

## Formula SC

### Nowchem

Version No: 1.2  
Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 4

Issue Date: 14/03/2016  
Print Date: 14/03/2016  
Initial Date: 22/02/2016  
L.GHS.AUS.EN

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

### Product Identifier

|                                      |               |
|--------------------------------------|---------------|
| <b>Product name</b>                  | Formula SC    |
| <b>Synonyms</b>                      | Not Available |
| <b>Other means of identification</b> | Not Available |

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

|                                 |  |
|---------------------------------|--|
| <b>Relevant identified uses</b> | Suitable for cleaning metal, concrete, plastic and rubber. |
|---------------------------------|--|

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

|                                |                                   |
|--------------------------------|-----------------------------------|
| <b>Registered company name</b> | Nowchem                           |
| <b>Address</b>                 | 112A Albatross Road NSW Australia |
| <b>Telephone</b>               | (02) 4421 4099                    |
| <b>Fax</b>                     | (02) 4421 4932                    |
| <b>Website</b>                 | www.nowchem.com.au                |
| <b>Email</b>                   | sales@nowchem.com.au              |

### Emergency telephone number

|  |                             |
|--|-----------------------------|
| <b>Association / Organisation</b>        | Nowchem                     |
| <b>Emergency telephone numbers</b>       | (02) 4421 4099 0413 809 255 |
| <b>Other emergency telephone numbers</b> | (02) 4421 4099 0413 809 255 |

## SECTION 2 HAZARDS IDENTIFICATION

### Classification of the substance or mixture

HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

#### CHEMWATCH HAZARD RATINGS

|              | Min | Max |  |
|--------------|-----|-----|--|
| Flammability | 1   | 1   |  |
| Toxicity     | 0   | 0   |  |
| Body Contact | 4   | 4   |  |
| Reactivity   | 1   | 1   |  |
| Chronic      | 2   | 2   |  |

0 = Minimum  
1 = Low  
2 = Moderate  
3 = High  
4 = Extreme

|                           |  |
|---------------------------|--|
| <b>Poisons Schedule</b>   | Not Applicable   |
| <b>Classification [1]</b> | Serious Eye Damage Category 1, Skin Corrosion/Irritation Category 1A, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation) |
| <b>Legend:</b>            | 1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI                                   |

### Label elements

## Formula SC

|                    |   |
|--------------------|---|
| GHS label elements |  |
|--------------------|---|

|             |               |
|-------------|---------------|
| SIGNAL WORD | <b>DANGER</b> |
|-------------|---------------|

## Hazard statement(s)

|      |  |
|------|--|
| H314 | Causes severe skin burns and eye damage. |
| H335 | May cause respiratory irritation.        |

## Precautionary statement(s) Prevention

|      |  |
|------|--|
| P101 | If medical advice is needed, have product container or label at hand.      |
| P102 | Keep out of reach of children.   |
| P103 | Read label before use.   |
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray.                           |
| P271 | Use only outdoors or in a well-ventilated area.                            |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |

## Precautionary statement(s) Response

|                |  |
|----------------|--|
| P301+P330+P331 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.   |
| P303+P361+P353 | IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.                       |
| 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.  |
| P363           | Wash contaminated clothing before reuse.   |
| P304+P340      | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.                                 |

## Precautionary statement(s) Storage

|           |  |
|-----------|--|
| P405      | Store locked up.   |
| P403+P233 | Store in a well-ventilated place. Keep container tightly closed. |

## Precautionary statement(s) Disposal

|      |   |
|------|---|
| P501 | Dispose of contents/container in accordance with local regulations. |
|------|---|

## SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

## Substances

See section below for composition of Mixtures

## Mixtures

| CAS No     | %[weight] | Name   |
|------------|-----------|--|
| 8046-53-5  | <10       | <u>(linear)alkylbenzenesulfonic acid, sodium salts</u> |
| 68603-42-9 | <10       | <u>coconut diethanolamide</u>                          |
| 2634-33-5  | <1        | <u>1,2-benzisothiazoline-3-one</u>                     |

## SECTION 4 FIRST AID MEASURES

## Description of first aid measures

|              |  |
|--------------|--|
| Eye Contact  | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Immediately hold eyelids apart and flush the eye continuously with 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>▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</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> |
| Skin Contact | <p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately flush body and clothes with large amounts of water, using safety shower if available.</li> <li>▶ Quickly remove all contaminated clothing, including footwear.</li> <li>▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>   |
| Inhalation   | <ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ 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.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> </ul>   |

## Formula SC

## Ingestion

- ▶ For advice, contact a Poisons Information Centre or a doctor at once.
- ▶ Urgent hospital treatment is likely to be needed.
- ▶ **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.
- ▶ Transport to hospital or doctor without delay.

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

For acute or short term repeated exposures to ethylene glycol:

- ▶ Early treatment of ingestion is important. Ensure emesis is satisfactory.
- ▶ Test and correct for metabolic acidosis and hypocalcaemia.
- ▶ Apply sustained diuresis when possible with hypertonic mannitol.
- ▶ Evaluate renal status and begin haemodialysis if indicated. [I.L.O]
- ▶ Rapid absorption is an indication that emesis or lavage is effective only in the first few hours. Cathartics and charcoal are generally not effective.
- ▶ Correct acidosis, fluid/electrolyte balance and respiratory depression in the usual manner. Systemic acidosis (below 7.2) can be treated with intravenous sodium bicarbonate solution.
- ▶ Ethanol therapy prolongs the half-life of ethylene glycol and reduces the formation of toxic metabolites.
- ▶ Pyridoxine and thiamine are cofactors for ethylene glycol metabolism and should be given (50 to 100 mg respectively) intramuscularly, four times per day for 2 days.
- ▶ Magnesium is also a cofactor and should be replenished. The status of 4-methylpyrazole, in the treatment regime, is still uncertain. For clearance of the material and its metabolites, haemodialysis is much superior to peritoneal dialysis.

[Ellenhorn and Barceloux: Medical Toxicology]

It has been suggested that there is a need for establishing a new biological exposure limit before a workshift that is clearly below 100 mmol ethoxy-acetic acids per mole creatinine in morning urine of people occupationally exposed to ethylene glycol ethers. This arises from the finding that an increase in urinary stones may be associated with such exposures.

