



## Adtech 836 Part B (Adtech DX8921)

### Ureka Global Ltd

Chemwatch Hazard Alert Code: 4

Version No: 1.2

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

Issue Date: 23/08/2022

Print Date: 20/01/2023

S.REACH.GB.EN

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

### 1.1. Product Identifier

Product name	Adtech 836 Part B (Adtech DX8921)
Chemical Name	Not Applicable
Synonyms	Not Available
Proper shipping name	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.
Chemical formula	Not Applicable
Other means of identification	UFI:1WPS-404K-W004-JRCN

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

Relevant identified uses	[SU3] Industrial uses: Uses of substances as such or in preparations at industrial sites; [PC1]Adhesives, sealants;
Uses advised against	Not Applicable

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

Registered company name	Ureka Global Ltd
Address	7 Flowers Hill Bristol BS4 5JJ United Kingdom
Telephone	+44 (0)117 971 1364
Fax	Not Available
Website	<a href="http://www.thenamethatsticks.com">www.thenamethatsticks.com</a>
Email	sales@thenamethatsticks.com

### 1.4. Emergency telephone number

Association / Organisation	Ureka Global Ltd
Emergency telephone numbers	+44 (0)117 971 1364 (Mon - Fri 09:00 - 16:00)
Other emergency telephone numbers	Not Available

## SECTION 2 Hazards identification

### 2.1. Classification of the substance or mixture

Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567 [1]	H314 - Skin Corrosion/Irritation Category 1B, H330 - Acute Toxicity (Inhalation) Category 1, H335 - Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, H317 - Sensitisation (Skin) Category 1B, H360F - Reproductive Toxicity Category 1B
Legend:	1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567

### 2.2. Label elements

Hazard pictogram(s)	
Signal word	Danger

Hazard statement(s)

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H314	Causes severe skin burns and eye damage.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H317	May cause an allergic skin reaction.
H360F	May damage fertility.

## Supplementary statement(s)

Not Applicable

## Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P260	Do not breathe mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P284	[In case of inadequate ventilation] wear respiratory protection.
P272	Contaminated work clothing should not be allowed out of the workplace.

## Precautionary statement(s) Response

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
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.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/ attention.
P310	Immediately call a POISON CENTER/doctor/physician/first aider.
P302+P352	IF ON SKIN: Wash with plenty of water.
P363	Wash contaminated clothing before reuse.
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

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
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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## 2.3. Other hazards

Ingestion may produce serious health damage\*.

Cumulative effects may result following exposure\*.

Limited evidence of a carcinogenic effect\*.

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
1.1187733-83-0 2.Not Available 3.Not Available 4.Not Available	20-30	<u>triethylborane-diethylenetriamine complex</u>	Acute Toxicity (Oral and Dermal) Category 4, Acute Toxicity (Inhalation) Category 1, Skin Corrosion/Irritation Category 1B, Serious Eye Damage/Eye Irritation Category 1, Sensitisation (Skin) Category 1, Sensitisation (Respiratory) Category 1, Specific Target Organ Toxicity - Repeated Exposure Category 2; H302+H312, H330, H314, H318, H317, H334, H373 [1]	Not Available	Not Available
1.2455-24-5 2.219-529-5 3.Not Available 4.Not Available	30-40	<u>tetrahydrofurfuryl methacrylate</u>	Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Sensitisation (Skin) Category 1, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Hazardous to the Aquatic Environment Long-Term Hazard Category 3; H302, H315, H319, H317, H335, H412 [1]	Not Available	Not Available

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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
1.2495-37-6 2.219-674-4 3.607-134-00-4 4.Not Available	1-10	<u>benzyl methacrylate</u>	Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H315, H319, H335 [2]	STOT SE 3; H335: C ≥ 10 %	Not Available
1.111-40-0 2.203-865-4 3.612-058-00-X 4.Not Available	1-10	<u>diethylenetriamine</u>	Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 4, Skin Corrosion/Irritation Category 1B, Sensitisation (Skin) Category 1; H302, H312, H314, H317 [2]	Not Available	Not Available
1.128-37-0 2.204-881-4 3.Not Available 4.Not Available	<0.5	<u>2,6-di-tert-butyl-4-methylphenol</u>	Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Germ Cell Mutagenicity Category 2, Carcinogenicity Category 2, Reproductive Toxicity Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Hazardous to the Aquatic Environment Long-Term Hazard Category 1; H302, H315, H319, H341, H351, H361d, H335, H410 [1]	Not Available	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>▶ 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> <p>For THERMAL burns:</p> <ul style="list-style-type: none"> <li>▶ <b>Do NOT remove contact lens</b></li> <li>▶ Lay victim down, on stretcher if available and pad <b>BOTH</b> eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye.</li> <li>▶ Seek urgent medical assistance, or transport to hospital.</li> </ul>
<b>Skin Contact</b>	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately flush body and clothes with large amounts of water, using safety shower if available.</li> <li>▶ Quickly remove all contaminated clothing, including footwear.</li> <li>▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.</li> <li>▶ Transport to hospital, or doctor.</li> </ul> <p>In case of burns:</p> <ul style="list-style-type: none"> <li>▶ Immediately apply cold water to burn either by immersion or wrapping with saturated clean cloth.</li> <li>▶ <b>DO NOT remove or cut away clothing over burnt areas. DO NOT pull away clothing which has adhered to the skin as this can cause further injury.</b></li> <li>▶ <b>DO NOT break blister or remove solidified material.</b></li> <li>▶ Quickly cover wound with dressing or clean cloth to help prevent infection and to ease pain.</li> <li>▶ For large burns, sheets, towels or pillow slips are ideal; leave holes for eyes, nose and mouth.</li> <li>▶ <b>DO NOT apply ointments, oils, butter, etc. to a burn under any circumstances.</b></li> <li>▶ Water may be given in small quantities if the person is conscious.</li> <li>▶ Alcohol is not to be given under any circumstances.</li> <li>▶ Reassure.</li> <li>▶ Treat for shock by keeping the person warm and in a lying position.</li> <li>▶ Seek medical aid and advise medical personnel in advance of the cause and extent of the injury and the estimated time of arrival of the patient.</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>▶ Prosthesis 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> <li>▶ Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.</li> <li>▶ Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).</li> <li>▶ As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.</li> <li>▶ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.</li> </ul> <p><b>This must definitely be left to a doctor or person authorised by him/her.</b> (ICSC13719)</p>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ For advice, contact a Poisons Information Centre or a doctor at once.</li> <li>▶ Urgent hospital treatment is likely to be needed.</li> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Transport to hospital or doctor without delay.</li> </ul>

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

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See Section 11

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

Treat symptomatically.

