REGULATORY INFORMATION****Safety, health and environmental regulations / legislation specific for the substance or mixture****ZINC POWDER IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Inventory of Chemical Substances (AICS)

**TOLUENE IS FOUND ON THE FOLLOWING REGULATORY LISTS**

## CRC (NZ) 2087 Bright Zinc Aerosol

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals  
 Australia Inventory of Chemical Substances (AICS)  
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6  
 Chemical Footprint Project - Chemicals of High Concern List  
 International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

**XYLENE IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals  
 Australia Inventory of Chemical Substances (AICS)  
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6  
 International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

**ALUMINIUM FLAKE IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Inventory of Chemical Substances (AICS)

**HYDROCARBON PROPELLANT IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals  
 Australia Inventory of Chemical Substances (AICS)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5  
 Chemical Footprint Project - Chemicals of High Concern List

**National Inventory Status**

| National Inventory            | Status  |
|-------------------------------|---|
| Australia - AICS              | Yes   |
| Canada - DSL                  | Yes   |
| Canada - NDSL                 | No (toluene; xylene; hydrocarbon propellant; aluminium flake; zinc powder)  |
| China - IECSC                 | Yes   |
| Europe - EINEC / ELINCS / NLP | Yes   |
| Japan - ENCS                  | No (aluminium flake; zinc powder)   |
| Korea - KECI                  | Yes   |
| New Zealand - NZIoC           | Yes   |
| Philippines - PICCS           | Yes   |
| USA - TSCA                    | Yes   |
| Taiwan - TCSI                 | Yes   |
| Mexico - INSQ                 | Yes   |
| Vietnam - NCI                 | Yes   |
| Russia - ARIPS                | Yes   |
| <b>Legend:</b>                | Yes = All CAS declared ingredients are on the inventory<br>No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets) |

**SECTION 16 OTHER INFORMATION**

|                      |            |
|----------------------|------------|
| <b>Revision Date</b> | 01/11/2019 |
| <b>Initial Date</b>  | 10/02/2005 |

**SDS Version Summary**

| Version | Issue Date | Sections Updated   |
|---------|------------|--|
| 6.1.1.1 | 04/09/2017 | Physical Properties, Supplier Information                                      |
| 8.1.1.1 | 01/11/2019 | One-off system update. NOTE: This may or may not change the GHS classification |

**Other information**

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee 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**

**CRC (NZ) 2087 Bright Zinc Aerosol**

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 Value  
BCF: BioConcentration Factors  
BEI: Biological Exposure Index

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