

## ParaBond Adhesive A

### Coltène/Whaledent AG

Version No: 3.3

Safety data sheet according to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Issue Date: 28/09/2023

Print Date: 17/12/2024

L.REACH.GB.EN

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

### 1.1. Product Identifier

<b>Product name</b>	ParaBond Adhesive A
<b>Chemical Name</b>	Not Applicable
<b>Synonyms</b>	Not Available
<b>Proper shipping name</b>	ETHANOL (ETHYL ALCOHOL) (contains ethanol); ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) (contains ethanol)
<b>Chemical formula</b>	Not Applicable
<b>Other means of identification</b>	Not Available

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

<b>Relevant identified uses</b>	Medical device, for dental use only Use according to manufacturer's directions.
<b>Uses advised against</b>	No specific uses advised against are identified.

### 1.3. Details of the manufacturer or supplier of the safety data sheet

<b>Registered company name</b>	Coltène/Whaledent AG
<b>Address</b>	Feldwiesenstrasse 20 Altstätten 9450 Switzerland
<b>Telephone</b>	+41 (71) 75 75 300
<b>Fax</b>	+41 (71) 75 75 301
<b>Website</b>	<a href="http://www.coltene.com">www.coltene.com</a>
<b>Email</b>	msds@coltene.com

### 1.4. Emergency telephone number

<b>Association / Organisation</b>	CHEMWATCH EMERGENCY RESPONSE (24/7)
<b>Emergency telephone number(s)</b>	+44 20 3901 3542
<b>Other emergency telephone number(s)</b>	+44 808 164 9592

Once connected and if the message is not in your preferred language then please dial 01



## SECTION 2 Hazards identification

### 2.1. Classification of the substance or mixture

<b>Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567 [1]</b>	H225 - Flammable Liquids Category 2, H315 - Skin Corrosion/Irritation Category 2, H317 - Sensitisation (Skin) Category 1, H319 - Serious Eye Damage/Eye Irritation Category 2, H335 - Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3
<b>Legend:</b>	1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567

### 2.2. Label elements

## ParaBond Adhesive A

Hazard pictogram(s)	 
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Signal word	Danger
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## Hazard statement(s)

H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

## Supplementary statement(s)

Not Applicable

## Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P271	Use only a well-ventilated area.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P261	Avoid breathing mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

## Precautionary statement(s) Response

P370+P378	In case of fire: Use alcohol resistant foam or fine spray/water fog to extinguish.
P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

## Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

## Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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Material contains 2-hydroxyethyl methacrylate, glycerol dimethacrylate, maleic acid, dibenzoyl peroxide.

## 2.3. Other hazards

Ingestion may produce health damage\*.

ethanol	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
ethanol	The material within this SDS meets the criteria for persistent, bioaccumulative and toxic in accordance with Annex XIII.

## SECTION 3 Composition / information on ingredients

## 3.1. Substances

See 'Composition on ingredients' in Section 3.2

Continued...

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## 3.2.Mixtures

1. CAS No 2. EC No 3. Index No 4. REACH No	% [weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M-Factor	Nanoform Particle Characteristics
1. 868-77-9 2. 212-782-2 3. 607-124-00-X 4. Not Available	30-40	<u>2-hydroxyethyl methacrylate</u>	Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2; H315, H317, H319 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 1830-78-0 2. 217-388-4 3. Not Available 4. Not Available	20-25	<u>glycerol dimethacrylate</u>	Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure Category 3; H315, H319, H335 [3]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 110-16-7 2. 203-742-5 3. 607-095-00-3 4. Not Available	1-5	<u>maleic acid</u>	Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H302, H315, H317, H319, H335 [2]	Sensitisation (Skin) Category 1; H317: C ≥ 0,1 % Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 5919-74-4 2. 227-642-6 3. Not Available 4. Not Available	5-10	<u>glycerol methacrylate</u>	Serious Eye Damage/Eye Irritation Category 2; H319 [3]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 94-36-0 2. 202-327-6 3. 617-008-00-0 4. Not Available	1-5	<u>dibenzoyl peroxide</u>	Organic Peroxides Type B, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2; H241, H317, H319 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 64-17-5 2. 200-578-6 3. 603-002-00-5 4. Not Available	25-30	<u>ethanol</u>	Flammable Liquids Category 2; H225 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available

**Legend:**

1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; \* EU IOELVs available; [e] Substance identified as having endocrine disrupting properties

## SECTION 4 First aid measures

## 4.1. Description of first aid measures

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately 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>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</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 skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<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> </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>▶ 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>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ Immediately give a glass of water.</li> <li>▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.</li> </ul>

### 4.2 Most important symptoms and effects, both acute and delayed

See Section 11

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

Treat symptomatically.

## SECTION 5 Firefighting measures

### 5.1. Extinguishing media

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

### 5.2. 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
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### 5.3. 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 in the event of a fire.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Consider evacuation (or protect in place).</li> <li>▶ Fight fire from a safe distance, with adequate cover.</li> <li>▶ If safe, switch off electrical equipment until vapour fire hazard removed.</li> <li>▶ Use water delivered as a fine spray to control the fire and cool adjacent area.</li> <li>▶ Avoid spraying water onto liquid pools.</li> <li>▶ <b>Do not approach containers suspected to be hot.</b></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> </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, flame and/or oxidisers.</li> <li>▶ Vapour may travel a considerable distance to source of ignition.</li> <li>▶ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>▶ On combustion, may emit toxic fumes of carbon monoxide (CO).</li> </ul> <p>Combustion products include:</p> <ul style="list-style-type: none"> <li>, carbon dioxide (CO<sub>2</sub>)</li> <li>, nitrogen oxides (NO<sub>x</sub>)</li> <li>, other pyrolysis products typical of burning organic material.</li> </ul> <p>May emit clouds of acrid smoke</p>

## SECTION 6 Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

See section 8

### 6.2. Environmental precautions

See section 12

### 6.3. Methods and material for containment and cleaning up

<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 small quantities with vermiculite or other absorbent material.</li> </ul>
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	<ul style="list-style-type: none"> <li>▶ Wipe up.</li> <li>▶ Collect residues in a flammable waste container.</li> </ul>
<b>Major Spills</b>	<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>▶ 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>▶ Consider evacuation (or protect in place).</li> <li>▶ No smoking, naked lights or ignition sources.</li> <li>▶ Increase ventilation.</li> <li>▶ Stop leak if safe to do so.</li> <li>▶ Water spray or fog may be used to disperse /absorb vapour.</li> <li>▶ Contain spill with sand, earth or vermiculite.</li> <li>▶ Use only spark-free shovels and explosion proof equipment.</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>

## 6.4. Reference to other sections

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

## SECTION 7 Handling and storage

## 7.1. 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>▶ <b>DO NOT enter confined spaces until atmosphere has been checked.</b></li> <li>▶ Avoid smoking, naked lights, heat or ignition sources.</li> <li>▶ When handling, <b>DO NOT eat, drink or smoke.</b></li> <li>▶ Vapour may ignite on pumping or pouring due to static electricity.</li> <li>▶ <b>DO NOT use plastic buckets.</b></li> <li>▶ Earth and secure metal containers when dispensing or pouring product.</li> <li>▶ Use spark-free tools when handling.</li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ Keep containers securely sealed.</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> <li>▶ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> </ul>
<b>Fire and explosion protection</b>	See section 5
<b>Other information</b>	<ul style="list-style-type: none"> <li>▶ Store in original containers in approved flame-proof area.</li> <li>▶ No smoking, naked lights, heat or ignition sources.</li> <li>▶ <b>DO NOT store in pits, depression, basement or areas where vapours may be trapped.</b></li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store away from incompatible materials in a cool, dry well ventilated area.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> </ul>

## 7.2. Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	<p>Recommended storage temperature: 4 - 8 °C</p> <ul style="list-style-type: none"> <li>▶ Packing as supplied by manufacturer.</li> <li>▶ Plastic containers may only be used if approved for flammable liquid.</li> <li>▶ Check that containers are clearly labelled and free from leaks.</li> </ul>
<b>Storage incompatibility</b>	<ul style="list-style-type: none"> <li>▶ Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates.</li> </ul> <p>for multifunctional acrylates:</p> <ul style="list-style-type: none"> <li>▶ Avoid exposure to free radical initiators (peroxides, persulfates) , iron, rust, oxidisers, and strong acids and strong bases.</li> <li>▶ Avoid heat, flame, sunlight, X-rays or ultra-violet radiation.</li> <li>▶ Storage beyond expiration date, may initiate polymerisation. Polymerisation of large quantities may be violent (even explosive)</li> <li>▶ Avoid strong bases.</li> </ul>
<b>Hazard categories in accordance with Regulation (EC) No 2012/18/EU (Seveso III)</b>	P5a: Flammable Liquids, P5b: Flammable Liquids, P5c: Flammable Liquids

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<b>Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of</b>	P5a Lower- / Upper-tier requirements: 10 / 50 P5b Lower- / Upper-tier requirements: 50 / 200 P5c Lower- / Upper-tier requirements: 5 000 / 50 000
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**7.3. Specific end use(s)**

See section 1.2

**SECTION 8 Exposure controls / personal protection****8.1. Control parameters**

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
2-hydroxyethyl methacrylate	Dermal 1.39 mg/kg bw/day (Systemic, Chronic) Inhalation 4.9 mg/m <sup>3</sup> (Systemic, Chronic) <i>Dermal 0.83 mg/kg bw/day (Systemic, Chronic) *</i> <i>Inhalation 0.00145 mg/m<sup>3</sup> (Systemic, Chronic) *</i> <i>Oral 0.83 mg/kg bw/day (Systemic, Chronic) *</i>	0.482 mg/L (Water (Fresh)) 1 mg/L (Water - Intermittent release) 0.048 mg/L (Water (Marine)) 3.79 mg/kg sediment dw (Sediment (Fresh Water)) 3.79 mg/kg sediment dw (Sediment (Marine)) 0.476 mg/kg soil dw (Soil) 10 mg/L (STP)
maleic acid	Inhalation 3 mg/m <sup>3</sup> (Systemic, Chronic) Inhalation 3 mg/m <sup>3</sup> (Local, Chronic) Inhalation 3 mg/m <sup>3</sup> (Systemic, Acute) Inhalation 3 mg/m <sup>3</sup> (Local, Acute)	0.1 mg/L (Water (Fresh)) 0.428 mg/L (Water - Intermittent release) 0.01 mg/L (Water (Marine)) 0.334 mg/kg sediment dw (Sediment (Fresh Water)) 0.033 mg/kg sediment dw (Sediment (Marine)) 0.042 mg/kg soil dw (Soil) 44.6 mg/L (STP)
glycerol methacrylate	Dermal 2.1 mg/kg bw/day (Systemic, Chronic) Inhalation 7.4 mg/m <sup>3</sup> (Systemic, Chronic)	Not Available
dibenzoyl peroxide	Dermal 13.3 mg/kg bw/day (Systemic, Chronic) Inhalation 39 mg/m <sup>3</sup> (Systemic, Chronic) Dermal 0.034 mg/cm <sup>2</sup> (Local, Chronic) <i>Oral 2 mg/kg bw/day (Systemic, Chronic) *</i>	0.00002 mg/L (Water (Fresh)) 0.000602 mg/L (Water - Intermittent release) 0.000002 mg/L (Water (Marine)) 0.013 mg/kg sediment dw (Sediment (Fresh Water)) 0.001 mg/kg sediment dw (Sediment (Marine)) 0.003 mg/kg soil dw (Soil) 0.35 mg/L (STP)
ethanol	Dermal 343 mg/kg bw/day (Systemic, Chronic) Inhalation 380 mg/m <sup>3</sup> (Systemic, Chronic) Inhalation 1900 mg/m <sup>3</sup> (Local, Acute) <i>Dermal 206 mg/kg bw/day (Systemic, Chronic) *</i> <i>Inhalation 0.114 mg/m<sup>3</sup> (Systemic, Chronic) *</i> <i>Oral 87 mg/kg bw/day (Systemic, Chronic) *</i> <i>Inhalation 950 mg/m<sup>3</sup> (Local, Acute) *</i>	0.96 mg/L (Water (Fresh)) 2.75 mg/L (Water - Intermittent release) 0.79 mg/L (Water (Marine)) 3.6 mg/kg sediment dw (Sediment (Fresh Water)) 2.9 mg/kg sediment dw (Sediment (Marine)) 0.63 mg/kg soil dw (Soil) 580 mg/L (STP) 380 mg/kg food (Oral)