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

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

Alkalis continue to cause damage after exposure.

INGESTION:

- Milk and water are the preferred diluents

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

- Neutralising agents should never be given since exothermic heat reaction may compound injury.

\* Catharsis and emesis are absolutely contra-indicated.

\* Activated charcoal does not absorb alkali.

\* Gastric lavage should not be used.

Supportive care involves the following:

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

SKIN AND EYE:

- Injury should be irrigated for 20-30 minutes.

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

for pentaborane(9) intoxication:

Pentaborane(9) forms a nonvolatile hydrolysis intermediate in the bloodstream of rats with the evolution of molecular hydrogen. Histidine seems to stabilise the intermediate and its disappearance seems to be enzymatically mediated. Hyperglycaemia, apparently caused by the action of this intermediate, may result in nervous tissue disability and thus produces the CNS response noted in experimental intoxication. Pentaborane resembles decaborane in producing CNS problems. The toxicity of decaborane may involve inhibition of pyridoxal phosphate-requiring enzymes (three decarboxylases and one transaminase) which produce noradrenaline (norepinephrine), dopamine and serotonin in rat brain and histamine in several rat tissues. This is thought to be mediated by the non-enzymatic formation of B10H13- anion from decaborane which reduces phosphate. Methylene blue, a stable oxidising agent, infused into rabbits, continuously for two days, produced a vastly improved survival rate in animals injected with potentially lethal doses of decaborane. An impressive feature of methylene blue therapy was the prevention of brain and heart noradrenaline depletion following decaborane intoxication. Respiratory stimulants (atropine), depressants (pentobarbital) and adrenal stimulatory agents (cortisone), did not appear to be effective in experimental diborane poisonings. Methylene blue therapies have had some success.

For acute or repeated short term exposures to boron and its compounds:

- Nausea, vomiting, diarrhoea and epigastric pain, haematemesis and blue-green discolouration of both faeces and vomitus characterise adult boron intoxication.
- Access and correct any abnormalities found in airway and circulation.
- A tidal volume of 10-15 mg/kg should be maintained.
- Emesis should be induced unless the patient is in coma, is experiencing seizures or has lost the gag reflex. If any of these are present, gastric lavage should be performed with a large-bore tube after endotracheal intubation or in the presence of continuous respiratory action.
- Activated charcoal is probably not of value though its use might be indicated following gastric evacuation. Catharsis might be useful to eliminate any borates remaining in the gastro-intestinal tract (magnesium sulfate: adults, 30 gms: children 250 mg/kg).
- Peritoneal dialysis and haemodialysis remove some borates.

[Ellenhorn and Barceloux: Medical Toxicology]

Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung oedema often do not manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation is therefore essential. Immediate administration of an appropriate spray, by a doctor or a person authorised by him/her should be considered.

(ICSC24419/24421)

## SECTION 5 Firefighting measures

### 5.1. Extinguishing media

- **DO NOT** use halogenated fire extinguishing agents.

**DO NOT USE WATER, CO2 OR FOAM ON SUBSTANCE ITSELF**

For **SMALL FIRES**:

- Dry chemical, soda ash or lime.

For **LARGE FIRES**:

- DRY sand, dry chemical, soda ash;
- OR withdraw and allow fire to burn itself out.

### 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> </ul>
<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"> <li>▸ May ignite on contact with air, moist air or water.</li> <li>▸ May react vigorously or explosively on contact with water.</li> <li>▸ May decompose explosively when heated or involved in fire.</li> </ul> <p>Combustion products include:</p> <ul style="list-style-type: none"> <li>, carbon dioxide (CO2)</li> <li>, nitrogen oxides (NOx)</li> <li>, other pyrolysis products typical of burning organic material.</li> </ul> <p>May emit clouds of acrid smoke Decomposes on heating and produces toxic fumes of boric acid, boric oxide. May emit poisonous fumes.</p>

## SECTION 6 Accidental release measures

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**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>	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> <li>▶ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.</li> <li>▶ Check regularly for spills and leaks.</li> <li>▶ Eliminate all ignition sources.</li> <li>▶ Cover with <b>WET</b> earth, sand or other non-combustible material.</li> <li>▶ Use clean, non-sparking tools to collect absorbed material</li> <li>▶ Wear gloves and safety glasses as appropriate.</li> </ul> <p>Small spills should be covered with inorganic absorbents and disposed of properly. Organic absorbents have been known to ignite when contaminated with amines in closed containers. Certain cellulosic materials used for spill cleanup such as wood chips or sawdust have shown reactivity with ethyleneamines and should be avoided.</p>
<b>Major Spills</b>	<p>Environmental hazard - contain spillage.</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>▶ Eliminate all ignition sources (no smoking, flares, sparks or flames)</li> <li>▶ Stop leak if safe to do so; prevent entry into waterways, drains or confined spaces.</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>▶ For large scale or continuous use, spark-free, earthed ventilation system venting directly to the outside and separate from usual ventilation systems</li> <li>▶ Provide dust collectors with explosion vents.</li> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of overexposure occurs.</li> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> </ul>
<b>Fire and explosion protection</b>	See section 5
<b>Other information</b>	<p>for bulk storages:</p> <ul style="list-style-type: none"> <li>▶ If slight coloration of the ethyleneamine is acceptable, storage tanks may be made of carbon steel or black iron, provided they are free of rust and mill scale. However, if the amine is stored in such tanks, color may develop due to iron contamination. If iron contamination cannot be tolerated, tanks constructed of types 304 or 316 stainless steel should be used.</li> <li>▶ Store below 38 deg. C.</li> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store in a cool, dry, well-ventilated area.</li> </ul>

