

# SAFETY DATA SHEET

Date of last issue: 2020-01-16  
Date of first issue: 2014-02-07

## SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : LED UV Curable INK Cyan  
VJ-LUH1-CY220U / VJ-LUH1-CY800U

### Manufacturer or supplier's details

Company : MUTOH AUSTRALIA PTY. LTD.  
Address : Unit 19/76 Reserve Road, Artarmon, NSW 2064, Australia  
Contact section : admin@mutoh-au.com or +61 2 9437 1366  
Telephone : +61 2 94371366  
Emergency telephone number : Emergency phone number (business hours): +61 2 9437 1366

### Recommended use of the chemical and restrictions on use


Recommended use : Digital Printing

## SECTION 2. HAZARDS IDENTIFICATION

### GHS Classification

Acute toxicity (Oral) : Category 4  
Skin sensitisation : Category 1  
Reproductive toxicity : Category 1B

### GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H302 Harmful if swallowed.  
H317 May cause an allergic skin reaction.  
H360FD May damage fertility. May damage the unborn child.

Precautionary statements : **Prevention:**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P261 Avoid breathing mist or vapours.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P280 Wear protective gloves.  
P281 Use personal protective equipment as required.  
**Response:**  
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P363 Wash contaminated clothing before reuse.

**Storage:**

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards which do not result in classification**

None known.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

**Components**

| Chemical name  | CAS-No.     | Concentration (% w/w) |
|--|-------------|-----------------------|
| 2-Propenoic acid, 2-[2-(ethenoxy)ethoxy]ethyl ester  | 86273-46-3  | >= 60 -<= 100         |
| Propoxylated neopentyl glycol diacrylate esters  | 84170-74-1  | >= 1 -< 10            |
| Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide  | 75980-60-8  | >= 1 -< 10            |
| Propylidynetrimethanol, propoxylated, esters with acrylic acid   | 53879-54-2  | >= 1 -< 10            |
| Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide   | 162881-26-7 | >= 1 -< 10            |
| 2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one   | 71868-10-5  | >= 0.3 -< 10          |
| Glycerol, propoxylated, esters with acrylic acid   | 52408-84-1  | < 1                   |
| 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid | 55818-57-0  | < 1                   |
| 2-benzyl-2-dimethylamino-4-morpholinobutyrophenone   | 119313-12-1 | < 0.3                 |

### SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.  
Get medical attention.

In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.  
Remove contaminated clothing and shoes.  
Get medical attention.  
Wash clothing before reuse.  
Thoroughly clean shoes before reuse.

In case of eye contact : Flush eyes with water as a precaution.  
Get medical attention if irritation develops and persists.

If swallowed : If swallowed, DO NOT induce vomiting.  
Get medical attention.  
Rinse mouth thoroughly with water.  
Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed : Harmful if swallowed.  
May cause an allergic skin reaction.  
May damage fertility. May damage the unborn child.

Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician : Treat symptomatically and supportively.

## SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical

Unsuitable extinguishing media : None known.

Specific hazards during firefighting : Exposure to combustion products may be a hazard to health.

Hazardous combustion Product : Carbon oxides  
Oxides of phosphorus  
Nitrogen oxides (NO<sub>x</sub>)  
Metal oxides

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions : Discharge into the environment must be avoided.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g. by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material.  
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

## SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use with local exhaust ventilation.
- Advice on safe handling : Do not get on skin or clothing.  
Do not breathe vapours or spray mist.  
Do not swallow.  
Avoid contact with eyes.  
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.  
Keep container tightly closed.  
Take care to prevent spills, waste and minimize release to the environment.
- Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.  
When using do not eat, drink or smoke.  
Wash contaminated clothing before re-use.
- Conditions for safe storage : Keep in properly labelled containers.  
Store locked up.  
Keep tightly closed.  
Store in accordance with the particular national regulations.
- Materials to avoid : Do not store with the following product types:  
Strong oxidizing agents

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

- Engineering measures** : Minimize workplace exposure concentrations.  
Use with local exhaust ventilation.