Laitinen J., et al: *Occupational & Environmental Medicine* 1996; 53, 595-600

For acute or short-term repeated exposures to highly alkaline materials:

- ▶ Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- ▶ Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- ▶ Oxygen is given as indicated.
- ▶ The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
- ▶ Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.

Alkalis continue to cause damage after exposure.

INGESTION:

- ▶ Milk and water are the preferred diluents

No more than 2 glasses of water should be given to an adult.

- ▶ Neutralising agents should never be given since exothermic heat reaction may compound injury.
- \* Catharsis and emesis are absolutely contra-indicated.

\* Activated charcoal does not absorb alkali.

\* Gastric lavage should not be used.

Supportive care involves the following:

- ▶ Withhold oral feedings initially.
- ▶ If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- ▶ Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- ▶ Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:

- ▶ Injury should be irrigated for 20-30 minutes.

Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology]

## SECTION 5 FIREFIGHTING MEASURES

## Extinguishing media

- ▶ Water spray or fog.
- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

## Special hazards arising from the substrate or mixture

## Fire Incompatibility

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

## Advice for firefighters

## 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.

## Fire/Explosion Hazard

- ▶ Not Combustible.
- ▶ Slight fire hazard when exposed to heat or flame.
- ▶ Heating may cause expansion or decomposition leading to violent rupture of containers.
- ▶ May emit toxic fumes of carbon monoxide (CO).
- ▶ May emit acrid smoke.
- ▶ Mists containing combustible materials may be explosive.
- ▶ May emit corrosive fumes.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

## Personal precautions, protective equipment and emergency procedures

## Formula SC

| <b>Minor Spills</b>                | <ul style="list-style-type: none"> <li>▶ Remove all ignition sources.</li> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> <li>▶ Contain and absorb spill with sand, earth, inert material or vermiculite.</li> <li>▶ Wipe up.</li> <li>▶ Place in a suitable, labelled container for waste disposal.</li> </ul>   |              |            |                 |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
|------------------------------------|--|--------------|------------|-----------------|------------|-------------|--------------------|--|--|--|--|------------------------------------|---|--------|--------|--------|-------------------------------|---|-------|-----------|------------|----------------------------|---|--------|--------|---------|-----------------------|---|-------|-----------|---------------|---------------------------------|---|--------|--------|-----------------|----------------------------|---|--------|--------|---------------|---------------------|--|--|--|--|-----------------------------------|---|--------|------------|---------|----------------------------|---|--------|------------|---------|--------------------------------|---|--------|------------|----------------|-------------------------------|---|-------|------------|------------|----------------------------|---|--------|------------|--------------|-----------------------|---|-------|------------|----------------|
| <b>Major Spills</b>                | <p>Chemical Class: bases<br/>For release onto land: recommended sorbents listed in order of priority.</p> <table border="1"> <thead> <tr> <th>SORBENT TYPE</th> <th>RANK</th> <th>APPLICATION</th> <th>COLLECTION</th> <th>LIMITATIONS</th> </tr> </thead> <tbody> <tr> <td colspan="5">LAND SPILL - SMALL</td> </tr> <tr> <td>cross-linked polymer - particulate</td> <td>1</td> <td>shovel</td> <td>shovel</td> <td>R,W,SS</td> </tr> <tr> <td>cross-linked polymer - pillow</td> <td>1</td> <td>throw</td> <td>pitchfork</td> <td>R, DGC, RT</td> </tr> <tr> <td>sorbent clay - particulate</td> <td>2</td> <td>shovel</td> <td>shovel</td> <td>R, I, P</td> </tr> <tr> <td>foamed glass - pillow</td> <td>2</td> <td>throw</td> <td>pitchfork</td> <td>R, P, DGC, RT</td> </tr> <tr> <td>expanded minerals - particulate</td> <td>3</td> <td>shovel</td> <td>shovel</td> <td>R, I, W, P, DGC</td> </tr> <tr> <td>foamed glass - particulate</td> <td>4</td> <td>shovel</td> <td>shovel</td> <td>R, W, P, DGC,</td> </tr> <tr> <td colspan="5">LAND SPILL - MEDIUM</td> </tr> <tr> <td>cross-linked polymer -particulate</td> <td>1</td> <td>blower</td> <td>skidloader</td> <td>R,W, SS</td> </tr> <tr> <td>sorbent clay - particulate</td> <td>2</td> <td>blower</td> <td>skidloader</td> <td>R, I, P</td> </tr> <tr> <td>expanded mineral - particulate</td> <td>3</td> <td>blower</td> <td>skidloader</td> <td>R, I,W, P, DGC</td> </tr> <tr> <td>cross-linked polymer - pillow</td> <td>3</td> <td>throw</td> <td>skidloader</td> <td>R, DGC, RT</td> </tr> <tr> <td>foamed glass - particulate</td> <td>4</td> <td>blower</td> <td>skidloader</td> <td>R, W, P, DGC</td> </tr> <tr> <td>foamed glass - pillow</td> <td>4</td> <td>throw</td> <td>skidloader</td> <td>R, P, DGC., RT</td> </tr> </tbody> </table> <p>Legend<br/>DGC: Not effective where ground cover is dense<br/>R: Not reusable<br/>I: Not incinerable<br/>P: Effectiveness reduced when rainy<br/>RT:Not effective where terrain is rugged<br/>SS: Not for use within environmentally sensitive sites<br/>W: Effectiveness reduced when windy<br/>Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control;<br/>R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988<br/>Moderate hazard.</p> <ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ No smoking, naked lights or ignition sources.</li> <li>▶ Increase ventilation.</li> <li>▶ Stop leak if safe to do so.</li> <li>▶ Contain spill with sand, earth or vermiculite.</li> <li>▶ Collect recoverable product into labelled containers for recycling.</li> <li>▶ Absorb remaining product with sand, earth or vermiculite.</li> <li>▶ Collect solid residues and seal in labelled drums for disposal.</li> <li>▶ Wash area and prevent runoff into drains.</li> <li>▶ If contamination of drains or waterways occurs, advise emergency services.</li> </ul> | SORBENT TYPE | RANK       | APPLICATION     | COLLECTION | LIMITATIONS | LAND SPILL - SMALL |  |  |  |  | cross-linked polymer - particulate | 1 | shovel | shovel | R,W,SS | cross-linked polymer - pillow | 1 | throw | pitchfork | R, DGC, RT | sorbent clay - particulate | 2 | shovel | shovel | R, I, P | foamed glass - pillow | 2 | throw | pitchfork | R, P, DGC, RT | expanded minerals - particulate | 3 | shovel | shovel | R, I, W, P, DGC | foamed glass - particulate | 4 | shovel | shovel | R, W, P, DGC, | LAND SPILL - MEDIUM |  |  |  |  | cross-linked polymer -particulate | 1 | blower | skidloader | R,W, SS | sorbent clay - particulate | 2 | blower | skidloader | R, I, P | expanded mineral - particulate | 3 | blower | skidloader | R, I,W, P, DGC | cross-linked polymer - pillow | 3 | throw | skidloader | R, DGC, RT | foamed glass - particulate | 4 | blower | skidloader | R, W, P, DGC | foamed glass - pillow | 4 | throw | skidloader | R, P, DGC., RT |
| SORBENT TYPE                       | RANK   | APPLICATION  | COLLECTION | LIMITATIONS     |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| LAND SPILL - SMALL                 |  |              |            |                 |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| cross-linked polymer - particulate | 1  | shovel       | shovel     | R,W,SS          |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| cross-linked polymer - pillow      | 1  | throw        | pitchfork  | R, DGC, RT      |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| sorbent clay - particulate         | 2  | shovel       | shovel     | R, I, P         |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| foamed glass - pillow              | 2  | throw        | pitchfork  | R, P, DGC, RT   |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| expanded minerals - particulate    | 3  | shovel       | shovel     | R, I, W, P, DGC |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| foamed glass - particulate         | 4  | shovel       | shovel     | R, W, P, DGC,   |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| LAND SPILL - MEDIUM                |  |              |            |                 |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| cross-linked polymer -particulate  | 1  | blower       | skidloader | R,W, SS         |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| sorbent clay - particulate         | 2  | blower       | skidloader | R, I, P         |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| expanded mineral - particulate     | 3  | blower       | skidloader | R, I,W, P, DGC  |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| cross-linked polymer - pillow      | 3  | throw        | skidloader | R, DGC, RT      |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| foamed glass - particulate         | 4  | blower       | skidloader | R, W, P, DGC    |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |
| foamed glass - pillow              | 4  | throw        | skidloader | R, P, DGC., RT  |            |             |                    |  |  |  |  |                                    |   |        |        |        |                               |   |       |           |            |                            |   |        |        |         |                       |   |       |           |               |                                 |   |        |        |                 |                            |   |        |        |               |                     |  |  |  |  |                                   |   |        |            |         |                            |   |        |            |         |                                |   |        |            |                |                               |   |       |            |            |                            |   |        |            |              |                       |   |       |            |                |