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

<b>Suitable container</b>	<p>For acrylates or methacrylates: Storage tanks and pipes should be made of stainless steel or aluminium. Although they do not corrode carbon steel, there is a risk of contamination if corrosion does occur. Storage containers must be hermetically sealed under an inert atmosphere.</p> <ul style="list-style-type: none"> <li>▶ Glass container is suitable for laboratory quantities</li> <li>▶ Lined metal can, lined metal pail/ can.</li> <li>▶ Plastic pail.</li> <li>▶ Polyliner drum.</li> </ul> <p>For low viscosity materials</p> <ul style="list-style-type: none"> <li>▶ Drums and jerricans must be of the non-removable head type.</li> <li>▶ Where a can is to be used as an inner package, the can must have a screwed enclosure.</li> </ul> <p>For materials with a viscosity of at least 2680 cSt.</p> <p>All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.</p>
<b>Storage incompatibility</b>	<ul style="list-style-type: none"> <li>▶ Several of the partially fully lower-alkylated derivatives of non-metals are pyrophoric and react explosively with gaseous oxidants such as chlorine and bromine. Generally the pyrophoric tendency of trialkylboranes decreases with increasing branching on the 2- and 3-carbon atoms of the alkyl substituents. Trimethylborane and triethylborane ignite in air, and tributylborane ignites in a thinly diffused layer when poured on cloth.</li> </ul> <p>The substance may be or contains a "metalloid"</p> <p>The following elements are considered to be metalloids; boron, silicon, germanium, arsenic, antimony, tellurium and (possibly) polonium</p> <p>The electronegativities and ionisation energies of the metalloids are between those of the metals and nonmetals, so the metalloids exhibit characteristics of both classes. The reactivity of the metalloids depends on the element with which they are reacting. For example, boron acts as a nonmetal when reacting with sodium yet as a metal when reacting with fluorine.</p> <p>Secondary amines form salts with strong acids and can be oxidized to the corresponding nitrene using hydrogen peroxide, catalyzed by selenium dioxide</p> <p>Generally the pyrophoric tendency of trialkylboranes decreases with increasing branching on the 2- and 3-carbon atoms of the alkyl substituents.</p> <p>Reaction of the trialkylboranes with oxygen under controlled, mild, safe conditions give high yields of the corresponding alkanols.</p> <p>BREITHERICK L.: Handbook of Reactive Chemical Hazards</p> <p>For diborane:</p> <ul style="list-style-type: none"> <li>▶ Interaction with aluminium or lithium with diborane gives complex hydrides which may ignite in air.</li> </ul>

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	<ul style="list-style-type: none"> <li>▶ Mixtures with oxygen at 105-165 deg C explode spontaneously after an induction period dependent on temperature and pressure.</li> <li>▶ Interaction with trivinylllead is explosively violent at ambient temperatures.</li> <li>▶ Reacts with metals producing flammable / explosive hydrogen gas</li> <li>▶ Avoid contact with copper, aluminium and their alloys.</li> <li>▶ Avoid strong acids, bases.</li> <li>▶ Avoid reaction with oxidising agents</li> </ul>
<b>Hazard categories in accordance with Regulation (EC) No 1272/2008</b>	H1: Acute Toxic
<b>Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of</b>	H1 Lower- / Upper-tier requirements: 5 / 20

## 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
tetrahydrofurfuryl methacrylate	Dermal 1 mg/kg bw/day (Systemic, Chronic) Inhalation 3.53 mg/m <sup>3</sup> (Systemic, Chronic) <i>Dermal 0.5 mg/kg bw/day (Systemic, Chronic) *</i> <i>Inhalation 0.87 mg/m<sup>3</sup> (Systemic, Chronic) *</i> <i>Oral 0.5 mg/kg bw/day (Systemic, Chronic) *</i>	0.347 mg/L (Water (Fresh)) 0.035 mg/L (Water - Intermittent release) 0.347 mg/L (Water (Marine)) 2.12 mg/kg sediment dw (Sediment (Fresh Water)) 0.212 mg/kg sediment dw (Sediment (Marine)) 0.221 mg/kg soil dw (Soil) 15.8 mg/L (STP)
benzyl methacrylate	Dermal 6.94 mg/kg bw/day (Systemic, Chronic) Inhalation 24.2 mg/m <sup>3</sup> (Systemic, Chronic) <i>Dermal 4.17 mg/kg bw/day (Systemic, Chronic) *</i> <i>Inhalation 7.2 mg/m<sup>3</sup> (Systemic, Chronic) *</i> <i>Oral 4.17 mg/kg bw/day (Systemic, Chronic) *</i>	0.022 mg/L (Water (Fresh)) 0.002 mg/L (Water - Intermittent release) 0.023 mg/L (Water (Marine)) 0.888 mg/kg sediment dw (Sediment (Fresh Water)) 0.089 mg/kg sediment dw (Sediment (Marine)) 0.165 mg/kg soil dw (Soil) 1.31 mg/L (STP)
diethylenetriamine	Dermal 11.4 mg/kg bw/day (Systemic, Chronic) Inhalation 15.4 mg/m <sup>3</sup> (Systemic, Chronic) Dermal 1.1 mg/cm <sup>2</sup> (Local, Chronic) Inhalation 0.87 mg/m <sup>3</sup> (Local, Chronic) Inhalation 92.1 mg/m <sup>3</sup> (Systemic, Acute) Inhalation 2.6 mg/m <sup>3</sup> (Local, Acute) <i>Dermal 4.88 mg/kg bw/day (Systemic, Chronic) *</i> <i>Inhalation 4.6 mg/m<sup>3</sup> (Systemic, Chronic) *</i> <i>Dermal 4.88 mg/kg bw/day (Systemic, Acute) *</i> <i>Inhalation 27.5 mg/m<sup>3</sup> (Systemic, Acute) *</i>	0.56 mg/L (Water (Fresh)) 0.056 mg/L (Water - Intermittent release) 0.32 mg/L (Water (Marine)) 1072 mg/kg sediment dw (Sediment (Fresh Water)) 107.2 mg/kg sediment dw (Sediment (Marine)) 7.97 mg/kg soil dw (Soil) 6 mg/L (STP)
2,6-di-tert-butyl-4-methylphenol	Dermal 0.5 mg/kg bw/day (Systemic, Chronic) Inhalation 3.5 mg/m <sup>3</sup> (Systemic, Chronic) <i>Dermal 0.25 mg/kg bw/day (Systemic, Chronic) *</i> <i>Inhalation 0.86 mg/m<sup>3</sup> (Systemic, Chronic) *</i>	0.199 µg/L (Water (Fresh)) 0.02 µg/L (Water - Intermittent release) 1.99 µg/L (Water (Marine)) 99.6 µg/kg sediment dw (Sediment (Fresh Water)) 9.96 µg/kg sediment dw (Sediment (Marine)) 47.69 µg/kg soil dw (Soil) 0.17 mg/L (STP) 8.33 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).	diethylenetriamine	2,2'-Iminodi(ethylamine)	1 ppm / 4.3 mg/m <sup>3</sup>	Not Available	Not Available	Sk
UK Workplace Exposure Limits (WELs).	2,6-di-tert-butyl-4-methylphenol	2,6-Di-tert-butyl-p-cresol	10 mg/m <sup>3</sup>	Not Available	Not Available	Not Available

## Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
diethylenetriamine	3 ppm	8.5 ppm	51 ppm

Ingredient	Original IDLH	Revised IDLH
triethylborane-diethylenetriamine complex	Not Available	Not Available
tetrahydrofurfuryl methacrylate	Not Available	Not Available
benzyl methacrylate	Not Available	Not Available
diethylenetriamine	Not Available	Not Available
2,6-di-tert-butyl-4-methylphenol	Not Available	Not Available


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## Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
triethylborane-diethylenetriamine complex	E	≤ 0.1 ppm
tetrahydrofurfuryl methacrylate	E	≤ 0.1 ppm
benzyl 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>	

## 8.2. Exposure controls

<b>8.2.1. Appropriate engineering controls</b>	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. <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
<b>8.2.2. Personal protection</b>	
<b>Eye and face protection</b>	<ul style="list-style-type: none"> <li>▶ Chemical goggles.</li> <li>▶ Full face shield may be required for supplementary but never for primary protection of eyes.</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.</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> <li>▶ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.</li> <li>▶ Neoprene rubber gloves</li> </ul>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	<ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ PVC Apron.</li> <li>▶ PVC protective suit may be required if exposure severe.</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:

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Material	CPI
BUTYL	A
NEOPRENE	A
VITON	A
PVC	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 AK-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

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

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

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

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## 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>	Clear		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	Not Available
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available

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<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>	Not Available	<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>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>▸ Polymerisation may occur at elevated temperatures.</li> <li>▸ Polymerisation may be accompanied by generation of heat as exotherm.</li> <li>▸ Process is self accelerating as heating causes more rapid polymerisation.</li> <li>▸ May heat spontaneously</li> <li>▸ Identify and remove sources of ignition and heating.</li> <li>▸ Incompatible material, especially oxidisers, and/or other sources of oxygen may produce unstable product(s).</li> <li>▸ Avoid sources of water contamination (e.g. rain water, moisture, high humidity).</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>	<p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce severely toxic effects; these may be fatal.</p> <p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</p> <p>Inhalation of amine vapours may cause irritation of the mucous membrane of the nose and throat, and lung irritation with respiratory distress and cough. Swelling and inflammation of the respiratory tract is seen in serious cases; with headache, nausea, faintness and anxiety.</p> <p>Inhalation of epoxy resin amine hardeners (including polyamines and amine adducts) may produce bronchospasm and coughing episodes lasting several days after cessation of the exposure. Even faint traces of these vapours may trigger an intense reaction in individuals showing "amine asthma".</p> <p>Inhalation hazard is increased at higher temperatures.</p> <p>Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary oedema.</p> <p>Diborane overexposure can compromise the respiratory system to produce a damaging effect which will lead to oxygen starvation and possible fall in blood pressure, increased activity of the intestinal smooth muscle, reduction and aberration in brain activity, slow heart rate followed by stoppage of heartbeat and death.</p>
<b>Ingestion</b>	<p>The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.</p> <p>The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum.</p> <p>Amines without benzene rings when swallowed are absorbed throughout the gut. Corrosive action may cause damage throughout the gastrointestinal tract.</p> <p>Ingestion of amine epoxy-curing agents (hardeners) may cause severe abdominal pain, nausea, vomiting or diarrhoea. The vomitus may contain blood and mucous.</p> <p>Borate poisoning causes nausea, vomiting, diarrhoea and pain in the upper abdomen. Often persistent vomiting occurs, and there may be blood in the faeces.</p>
<b>Skin Contact</b>	<p>Skin contact with the material may produce toxic effects; systemic effects may result following absorption.</p> <p>The material can produce chemical burns following direct contact with the skin.</p> <p>Amine epoxy-curing agents (hardeners) may produce primary skin irritation and sensitisation dermatitis in predisposed individuals. Cutaneous reactions include erythema, intolerable itching and severe facial swelling.</p> <p>Volatile amine vapours produce irritation and inflammation of the skin. Direct contact can cause burns.</p> <p>Reactions may not occur on exposure but response may be delayed with symptoms only appearing many hours later</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p>

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	The material can produce severe chemical burns following direct contact with the skin.
<b>Eye</b>	The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. Vapours of volatile amines irritate the eyes, causing excessive secretion of tears, inflammation of the conjunctiva and slight swelling of the cornea, resulting in "halos" around lights. This effect is temporary, lasting only for a few hours. However this condition can reduce the efficiency of undertaking skilled tasks, such as driving a car. This material can cause eye irritation and damage in some persons.
<b>Chronic</b>	There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Secondary amines may react with nitrites to form potentially carcinogenic N-nitrosamines. Chronic effects of diborane exposure include headache, motion dizziness, chills and breathing distress which may lead to death. Borate can accumulate in the testes and deplete germ cells and cause withering of the testicles, according to animal testing. Hair loss, skin inflammation, stomach ulcer and anaemia can all occur.