\* Values for General Population

**Occupational Exposure Limits (OEL)****INGREDIENT DATA**

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs).	dibenzoyl peroxide	Dibenzoyl peroxide	5 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs).	ethanol	Ethanol	1000 ppm / 1920 mg/m <sup>3</sup>	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
2-hydroxyethyl methacrylate	Not Available	Not Available
glycerol dimethacrylate	Not Available	Not Available
maleic acid	Not Available	Not Available
glycerol methacrylate	Not Available	Not Available
dibenzoyl peroxide	1,500 mg/m <sup>3</sup>	Not Available
ethanol	Not Available	Not Available

**Occupational Exposure Banding**

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Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
2-hydroxyethyl methacrylate	E	≤ 0.1 ppm
glycerol dimethacrylate	E	≤ 0.1 ppm
maleic acid	E	≤ 0.01 mg/m <sup>3</sup>
glycerol methacrylate	E	≤ 0.1 ppm
<b>Notes:</b>	<i>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.</i>	

**MATERIAL DATA**

## IFRA Prohibited Fragrance Substance

The International Fragrance Association (IFRA) Standards form the basis for the globally accepted and recognized risk management system for the safe use of fragrance ingredients and are part of the IFRA Code of Practice. This is the self-regulating system of the industry, based on risk assessments carried out by an independent Expert Panel

Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen

[National Toxicology Program: U.S. Dep. of Health & Human Services 2002]

For ethanol:

Odour Threshold Value: 49-716 ppm (detection), 101 ppm (recognition)

Eye and respiratory tract irritation do not appear to occur at exposure levels of less than 5000 ppm and the TLV-TWA is thought to provide an adequate margin of safety against such effects. Experiments in man show that inhalation of 1000 ppm caused slight symptoms of poisoning and 5000 ppm caused strong stupor and morbid sleepiness. Subjects exposed to 5000 ppm to 10000 ppm experienced smarting of the eyes and nose and coughing. Symptoms disappeared within minutes. Inhalation also causes local irritating effects to the eyes and upper respiratory tract, headaches, sensation of heat intraocular tension, stupor, fatigue and a need to sleep. At 15000 ppm there was continuous lachrymation and coughing.

CEL TWA: 1 mg/m<sup>3</sup> [compare WEEL-TWA\* for multifunctional acrylates (MFAs)]

(CEL = Chemwatch Exposure Limit)

Exposure to MFAs has been reported to cause contact dermatitis in humans and serious eye injury in laboratory animals. Exposure to some MFA-resin containing aerosols has also been reported to cause dermatitis. As no assessment of the possible effects of long-term exposure to aerosols was found, a conservative Workplace Environmental Exposure Level (WEEL) was suggested by the American Industrial Hygiene Association (AIHA).

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.

CR = Cancer Risk/10000; UF = Uncertainty factor:

TLV believed to be adequate to protect reproductive health:

LOD: Limit of detection

Toxic endpoints have also been identified as:

D = Developmental; R = Reproductive; TC = Transplacental carcinogen

Jankovic J., Drake F.: A Screening Method for Occupational Reproductive

American Industrial Hygiene Association Journal 57: 641-649 (1996)

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

For benzoyl peroxide:

The recommendation for the TLV-TWA is based on the absence of subjective symptoms of irritation of the nose and throat in humans exposed to 5.25 mg/m<sup>3</sup>.

Whether this is sufficiently low to prevent cumulative effects in man is not known.

**8.2. Exposure controls****8.2.1. Appropriate engineering controls**

**CARE:** Use of a quantity of this material in confined space or poorly ventilated area, where rapid build up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear

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

The basic types of engineering controls are:

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

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Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure. For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

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

Within each range the appropriate value depends on:

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

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

· Adequate ventilation is typically taken to be that which limits the average concentration to no more than 25% of the LEL within the building, room or enclosure containing the dangerous substance.

· Ventilation for plant and machinery is normally considered adequate if it limits the average concentration of any dangerous substance that might potentially be present to no more than 25% of the LEL. However, an increase up to a maximum 50% LEL can be acceptable where additional safeguards are provided to prevent the formation of a hazardous explosive atmosphere. For example, gas detectors linked to emergency shutdown of the process might be used together with maintaining or increasing the exhaust ventilation on solvent evaporating ovens and gas turbine enclosures.

· Temporary exhaust ventilation systems may be provided for non-routine higher-risk activities, such as cleaning, repair or maintenance in tanks or other confined spaces or in an emergency after a release. The work procedures for such activities should be carefully considered. The atmosphere should be continuously monitored to ensure that ventilation is adequate and the area remains safe. Where workers will enter the space, the ventilation should ensure that the concentration of the dangerous substance does not exceed 10% of the LEL (irrespective of the provision of suitable breathing apparatus)

### 8.2.2. Individual protection measures, such as personal protective equipment



### Eye and face protection

- ▶ Safety glasses with side shields.
- ▶ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]
- ▶ 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].

### Skin protection

See Hand protection below

### Hands/feet protection

#### NOTE:

- ▶ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- ▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

### Body protection

See Other protection below

### Other protection

- ▶ Overalls.
- ▶ PVC Apron.
- ▶ PVC protective suit may be required if exposure severe.
- ▶ Eyewash unit.
- ▶ Ensure there is ready access to a safety shower.



## ParaBond Adhesive A

## Recommended material(s)

## GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the: "Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection: ParaBond Adhesive A

Material	CPI
NEOPRENE	A
NITRILE	A
PVC	B
BUTYL	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE+PVC	C
PE/EVAL/PE	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.

## Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	A-AUS P2	-	A-PAPR-AUS / Class 1 P2
up to 50 x ES	-	A-AUS / Class 1 P2	-
up to 100 x ES	-	A-2 P2	A-PAPR-2 P2 ^

^ - Full-face

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

## 8.2.3. Environmental exposure controls

See section 12

## SECTION 9 Physical and chemical properties

## 9.1. Information on basic physical and chemical properties

Appearance	Colourless		
Physical state	Liquid	Relative density (Water = 1)	1.02
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	6.5	Decomposition temperature (°C)	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	Not Available	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	Partly miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available
Heat of Combustion (kJ/g)	Not Available	Ignition Distance (cm)	Not Available
Flame Height (cm)	Not Available	Flame Duration (s)	Not Available

Continued...

## ParaBond Adhesive A

<b>Enclosed Space Ignition Time Equivalent (s/m3)</b>	Not Available	<b>Enclosed Space Ignition Deflagration Density (g/m3)</b>	Not Available
<b>Nanoform Solubility</b>	Not Available	<b>Nanoform Particle Characteristics</b>	Not Available
<b>Particle Size</b>	Not Available		

## 9.2. Other information

Not Available

## SECTION 10 Stability and reactivity

<b>10.1.Reactivity</b>	See section 7.2
<b>10.2. Chemical stability</b>	<ul style="list-style-type: none"> <li>▶ Stable under controlled storage conditions provided material contains adequate stabiliser / polymerisation inhibitor.</li> <li>▶ Bulk storages may have special storage requirements</li> <li>▶ WARNING: Gradual decomposition in strong, sealed containers may lead to a large pressure build-up and subsequent explosion. Rapid and violent polymerisation possible at temperatures above 32 deg c.</li> </ul>
<b>10.3. Possibility of hazardous reactions</b>	See section 7.2
<b>10.4. Conditions to avoid</b>	See section 7.2
<b>10.5. Incompatible materials</b>	See section 7.2
<b>10.6. Hazardous decomposition products</b>	See section 5.3

## SECTION 11 Toxicological information

## 11.1. Information on toxicological effects

<b>ParaBond Adhesive A</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>2-hydroxyethyl methacrylate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >3000 mg/kg <sup>[2]</sup>	Eye: adverse effect observed (irritating) <sup>[1]</sup>
	Oral (Rat) LD50: >=2000 mg/kg <sup>[1]</sup>	Skin (Human - woman): 2%
		Skin (Human - woman): 2%/48H
		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
<b>glycerol dimethacrylate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>maleic acid</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: 1560 mg/kg <sup>[2]</sup>	Eye (Rodent - rabbit): 1%/2M - Severe
	Inhalation (Rat) LC50: >0.18 mg/L4h <sup>[2]</sup>	Eye: adverse effect observed (irreversible damage) <sup>[1]</sup>
	Oral (Rat) LD50: 708 mg/kg <sup>[2]</sup>	Skin: adverse effect observed (corrosive) <sup>[1]</sup>
<b>glycerol methacrylate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>	Eye: adverse effect observed (irritating) <sup>[1]</sup>
	Oral (Rat) LD50: >2000 mg/kg <sup>[1]</sup>	Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
<b>dibenzoyl peroxide</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (mammal) LD50: >1000 mg/kg <sup>[2]</sup>	Eye (Rodent - rabbit): 500mg/24H - Mild
	Oral (Rat) LD50: 7710 mg/kg <sup>[2]</sup>	Eye: adverse effect observed (irritating) <sup>[1]</sup>
		Skin (Human - woman): 1% - Moderate
		Skin (Human): 0.5%
		Skin (Human): 5%/48H
	Skin (Human): 5%/8W (intermittent) - Severe	

Continued...

## ParaBond Adhesive A

		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
ethanol	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: 17100 mg/kg <sup>[1]</sup>	Eye (Rodent - rabbit): 0.1mL
	Inhalation (Rat) LC50: 64000 ppm4h <sup>[2]</sup>	Eye (Rodent - rabbit): 100mg/4S - Moderate
	Oral (Rat) LD50: 7060 mg/kg <sup>[2]</sup>	Eye (Rodent - rabbit): 100uL - Moderate
		Eye (Rodent - rabbit): 500mg - Severe
		Eye (Rodent - rabbit): 500mg/24H - Mild
		Eye: adverse effect observed (irritating) <sup>[1]</sup>
		Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
		Skin (Human): 70%/2D
		Skin (Rodent - rabbit): 20mg/24H - Moderate
		Skin (Rodent - rabbit): 400mg - Mild
		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
<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>GLYCEROL DIMETHACRYLATE</b>	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
<b>GLYCEROL METHACRYLATE</b>	No significant acute toxicological data identified in literature search.
<b>DIBENZOYL PEROXIDE</b>	<p>The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>For benzoyl peroxide:</p> <p>The acute oral toxicity of benzoyl peroxide is very low: LD50 &gt;2,000 mg/kg bw in mice, and 5,000 mg/kg bw in rats. No deaths occurred in male rats following inhalation of 24.3 mg/L. Visible effects included eye squint, dyspnea, salivation, lacrimation, erythema and changes of respiratory rates and motor activity.</p> <p>Benzoyl peroxide was slightly irritating to skins in 24 hr-patch tests. Benzoyl peroxide was not irritating to the eyes of rabbits if washed out within 5 minutes after instillation, however, if the chemical was not washed out until 24 hours later, it proved to be irritating.</p> <p>Positive results from sensitisation tests in guinea pigs and mice, and from a maximization test in human volunteers, indicate that benzoyl peroxide is a skin sensitiser.</p> <p>In the combined repeated dose and reproduction/developmental toxicity study (OECD TG 422), benzoyl peroxide did not produce hematological or biochemical adverse effects. Repeated administration by oral gavage up to 1,000 mg/kg bw/day for 29 days resulted in decreased weights of testes and epididymis in male rats. The NOAEL for repeated dose toxicity was 500 mg/kg bw/day.</p> <p>This substance did not cause gene mutation in bacteria (OECD TG 471 &amp; 472) and <i>in vitro</i> chromosomal aberration in CHL (Chinese Hamster Lung) cells. An <i>in vivo</i> mammalian erythrocytes micronucleus test (OECD TG 474) produced negative result.</p> <p>The available evidence supports the conclusion that benzoyl peroxide is not a mutagen.</p> <p>There is no evidence to suggest that benzoyl peroxide is a carcinogen. However, there is some evidence from nonguidelines studies that benzoyl peroxide is a skin tumour promoter.</p> <p>In the combined repeated dose and reproduction/developmental toxicity study [OECD TG 422], no treatment-related changes in precoat time, rate of copulation, fertility and gestation were noted in any treated group. Adverse effects were shown at the highest dose of 1,000 mg/kg bw/day in parental male rats with the reduction of reproductive organ weight and slight testes degeneration. In parental female rats, no adverse effects were observed during the test period. The NOAEL for reproduction toxicity in male rats was 500 mg/kg bw/day. In the offspring, the only effect seen was that body weight gain of pups at dose of 1,000 mg/kg bw/day was significantly decreased. The NOAEL for developmental toxicity was 500 mg/kg bw/day.</p> <p>The substance is classified by IARC as Group 3:</p> <p><b>NOT</b> classifiable as to its carcinogenicity to humans.</p> <p>Evidence of carcinogenicity may be inadequate or limited in animal testing.</p>
<b>ParaBond Adhesive A &amp; 2-HYDROXYETHYL METHACRYLATE &amp; GLYCEROL DIMETHACRYLATE &amp; MALEIC ACID &amp; GLYCEROL METHACRYLATE</b>	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. 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. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.
<b>ParaBond Adhesive A &amp; 2-HYDROXYETHYL METHACRYLATE &amp; MALEIC ACID &amp; GLYCEROL</b>	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are