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>▶ 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>▶ Avoid smoking, naked lights or ignition sources.</li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ When handling, <b>DO NOT eat, drink or smoke.</b></li> <li>▶ Keep containers securely sealed when not in use.</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.</li> </ul> |
| <b>Other information</b> | <ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ No smoking, naked lights or ignition sources.</li> <li>▶ Store in a cool, dry, well-ventilated area.</li> </ul>  |

Continued...

## Formula SC

- ▶ 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

|                                |   |
|--------------------------------|---|
| <b>Suitable container</b>      | <ul style="list-style-type: none"> <li>▶ Packaging as recommended by manufacturer (HDPE).</li> <li>▶ Check all containers are clearly labelled and free from leaks.</li> </ul>  |
| <b>Storage incompatibility</b> | <ul style="list-style-type: none"> <li>▶ Avoid contact with copper, aluminium and their alloys.</li> <li>▶ Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.</li> <li>▶ Avoid reaction with oxidising agents</li> </ul> |

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

## Control parameters

## OCCUPATIONAL EXPOSURE LIMITS (OEL)

## INGREDIENT DATA

Not Available

## EMERGENCY LIMITS

| Ingredient | Material name | TEEL-1        | TEEL-2        | TEEL-3        |
|------------|---------------|---------------|---------------|---------------|
| Formula SC | Not Available | Not Available | Not Available | Not Available |

| Ingredient                                      | Original IDLH | Revised IDLH  |
|---|---------------|---------------|
| (linear)alkylbenzenesulfonic acid, sodium salts | Not Available | Not Available |
| coconut diethanolamide                          | Not Available | Not Available |
| 1,2-benzisothiazoline-3-one                     | Not Available | Not Available |

## MATERIAL DATA

For ethylene glycol monobutyl ether (2-butoxyethanol)

Odour Threshold Value: 0.10 ppm (detection), 0.35 ppm (recognition)

Although rats appear to be more susceptible than other animals anaemia is not uncommon amongst humans following exposure. The TLV reflects the need to maintain exposures below levels found to cause blood changes in experimental animals. It is concluded that this limit will reduce the significant risk of irritation, haematologic effects and other systemic effects observed in humans and animals exposed to higher vapour concentrations. The toxic effects typical of some other glycol ethers (pancytopenia, testis atrophy and teratogenic effects) are not found with this substance.

Odour Safety Factor (OSF)

OSF=2E2 (2-BUTOXYETHANOL)

## Exposure controls

|   |  |
|---|--|
| <b>Appropriate engineering controls</b> | <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>Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection.</p> <p>Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.</p> <p>An approved self contained breathing apparatus (SCBA) may be required in some situations.</p> <p>Provide adequate ventilation in warehouse or closed storage area.</p> |
| <b>Personal protection</b>              |    |
| <b>Eye and face protection</b>          | <ul style="list-style-type: none"> <li>▶ Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure.</li> <li>▶ Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted.</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>                                 |
| <b>Skin protection</b>                  | See Hand protection below  |
| <b>Hands/feet protection</b>            | <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>▶ 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.</li> </ul>   |
| <b>Body protection</b>                  | See Other protection below   |
| <b>Other protection</b>                 | <ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ Barrier cream.</li> <li>▶ Skin cleansing cream.</li> <li>▶ Eye wash unit.</li> </ul>   |

## Formula SC

|                 |               |
|-----------------|---------------|
| Thermal hazards | Not Available |
|-----------------|---------------|