<b>Adtech 836 Part B (Adtech DX8921)</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>triethylborane-diethylenetriamine complex</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: 1100 mg/kg <sup>[2]</sup>	Not Available
	Inhalation(Rat) LC50: 0.05 mg/L4h <sup>[2]</sup>	
	Oral (Rat) LD50: 500 mg/kg <sup>[2]</sup>	
<b>tetrahydrofurfuryl methacrylate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (Rat) LD50: 3945 mg/kg <sup>[1]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup> Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
<b>benzyl methacrylate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup> Oral (Rat) LD50: 3980 mg/kg <sup>[1]</sup>	Not Available
<b>diethylenetriamine</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: 1090 mg/kg <sup>[2]</sup>	Eye: adverse effect observed (irritating) <sup>[1]</sup>
	Oral (Rat) LD50: 1080 mg/kg <sup>[2]</sup>	Skin (rabbit): 10 mg/24h - SEVERE Skin (rabbit):500 mg open moderate Skin: adverse effect observed (corrosive) <sup>[1]</sup>
<b>2,6-di-tert-butyl-4-methylphenol</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>	Eye (rabbit): 100 mg/24h-moderate
	Oral (Rat) LD50: 890 mg/kg <sup>[2]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup> Skin (human): 500 mg/48h - mild Skin (rabbit):500 mg/48h-moderate 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>TRIETHYLBORANE-DIETHYLENTRIAMINE COMPLEX</b>	* Callery SDS ATE estimates
<b>TETRAHYDROFURFURYL METHACRYLATE</b>	No significant acute toxicological data identified in literature search.
<b>2,6-DI-TERT-BUTYL-4-METHYLPHENOL</b>	* Degussa SDS Effects such as behavioral changes, reduction in body weight gain, and decrement in body weight have been observed after long-term administration of BHT to mice and rats. Toxic effects may be attributed more to BHT metabolites than to their parent compound, only a few studies have focused on their carcinogenicity and toxicity, and not only on that of BHT. The metabolite BHT-QM (syn: 2,6-di-tert-butyl-1,4-methylene-2,5-cyclohexadien-1-one, CAS RN: 2607-52-5) is a very reactive compound which is considered to play a significant role in hepatotoxicity, pneumotoxicity, and skin tumor promotion in mice. In addition, it was reported that another quinone derivative, BHT-OH(t)QM (syn 2-tert-butyl-6-(2-hydroxy-tert-butyl-4-methylene-2,5-cyclohexadien-1-one, CAS RN: 124755-19-7), is chemically more reactive than BHT-QM, and it has been recognized as the principal metabolite responsible for lung tumor promotion activity of BHT in mice. BHT has been reported to exert prooxidant effects under certain conditions. Thus, when BHT was added in excess to a wheat seedling medium in aerobic conditions, an enhancement of the generation rate of superoxide anion was observed. This is a reactive particle that may damage cellular structures at high concentrations In addition, an increase in hepatic microsomal lipid peroxidation was observed in rats fed with diets containing 0.2% of BHT for 30 days. Some authors have reported that at high aeration rate, BHT can react with molecular oxygen rather than with the reactive oxygen species present, yielding BHT-phenoxy radical and superoxide anion. In addition, the phenolic radical itself may undergo redox recycling which can be a critical factor depending on the reductant involved However, it has to be noted that BHT-phenoxy radical has been reported to be relatively stable. Furthermore, the potential reactivity of BHT-derived metabolites should be taken into account; some studies reported that not only BHT but also its metabolites, such as BHT-Q and BHT-QM, can act as prooxidant. As BHT undergoes several reactions during biotransformation, a large number of intermediate metabolites have been identified. However, their nature and concentration depend on the environmental conditions and on the animal species. Although the changes undergone by BHT during in vivo digestion processes have not been studied, after submission of a fluid deep-frying fat containing BHT and BHT-QM to an in vitro gastrointestinal digestion model, both these were detected in the digested