## ParaBond Adhesive A

<b>METHACRYLATE &amp; DIBENZOYL PEROXIDE</b>	equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.
<b>ParaBond Adhesive A &amp; GLYCEROL DIMETHACRYLATE</b>	UV (ultraviolet)/ EB (electron beam) acrylates are generally of low toxicity UV/EB acrylates are divided into two groups; "stenomeric" and "eurymeric" acrylates. The first group consists of well-defined acrylates which can be described by a simple idealised chemical; they are low molecular weight species with a very narrow weight distribution profile. The eurymeric acrylates cannot be described by an idealised structure and may differ fundamentally between various suppliers; they are of relatively high molecular weight and possess a wide weight distribution. Stenomeric acrylates are usually more hazardous than the eurymeric substances. Stenomeric acrylates are also well defined which allows comparison and exchange of toxicity data - this allows more accurate classification. The stenomerics cannot be classified as a group; they exhibit substantial variation. Based on the available oncogenicity data and without a better understanding of the carcinogenic mechanism the Health and Environmental Review Division (HERD), Office of Toxic Substances (OTS), of the US EPA previously concluded that all chemicals that contain the acrylate or methacrylate moiety (CH <sub>2</sub> =CHCOO or CH <sub>2</sub> =C(CH <sub>3</sub> )COO) should be considered to be a carcinogenic hazard unless shown otherwise by adequate testing. This position has now been revised and acrylates and methacrylates are no longer <i>de facto</i> carcinogens.
<b>GLYCEROL DIMETHACRYLATE &amp; ETHANOL</b>	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.
<b>MALEIC ACID &amp; DIBENZOYL PEROXIDE</b>	The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

<b>Acute Toxicity</b>	✗	<b>Carcinogenicity</b>	✗
<b>Skin Irritation/Corrosion</b>	✓	<b>Reproductivity</b>	✗
<b>Serious Eye Damage/Irritation</b>	✓	<b>STOT - Single Exposure</b>	✓
<b>Respiratory or Skin sensitisation</b>	✓	<b>STOT - Repeated Exposure</b>	✗
<b>Mutagenicity</b>	✗	<b>Aspiration Hazard</b>	✗

**Legend:** ✗ – Data either not available or does not fill the criteria for classification  
✓ – Data available to make classification

## 11.2 Information on other hazards

### 11.2.1. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

### 11.2.2. Other information

See Section 11.1

## SECTION 12 Ecological information

### 12.1. Toxicity

	Endpoint	Test Duration (hr)	Species	Value	Source
<b>ParaBond Adhesive A</b>	Not Available	Not Available	Not Available	Not Available	Not Available
<b>2-hydroxyethyl methacrylate</b>	EC50	72h	Algae or other aquatic plants	345mg/l	2
	EC50	48h	Crustacea	380mg/l	2
	NOEC(ECx)	504h	Crustacea	24.1mg/l	2
	LC50	96h	Fish	>100mg/l	2
<b>glycerol dimethacrylate</b>	Not Available	Not Available	Not Available	Not Available	Not Available
<b>maleic acid</b>	EC50	72h	Algae or other aquatic plants	17.17mg/l	2
	EC10(ECx)	72h	Algae or other aquatic plants	4.15mg/l	2
	EC50	48h	Crustacea	42.81mg/l	2
	LC50	96h	Fish	5mg/L	4

Continued...

## ParaBond Adhesive A

	Endpoint	Test Duration (hr)	Species	Value	Source
	glycerol methacrylate	EC50	72h	Algae or other aquatic plants	>120mg/l
EC50		48h	Crustacea	>120mg/l	2
NOEC(ECx)		96h	Fish	100mg/l	2
LC50		96h	Fish	>100mg/l	2
	Endpoint	Test Duration (hr)	Species	Value	Source
	dibenzoyl peroxide	EC50	72h	Algae or other aquatic plants	0.042mg/l
LC50		96h	Fish	0.06mg/l	2
EC50		48h	Crustacea	0.11mg/l	2
EC10(ECx)		504h	Crustacea	0.001mg/l	2
	Endpoint	Test Duration (hr)	Species	Value	Source
	ethanol	EC50	96h	Algae or other aquatic plants	<0.001mg/L
EC50		72h	Algae or other aquatic plants	275mg/l	2
EC50(ECx)		96h	Algae or other aquatic plants	<0.001mg/L	4
LC50		96h	Fish	42mg/L	4
EC50		48h	Crustacea	2mg/L	4
<b>Legend:</b>	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

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

## 12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
2-hydroxyethyl methacrylate	LOW	LOW
glycerol dimethacrylate	LOW	LOW
maleic acid	LOW	LOW
glycerol methacrylate	LOW	LOW
dibenzoyl peroxide	LOW (Half-life = 14 days)	LOW (Half-life = 21.25 days)
ethanol	LOW (Half-life = 2.17 days)	LOW (Half-life = 5.08 days)

## 12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
2-hydroxyethyl methacrylate	LOW (BCF = 1.54)
glycerol dimethacrylate	LOW (LogKOW = 1.16)
maleic acid	LOW (BCF = 11)
glycerol methacrylate	LOW (LogKOW = -0.3394)
dibenzoyl peroxide	LOW (LogKOW = 3.46)
ethanol	LOW (LogKOW = -0.31)

## 12.4. Mobility in soil

Ingredient	Mobility
2-hydroxyethyl methacrylate	HIGH (Log KOC = 1.043)
glycerol dimethacrylate	LOW (Log KOC = 10)
maleic acid	LOW (Log KOC = 6.314)
glycerol methacrylate	LOW (Log KOC = 10)
dibenzoyl peroxide	LOW (Log KOC = 771)
ethanol	HIGH (Log KOC = 1)

## 12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	✗

Continued...

## ParaBond Adhesive A

PBT Criteria fulfilled?	No
vPvB	No

**12.6. Endocrine disrupting properties**

No evidence of endocrine disrupting properties were found in the current literature.


**12.7. Other adverse effects**

No evidence of ozone depleting properties were found in the current literature.

**SECTION 13 Disposal considerations****13.1. Waste treatment methods**

<b>Product / Packaging disposal</b>	Dispose of waste according to applicable legislation. Special country-specific regulations may apply. Can be disposed together with household waste in compliance with official regulations in contact with approved waste disposal companies and with authorities in charge. (Only dispose of completely emptied packages.)
<b>Waste treatment options</b>	Not Available
<b>Sewage disposal options</b>	Not Available

**SECTION 14 Transport information****Labels Required**

	
<b>Marine Pollutant</b>	NO
<b>HAZCHEM</b>	•2YE

**Land transport (ADR-RID)**

<b>14.1. UN number or ID number</b>	1170												
<b>14.2. UN proper shipping name</b>	ETHANOL (ETHYL ALCOHOL) (contains ethanol); ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) (contains ethanol)												
<b>14.3. Transport hazard class(es)</b>	<table border="1"> <tr> <td>Class</td> <td>3</td> </tr> <tr> <td>Subsidiary Hazard</td> <td>Not Applicable</td> </tr> </table>	Class	3	Subsidiary Hazard	Not Applicable								
Class	3												
Subsidiary Hazard	Not Applicable												
<b>14.4. Packing group</b>	II												
<b>14.5. Environmental hazard</b>	Not Applicable												
<b>14.6. Special precautions for user</b>	<table border="1"> <tr> <td>Hazard identification (Kemler)</td> <td>33</td> </tr> <tr> <td>Classification code</td> <td>F1</td> </tr> <tr> <td>Hazard Label</td> <td>3</td> </tr> <tr> <td>Special provisions</td> <td>144 601</td> </tr> <tr> <td>Limited quantity</td> <td>1 L</td> </tr> <tr> <td>Tunnel Restriction Code</td> <td>D/E</td> </tr> </table>	Hazard identification (Kemler)	33	Classification code	F1	Hazard Label	3	Special provisions	144 601	Limited quantity	1 L	Tunnel Restriction Code	D/E
Hazard identification (Kemler)	33												
Classification code	F1												
Hazard Label	3												
Special provisions	144 601												
Limited quantity	1 L												
Tunnel Restriction Code	D/E												

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

<b>14.1. UN number</b>	1170						
<b>14.2. UN proper shipping name</b>	Ethanol (contains ethanol); Ethanol. Solution (contains ethanol)						
<b>14.3. Transport hazard class(es)</b>	<table border="1"> <tr> <td>ICAO/IATA Class</td> <td>3</td> </tr> <tr> <td>ICAO / IATA Subsidiary Hazard</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>3L</td> </tr> </table>	ICAO/IATA Class	3	ICAO / IATA Subsidiary Hazard	Not Applicable	ERG Code	3L
ICAO/IATA Class	3						
ICAO / IATA Subsidiary Hazard	Not Applicable						
ERG Code	3L						
<b>14.4. Packing group</b>	II						
<b>14.5. Environmental hazard</b>	Not Applicable						

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14.6. Special precautions for user	Special provisions	A3 A58 A180
	Cargo Only Packing Instructions	364
	Cargo Only Maximum Qty / Pack	60 L
	Passenger and Cargo Packing Instructions	353
	Passenger and Cargo Maximum Qty / Pack	5 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y341
	Passenger and Cargo Limited Maximum Qty / Pack	1 L

## Sea transport (IMDG-Code / GGVSee)

14.1. UN number	1170	
14.2. UN proper shipping name	ETHANOL (ETHYL ALCOHOL) (contains ethanol); ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) (contains ethanol)	
14.3. Transport hazard class(es)	IMDG Class	3
	IMDG Subsidiary Hazard	Not Applicable
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	EMS Number	F-E , S-D
	Special provisions	144
	Limited Quantities	1 L

## Inland waterways transport (ADN)

14.1. UN number	1170	
14.2. UN proper shipping name	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) (contains ethanol); ETHANOL (ETHYL ALCOHOL) (contains ethanol)	
14.3. Transport hazard class(es)	3	Not Applicable
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Classification code	F1
	Special provisions	144; 601
	Limited quantity	1 L
	Equipment required	PP, EX, A
	Fire cones number	1

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

Not Applicable

## 14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
2-hydroxyethyl methacrylate	Not Available
glycerol dimethacrylate	Not Available
maleic acid	Not Available
glycerol methacrylate	Not Available
dibenzoyl peroxide	Not Available
ethanol	Not Available

## 14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
2-hydroxyethyl methacrylate	Not Available
glycerol dimethacrylate	Not Available
maleic acid	Not Available
glycerol methacrylate	Not Available

Continued...