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

## Information on basic physical and chemical properties

|  |                   |   |               |
|--|-------------------|---|---------------|
| Appearance                                   | Pink Clear Liquid |   |               |
| Physical state                               | Liquid            | Relative density (Water = 1)            | 1.035 - 1.045 |
| Odour  | Not Available     | Partition coefficient n-octanol / water | Not Available |
| Odour threshold                              | Not Available     | Auto-ignition temperature (°C)          | Not Available |
| pH (as supplied)                             | 12 - 13           | Decomposition temperature               | Not Available |
| Melting point / freezing point (°C)          | Not Available     | Viscosity (cSt)                         | Not Available |
| Initial boiling point and boiling range (°C) | Not Available     | Molecular weight (g/mol)                | Not Available |
| Flash point (°C)                             | Not Available     | Taste                                   | Not Available |
| Evaporation rate                             | Not Available     | Explosive properties                    | Not Available |
| Flammability                                 | Non Flammable     | Oxidising properties                    | Not Available |
| Upper Explosive Limit (%)                    | Not Available     | Surface Tension (dyn/cm or mN/m)        | Not Available |
| Lower Explosive Limit (%)                    | Not Available     | Volatile Component (%vol)               | Not Available |
| Vapour pressure (kPa)                        | Not Available     | Gas group                               | Not Available |
| Solubility in water (g/L)                    | Miscible          | pH as a solution (1%)                   | Not Available |
| Vapour density (Air = 1)                     | Not Available     | VOC g/L                                 | Not Available |

## SECTION 10 STABILITY AND REACTIVITY

|                                    |  |
|------------------------------------|--|
| Reactivity                         | See section 7  |
| Chemical stability                 | <ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul> |
| Possibility of hazardous reactions | See section 7  |
| Conditions to avoid                | See section 7  |
| Incompatible materials             | See section 7  |
| Hazardous decomposition products   | See section 5  |

## SECTION 11 TOXICOLOGICAL INFORMATION

## Information on toxicological effects

|           |  |
|-----------|--|
| Inhaled   | <p>Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial 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 alkaline corrosives may produce irritation of the respiratory tract with coughing, choking, pain and mucous membrane damage. Pulmonary oedema may develop in more severe cases; this may be immediate or in most cases following a latent period of 5-72 hours. Symptoms may include a tightness in the chest, dyspnoea, frothy sputum, cyanosis and dizziness. Findings may include hypotension, a weak and rapid pulse and moist rales.</p> <p>The material has <b>NOT</b> been classified by EC Directives or other classification systems as 'harmful by inhalation'. This is because of the lack of corroborating animal or human evidence. In the absence of such evidence, care should be taken nevertheless to ensure exposure is kept to a minimum and that suitable control measures be used, in an occupational setting to control vapours, fumes and aerosols.</p> <p>Ethylene glycol monobutyl ether (2-butoxyethanol) and its metabolite butoxyacetic acid are haemolytic agents, causing red blood cell destruction.</p> <p>On the basis of industrial experience and volunteer short-term exposure humans are shown to be less susceptible than experimental animals to exposure. In 8-hour exposures at concentrations of 200 or 100 ppm no objective effects were seen other than raised urinary excretion of the metabolite butoxyacetic acid. No increased osmotic fragility of the red blood cell is observed. Subjectively these concentrations were uncomfortable with mild eye, nose and throat irritation occurring. No clinical signs of adverse effects nor subjective complaints were produced when male volunteers were exposed for 2 hours to 20 ppm during light physical exercise. Other studies have established that the most sensitive indicators of toxic effect observed from many of the glycol ethers is an increase in erythrocyte osmotic fragility in rats. This appears to be related to the development of haemoglobinuria at higher exposure levels.</p> |
| Ingestion | <p>Ingestion of alkaline corrosives may produce immediate pain, and circumoral burns. Mucous membrane corrosive damage is characterised by a white appearance and soapy feel; this may then become brown, oedematous and ulcerated. Profuse salivation with an inability to swallow or speak may also result. Even where there is limited or no evidence of chemical burns, both the oesophagus and stomach may experience a burning pain; vomiting and diarrhoea may follow. The vomitus may be thick and may be slimy (mucous) and may eventually contain blood and shreds of mucosa. Epiglottal oedema may result in respiratory distress and asphyxia. Marked hypotension is symptomatic of shock; a weak and rapid pulse, shallow respiration and clammy skin may also be evident. Circulatory collapse may occur and, if uncorrected, may produce renal failure. Severe exposures may result in oesophageal or gastric perforation accompanied by mediastinitis, substernal pain, peritonitis, abdominal rigidity and fever. Although oesophageal, gastric or pyloric stricture may be evident initially, these may occur after weeks or even months and years. Death may be quick and results from asphyxia, circulatory collapse or aspiration of even minute amounts. Death may also be delayed as a result of perforation, pneumonia or the</p>  |