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	<p>samples. These results indicate that BHT and its toxic metabolite could remain bioaccessible for intestinal absorption. Studies concerning BHT metabolism have shown that, unlike other synthetic antioxidants, BHT is a potent inducer of the microsomal monooxygenase system and its major route of degradation is oxidation catalyzed by cytochrome P450. Studies have reported potential toxicity derived from the ingestion or administration of BHT. As for acute oral toxicity, although this is considered low in animals, it must be noted that 2 clinical cases were reported in patients who suffered acute neurotoxicity and gastritis after ingesting a high dose of BHT (4 and 80 g without medical prescription) to cure recurrent genital herpes. Regarding short-term subchronic toxicity studies, it has been reported that BHT causes dose-related increase in the incidence and severity of toxic nephrosis in mice, nephrotoxicity and pneumotoxicity in rats, and in chicken a marked congestion of the liver and kidney, as well as diffuse enlargement of the liver with rounded borders and rupture with hemorrhaging. It has to be noted that the EFSA Panel (2012) pointed out certain inconsistencies in the findings obtained from the short-term and subchronic toxicity studies. Several genotoxicity studies on BHT concluded that BHT does not represent a genotoxic risk, because most of the studies carried out to that date had shown BHT was not able to induce mutations or to damage deoxyribonucleic acid (DNA). Nevertheless, it must be mentioned that other studies reported contrary results. The effect of BHT and 7 of its metabolites on in vitro DNA cleavage was studied and the metabolites BHT-Q (syn: 2,6-di-tert-butyl-2,5-cyclohexadiene-1,4-dione, CAS RN: 719-22-2), BHT-CHO (syn: 3,5-di-tert-butyl-4-hydroxybenzaldehyde, CAS RN: 1620-98-0 and BHT-OOH (syn: 2,6-di-tert-butyl-4-methyl-4-hydroperoxy-2,5-cyclohexadien-1-one, CAS RN: 6485-57-0) were able to cleave DNA.. The Panel on Food Additives and Nutrient Sources Added to Food of the European Food Safety Authority (EFSA) recognized that these positive genotoxicity results may be due to the prooxidative chemistry of BHT, which gives rise to reactive metabolites. Some studies addressed the carcinogenicity and chronic toxicity of BHT and its metabolites in rodents with contradictory results. Thus, mice-fed dietary BHT for a year developed marked hyperplasia of the hepatic bile ducts with an associated subacute cholangitis. Moreover, after 104 wk of administration of BHT, the formation of hepatocellular tumors in male mice was observed. After 10 months of feeding mice with a diet containing different amounts of BHT, an increased incidence of liver tumors in male, but not female, animals was also reported. Several studies have demonstrated the potential of BHT to act either as a tumor promoter or as a tumor suppressor, modulating the carcinogenicity of some well-known carcinogens. Barbara Nieva-Echevarria et al: Comprehensive reviews in Food Science and Food Safety, Vol 14, Dec 2014 <a href="http://onlinelibrary.wiley.com/doi/10.1111/1541-4337.12121/pdf">http://onlinelibrary.wiley.com/doi/10.1111/1541-4337.12121/pdf</a> for bridged alkyl phenols:</p> <p><b>Acute toxicity:</b> Acute oral and dermal toxicity data are available for all but two of the substances in the group. The data show that acute toxicity of these substances is low. The testing for acute toxicity spans five decades</p> <p><b>Repeat dose toxicity:</b> Repeat dose studies on the members of this category include both subchronic and chronic exposures. The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.</p> <p>Data show that acute toxicity following oral and topical use of hindered phenols is low. They are not proven to cause mutations. However, long term use may affect the liver, thyroid, kidney and lymph nodes.</p> <p>The substance is classified by IARC as Group 3:  <b>NOT</b> classifiable as to its carcinogenicity to humans.</p> <p>Evidence of carcinogenicity may be inadequate or limited in animal testing.  <b>NOTE:</b> Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.</p>
<p>Adtech 836 Part B (Adtech DX8921) &amp; TRIETHYLBORANE-DIETHYLENTRIAMINE COMPLEX &amp; TETRAHYDROFURFURYL METHACRYLATE &amp; BENZYL METHACRYLATE &amp; DIETHYLENTRIAMINE &amp; 2,6-DI-TERT-BUTYL-4-METHYLPHENOL</p>	<p>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.</p>
<p>Adtech 836 Part B (Adtech DX8921) &amp; TRIETHYLBORANE-DIETHYLENTRIAMINE COMPLEX &amp; DIETHYLENTRIAMINE</p>	<p>Ethyleneamines are very reactive and can cause chemical burns, skin rashes and asthma-like symptoms. It is readily absorbed through the skin and may cause eye blindness and irreparable damage. As such, they require careful handling.</p>
<p>TRIETHYLBORANE-DIETHYLENTRIAMINE COMPLEX &amp; TETRAHYDROFURFURYL METHACRYLATE &amp; DIETHYLENTRIAMINE</p>	<p>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.</p>
<p>TRIETHYLBORANE-DIETHYLENTRIAMINE COMPLEX &amp; DIETHYLENTRIAMINE</p>	<p>Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms. Some people may be genetically more prone than others, and exposure to other irritants may aggravate symptoms.</p> <p>Attention should be paid to atopic diathesis, characterised by increased susceptibility to nasal inflammation, asthma and eczema. Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure.</p> <p>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.</p> <p>For alkyl polyamines:</p> <p>The alkyl polyamines cluster consists of two terminal primary and at least one secondary amine groups and are derivatives of low molecular weight ethylenediamine, propylenediamine or hexanediamine. Toxicity depends on route of exposure. Cluster members have been shown to cause skin irritation or sensitisation, eye irritation and genetic defects, but have not been shown to cause cancer.</p>
<p>TETRAHYDROFURFURYL METHACRYLATE &amp; BENZYL METHACRYLATE</p>	<p>Where no "official" classification for acrylates and methacrylates exists, there have been cautious attempts to create classifications in the absence of contrary evidence. For example Monalkyl or monoarylestere of acrylic acids should be classified as R36/37/38 and R51/53 Monoalkyl or monoaryl esters of methacrylic acid should be classified as R36/37/38 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>
<p>Acute Toxicity</p>	<p>✓</p>
	<p>Carcinogenicity</p>
	<p>✗</p>
<p>Skin Irritation/Corrosion</p>	<p>✓</p>
	<p>Reproductivity</p>
	<p>✓</p>

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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 Disruption Properties

Not Available

## 11.2.2. Other Information

See Section 11.1

## SECTION 12 Ecological information

## 12.1. Toxicity

Adtech 836 Part B (Adtech DX8921)	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
triethylborane-diethylenetriamine complex	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
tetrahydrofurfuryl methacrylate	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	>100mg/l	2
	NOEC(ECx)	504h	Crustacea	37.2mg/l	2
	LC50	96h	Fish	34.7mg/l	2
benzyl methacrylate	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	1.31mg/l	2
	NOEC(ECx)	504h	Crustacea	0.291mg/l	2
	LC50	96h	Fish	4.67mg/l	2
diethylenetriamine	Endpoint	Test Duration (hr)	Species	Value	Source
	BCF	1008h	Fish	<0.3-1.7	7
	EC50	72h	Algae or other aquatic plants	1164mg/l	1
	EC50	48h	Crustacea	16mg/l	1
	ErC50	72h	Algae or other aquatic plants	1164mg/l	1
	NOEC(ECx)	504h	Crustacea	5.6mg/l	1
	LC50	96h	Fish	175mg/l	2
	EC50	96h	Algae or other aquatic plants	345.6mg/l	1
2,6-di-tert-butyl-4-methylphenol	Endpoint	Test Duration (hr)	Species	Value	Source
	BCF	1344h	Fish	220-2800	7
	EC50	72h	Algae or other aquatic plants	>0.42mg/l	1
	ErC50	72h	Algae or other aquatic plants	>0.42mg/l	1
	EC50	48h	Crustacea	>0.17mg/l	2
	EC0(ECx)	48h	Crustacea	>=0.31mg/l	1
	LC50	96h	Fish	>0.5mg/l	Not Available
	EC50	96h	Algae or other aquatic plants	0.758mg/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				

Toxic to flora.

Toxic to soil organisms.

For ethyleneamines:

Adsorption of the ethyleneamines correlates closely with both the cation exchange capacity (CEC) and organic content of the soil. Soils with increased CEC and organic content exhibited higher affinities for these amines. This dependence of adsorption on CEC and organic content is most likely due to the strong electrostatic interaction between the positively charged amine and the negatively charged soil surface.

for Boron and Borates:

Environmental Fate - Boron is generally found in nature bound to oxygen and is never found as the free element. As an element, boron itself cannot be degraded in the environment, however; it may undergo various reactions that change the form of boron (e.g., precipitation, polymerization, and acid-base reactions) depending on conditions such as its concentration in water and pH. As boron is a natural component of the environment, individuals will have some exposure from foods and drinking water.