## ParaBond Adhesive A

Product name	Ship Type
dibenzoyl peroxide	Not Available
ethanol	Not Available

## SECTION 15 Regulatory information

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

## 2-hydroxyethyl methacrylate is found on the following regulatory lists

Great Britain GB mandatory classification and labelling list (GB MCL)

## glycerol dimethacrylate is found on the following regulatory lists

Not Applicable

## maleic acid is found on the following regulatory lists

Great Britain GB mandatory classification and labelling list (GB MCL)

## glycerol methacrylate is found on the following regulatory lists

Not Applicable

## dibenzoyl peroxide is found on the following regulatory lists

Great Britain GB mandatory classification and labelling (GB MCL) technical reports

Great Britain GB mandatory classification and labelling list (GB MCL)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

UK Workplace Exposure Limits (WELs).

## ethanol is found on the following regulatory lists

Great Britain GB Biocidal Active Substances

Great Britain GB mandatory classification and labelling list (GB MCL)

UK Workplace Exposure Limits (WELs).

## Additional Regulatory Information

Not Applicable

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

## Information according to 2012/18/EU (Seveso III):

Seveso Category	P5a, P5b, P5c

## 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

## National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (glycerol dimethacrylate; glycerol methacrylate)
Canada - DSL	No (glycerol dimethacrylate)
Canada - NDSL	No (2-hydroxyethyl methacrylate; maleic acid; dibenzoyl peroxide; ethanol)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	No (glycerol dimethacrylate; glycerol methacrylate)
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	No (glycerol dimethacrylate; glycerol methacrylate)
Vietnam - NCI	Yes

Continued...



## ParaBond Adhesive A

National Inventory	Status
Russia - FBEPH	No (glycerol dimethacrylate; glycerol methacrylate)
<b>Legend:</b>	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

## SECTION 16 Other information

<b>Revision Date</b>	28/09/2023
<b>Initial Date</b>	16/12/2021

## Full text Risk and Hazard codes

<b>H241</b>	Heating may cause a fire or explosion.
<b>H302</b>	Harmful if swallowed.

## SDS Version Summary

Version	Date of Update	Sections Updated
2.3	28/09/2023	Toxicological information - Acute Health (inhaled), Toxicological information - Acute Health (skin), Toxicological information - Acute Health (swallowed), First Aid measures - Advice to Doctor, Toxicological information - Chronic Health, Hazards identification - Classification, Exposure controls / personal protection - Engineering Control, First Aid measures - First Aid (swallowed), Composition / information on ingredients - Ingredients, Exposure controls / personal protection - Personal Protection (other)

## 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.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

- EN 166 Personal eye-protection
- EN 340 Protective clothing
- EN 374 Protective gloves against chemicals and micro-organisms
- EN 13832 Footwear protecting against chemicals
- EN 133 Respiratory protective devices

## 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
- ▶ ES: Exposure Standard
- ▶ 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
- ▶ DNEL: Derived No-Effect Level
- ▶ PNEC: Predicted no-effect concentration
- ▶ MARPOL: International Convention for the Prevention of Pollution from Ships
- ▶ IMSBC: International Maritime Solid Bulk Cargoes Code
- ▶ IGC: International Gas Carrier Code
- ▶ IBC: International Bulk Chemical Code
  
- ▶ AIIC: Australian Inventory of Industrial Chemicals
- ▶ DSL: Domestic Substances List
- ▶ NDSL: Non-Domestic Substances List
- ▶ IECSC: Inventory of Existing Chemical Substance in China
- ▶ EINECS: European INventory of Existing Commercial chemical Substances

Continued...

## ParaBond Adhesive A

- ELINCS: European List of Notified Chemical Substances
- NLP: No-Longer Polymers
- ENCS: Existing and New Chemical Substances Inventory
- KECl: Korea Existing Chemicals Inventory
- NZIoC: New Zealand Inventory of Chemicals
- PICCS: Philippine Inventory of Chemicals and Chemical Substances
- TSCA: Toxic Substances Control Act
- TCSI: Taiwan Chemical Substance Inventory
- INSQ: Inventario Nacional de Sustancias Químicas
- NCI: National Chemical Inventory
- FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]**

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	Classification Procedure
Flammable Liquids Category 2, H225	On basis of test data
Skin Corrosion/Irritation Category 2, H315	Minimum classification
Sensitisation (Skin) Category 1, H317	Minimum classification
Serious Eye Damage/Eye Irritation Category 2, H319	Minimum classification
Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, H335	Calculation method

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## ParaBond Adhesive B

### Coltène/Whaledent AG

Version No: 2.2

Safety data sheet according to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Issue Date: **28/09/2023**Print Date: **08/01/2025**

L.REACH.GB.EN

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

### 1.1. Product Identifier

<b>Product name</b>	ParaBond Adhesive B
<b>Chemical Name</b>	Not Applicable
<b>Synonyms</b>	Not Available
<b>Proper shipping name</b>	ETHANOL (ETHYL ALCOHOL); ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
<b>Chemical formula</b>	Not Applicable
<b>Other means of identification</b>	Not Available

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

<b>Relevant identified uses</b>	Medical device, for dental use only Use according to manufacturer's directions.
<b>Uses advised against</b>	No specific uses advised against are identified.

### 1.3. Details of the manufacturer or supplier of the safety data sheet

<b>Registered company name</b>	<b>Coltène/Whaledent AG</b>
<b>Address</b>	Feldwiesenstrasse 20 Altstätten 9450 Switzerland
<b>Telephone</b>	+41 (71) 75 75 300
<b>Fax</b>	+41 (71) 75 75 301
<b>Website</b>	<a href="http://www.coltene.com">www.coltene.com</a>
<b>Email</b>	msds@coltene.com

### 1.4. Emergency telephone number

<b>Association / Organisation</b>	<b>CHEMWATCH EMERGENCY RESPONSE (24/7)</b>
<b>Emergency telephone number(s)</b>	+44 20 3901 3542
<b>Other emergency telephone number(s)</b>	+44 808 164 9592


Once connected and if the message is not in your preferred language then please dial 01

## SECTION 2 Hazards identification

### 2.1. Classification of the substance or mixture

<b>Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567 <sup>[1]</sup></b>	H225 - Flammable Liquids Category 2, H317 - Sensitisation (Skin) Category 1, H319 - Serious Eye Damage/Eye Irritation Category 2
<b>Legend:</b>	1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567

### 2.2. Label elements

<b>Hazard pictogram(s)</b>	
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## ParaBond Adhesive B

Signal word	Danger
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## Hazard statement(s)

H225	Highly flammable liquid and vapour.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.

## Supplementary statement(s)

Not Applicable

## Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P261	Avoid breathing mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

## Precautionary statement(s) Response

P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam to extinguish.
P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

## Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
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## Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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Material contains N,N-bis(2-hydroxyethyl)-p-toluidine.

## 2.3. Other hazards

Inhalation and/or ingestion may produce health damage\*.

Cumulative effects may result following exposure\*.

May produce discomfort of the respiratory system and skin\*.

Vapours potentially cause drowsiness and dizziness\*.

ethanol	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
ethanol	The material within this SDS meets the criteria for persistent, bioaccumulative and toxic in accordance with Annex XIII.

## SECTION 3 Composition / information on ingredients

## 3.1.Substances

See 'Composition on ingredients' in Section 3.2

## 3.2.Mixtures

1. CAS No 2.EC No 3.Index No 4.REACH No	% [weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M- Factor	Nanoform Particle Characteristics
1. 64-17-5 2.200-578-6	80-90	<u>ethanol</u>	Flammable Liquids Category 2; H225 [2]	SCL: Not Available	Not Available

## ParaBond Adhesive B

1. CAS No 2. EC No 3. Index No 4. REACH No	% [weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M- Factor	Nanoform Particle Characteristics
3.603-002-00-5 4. Not Available				Acute M factor: Not Applicable  Chronic M factor: Not Applicable	
1. 3077-12-1 2. 221-359-1 3. Not Available 4. Not Available	<=1	<u>N,N-bis(2-hydroxyethyl)-p-toluidine</u>	Acute Toxicity (Oral) Category 4, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 3; H302, H317, H318, H412 <sup>[1]</sup>	SCL: Not Available  Acute M factor: Not Applicable  Chronic M factor: Not Applicable	Not Available
<b>Legend:</b>	1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties				

## SECTION 4 First aid measures

## 4.1. Description of first aid measures

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately 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>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</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 skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<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>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ Immediately give a glass of water.</li> <li>▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.</li> </ul>

## 4.2 Most important symptoms and effects, both acute and delayed

See Section 11

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

For acute or short term repeated exposures to ethanol:

- ▶ Acute ingestion in non-tolerant patients usually responds to supportive care with special attention to prevention of aspiration, replacement of fluid and correction of nutritional deficiencies (magnesium, thiamine pyridoxine, Vitamins C and K).
- ▶ Give 50% dextrose (50-100 ml) IV to obtunded patients following blood draw for glucose determination.
- ▶ Comatose patients should be treated with initial attention to airway, breathing, circulation and drugs of immediate importance (glucose, thiamine).
- ▶ Decontamination is probably unnecessary more than 1 hour after a single observed ingestion. Cathartics and charcoal may be given but are probably not effective in single ingestions.
- ▶ Fructose administration is contra-indicated due to side effects.

## SECTION 5 Firefighting measures

## 5.1. Extinguishing media

- ▶ Alcohol stable foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.
- ▶ Water spray or fog - Large fires only.

## ParaBond Adhesive B

### 5.2. Special hazards arising from the substrate or mixture

<b>Fire Incompatibility</b>	<ul style="list-style-type: none"> <li>▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result</li> </ul>
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### 5.3. 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 in the event of a fire.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Consider evacuation (or protect in place).</li> <li>▶ Fight fire from a safe distance, with adequate cover.</li> <li>▶ If safe, switch off electrical equipment until vapour fire hazard removed.</li> <li>▶ Use water delivered as a fine spray to control the fire and cool adjacent area.</li> <li>▶ Avoid spraying water onto liquid pools.</li> <li>▶ <b>Do not approach containers suspected to be hot.</b></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> </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, flame and/or oxidisers.</li> <li>▶ Vapour may travel a considerable distance to source of ignition.</li> <li>▶ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>▶ On combustion, may emit toxic fumes of carbon monoxide (CO).</li> </ul> <p>Combustion products include:</p> <ul style="list-style-type: none"> <li>, carbon dioxide (CO<sub>2</sub>)</li> <li>, other pyrolysis products typical of burning organic material.</li> </ul>

## SECTION 6 Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

See section 8

### 6.2. Environmental precautions

See section 12

### 6.3. Methods and material for containment and cleaning up

<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 small quantities with vermiculite or other absorbent material.</li> <li>▶ Wipe up.</li> <li>▶ Collect residues in a flammable waste container.</li> </ul>
<b>Major Spills</b>	<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>▶ 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>▶ Consider evacuation (or protect in place).</li> <li>▶ No smoking, naked lights or ignition sources.</li> <li>▶ Increase ventilation.</li> <li>▶ Stop leak if safe to do so.</li> <li>▶ Water spray or fog may be used to disperse /absorb vapour.</li> <li>▶ Contain spill with sand, earth or vermiculite.</li> <li>▶ Use only spark-free shovels and explosion proof equipment.</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>