## Formula SC

|  | <p>effects of stricture formation.</p> <p>The material has <b>NOT</b> been classified by EC Directives or other classification systems as 'harmful by ingestion'. This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.</p> <p>Ingestion of anionic surfactants/ hydrotropes may produce diarrhoea, intestinal distension and occasional vomiting. Lethal doses in animals range from 1 to 5 gm/kg.</p> <p>Severe acute exposure to ethylene glycol monobutyl ether, by ingestion, may cause kidney damage, haemoglobinuria, (blood in urine) and is potentially fatal.</p>  |          |            |   |                    |   |              |
|--|---|----------|------------|---|--------------------|---|--------------|
| <b>Skin Contact</b>                                    | <p>The material can produce severe chemical burns following direct contact with the skin.</p> <p>Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.</p> <p>Anionic surfactants/ hydrotropes generally produce skin reactions following the removal of natural oils. The skin may appear red and may become sore. Papular dermatitis may also develop. Sensitive individuals may exhibit cracking, scaling and blistering.</p> <p>Ethylene glycol monobutyl ether (2-butoxyethanol) penetrates the skin easily and toxic effects via this route may be more likely than by inhalation. Percutaneous uptake rate in the guinea pig was estimated to be 0.25 umole/min/cm<sup>2</sup>.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</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>Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant 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 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>When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.</p> <p>Direct contact with alkaline corrosives may produce pain and burns. Oedema, destruction of the epithelium, corneal opacification and iritis may occur. In less severe cases these symptoms tend to resolve. In severe injuries the full extent of the damage may not be immediately apparent with late complications comprising a persistent oedema, vascularisation and corneal scarring, permanent opacity, staphyloma, cataract, symblepharon and loss of sight.</p> <p>Direct eye contact with some concentrated anionic surfactants/ hydrotropes produces corneal damage, in some cases severe. Low concentrations may produce immediate discomfort, conjunctival hyperaemia, and oedema of the corneal epithelium. Healing may take several days. Temporary clouding of the cornea may occur.</p> <p>When instilled in rabbit eyes ethylene glycol monobutyl ether produced pain, conjunctival irritation, and transient corneal injury.</p>   |          |            |   |                    |   |              |
| <b>Chronic</b>   | <p>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.</p> <p>Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.</p> <p>Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.</p> <p>Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Absorbed sulfonates are quickly distributed through living systems and are readily excreted. Toxic effects may result from the effects of binding to proteins and the ability of sulfonates to translocate potassium and nitrate (NO<sub>3</sub><sup>-</sup>) ions from cellular to interstitial fluids. Airborne sulfonates may be responsible for respiratory allergies and, in some instances, minor dermal allergies.</p> |          |            |   |                    |   |              |
| <b>Formula SC</b>                                      | <table border="1"> <thead> <tr> <th>TOXICITY</th> <th>IRRITATION</th> </tr> </thead> <tbody> <tr> <td>Not Available</td> <td>Not Available</td> </tr> </tbody> </table>   | TOXICITY | IRRITATION | Not Available                                     | Not Available      |   |              |
| TOXICITY   | IRRITATION  |          |            |   |                    |   |              |
| Not Available  | Not Available   |          |            |   |                    |   |              |
| <b>(linear)alkylbenzenesulfonic acid, sodium salts</b> | <table border="1"> <thead> <tr> <th>TOXICITY</th> <th>IRRITATION</th> </tr> </thead> <tbody> <tr> <td>Oral (rat) LD50: 800 mg/kg*d<sup>[2]</sup></td> <td>Nil reported</td> </tr> </tbody> </table>   | TOXICITY | IRRITATION | Oral (rat) LD50: 800 mg/kg*d <sup>[2]</sup>       | Nil reported       |   |              |
| TOXICITY   | IRRITATION  |          |            |   |                    |   |              |
| Oral (rat) LD50: 800 mg/kg*d <sup>[2]</sup>            | Nil reported  |          |            |   |                    |   |              |
| <b>coconut diethanolamide</b>                          | <table border="1"> <thead> <tr> <th>TOXICITY</th> <th>IRRITATION</th> </tr> </thead> <tbody> <tr> <td>Inhalation (rat) LC50: 88 ppm/h <sup>[2]</sup></td> <td>Nil reported.</td> </tr> <tr> <td>Oral (rat) LD50: 2700 mg/kg.<sup>[2]</sup></td> <td></td> </tr> </tbody> </table>   | TOXICITY | IRRITATION | Inhalation (rat) LC50: 88 ppm/h <sup>[2]</sup>    | Nil reported.      | Oral (rat) LD50: 2700 mg/kg. <sup>[2]</sup> |              |
| TOXICITY   | IRRITATION  |          |            |   |                    |   |              |
| Inhalation (rat) LC50: 88 ppm/h <sup>[2]</sup>         | Nil reported.   |          |            |   |                    |   |              |
| Oral (rat) LD50: 2700 mg/kg. <sup>[2]</sup>            |   |          |            |   |                    |   |              |
| <b>1,2-benzisothiazoline-3-one</b>                     | <table border="1"> <thead> <tr> <th>TOXICITY</th> <th>IRRITATION</th> </tr> </thead> <tbody> <tr> <td>Oral (rat) LD50: 670 mg/kg(male)*n<sup>[2]</sup></td> <td>*MAK Documentation</td> </tr> <tr> <td></td> <td>Nil reported</td> </tr> </tbody> </table>  | TOXICITY | IRRITATION | Oral (rat) LD50: 670 mg/kg(male)*n <sup>[2]</sup> | *MAK Documentation |   | Nil reported |
| TOXICITY   | IRRITATION  |          |            |   |                    |   |              |
| Oral (rat) LD50: 670 mg/kg(male)*n <sup>[2]</sup>      | *MAK Documentation  |          |            |   |                    |   |              |
|  | Nil reported  |          |            |   |                    |   |              |
| <b>Legend:</b>   | <p>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</p>  |          |            |   |                    |   |              |
| <b>Formula SC</b>                                      | <p>Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes</p>  |          |            |   |                    |   |              |

## Formula SC

to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

No significant acute toxicological data identified in literature search.

Linear alkylbenzene sulfonates (LAS) are classified as Irritant (Xi) with the risk/hazard phrases R38/H315 (Irritating to skin) and R41/H318 (Risk of serious damage to eyes) according to CESIO (CESIO 2000). LAS are not included in Annex 1/6 of list of dangerous substances of Council Directive 67/548/EEC and 1272/2008 respectively.

Linear alkylbenzene sulfonic acids (LABS) are strong acids (pKa<2) are classified as corrosive (R34/H314)

**Acute toxicity:** The available data indicate minimal to moderate toxicity, with LD50 values ranging from 500 to 2000 mg/kg body weight (bw). Acute inhalation data also indicate a lack of significant toxicity. Available dermal exposure data also shows a lack of significant toxicity.

LAS are readily absorbed by the gastrointestinal tract after oral administration in animals. LAS are not readily absorbed through the skin. The bulk is metabolised in the liver to sulfophenyl carboxylic acids. The metabolites are excreted primarily via the urine and faeces. The main urinary metabolites in rats are sulfophenyl butanoic acid and sulfophenyl pentanoic acid. Accumulation of LAS or its main metabolites has not been established in any organ after repeated oral ingestion.

No serious injuries or fatalities in man have been reported following accidental ingestion of LAS-containing detergent. The main clinical signs observed after oral administration to rats of doses near or greater than the LD50 values consisted of reduced voluntary activity, diarrhoea, weakness etc. Death usually occurred within 24 hours of administration. Rats appear to be more sensitive to LAS than mice.