Microbial methylation plays important roles in the biogeochemical cycling of the metalloids and possibly in their detoxification. Many microorganisms (bacteria, fungi, and yeasts) and

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animals are now known to biomethylate arsenic, forming both volatile (e.g., methylarsines) and nonvolatile (e.g., methylarsonic acid and dimethylarsinic acid) compounds. Antimony and bismuth, also undergo biomethylation to some extent.

For Diethylenetriamine, (DETA): log Kow: -2.27

Atmospheric Fate: If released to the atmosphere, evaporated material is expected to degrade following reactions with hydroxyl radicals; the half-life in air is thought to be less than a day.

Terrestrial Fate: DETA is resistant to biodegradation. If released on land, the substance is expected to be highly mobile and leach.

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

## 12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
tetrahydrofurfuryl methacrylate	LOW	LOW
benzyl methacrylate	LOW	LOW
diethylenetriamine	LOW	LOW
2,6-di-tert-butyl-4-methylphenol	HIGH	HIGH

## 12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
tetrahydrofurfuryl methacrylate	LOW (LogKOW = 1.797)
benzyl methacrylate	LOW (LogKOW = 2.53)
diethylenetriamine	LOW (BCF = 1.7)
2,6-di-tert-butyl-4-methylphenol	HIGH (BCF = 2500)

## 12.4. Mobility in soil

Ingredient	Mobility
tetrahydrofurfuryl methacrylate	LOW (KOC = 12.03)
benzyl methacrylate	LOW (KOC = 407.7)
diethylenetriamine	LOW (KOC = 87.53)
2,6-di-tert-butyl-4-methylphenol	LOW (KOC = 23030)

## 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 Disruption Properties

Not Available

## 12.7. Other adverse effects

Not Available

## SECTION 13 Disposal considerations

## 13.1. Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> <li>▶ Containers may still present a chemical hazard/ danger when empty.</li> <li>▶ Return to supplier for reuse/ recycling if possible.</li> </ul> Otherwise: <ul style="list-style-type: none"> <li>▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.</li> </ul> for small quantities: Cautiously make a 5% solution in water, venting because of the vigorous evolution of hydrogen gas. Acidify to pH 1 by adding 1M sulfuric acid dropwise. Acidification also produces vigorous evolution of hydrogen gas. <ul style="list-style-type: none"> <li>▶ <b>DO NOT allow wash water from cleaning or process equipment to enter drains.</b></li> <li>▶ It may be necessary to collect all wash water for treatment before disposal.</li> <li>▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>▶ Recycle wherever possible.</li> <li>▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.</li> <li>▶ Treat and neutralise at an approved treatment plant.</li> </ul>
	Waste treatment options
Sewage disposal options	Not Available

## SECTION 14 Transport information

## Labels Required

## Adtech 836 Part B (Adtech DX8921)

	 
Marine Pollutant	NO
HAZCHEM	2X

## Land transport (ADR-RID)

14.1. UN number	3289	
14.2. UN proper shipping name	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.	
14.3. Transport hazard class(es)	Class	6.1
	Subrisk	8
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Hazard identification (Kemler)	68
	Classification code	TC3
	Hazard Label	6.1 +8
	Special provisions	274
	Limited quantity	100 ml
	Tunnel Restriction Code	2 (D/E)

## Air transport (ICAO-IATA / DGR)

14.1. UN number	3289	
14.2. UN proper shipping name	Toxic liquid, corrosive, inorganic, n.o.s. *	
14.3. Transport hazard class(es)	ICAO/IATA Class	6.1
	ICAO / IATA Subrisk	8
	ERG Code	6C
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Special provisions	A4 A137
	Cargo Only Packing Instructions	660
	Cargo Only Maximum Qty / Pack	30 L
	Passenger and Cargo Packing Instructions	653
	Passenger and Cargo Maximum Qty / Pack	1 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y640
	Passenger and Cargo Limited Maximum Qty / Pack	0.5 L

## Sea transport (IMDG-Code / GGVSee)

14.1. UN number	3289	
14.2. UN proper shipping name	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.	
14.3. Transport hazard class(es)	IMDG Class	6.1
	IMDG Subrisk	8
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	EMS Number	F-A, S-B
	Special provisions	274
	Limited Quantities	100 mL

## Inland waterways transport (ADN)

14.1. UN number	3289	
14.2. UN proper shipping name	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.	
14.3. Transport hazard class(es)	6.1	8

## Adtech 836 Part B (Adtech DX8921)

14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Classification code	TC3
	Special provisions	274; 802
	Limited quantity	100 ml
	Equipment required	PP, EP, TOX, A
	Fire cones number	2

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

Not Applicable

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

Product name	Group
triethylborane-diethylenetriamine complex	Not Available
tetrahydrofurfuryl methacrylate	Not Available
benzyl methacrylate	Not Available
diethylenetriamine	Not Available
2,6-di-tert-butyl-4-methylphenol	Not Available

## 14.9. Transport in bulk in accordance with the ICG Code

Product name	Ship Type
triethylborane-diethylenetriamine complex	Not Available
tetrahydrofurfuryl methacrylate	Not Available
benzyl methacrylate	Not Available
diethylenetriamine	Not Available
2,6-di-tert-butyl-4-methylphenol	Not Available

## SECTION 15 Regulatory information

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

## triethylborane-diethylenetriamine complex is found on the following regulatory lists

Not Applicable

## tetrahydrofurfuryl methacrylate is found on the following regulatory lists

UK REACH grandfathered registrations notified substances list

## benzyl methacrylate is found on the following regulatory lists

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

UK REACH grandfathered registrations notified substances list

## diethylenetriamine is found on the following regulatory lists

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

UK Workplace Exposure Limits (WELs).

UK REACH grandfathered registrations notified substances list

## 2,6-di-tert-butyl-4-methylphenol is found on the following regulatory lists

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

UK REACH grandfathered registrations notified substances list

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

UK Workplace Exposure Limits (WELs).