### 6.4. Reference to other sections

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

## SECTION 7 Handling and storage

### 7.1. Precautions for safe handling

<b>Safe handling</b>	<ul style="list-style-type: none"> <li>▶ Wear protective clothing when risk of exposure occurs.</li> </ul>
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## ParaBond Adhesive B

	<ul style="list-style-type: none"> <li>▶ Use in a well-ventilated area.</li> <li>▶ Prevent concentration in hollows and sumps.</li> <li>▶ Avoid smoking, naked lights, heat or ignition sources.</li> <li>▶ When handling, <b>DO NOT eat, drink or smoke.</b></li> <li>▶ Vapour may ignite on pumping or pouring due to static electricity.</li> <li>▶ Use spark-free tools when handling.</li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ Keep containers securely sealed.</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>Fire and explosion protection</b>	See section 5
<b>Other information</b>	<ul style="list-style-type: none"> <li>▶ Store in original containers in approved flame-proof area.</li> <li>▶ No smoking, naked lights, heat or ignition sources.</li> <li>▶ <b>DO NOT store in pits, depression, basement or areas where vapours may be trapped.</b></li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store away from incompatible materials in a cool, dry well ventilated area.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this MSDS.</li> </ul>

## 7.2. Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	<ul style="list-style-type: none"> <li>▶ Packing as supplied by manufacturer.</li> <li>▶ Plastic containers may only be used if approved for flammable liquid.</li> <li>▶ Check that containers are clearly labelled and free from leaks.</li> </ul> <p>Recommended storage temperature: 4 - 8 °C</p>
<b>Storage incompatibility</b>	<ul style="list-style-type: none"> <li>▶ Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates.</li> <li>▶ Avoid strong bases.</li> </ul> <p>*</p>
<b>Hazard categories in accordance with Regulation (EC) No 2012/18/EU (Seveso III)</b>	P5a: Flammable Liquids, P5b: Flammable Liquids, P5c: Flammable Liquids
<b>Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of</b>	<p>P5a Lower- / Upper-tier requirements: 10 / 50</p> <p>P5b Lower- / Upper-tier requirements: 50 / 200</p> <p>P5c Lower- / Upper-tier requirements: 5 000 / 50 000</p>

## 7.3. Specific end use(s)

See section 1.2

## SECTION 8 Exposure controls / personal protection

## 8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
ethanol	<p>Dermal 343 mg/kg bw/day (Systemic, Chronic)</p> <p>Inhalation 380 mg/m<sup>3</sup> (Systemic, Chronic)</p> <p>Inhalation 1900 mg/m<sup>3</sup> (Local, Acute)</p> <p><i>Dermal 206 mg/kg bw/day (Systemic, Chronic) *</i></p> <p><i>Inhalation 0.114 mg/m<sup>3</sup> (Systemic, Chronic) *</i></p> <p><i>Oral 87 mg/kg bw/day (Systemic, Chronic) *</i></p> <p><i>Inhalation 950 mg/m<sup>3</sup> (Local, Acute) *</i></p>	<p>0.96 mg/L (Water (Fresh))</p> <p>2.75 mg/L (Water - Intermittent release)</p> <p>0.79 mg/L (Water (Marine))</p> <p>3.6 mg/kg sediment dw (Sediment (Fresh Water))</p> <p>2.9 mg/kg sediment dw (Sediment (Marine))</p> <p>0.63 mg/kg soil dw (Soil)</p> <p>580 mg/L (STP)</p> <p>380 mg/kg food (Oral)</p>
N,N-bis(2-hydroxyethyl)-p-toluidine	<p>Dermal 0.47 mg/kg bw/day (Systemic, Chronic)</p> <p>Inhalation 3.29 mg/m<sup>3</sup> (Systemic, Chronic)</p> <p><i>Dermal 0.17 mg/kg bw/day (Systemic, Chronic) *</i></p> <p><i>Inhalation 0.00058 mg/m<sup>3</sup> (Systemic, Chronic) *</i></p> <p><i>Oral 0.16 mg/kg bw/day (Systemic, Chronic) *</i></p>	<p>0.026 mg/L (Water (Fresh))</p> <p>0.26 mg/L (Water - Intermittent release)</p> <p>0.003 mg/L (Water (Marine))</p> <p>0.121 mg/kg sediment dw (Sediment (Fresh Water))</p> <p>0.012 mg/kg sediment dw (Sediment (Marine))</p> <p>0.009 mg/kg soil dw (Soil)</p> <p>10 mg/L (STP)</p>

\* Values for General Population

## Occupational Exposure Limits (OEL)

## ParaBond Adhesive B

## INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs).	ethanol	Ethanol	1000 ppm / 1920 mg/m3	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
ethanol	Not Available	Not Available
N,N-bis(2-hydroxyethyl)-p-toluidine	Not Available	Not Available

## Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
N,N-bis(2-hydroxyethyl)-p-toluidine	E	≤ 0.01 mg/m <sup>3</sup>
<b>Notes:</b>	<i>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.</i>	

## MATERIAL DATA

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

For ethanol:

Odour Threshold Value: 49-716 ppm (detection), 101 ppm (recognition)

Eye and respiratory tract irritation do not appear to occur at exposure levels of less than 5000 ppm and the TLV-TWA is thought to provide an adequate margin of safety against such effects. Experiments in man show that inhalation of 1000 ppm caused slight symptoms of poisoning and 5000 ppm caused strong stupor and morbid sleepiness. Subjects exposed to 5000 ppm to 10000 ppm experienced smarting of the eyes and nose and coughing. Symptoms disappeared within minutes. Inhalation also causes local irritating effects to the eyes and upper respiratory tract, headaches, sensation of heat intraocular tension, stupor, fatigue and a need to sleep. At 15000 ppm there was continuous lachrymation and coughing.

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.

CR = Cancer Risk/10000; UF = Uncertainty factor:

TLV believed to be adequate to protect reproductive health:

LOD: Limit of detection

Toxic endpoints have also been identified as:

D = Developmental; R = Reproductive; TC = Transplacental carcinogen

Jankovic J., Drake F.: A Screening Method for Occupational Reproductive

American Industrial Hygiene Association Journal 57: 641-649 (1996)

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:

Class	OSF	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



## ParaBond Adhesive B

## 8.2. Exposure controls

<p><b>8.2.1. Appropriate engineering controls</b></p>	<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. Employers may need to use multiple types of controls to prevent employee overexposure.</p> <ul style="list-style-type: none"> <li>▶ Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.</li> <li>▶ Work should be undertaken in an isolated system such as a "glove-box" . Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.</li> <li>▶ Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.</li> <li>▶ Open-vessel systems are prohibited.</li> <li>▶ Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.</li> <li>▶ Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.</li> <li>▶ For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.</li> <li>▶ Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).</li> <li>▶ Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.</li> <li>▶ Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 0.76 m/sec with a minimum of 0.64 m/sec. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.</li> </ul>
<p><b>8.2.2. Individual protection measures, such as personal protective equipment</b></p>	
<p><b>Eye and face protection</b></p>	<ul style="list-style-type: none"> <li>▶ Safety glasses with side shields.</li> <li>▶ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]</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].</li> </ul>
<p><b>Skin protection</b></p>	<p>See Hand protection below</p>
<p><b>Hands/feet protection</b></p>	<ul style="list-style-type: none"> <li>▶ Wear chemical protective gloves, e.g. PVC.</li> <li>▶ Wear safety footwear or safety gumboots, e.g. Rubber</li> </ul> <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> <li>▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.</li> </ul>
<p><b>Body protection</b></p>	<p>See Other protection below</p>
<p><b>Other protection</b></p>	<ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ PVC Apron.</li> <li>▶ PVC protective suit may be required if exposure severe.</li> <li>▶ Eyewash unit.</li> <li>▶ Ensure there is ready access to a safety shower.</li> </ul>

## Recommended material(s)

## GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

**"Forsberg Clothing Performance Index".**

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

**computer-generated** selection:

ParaBond Adhesive B

Material	CPI
BUTYL	A

## Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator

## ParaBond Adhesive B

NEOPRENE	A
NITRILE	A
NITRILE+PVC	A
PE/EVAL/PE	A
PVC	B
NATURAL RUBBER	C
NATURAL+NEOPRENE	C

up to 5 x ES	Air-line*	A-2	A-PAPR-2 ^
up to 10 x ES	-	A-3	-
10+ x ES	-	Air-line**	-

\* - Continuous Flow; \*\* - Continuous-flow or positive pressure demand

^ - 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)

\* 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.

## Ansell Glove Selection

<b>Glove</b> — <i>In order of recommendation</i>
AlphaTec® Solvex® 37-675
MICROFLEX® 93-252
MICROFLEX® 93-833
MICROFLEX® 93-843
MICROFLEX® EXCEED® XC-310
MICROFLEX® Supreno® SE SU-690
MICROFLEX® 93-244
MICROFLEX® 93-856
MICROFLEX® Blaze® N48
MICROFLEX® 93-853

The suggested gloves for use should be confirmed with the glove supplier.

## 8.2.3. Environmental exposure controls

See section 12

## SECTION 9 Physical and chemical properties

## 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Colourless		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	0.84
<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 Available	<b>Decomposition temperature (°C)</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>	78-80	<b>Molecular weight (g/mol)</b>	Not Available
<b>Flash point (°C)</b>	15	<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>	19	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	3.5	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Available	<b>Gas group</b>	Not Available

## ParaBond Adhesive B

<b>Solubility in water</b>	Miscible	<b>pH as a solution (1%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available
<b>Heat of Combustion (kJ/g)</b>	Not Available	<b>Ignition Distance (cm)</b>	Not Available
<b>Flame Height (cm)</b>	Not Available	<b>Flame Duration (s)</b>	Not Available
<b>Enclosed Space Ignition Time Equivalent (s/m3)</b>	Not Available	<b>Enclosed Space Ignition Deflagration Density (g/m3)</b>	Not Available
<b>Nanoform Solubility</b>	Not Available	<b>Nanoform Particle Characteristics</b>	Not Available
<b>Particle Size</b>	Not Available		

## 9.2. Other information

Not Available

## SECTION 10 Stability and reactivity

<b>10.1. Reactivity</b>	See section 7.2
<b>10.2. Chemical stability</b>	<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>
<b>10.3. Possibility of hazardous reactions</b>	See section 7.2
<b>10.4. Conditions to avoid</b>	See section 7.2
<b>10.5. Incompatible materials</b>	See section 7.2
<b>10.6. Hazardous decomposition products</b>	See section 5.3

## SECTION 11 Toxicological information

## 11.1. Information on toxicological effects

<b>Inhaled</b>	
<b>Ingestion</b>	
<b>Skin Contact</b>	
<b>Eye</b>	
<b>Chronic</b>	

<b>ParaBond Adhesive B</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>ethanol</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: 17100 mg/kg <sup>[1]</sup>	Eye (Rodent - rabbit): 0.1mL
	Inhalation (Rat) LC50: 64000 ppm4h <sup>[2]</sup>	Eye (Rodent - rabbit): 100mg/4S - Moderate
	Oral (Rat) LD50: 7060 mg/kg <sup>[2]</sup>	Eye (Rodent - rabbit): 100uL - Moderate
		Eye (Rodent - rabbit): 500mg - Severe
		Eye (Rodent - rabbit): 500mg/24H - Mild
		Eye: adverse effect observed (irritating) <sup>[1]</sup>
		Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
		Skin (Human): 70%/2D
		Skin (Rodent - rabbit): 20mg/24H - Moderate
	Skin (Rodent - rabbit): 400mg - Mild	
	Skin: no adverse effect observed (not irritating) <sup>[1]</sup>	
<b>N,N-bis(2-hydroxyethyl)-p-toluidine</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>	Eye: adverse effect observed (irreversible damage) <sup>[1]</sup>
	Oral (Mouse) LD50: 650 mg/kg <sup>[2]</sup>	Skin: no adverse effect observed (not irritating) <sup>[1]</sup>

## ParaBond Adhesive B

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

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

## 11.2 Information on other hazards

### 11.2.1. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

### 11.2.2. Other information

See Section 11.1

## SECTION 12 Ecological information

### 12.1. Toxicity

ParaBond Adhesive B	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
ethanol	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	96h	Algae or other aquatic plants	<0.001mg/L	4
	EC50	72h	Algae or other aquatic plants	275mg/l	2
	EC50(ECx)	96h	Algae or other aquatic plants	<0.001mg/L	4
	LC50	96h	Fish	42mg/L	4
	EC50	48h	Crustacea	2mg/L	4
N,N-bis(2-hydroxyethyl)-p-toluidine	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	>100mg/l	2
	EC50	48h	Crustacea	48mg/l	2
	EC50(ECx)	48h	Crustacea	48mg/l	2
	LC50	96h	Fish	>100mg/l	2
<b>Legend:</b>	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

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

### 12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
ethanol	LOW (Half-life = 2.17 days)	LOW (Half-life = 5.08 days)
N,N-bis(2-hydroxyethyl)-p-toluidine	LOW	LOW

### 12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
ethanol	LOW (LogKOW = -0.31)
N,N-bis(2-hydroxyethyl)-p-toluidine	LOW (LogKOW = 1.09)

### 12.4. Mobility in soil

## ParaBond Adhesive B

Ingredient	Mobility
ethanol	HIGH (Log KOC = 1)
N,N-bis(2-hydroxyethyl)-p-toluidine	LOW (Log KOC = 10)

## 12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	✗
PBT Criteria fulfilled?	No		
vPvB	No		

## 12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

## 12.7. Other adverse effects

No evidence of ozone depleting properties were found in the current literature.