LAS and branched alkylbenzene sulfonates may cause irritation of the eyes, skin and mucous membranes. LAS are relatively more irritating to the skin than the corresponding branched alkylbenzene sulfonates. The potential of LAS to irritate the skin depends on the concentration applied. LAS have been classified as irritating to skin at concentrations above 20% according to EU-criteria. Human skin can tolerate contact with solution of up to 1% LAS for 24 hours resulting in only mild irritation. Application of > 5% LAS to the eyes of rabbits produced irritation. Concentration of < 0.1% LAS produced mild to no irritation.

Skin sensitization was not seen in 2,294 volunteers exposed to LAS or in 17,887 exposed to formulations of LAS.

**Repeat dose toxicity:** A feeding study indicated that LAS, when administered for 2 years at extremely high levels (0.5%) in the diets to rats, produced no adverse effects on growth, health or feed efficiency.

**Genotoxicity:** The mutagenic potential of LAS was tested using *Salmonella typhimurium* strains, using Ames test. In these studies, LAS was not mutagenic.

The available long-term studies are inadequate for evaluating the carcinogenic potential of LAS in laboratory animals. The studies available (oral administration to rats and mice) do not show any evidence of carcinogenicity.

**Reproductive toxicity:** In general no specific effect of LAS on reproductive processes has been seen, although dosages causing maternal toxicity may also induce some effects on reproduction. No teratogenic effects attributed to LAS exposure have been observed.

Environmental and Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products, Environment Project, 615, 2001. Torben Madsen et al: Miljøministeriet (Danish Environmental Protection Agency)

|                                   |   |                          |   |
|-----------------------------------|---|--------------------------|---|
| 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 available but does not fill the criteria for classification  
 ✔ – Data required to make classification available  
 ☹ – Data Not Available to make classification

## SECTION 12 ECOLOGICAL INFORMATION

## Toxicity

| Ingredient                                      | Endpoint | Test Duration (hr) | Species                       | Value     | Source |
|---|----------|--------------------|-------------------------------|-----------|--------|
| (linear)alkylbenzenesulfonic acid, sodium salts | EC50     | 120                | Algae or other aquatic plants | 10mg/L    | 4      |
| (linear)alkylbenzenesulfonic acid, sodium salts | LC50     | 96                 | Fish                          | 5mg/L     | 4      |
| coconut diethanolamide                          | EC50     | 48                 | Crustacea                     | 2.25mg/L  | 1      |
| coconut diethanolamide                          | NOEC     | 504                | Crustacea                     | =0.07mg/L | 1      |
| coconut diethanolamide                          | EC0      | 96                 | Algae or other aquatic plants | 1mg/L     | 1      |
| coconut diethanolamide                          | EC50     | 96                 | Algae or other aquatic plants | 2.2mg/L   | 1      |
| coconut diethanolamide                          | LC50     | 96                 | Fish                          | 2.52mg/L  | 1      |
| 1,2-benzisothiazoline-3-one                     | EC50     | 48                 | Crustacea                     | 0.062mg/L | 4      |
| 1,2-benzisothiazoline-3-one                     | EC50     | 48                 | Crustacea                     | 4.4mg/L   | 4      |
| 1,2-benzisothiazoline-3-one                     | LC50     | 96                 | Fish                          | 1.6mg/L   | 4      |

## Legend:

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - 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

Harmful to aquatic organisms.

for alkaryl sulfonate petroleum additives:

These are all dark colored viscous liquids at ambient temperature.

**Environmental fate:**

Based on their physicochemical properties and molecular structures, it was concluded that these chemicals were most likely to adsorb strongly to soil and sediments. Compounds in this group were highly hydrophobic such that hydrolysis testing is not technically feasible and the lack of hydrolysable moieties made hydrolysis modeling unnecessary. Two of the alkaryl sulfonates and one homologue were subjected to biodegradability testing and found to be poorly biodegradable. Computer modeled data indicated that the alkaryl sulfonates do not readily photodegrade.

**Ecotoxicity:**

Existing data on acute fish toxicity, acute invertebrate toxicity, and alga toxicity indicates a low order of toxicity to fish, aquatic invertebrates and alga when the appropriate test methods were used.

Fish toxicity: Overall, the LC50 for these substances was greater than 100 mg/L indicating a relatively low order of acute toxicity to fish.

Invertebrate toxicity (daphnid): Overall, the EC50 for these substances was greater than 100 mg/L indicating a relatively low order of acute toxicity to daphnids.

Algae toxicity: Overall, the EC50 for these substances was greater than 100 mg/L indicating a relatively low order of toxicity to algae.

For ethylene glycol monoalkyl ethers and their acetates:

## Formula SC

Members of this category include ethylene glycol propyl ether (EGPE), ethylene glycol butyl ether (EGBE) and ethylene glycol hexyl ether (EGHE)

### Environmental fate:

The ethers, like other simple glycol ethers possess no functional groups that are readily subject to hydrolysis in the presence of waters. The acetates possess an ester group that hydrolyses in neutral ambient water under abiotic conditions.

Level III fugacity modeling indicates that category members, when released to air and water, will partition predominately to water and, to a lesser extent, to air and soil. Estimates of soil and sediment partition coefficients (Kocs ranging from 1 - 10) suggest that category members would exhibit high soil mobility. Estimated bioconcentration factors (log BCF) range from 0.463 to 0.732. Biodegradation studies indicate that all category members are readily biodegradable. The physical chemistry and environmental fate properties indicate that category members will not persist or bioconcentrate in the environment.

### Ecotoxicity:

Glycol ether acetates do not hydrolyse rapidly into their corresponding glycol ethers in water under environmental conditions. The LC50 or EC50 values for EGHE are lower than those for EGPE and EGBE (which have shorter chain lengths and lower log Kow values). Overall, the LC50 values for the glycol ethers in aquatic species range from 94 to > 5000 mg/L. For EGHE, the 96-hour LC50 for *Brachydanio rerio* (zebra fish) is between 94 and mg/L, the 48-hour EC50 for *Daphnia magna* was 145 mg/L and the 72-hour EC50 values for biomass and growth rate of algae (*Scenedesmus subspicatus*) were 98 and 198 mg/L, respectively. LC50/EC50 values for EGPE and EGBE in aquatic species are 835 mg/l or greater.