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	H1
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## 15.2. Chemical safety assessment

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

## ECHA SUMMARY

Ingredient	CAS number	Index No	ECHA Dossier
triethylborane-diethylenetriamine complex	1187733-83-0	Not Available	Not Available
Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Corr. 1B; Eye Dam. 1	GHS05; Dgr	H314; H318

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Continued...

## Adtech 836 Part B (Adtech DX8921)

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	Skin Corr. 1B; Eye Dam. 1; Acute Tox. 4; Acute Tox. 4; Skin Sens. 1B; Acute Tox. 1	GHS05; Dgr; GHS06	H314; H318; H302; H312; H317; H330

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
tetrahydrofurfuryl methacrylate	2455-24-5	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3	GHS07; Wng	H315; H319; H335
2	Skin Sens. 1A; Repr. 1B; Aquatic Chronic 3; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3	GHS08; Dgr	H317; H360; H412; H315; H319; H335

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
benzyl methacrylate	2495-37-6	607-134-00-4	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3	GHS07; Wng	H315; H319; H335
2	Skin Irrit. 2; Skin Sens. 1B; Eye Irrit. 2; STOT SE 3; Aquatic Chronic 2	GHS07; Wng; GHS09	H315; H317; H335; H411; H318

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
diethylenetriamine	111-40-0	612-058-00-X	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Tox. 4; Acute Tox. 4; Skin Corr. 1B; Skin Sens. 1; Eye Dam. 1; Acute Tox. 2; STOT SE 3	GHS05; GHS06; Dgr	H302; H312; H314; H317; H330; H335
2	Acute Tox. 4; Skin Corr. 1A; Skin Sens. 1B; Eye Dam. 1; Acute Tox. 1; STOT SE 3; Acute Tox. 2; Resp. Sens. 1; Repr. 1B; Aquatic Chronic 3	GHS05; GHS06; Dgr; GHS08	H314; H317; H330; H335; H318; H311; H301; H304; H410; H334; H360

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
2,6-di-tert-butyl-4-methylphenol	128-37-0	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Aquatic Chronic 1	GHS09; Wng	H410
2	Aquatic Chronic 1; Aquatic Acute 1; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; Acute Tox. 4; STOT SE 3; STOT RE 2; Muta. 1B; Repr. 2; Skin Sens. 1; STOT SE 1; Resp. Sens. 1; Carc. 1B; Acute Tox. 3	GHS09; GHS08; GHS05; Dgr; GHS03; GHS02; GHS06	H410; H400; H315; H319; H335; H373; H340; H361; H317; H370; H311; H331; H350; H301; H222; H229
1	Aquatic Acute 1; Aquatic Chronic 1	GHS09; Wng	H410
2	Aquatic Acute 1; Aquatic Chronic 1	GHS09; Wng	H410

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

## National Inventory Status

National Inventory	Status
Australia - AIIIC / Australia Non-Industrial Use	No (triethylborane-diethylenetriamine complex)
Canada - DSL	No (triethylborane-diethylenetriamine complex)
Canada - NDSL	No (triethylborane-diethylenetriamine complex; tetrahydrofurfuryl methacrylate; benzyl methacrylate; diethylenetriamine)
China - IECSC	No (triethylborane-diethylenetriamine complex)
Europe - EINEC / ELINCS / NLP	No (triethylborane-diethylenetriamine complex)
Japan - ENCS	No (triethylborane-diethylenetriamine complex)
Korea - KECI	No (triethylborane-diethylenetriamine complex)
New Zealand - NZIoC	No (triethylborane-diethylenetriamine complex)
Philippines - PICCS	No (triethylborane-diethylenetriamine complex)
USA - TSCA	No (triethylborane-diethylenetriamine complex)
Taiwan - TCSI	No (triethylborane-diethylenetriamine complex)
Mexico - INSQ	No (triethylborane-diethylenetriamine complex; benzyl methacrylate)
Vietnam - NCI	No (triethylborane-diethylenetriamine complex; tetrahydrofurfuryl methacrylate)
Russia - FBEPH	No (triethylborane-diethylenetriamine complex; tetrahydrofurfuryl methacrylate; benzyl methacrylate)

## Adtech 836 Part B (Adtech DX8921)

National Inventory	Status
<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>	23/08/2022
<b>Initial Date</b>	24/08/2022

## Full text Risk and Hazard codes

<b>H222</b>	Extremely flammable aerosol.
<b>H229</b>	Pressurised container: May burst if heated.
<b>H301</b>	Toxic if swallowed.
<b>H302</b>	Harmful if swallowed.
<b>H302+H312</b>	Harmful if swallowed or if contact with skin.
<b>H304</b>	May be fatal if swallowed and enters airways.
<b>H311</b>	Toxic in contact with skin.
<b>H312</b>	Harmful in contact with skin.
<b>H315</b>	Causes skin irritation.
<b>H318</b>	Causes serious eye damage.
<b>H319</b>	Causes serious eye irritation.
<b>H331</b>	Toxic if inhaled.
<b>H334</b>	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<b>H340</b>	May cause genetic defects.
<b>H341</b>	Suspected of causing genetic defects.
<b>H350</b>	May cause cancer.
<b>H351</b>	Suspected of causing cancer.
<b>H360</b>	May damage fertility or the unborn child.
<b>H361</b>	Suspected of damaging fertility or the unborn child.
<b>H361d</b>	Suspected of damaging the unborn child.
<b>H370</b>	Causes damage to organs.
<b>H373</b>	May cause damage to organs through prolonged or repeated exposure.
<b>H400</b>	Very toxic to aquatic life.
<b>H410</b>	Very toxic to aquatic life with long lasting effects.
<b>H411</b>	Toxic to aquatic life with long lasting effects.
<b>H412</b>	Harmful to aquatic life with long lasting effects.

## SDS Version Summary

Version	Date of Update	Sections Updated
0.2	23/08/2022	Classification, Ingredients

## 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.

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



**Adtech 836 Part B (Adtech DX8921)**

BCF: BioConcentration Factors  
BEI: Biological Exposure Index  
AIIIC: 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

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