## SECTION 13 Disposal considerations

## 13.1. Waste treatment methods

Product / Packaging disposal	Dispose of waste according to applicable legislation. Special country-specific regulations may apply. Can be disposed together with household waste in compliance with official regulations in contact with approved waste disposal companies and with authorities in charge. (Only dispose of completely emptied packages.)
Waste treatment options	Not Available
Sewage disposal options	Not Available

## SECTION 14 Transport information

## Labels Required

	
Marine Pollutant	NO
HAZCHEM	•2YE

## Land transport (ADR-RID)

14.1. UN number or ID number	1170												
14.2. UN proper shipping name	ETHANOL (ETHYL ALCOHOL); ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)												
14.3. Transport hazard class(es)	<table border="1"> <tr> <td>Class</td> <td>3</td> </tr> <tr> <td>Subsidiary Hazard</td> <td>Not Applicable</td> </tr> </table>	Class	3	Subsidiary Hazard	Not Applicable								
Class	3												
Subsidiary Hazard	Not Applicable												
14.4. Packing group	II												
14.5. Environmental hazard	Not Applicable												
14.6. Special precautions for user	<table border="1"> <tr> <td>Hazard identification (Kemler)</td> <td>33</td> </tr> <tr> <td>Classification code</td> <td>F1</td> </tr> <tr> <td>Hazard Label</td> <td>3</td> </tr> <tr> <td>Special provisions</td> <td>144 601</td> </tr> <tr> <td>Limited quantity</td> <td>1 L</td> </tr> <tr> <td>Tunnel Restriction Code</td> <td>D/E</td> </tr> </table>	Hazard identification (Kemler)	33	Classification code	F1	Hazard Label	3	Special provisions	144 601	Limited quantity	1 L	Tunnel Restriction Code	D/E
Hazard identification (Kemler)	33												
Classification code	F1												
Hazard Label	3												
Special provisions	144 601												
Limited quantity	1 L												
Tunnel Restriction Code	D/E												

## ParaBond Adhesive B

## Air transport (ICAO-IATA / DGR)

14.1. UN number	1170	
14.2. UN proper shipping name	Ethanol; Ethanol. Solution	
14.3. Transport hazard class(es)	ICAO/IATA Class	3
	ICAO / IATA Subsidiary Hazard	Not Applicable
	ERG Code	3L
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Special provisions	A3 A58 A180
	Cargo Only Packing Instructions	364
	Cargo Only Maximum Qty / Pack	60 L
	Passenger and Cargo Packing Instructions	353
	Passenger and Cargo Maximum Qty / Pack	5 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y341
	Passenger and Cargo Limited Maximum Qty / Pack	1 L

## Sea transport (IMDG-Code / GGVSee)

14.1. UN number	1170	
14.2. UN proper shipping name	ETHANOL (ETHYL ALCOHOL); ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	
14.3. Transport hazard class(es)	IMDG Class	3
	IMDG Subsidiary Hazard	Not Applicable
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	EMS Number	F-E , S-D
	Special provisions	144
	Limited Quantities	1 L

## Inland waterways transport (ADN)

14.1. UN number	1170	
14.2. UN proper shipping name	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION); ETHANOL (ETHYL ALCOHOL)	
14.3. Transport hazard class(es)	3	Not Applicable
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Classification code	F1
	Special provisions	144; 601
	Limited quantity	1 L
	Equipment required	PP, EX, A
	Fire cones number	1

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

Not Applicable

## 14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
ethanol	Not Available
N,N-bis(2-hydroxyethyl)-p-toluidine	Not Available

## ParaBond Adhesive B

## 14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
ethanol	Not Available
N,N-bis(2-hydroxyethyl)-p-toluidine	Not Available

## SECTION 15 Regulatory information

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

## ethanol is found on the following regulatory lists

Great Britain GB Biocidal Active Substances

Great Britain GB mandatory classification and labelling list (GB MCL)

UK Workplace Exposure Limits (WELs).

## N,N-bis(2-hydroxyethyl)-p-toluidine is found on the following regulatory lists

Not Applicable

## Additional Regulatory Information

Not Applicable

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

## Information according to 2012/18/EU (Seveso III):

Seveso Category	
	P5a, P5b, P5c

## 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

## National Inventory Status

National Inventory	Status
Australia - AIIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (ethanol; N,N-bis(2-hydroxyethyl)-p-toluidine)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	No (N,N-bis(2-hydroxyethyl)-p-toluidine)
Vietnam - NCI	Yes
Russia - FBEPH	Yes
<b>Legend:</b>	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

## SECTION 16 Other information

Revision Date	28/09/2023
Initial Date	16/12/2021

## Full text Risk and Hazard codes

H302	Harmful if swallowed.
H318	Causes serious eye damage.

## ParaBond Adhesive B

<b>H412</b>	Harmful to aquatic life with long lasting effects.
-------------	--

**SDS Version Summary**

Version	Date of Update	Sections Updated
1.2	28/09/2023	Toxicological information - Acute Health (eye), Toxicological information - Acute Health (inhaled), Toxicological information - Acute Health (skin), Toxicological information - Acute Health (swallowed), First Aid measures - Advice to Doctor, Toxicological information - Chronic Health, Hazards identification - Classification, Disposal considerations - Disposal, Exposure controls / personal protection - Engineering Control, Ecological Information - Environmental, Exposure controls / personal protection - Exposure Standard, First Aid measures - First Aid (eye), First Aid measures - First Aid (inhaled), First Aid measures - First Aid (skin), Handling and storage - Handling Procedure, Composition / information on ingredients - Ingredients, Exposure controls / personal protection - Personal Protection (other), Exposure controls / personal protection - Personal Protection (eye), Exposure controls / personal protection - Personal Protection (hands/feet)

**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.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection

EN 340 Protective clothing

EN 374 Protective gloves against chemicals and micro-organisms

EN 13832 Footwear protecting against chemicals

EN 133 Respiratory protective devices

**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
- ▶ ES: Exposure Standard
- ▶ 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
- ▶ DNEL: Derived No-Effect Level
- ▶ PNEC: Predicted no-effect concentration
- ▶ MARPOL: International Convention for the Prevention of Pollution from Ships
- ▶ IMSBC: International Maritime Solid Bulk Cargoes Code
- ▶ IGC: International Gas Carrier Code
- ▶ IBC: International Bulk Chemical Code
  
- ▶ AIIC: Australian Inventory of Industrial Chemicals
- ▶ DSL: Domestic Substances List
- ▶ NDSL: Non-Domestic Substances List
- ▶ IECSC: Inventory of Existing Chemical Substance in China
- ▶ EINECS: European INventory of Existing Commercial chemical Substances
- ▶ ELINCS: European List of Notified Chemical Substances
- ▶ NLP: No-Longer Polymers
- ▶ ENCS: Existing and New Chemical Substances Inventory
- ▶ KECI: Korea Existing Chemicals Inventory
- ▶ NZIoC: New Zealand Inventory of Chemicals
- ▶ PICCS: Philippine Inventory of Chemicals and Chemical Substances
- ▶ TSCA: Toxic Substances Control Act
- ▶ TCSI: Taiwan Chemical Substance Inventory
- ▶ INSQ: Inventario Nacional de Sustancias Químicas
- ▶ NCI: National Chemical Inventory
- ▶ FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances



## ParaBond Adhesive B

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]**

<b>Classification according to regulation (EC) No 1272/2008 [CLP] and amendments</b>	<b>Classification Procedure</b>
Flammable Liquids Category 2, H225	On basis of test data
Sensitisation (Skin) Category 1, H317	Calculation method
Serious Eye Damage/Eye Irritation Category 2, H319	Calculation method

Powered by AuthorITe, from Chemwatch.

## ParaBond Non-Rinse Conditioner

### Coltène/Whaledent AG

Version No: 2.2

Safety data sheet according to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Issue Date: **17/08/2023**

Print Date: **10/01/2025**

L.REACH.GB.EN

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

### 1.1. Product Identifier

<b>Product name</b>	ParaBond Non-Rinse Conditioner
<b>Chemical Name</b>	Not Applicable
<b>Synonyms</b>	Not Available
<b>Chemical formula</b>	Not Applicable
<b>Other means of identification</b>	Not Available

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

<b>Relevant identified uses</b>	Medical device, for dental use only Use according to manufacturer's directions.
<b>Uses advised against</b>	No specific uses advised against are identified.

### 1.3. Details of the manufacturer or supplier of the safety data sheet

<b>Registered company name</b>	Coltène/Whaledent AG
<b>Address</b>	Feldwiesenstrasse 20 Altstätten 9450 Switzerland
<b>Telephone</b>	+41 (71) 75 75 300
<b>Fax</b>	+41 (71) 75 75 301
<b>Website</b>	<a href="http://www.coltene.com">www.coltene.com</a>
<b>Email</b>	msds@coltene.com

### 1.4. Emergency telephone number

<b>Association / Organisation</b>	CHEMWATCH EMERGENCY RESPONSE (24/7)
<b>Emergency telephone number(s)</b>	+44 20 3901 3542
<b>Other emergency telephone number(s)</b>	+44 808 164 9592


Once connected and if the message is not in your preferred language then please dial 01

## SECTION 2 Hazards identification

### 2.1. Classification of the substance or mixture

<b>Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567 <sup>[1]</sup></b>	H315 - Skin Corrosion/Irritation Category 2, H317 - Sensitisation (Skin) Category 1, H318 - Serious Eye Damage/Eye Irritation Category 1
<b>Legend:</b>	1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567

### 2.2. Label elements

<b>Hazard pictogram(s)</b>	
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## ParaBond Non-Rinse Conditioner

Signal word	Danger
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## Hazard statement(s)

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.

## Supplementary statement(s)

Not Applicable

## Precautionary statement(s) Prevention

P280	Wear protective gloves, protective clothing, eye protection and face protection.
P261	Avoid breathing mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

## Precautionary statement(s) Response

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/doctor/physician/first aider.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

## Precautionary statement(s) Storage

Not Applicable

## Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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Material contains 2-hydroxyethyl methacrylate, 2-acrylamido-2-methyl-1-propanesulfonic acid.