Aquatic toxicity data for EGBEA show a 96-hour LC50 of 28.3 mg/L for rainbow trout (*Oncorhynchus mykiss*), a 48-hour LC50 of 37-143 mg/L for *Daphnia magna*, a 72-hour EC50 of greater than 500 mg/L for biomass or growth rate of algae (*Scenedesmus subspicatus* and *Pseudokirchneriella subcapitata*, respectively), and a 7-day EC10 of 30.4 mg/L and a NOEC of 16.4 mg/L for reproduction in *Ceriodaphnia dubia*.

For surfactants:

### Environmental fate:

Octanol/water partition coefficients cannot easily be determined for surfactants because one part of the molecule is hydrophilic and the other part is hydrophobic. Consequently they tend to accumulate at the interface and are not extracted into one or other of the liquid phases. As a result surfactants are expected to transfer slowly, for example, from water into the flesh of fish. During this process, readily biodegradable surfactants are expected to be metabolised rapidly during the process of bioaccumulation. This was emphasised by the OECD Expert Group stating that chemicals are not to be considered to show bioaccumulation potential if they are readily biodegradable.

Several anionic and nonionic surfactants have been investigated to evaluate their potential to bioconcentrate in fish. BCF values (BCF - bioconcentration factor) ranging from 1 to 350 were found. These are absolute maximum values, resulting from the radiolabelling technique used. In all these studies, substantial oxidative metabolism was found resulting in the highest radioactivity in the gall bladder. This indicates liver transformation of the parent compound and biliary excretion of the metabolised compounds, so that 'real' bioconcentration is overstated. After correction it can be expected that 'real' parent BCF values are one order of magnitude less than those indicated above, i.e. 'real' BCF is <100. Therefore the usual data used for classification by EU directives to determine whether a substance is 'Dangerous to the Environment' has little bearing on whether the use of the surfactant is environmentally acceptable.

### Ecotoxicity:

Surfactant should be considered to be toxic (EC50 and LC50 values of < 10 mg/L) to aquatic species under conditions that allow contact of the chemicals with the organisms. The water solubility of the chemicals does not impact the toxicity except as it relates to the ability to conduct tests appropriately to obtain exposure of the test species. The acute aquatic toxicity generally is considered to be related to the effects of the surfactant properties on the organism and not to direct chemical toxicity

For linear alkylbenzene sulfonic acids (LABS) (and their salts):

### Environmental fate:

LABS are highly water soluble (miscible) and have a relatively lowKow. The environmental fate data indicate that these chemicals are highly susceptible to photo- and biodegradation.

LABS are strong acids (pKa <1) that are completely ionised in aqueous solutions. The chemical species present in aqueous solutions at neutral (physiological) pH is the linear alkylbenzene sulfonate (the LASion) (C10-14 linear alkyl benzene-SO3-), the identical species present in solutions of LAS, where the counter ion (typically sodium, calcium or ammonium) will disassociate to form the LAS anion. Thus, the physical-chemical, environmental fate, ecotoxicity and toxicity properties of the LABS and LAS would be expected to be similar. It should be noted that the LABS are liquids and LAS is a solid at room temperature. However, in water the difference between the LAB sulfonic acids and LAS disappears as dissociation results in the same ion in solution. Therefore, parameters such as Kow, water solubility and pH/pKa are appropriate to compare. The octanol-water partition coefficients are around 2 (logKow) for all of the chemicals in this category. LABS are not expected to volatilise significantly. Fugacity modeling predicts that most of these chemicals will partition to the soil and water. Very little partitions to the air or sediment.

Photodegradation is estimated (using EPI Suite software) to be a significant mechanism for breakdown. Based on the model estimates, the hydroxyl radical reaction half-lives ranged from about 7 to 8.6 hours. Estimated data for LAS were similar. Furthermore, measured data for LAS suggest even more rapid photodegradation, with 95% of the material degraded within 20 minutes at 20 C in a laboratory study.

Experimental data indicate that LAS is stable in water.

LABS are generally biodegradable. Measured biodegradation data indicate substantial microbial degradation under aerobic conditions. For dodecylbenzenesulfonic acid 69% of the material mineralised after 28 days. Biodegradation of the C10-16 derivatives and the LAS are also rapid, with 93% or greater of the material degrading within 28 or 37 days. In addition, studies show that straight chain alkylbenzene sulfonate materials readily degrade, with the shorter chain length compounds degrading more rapidly. Thus, the data indicate that these chemicals are highly susceptible to degradation, both by photolytic and microbial mechanisms.

The initial step in the biodegradation of LABS under aerobic conditions is an omega-oxidation of the terminal methyl group of the alkyl chain to form a carboxylic acid. Further degradation proceeds by a stepwise shortening of the alkyl chain by beta-oxidation leaving a short-chain sulfophenyl carboxylic acid. In the presence of molecular oxygen the aromatic ring structure hydrolyses to form a dihydroxy-benzene structure which is opened before desulfonation of the formed sulfonated dicarboxylic acid. The final degradation steps have not been investigated in details but are likely to occur by general bacterial metabolic routes involving a total mineralisation and assimilation into biomass. Both the initial omega-oxidation and the hydroxylation of the ring structure of LAS require molecular oxygen, and they are not expected to take place under anoxic conditions.

The BioConcentration Factor (BCF) tends to increase with increasing alkyl chain length but also the position of the aryl sulfonate moiety was important. A higher BCF was seen for linear alkyl benzenesulfonate isomers with the aryl sulfonate attached. Available data indicate that LABS have low to moderate bioaccumulation potential, with a bioconcentration factor for dodecyl benzene sulfonic acid of 130. LAS has bioconcentration factors that range from 22 to 87.

### Ecotoxicity:

Numerous studies have been performed to determine the effects of LABS towards aquatic organisms. The aquatic effect concentrations that were observed in these studies are highly variable. This variation is partly related to the testing of different isomers and homologues, but it may also be due to the specific test conditions and species. The length of the alkyl chain is an important factor determining the aquatic toxicity. In general, the homologues with the highest number of carbons in the alkyl chain are more toxic than are those with shorter alkyl chains. Today, commercial LABS have a homologue distribution between C10 and C13 with a typical average alkyl chain length of C11.6.

The widest range in the toxicity of LABS towards species belonging to the same group is found for algae. Approximately 90% of the data found in the literature fall between 0.1 and 100 mg/l. Typical values of EC50 values are 1 to 100 mg/l for fresh water species and < 1 to 10 mg/l for marine species. Typical values lie between 29 and 170 mg/l.

A very low EC100 value of 0.025 mg/l was determined for *Gymnodium breve*. Previous studies in which *Gymnodium breve* was exposed with AES confirm that this species is highly sensitive to surfactants, and occasionally available data for *Gymnodium breve* should therefore not be used for comparison of the aquatic toxicity between various surfactants.

LC50 values have been found in the range of 1 to 10 mg/l when *Daphnia magna* were exposed with LABS homologues between C10 and C13. The acute toxicity of LABS to *Daphnia magna* generally increases with increasing alkyl chain length. Typical values lie between 3 and 12 mg/l.

A study with the marine crustacean *Acartia tonsa* indicated that a C10-13 LAS affected the survival at 0.54 mg/l (LC50) and the development rate at 0.51 mg/l (EC50) after 8 days of exposure. The 48 h-LC50 that was obtained in the same study with *Acartia tonsa* was 2.1 mg/l.

Metabolites from biotransformation of LABS are reported to have much lower toxicity to invertebrates compared to the toxicity of the intact surfactant.

The toxicity of LABS to fish generally increases with increasing alkyl chain length, and approximately a 10-fold difference in toxicity between homologues separated by two carbon atoms has been observed. As also noted for invertebrates, fish are less susceptible to metabolites from biotransformation of LABS. LC50 values below 1 mg/l were found for C11.9 (0.71 mg/l), C13 and C14 (both 0.4 mg/l) in studies with fathead minnow.

LABS sorb to sediment with partition coefficients of 50 to 1,000. The toxicity of LABS bound to sediment is relatively low compared to LABS in solution. NOEC and LOEC values were as high as 319 and 993 mg LABS/kg, respectively, for the sediment-living *Chironomus riparius*. The corresponding NOEC for LABS in solution was as low as 2.4 mg/l indicating that only a small fraction of the sorbed LABS was bioavailable. LABS dissolved in water may also cause chronic effects like reduction of the growth rate of the marine mussel *Mytilus galloprovincialis*. LABS sorbed to sediments did not have similar effects.

Environmental and Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products, Environment Project, 615, 2001. Torben Madsen et al: Miljøministeriet (Danish Environmental Protection Agency) Assessment Plan for the Linear Alkylbenzene (LAB) Sulfonic Acids Category in Accordance with the USEPA High Production Volume Chemical Challenge Program: The LAB Sulfonic Acids Coalition

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

## Persistence and degradability

| Ingredient | Persistence: Water/Soil               | Persistence: Air                      |
|------------|---------------------------------------|---------------------------------------|
|            | No Data available for all ingredients | No Data available for all ingredients |

## Formula SC

## Bioaccumulative potential

| Ingredient | Bioaccumulation                       |
|------------|---------------------------------------|
|            | No Data available for all ingredients |

## Mobility in soil

| Ingredient | Mobility                              |
|------------|---------------------------------------|
|            | No Data available for all ingredients |

## SECTION 13 DISPOSAL CONSIDERATIONS

## Waste treatment methods

| Product / Packaging disposal | Waste treatment methods  |
|------------------------------|--|
|                              | <ul style="list-style-type: none"> <li>▶ Containers may still present a chemical hazard/ danger when empty.</li> <li>▶ Return to supplier for reuse/ recycling if possible.</li> </ul> Otherwise: <ul style="list-style-type: none"> <li>▶ 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.</li> <li>▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product.</li> <li>▶ Recycle wherever possible.</li> <li>▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.</li> <li>▶ Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation with suitable dilute acid followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or incineration in a licenced apparatus</li> <li>▶ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.</li> </ul> |

## SECTION 14 TRANSPORT INFORMATION

## Labels Required

| Marine Pollutant | Labels Required |
|------------------|-----------------|
|                  | NO              |
| HAZCHEM          | Labels Required |
|                  | 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

## SECTION 15 REGULATORY INFORMATION

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

(LINEAR)ALKYLBENZENESULFONIC ACID, SODIUM SALTS(8046-53-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

COCONUT DIETHANOLAMIDE(68603-42-9) 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

1,2-BENZISOTHIAZOLINE-3-ONE(2634-33-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Hazardous Substances Information System - Consolidated Lists

Australia Inventory of Chemical Substances (AICS)

| National Inventory            | Status   |
|-------------------------------|--|
| Australia - AICS              | N ((linear)alkylbenzenesulfonic acid, sodium salts)  |
| Canada - DSL                  | N ((linear)alkylbenzenesulfonic acid, sodium salts)  |
| Canada - NDSL                 | N (coconut diethanolamide; 1,2-benzisothiazoline-3-one; (linear)alkylbenzenesulfonic acid, sodium salts)   |
| China - IECSC                 | Y  |
| Europe - EINEC / ELINCS / NLP | N ((linear)alkylbenzenesulfonic acid, sodium salts)  |
| Japan - ENCS                  | N ((linear)alkylbenzenesulfonic acid, sodium salts)  |
| Korea - KECI                  | N ((linear)alkylbenzenesulfonic acid, sodium salts)  |
| New Zealand - NZIoC           | N ((linear)alkylbenzenesulfonic acid, sodium salts)  |
| Philippines - PICCS           | N ((linear)alkylbenzenesulfonic acid, sodium salts)  |
| USA - TSCA                    | N ((linear)alkylbenzenesulfonic acid, sodium salts)  |
| <b>Legend:</b>                | 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) |

**Formula SC****SECTION 16 OTHER INFORMATION****Other information****Ingredients with multiple cas numbers**

| Name                   | CAS No                             |
|------------------------|------------------------------------|
| coconut diethanolamide | 61791-31-9, 68603-42-9, 71786-60-2 |

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.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net](http://www.chemwatch.net)

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 Value  
BCF: BioConcentration Factors  
BEI: Biological Exposure Index

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