## 2.3. Other hazards

Ingestion may produce health damage\*.

May produce discomfort of the respiratory system\*.

REACH - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

## SECTION 3 Composition / information on ingredients

## 3.1.Substances

See 'Composition on ingredients' in Section 3.2

## 3.2.Mixtures

1. CAS No 2.EC No 3.Index No 4.REACH No	% [weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M- Factor	Nanoform Particle Characteristics
1. 868-77-9 2.212-782-2 3.607-124-00-X 4.Not Available	40-50	<u>2-hydroxyethyl methacrylate</u>	Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2; H315, H317, H319 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 15214-89-8 2.239-268-0 3.Not Available 4.Not Available	5-10	<u>2-acrylamido-2- methyl-1- propanesulfonic acid</u>	Acute Toxicity (Oral) Category 4, Serious Eye Damage/Eye Irritation Category 1, Acute Toxicity (Inhalation) Category 4, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H302, H318, H332, H335 [1]	SCL: Not Available Acute M factor: Not	Not Available

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## ParaBond Non-Rinse Conditioner

1. CAS No 2. EC No 3. Index No 4. REACH No	% [weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M- Factor	Nanoform Particle Characteristics
				Applicable  Chronic M factor: Not Applicable	
<b>Legend:</b> 1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties					

## SECTION 4 First aid measures

## 4.1. Description of first aid measures

<b>Eye Contact</b>	<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>
<b>Skin Contact</b>	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area.</li> <li>▶ Other measures are usually unnecessary.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <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> </ul>

## 4.2 Most important symptoms and effects, both acute and delayed

See Section 11

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

Treat symptomatically.

## SECTION 5 Firefighting measures

## 5.1. Extinguishing media

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

## 5.2. 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
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## 5.3. 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>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Use water delivered as a fine spray to control fire and cool adjacent area.</li> <li>▶ Avoid spraying water onto liquid pools.</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> </ul>
<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"> <li>▶ Combustible.</li> <li>▶ Slight fire hazard when exposed to heat or flame.</li> <li>▶ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> </ul>

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## ParaBond Non-Rinse Conditioner

- ▶ On combustion, may emit toxic fumes of carbon monoxide (CO).
  - ▶ May emit acrid smoke.
  - ▶ Mists containing combustible materials may be explosive.
- Combustion products include:  
 carbon dioxide (CO<sub>2</sub>)  
 nitrogen oxides (NO<sub>x</sub>)  
 other pyrolysis products typical of burning organic material.  
 May emit poisonous fumes.  
 May emit corrosive fumes.

### SECTION 6 Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

See section 8

#### 6.2. Environmental precautions

See section 12

#### 6.3. Methods and material for containment and cleaning up

<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>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>

#### 6.4. Reference to other sections

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

### SECTION 7 Handling and storage

#### 7.1. 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>▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.</li> <li>▶ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> </ul>
<b>Fire and explosion protection</b>	See section 5
<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> <li>▶ Store away from incompatible materials and foodstuff containers.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul>

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## 7.2. Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	Recommended storage temperature: 4 - 8 °C ▶ Packaging as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
<b>Storage incompatibility</b>	▶ Avoid reaction with oxidising agents
<b>Hazard categories in accordance with Regulation (EC) No 2012/18/EU (Seveso III)</b>	Not Available
<b>Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of</b>	Not Available

## 7.3. Specific end use(s)

See section 1.2

## SECTION 8 Exposure controls / personal protection

## 8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
2-hydroxyethyl methacrylate	Dermal 1.39 mg/kg bw/day (Systemic, Chronic) Inhalation 4.9 mg/m <sup>3</sup> (Systemic, Chronic) Dermal 0.83 mg/kg bw/day (Systemic, Chronic) * Inhalation 0.00145 mg/m <sup>3</sup> (Systemic, Chronic) * Oral 0.83 mg/kg bw/day (Systemic, Chronic) *	0.482 mg/L (Water (Fresh)) 1 mg/L (Water - Intermittent release) 0.048 mg/L (Water (Marine)) 3.79 mg/kg sediment dw (Sediment (Fresh Water)) 3.79 mg/kg sediment dw (Sediment (Marine)) 0.476 mg/kg soil dw (Soil) 10 mg/L (STP)
2-acrylamido-2-methyl-1-propanesulfonic acid	Dermal 5.6 mg/kg bw/day (Systemic, Chronic) Inhalation 1 mg/m <sup>3</sup> (Systemic, Chronic) Dermal 40 mg/kg bw/day (Systemic, Acute) Inhalation 2.9 mg/m <sup>3</sup> (Systemic, Acute)	0.13 mg/L (Water (Fresh)) 1.3 mg/L (Water - Intermittent release) 100 mg/L (STP)

\* Values for General Population

## Occupational Exposure Limits (OEL)

## INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Not Applicable

Ingredient	Original IDLH	Revised IDLH
2-hydroxyethyl methacrylate	Not Available	Not Available
2-acrylamido-2-methyl-1-propanesulfonic acid	Not Available	Not Available

## Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
2-hydroxyethyl methacrylate	E	≤ 0.1 ppm
2-acrylamido-2-methyl-1-propanesulfonic acid	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

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life.

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However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

### IFRA Prohibited Fragrance Substance

The International Fragrance Association (IFRA) Standards form the basis for the globally accepted and recognized risk management system for the safe use of fragrance ingredients and are part of the IFRA Code of Practice. This is the self-regulating system of the industry, based on risk assessments carried out by an independent Expert Panel

Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen

[National Toxicology Program: U.S. Dep. of Health & Human Services 2002]

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.

CR = Cancer Risk/10000; UF = Uncertainty factor:

TLV believed to be adequate to protect reproductive health:

LOD: Limit of detection

Toxic endpoints have also been identified as:

D = Developmental; R = Reproductive; TC = Transplacental carcinogen

Jankovic J., Drake F.: A Screening Method for Occupational Reproductive

American Industrial Hygiene Association Journal 57: 641-649 (1996)

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

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

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

The basic types of engineering controls are:

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

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

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator.

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

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


Within each range the appropriate value depends on:

Lower end of the range

Upper end of the range

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	<p>1: Room air currents minimal or favourable to capture</p> <p>2: Contaminants of low toxicity or of nuisance value only</p> <p>3: Intermittent, low production.</p> <p>4: Large hood or large air mass in motion</p>	<p>1: Disturbing room air currents</p> <p>2: Contaminants of high toxicity</p> <p>3: High production, heavy use</p> <p>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> <p><b>CARE:</b> Use of a quantity of this material in confined space or poorly ventilated area, where rapid build up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear</p>	
<b>8.2.2. Individual protection measures, such as personal protective equipment</b>		
<b>Eye and face protection</b>	<ul style="list-style-type: none"> <li>▶ Safety glasses with side shields.</li> <li>▶ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]</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].</li> </ul>	
<b>Skin protection</b>	See Hand protection below	
<b>Hands/feet protection</b>	<ul style="list-style-type: none"> <li>▶ Wear chemical protective gloves, e.g. PVC.</li> <li>▶ Wear safety footwear or safety gumboots, e.g. Rubber</li> </ul>	
<b>Body protection</b>	See Other protection below	
<b>Other protection</b>	<ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ P.V.C apron.</li> <li>▶ Barrier cream.</li> <li>▶ Skin cleansing cream.</li> <li>▶ Eye wash unit.</li> </ul>	

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	A-AUS / Class1	-
up to 50	1000	-	A-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	A-2
up to 100	10000	-	A-3
100+			Airline**

\* - Continuous Flow \*\* - Continuous-flow or positive pressure demand

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

### 8.2.3. Environmental exposure controls

See section 12

## SECTION 9 Physical and chemical properties

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

<b>Appearance</b>	Colourless		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	1.2
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available

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<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	Not Available	<b>Decomposition temperature (°C)</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 Available
<b>Flash point (°C)</b>	Not Available	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Available	<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>	Miscible	<b>pH as a solution (1%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available
<b>Heat of Combustion (kJ/g)</b>	Not Available	<b>Ignition Distance (cm)</b>	Not Available
<b>Flame Height (cm)</b>	Not Available	<b>Flame Duration (s)</b>	Not Available
<b>Enclosed Space Ignition Time Equivalent (s/m<sup>3</sup>)</b>	Not Available	<b>Enclosed Space Ignition Deflagration Density (g/m<sup>3</sup>)</b>	Not Available
<b>Nanoform Solubility</b>	Not Available	<b>Nanoform Particle Characteristics</b>	Not Available
<b>Particle Size</b>	Not Available		

## 9.2. Other information

Not Available

## SECTION 10 Stability and reactivity

<b>10.1.Reactivity</b>	See section 7.2
<b>10.2. Chemical stability</b>	<ul style="list-style-type: none"> <li>▶ Stable under controlled storage conditions provided material contains adequate stabiliser / polymerisation inhibitor.</li> <li>▶ Bulk storages may have special storage requirements</li> <li>▶ WARNING: Gradual decomposition in strong, sealed containers may lead to a large pressure build-up and subsequent explosion. Rapid and violent polymerisation possible at temperatures above 32 deg c.</li> </ul>
<b>10.3. Possibility of hazardous reactions</b>	See section 7.2
<b>10.4. Conditions to avoid</b>	See section 7.2
<b>10.5. Incompatible materials</b>	See section 7.2
<b>10.6. Hazardous decomposition products</b>	See section 5.3

## SECTION 11 Toxicological information

## 11.1. Information on toxicological effects

<b>Inhaled</b>	
<b>Ingestion</b>	
<b>Skin Contact</b>	
<b>Eye</b>	
<b>Chronic</b>	

<b>ParaBond Non-Rinse Conditioner</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>2-hydroxyethyl methacrylate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >3000 mg/kg <sup>[2]</sup>	Eye: adverse effect observed (irritating) <sup>[1]</sup>
	Oral (Rat) LD50: >=2000 mg/kg <sup>[1]</sup>	Skin (Human - woman): 2%
		Skin (Human - woman): 2%/48H

Continued...

## ParaBond Non-Rinse Conditioner

		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
2-acrylamido-2-methyl-1-propanesulfonic acid	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: >2000 mg/kg <sup>[2]</sup>	Not Available
	Oral (Rat) LD50: 1830 mg/kg <sup>[1]</sup>	
<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	

2-acrylamido-2-methyl-1-propanesulfonic acid	<p>* Biorad Laboratories MSDS (CCInfo)</p> <p>For AMPS (2-acrylamido-2-methylpropanesulfonic acid) monomer and its salts</p> <p><b>Acute toxicity:</b> Results of the acute toxicity studies indicate that the parent 2-acrylamido-2-methylpropanesulfonic anion (AMPS) does not exhibit direct systemic toxicity via the oral or dermal routes of administration. This is evidenced by the high acute oral LD50 seen with experiments using the neutral sodium and ammonium salts of AMPS monomer, and the high LD50 observed following prolonged dermal application of ammonium AMPS. The lower LD50 and adverse clinical findings associated with the oral administration of AMPS acid are attributed to its strongly acidic properties resulting in severe local gastrointestinal reactions and the resulting secondary adverse physiological responses.</p> <p><b>Subchronic oral toxicity:</b> A 28-day repeated dose oral toxicity test in rats was performed on ammonium AMPS. This study was completed in accordance with OECD guideline 407. There were no deaths in the study, and the most remarkable clinical sign was gastrointestinal unrest manifested by lethargy, emaciation, diarrhea and reduced food consumption in a single male at the highest dose. Otherwise, there were no treatment-related untoward effects on clinical observations, body weight, food consumption, serum chemistry values, hematology values, gross pathological observations or histopathological findings. As a result, the laboratory study director assigned the no-observed-effect-level (NOEL) at 1000 mg/kg/day. The result of this study was deemed reliable without restriction according to the Klimisch criteria. The data in this study are reflective of a low subchronic toxicity index for ammonium AMPS</p> <p><b>Repeat dose toxicity:</b> Results of the oral repeated dose toxicity testing on ammonium AMPS clearly show that the parent 2-acrylamido-2-methylpropanesulfonic anion is not a cumulative or a reproductive/developmental toxicant. Repeated negative findings at high doses in both a subchronic repeated dose study and a reproductive/developmental screening assay support this conclusion.</p> <p><b>Genetic toxicity:</b> Results of the genetic toxicity testing on AMPS acid clearly show that the parent 2-acrylamido-2-methylpropanesulfonic anion is not a mutagen. Repeated negative findings in bacterial both and mammalian <i>in vitro</i> assay systems support this conclusion. The results of the single <i>in vitro</i> chromosomal aberration study are inconclusive. Specifically, the clastogenic effects observed with the metabolic activation of AMPS acid were not replicable and did not follow dose-responsive or time-responsive patterns. Furthermore, the clastogenic events were associated with excessive cytotoxic damage, and therefore may not represent direct genotoxic activity. Consequently, <i>in vivo</i> tests in rats and mice were performed to more reliably describe the cytogenetic toxicity of AMPS. These rodent assays clearly demonstrate the absence of clastogenic potential resulting from the <i>in vivo</i> administration of AMPS acid or ammonium AMPS in mammalian systems. The AMPS anion is not considered to be a clastogen. Since AMPS acid, sodium AMPS and ammonium AMPS are simple salts of the same parent anion, the lack of mutagenicity or <i>in vivo</i> clastogenic activity can be AMPS for acid mists, aerosols, vapours</p> <p>Data from assays for genotoxic activity <i>in vitro</i> suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5. Cells from the respiratory tract have not been examined in this respect. Mucous secretion may protect the cells of the airways from direct exposure to inhaled acidic mists, just as mucous plays an important role in protecting the gastric epithelium from its auto-secreted hydrochloric acid. In considering whether pH itself induces genotoxic events <i>in vivo</i> in the respiratory system, comparison should be made with the human stomach, in which gastric juice may be at pH 1-2 under fasting or nocturnal conditions, and with the human urinary bladder, in which the pH of urine can range from &lt;5 to &gt; 7 and normally averages 6.2. Furthermore, exposures to low pH <i>in vivo</i> differ from exposures <i>in vitro</i> in that, <i>in vivo</i>, only a portion of the cell surface is subjected to the adverse conditions, so that perturbation of intracellular homeostasis may be maintained more readily than <i>in vitro</i>.</p> <p>The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may produce respiratory tract irritation. Symptoms of pulmonary irritation may include coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and a burning sensation.</p> <p>Unlike most organs, the lung can respond to a chemical insult or a chemical agent, by first removing or neutralising the irritant and then repairing the damage (inflammation of the lungs may be a consequence).</p> <p>The repair process (which initially developed to protect mammalian lungs from foreign matter and antigens) may, however, cause further damage to the lungs (fibrosis for example) when activated by hazardous chemicals. Often, this results in an impairment of gas exchange, the primary function of the lungs. Therefore prolonged exposure to respiratory irritants may cause sustained breathing difficulties.</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 epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.</p> <p>Based on the available oncogenicity data and without a better understanding of the carcinogenic mechanism the Health and Environmental Review Division (HERD), Office of Toxic Substances (OTS), of the US EPA previously concluded that all chemicals that contain the acrylate or methacrylate moiety (CH<sub>2</sub>=CHCOO or CH<sub>2</sub>=C(CH<sub>3</sub>)COO) should be considered to be a carcinogenic hazard unless shown otherwise by adequate testing.</p> <p>This position has now been revised and acrylates and methacrylates are no longer <i>de facto</i> carcinogens.</p>
ParaBond Non-Rinse Conditioner & 2-	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic

## ParaBond Non-Rinse Conditioner

<b>HYDROXYETHYL METHACRYLATE</b>	skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.
<b>2-HYDROXYETHYL METHACRYLATE &amp; 2-acrylamido-2-methyl-1-propanesulfonic acid</b>	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. 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. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.

<b>Acute Toxicity</b>	✗	<b>Carcinogenicity</b>	✗
<b>Skin Irritation/Corrosion</b>	✓	<b>Reproductivity</b>	✗
<b>Serious Eye Damage/Irritation</b>	✓	<b>STOT - Single Exposure</b>	✗
<b>Respiratory or Skin sensitisation</b>	✓	<b>STOT - Repeated Exposure</b>	✗
<b>Mutagenicity</b>	✗	<b>Aspiration Hazard</b>	✗

**Legend:** ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## 11.2 Information on other hazards

### 11.2.1. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

### 11.2.2. Other information

See Section 11.1

## SECTION 12 Ecological information

### 12.1. Toxicity

ParaBond Non-Rinse Conditioner	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
2-hydroxyethyl methacrylate	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	345mg/l	2
	EC50	48h	Crustacea	380mg/l	2
	NOEC(ECx)	504h	Crustacea	24.1mg/l	2
	LC50	96h	Fish	>100mg/l	2
2-acrylamido-2-methyl-1-propanesulfonic acid	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	48h	Crustacea	78mg/l	1
	EC50	48h	Crustacea	280430mg/l	1
	LC50	96h	Fish	170mg/l	2
<b>Legend:</b>	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

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

### 12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
2-hydroxyethyl methacrylate	LOW	LOW
2-acrylamido-2-methyl-1-propanesulfonic acid	HIGH	HIGH

### 12.3. Bioaccumulative potential

Continued...

## ParaBond Non-Rinse Conditioner

Ingredient	Bioaccumulation
2-hydroxyethyl methacrylate	LOW (BCF = 1.54)
2-acrylamido-2-methyl-1-propanesulfonic acid	LOW (LogKOW = -2.19)

## 12.4. Mobility in soil

Ingredient	Mobility
2-hydroxyethyl methacrylate	HIGH (Log KOC = 1.043)
2-acrylamido-2-methyl-1-propanesulfonic acid	LOW (Log KOC = 10)

## 12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	✗
PBT Criteria fulfilled?	No		
vPvB	No		

## 12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

## 12.7. Other adverse effects

No evidence of ozone depleting properties were found in the current literature.

## SECTION 13 Disposal considerations

## 13.1. Waste treatment methods

Product / Packaging disposal	Dispose of waste according to applicable legislation. Special country-specific regulations may apply. Can be disposed together with household waste in compliance with official regulations in contact with approved waste disposal companies and with authorities in charge. (Only dispose of completely emptied packages.)
Waste treatment options	Not Available
Sewage disposal options	Not Available

## SECTION 14 Transport information

## Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

## Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. UN number or ID number	Not Applicable	
14.2. UN proper shipping name	Not Applicable	
14.3. Transport hazard class(es)	Class	Not Applicable
	Subsidiary Hazard	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Hazard identification (Kemler)	Not Applicable
	Classification code	Not Applicable
	Hazard Label	Not Applicable
	Special provisions	Not Applicable

Continued...

## ParaBond Non-Rinse Conditioner

Limited quantity	Not Applicable
Tunnel Restriction Code	Not Applicable

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

14.1. UN number	Not Applicable	
14.2. UN proper shipping name	Not Applicable	
14.3. Transport hazard class(es)	ICAO/IATA Class	Not Applicable
	ICAO / IATA Subsidiary Hazard	Not Applicable
	ERG Code	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Special provisions	Not Applicable
	Cargo Only Packing Instructions	Not Applicable
	Cargo Only Maximum Qty / Pack	Not Applicable
	Passenger and Cargo Packing Instructions	Not Applicable
	Passenger and Cargo Maximum Qty / Pack	Not Applicable
	Passenger and Cargo Limited Quantity Packing Instructions	Not Applicable
	Passenger and Cargo Limited Maximum Qty / Pack	Not Applicable

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

14.1. UN number	Not Applicable	
14.2. UN proper shipping name	Not Applicable	
14.3. Transport hazard class(es)	IMDG Class	Not Applicable
	IMDG Subsidiary Hazard	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	EMS Number	Not Applicable
	Special provisions	Not Applicable
	Limited Quantities	Not Applicable

**Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

14.1. UN number	Not Applicable	
14.2. UN proper shipping name	Not Applicable	
14.3. Transport hazard class(es)	Not Applicable	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Classification code	Not Applicable
	Special provisions	Not Applicable
	Limited quantity	Not Applicable
	Equipment required	Not Applicable
	Fire cones number	Not Applicable

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

Not Applicable

**14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code**

Continued...

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Product name	Group
2-hydroxyethyl methacrylate	Not Available
2-acrylamido-2-methyl-1-propanesulfonic acid	Not Available

## 14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
2-hydroxyethyl methacrylate	Not Available
2-acrylamido-2-methyl-1-propanesulfonic acid	Not Available

## SECTION 15 Regulatory information

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

## 2-hydroxyethyl methacrylate is found on the following regulatory lists

Great Britain GB mandatory classification and labelling list (GB MCL)

## 2-acrylamido-2-methyl-1-propanesulfonic acid is found on the following regulatory lists

Not Applicable

## Additional Regulatory Information

Not Applicable

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

## Information according to 2012/18/EU (Seveso III):

Seveso Category	Not Available

## 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

## National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (2-hydroxyethyl methacrylate; 2-acrylamido-2-methyl-1-propanesulfonic acid)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - FBEPH	Yes
<b>Legend:</b>	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

## SECTION 16 Other information

Revision Date	17/08/2023
Initial Date	16/12/2021

## ParaBond Non-Rinse Conditioner

## Full text Risk and Hazard codes

<b>H302</b>	Harmful if swallowed.
<b>H319</b>	Causes serious eye irritation.
<b>H332</b>	Harmful if inhaled.
<b>H335</b>	May cause respiratory irritation.

## SDS Version Summary

Version	Date of Update	Sections Updated
1.2	17/08/2023	Toxicological information - Acute Health (eye), Toxicological information - Acute Health (swallowed), Toxicological information - Chronic Health, Hazards identification - Classification, Exposure controls / personal protection - Engineering Control, Firefighting measures - Fire Fighter (fire/explosion hazard), First Aid measures - First Aid (eye), Composition / information on ingredients - Ingredients, Handling and storage - Storage (storage incompatibility), Handling and storage - Storage (suitable container)

## 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.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection

EN 340 Protective clothing

EN 374 Protective gloves against chemicals and micro-organisms

EN 13832 Footwear protecting against chemicals

EN 133 Respiratory protective devices

## 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
- ES: Exposure Standard
- 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
- DNEL: Derived No-Effect Level
- PNEC: Predicted no-effect concentration
- MARPOL: International Convention for the Prevention of Pollution from Ships
- IMSBC: International Maritime Solid Bulk Cargoes Code
- IGC: International Gas Carrier Code
- IBC: International Bulk Chemical Code
  
- AIIC: Australian Inventory of Industrial Chemicals
- DSL: Domestic Substances List
- NDSL: Non-Domestic Substances List
- IECSC: Inventory of Existing Chemical Substance in China
- EINECS: European INventory of Existing Commercial chemical Substances
- ELINCS: European List of Notified Chemical Substances
- NLP: No-Longer Polymers
- ENCS: Existing and New Chemical Substances Inventory
- KECI: Korea Existing Chemicals Inventory
- NZIoC: New Zealand Inventory of Chemicals
- PICCS: Philippine Inventory of Chemicals and Chemical Substances
- TSCA: Toxic Substances Control Act
- TCSI: Taiwan Chemical Substance Inventory
- INSQ: Inventario Nacional de Sustancias Químicas
- NCI: National Chemical Inventory

Continued...

## ParaBond Non-Rinse Conditioner

▸ FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]**

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	Classification Procedure
Skin Corrosion/Irritation Category 2, H315	Calculation method
Sensitisation (Skin) Category 1, H317	Calculation method
Serious Eye Damage/Eye Irritation Category 1, H318	Calculation method

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