### Personal protective equipment

- Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.
- Filter type : Combined particulates and organic vapour type
- Hand protection
  - Material : Chemical-resistant gloves
  - Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
- Eye protection : Wear the following personal protective equipment:  
Safety glasses
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|  |   |   |
|--|---|---|
| Appearance                                       | : | liquid  |
| Colour   | : | cyan  |
| Odour  | : | mild  |
| Odour Threshold                                  | : | No data available   |
| pH   | : | No data available   |
| Melting point/freezing point                     | : | -71 °C  |
| Initial boiling point and boiling range          | : | 94 °C   |
| Flash point                                      | : | 119 °C<br>Method: Seta closed cup                         |
| Evaporation rate                                 | : | No data available   |
| Flammability (solid, gas)                        | : | Not applicable  |
| Flammability (liquids)                           | : | No data available   |
| Upper explosion limit / Upper flammability limit | : | No data available   |
| Lower explosion limit / Lower flammability limit | : | No data available   |
| Vapour pressure                                  | : | No data available   |
| Relative vapour density                          | : | > 3   |
| Density  | : | 1.03 - 1.06 g/cm <sup>3</sup>                             |
| Solubility(ies)<br>Water solubility              | : | 18 g/l  |
| Partition coefficient: n-octanol/water           | : | Not applicable  |
| Auto-ignition temperature                        | : | No data available   |
| Decomposition temperature                        | : | The substance or mixture is not classified self-reactive. |
| Viscosity<br>Viscosity, dynamic                  | : | 2 - 10 mPa.s  |
| Viscosity, kinematic                             | : | No data available   |
| Explosive properties                             | : | Not explosive   |
| Oxidizing properties                             | : | The substance or mixture is not classified as oxidizing.  |
| Particle size                                    | : | Not applicable  |

## SECTION 10. STABILITY AND REACTIVITY

|                                    |  |
|------------------------------------|--|
| Reactivity                         | : Not classified as a reactivity hazard.         |
| Chemical stability                 | : Stable under normal conditions.                |
| Possibility of hazardous reactions | : Can react with strong oxidizing agents.        |
| Conditions to avoid                | : None known.                                    |
| Incompatible materials             | : Oxidizing agents                               |
| Hazardous decomposition products   | : No hazardous decomposition products are known. |

## SECTION 11. TOXICOLOGICAL INFORMATION

|                 |  |
|-----------------|--|
| Exposure routes | : Inhalation<br>Skin contact<br>Ingestion<br>Eye contact |
|-----------------|--|

### Acute toxicity

Harmful if swallowed.

#### **Product:**

|                     |  |
|---------------------|--|
| Acute oral toxicity | : Acute toxicity estimate: 1,989 mg/kg<br>Method: Calculation method |
|---------------------|--|

#### **Components:**

##### **2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

|                           |   |
|---------------------------|---|
| Acute oral toxicity       | : LD50 (Rat): 1,790 mg/kg   |
| Acute inhalation toxicity | : LC50 (Rat): > 5.04 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist<br>Method: OECD Test Guideline 403                    |
| Acute dermal toxicity     | : LD50 (Rat): > 2,000 mg/kg<br>Method: OECD Test Guideline 402<br>Assessment: The substance or mixture has no acute dermal toxicity |

##### **Propoxylated neopentyl glycol diacrylate esters:**

|                           |   |
|---------------------------|---|
| Acute oral toxicity       | : LD50 (Rat): > 5,000 mg/kg   |
| Acute inhalation toxicity | : LC50 (Rat): > 2 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist  |
| Acute dermal toxicity     | : LD50 (Rat): > 2,000 mg/kg<br>Method: OECD Test Guideline 402<br>Assessment: The substance or mixture has no acute dermal toxicity |

##### **Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide:**

|                       |   |
|-----------------------|---|
| Acute oral toxicity   | : LD50 (Rat): > 5,000 mg/kg<br>Method: OECD Test Guideline 401  |
| Acute dermal toxicity | : LD50 (Rat): > 2,000 mg/kg<br>Method: OECD Test Guideline 402<br>Assessment: The substance or mixture has no acute dermal toxicity |

**Propylidynetrimethanol, propoxylated, esters with acrylic acid:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 423  
Remarks: Based on data from similar materials

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 401  
Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Acute oral toxicity : LD50 (Rat): 1,984 mg/kg  
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

**Glycerol, propoxylated, esters with acrylic acid:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 401  
Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

**4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 401  
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402  
Remarks: Based on data from similar materials

**2-benzyl-2-dimethylamino-4-morpholinobutyrophenone:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation**

Not classified based on available information.

**Components:**

**2-Propenoic acid, 2-[2-(ethenoxy)ethoxy]ethyl ester:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

**Propoxylated neopentyl glycol diacrylate esters:**

Species: Rabbit  
Result: No skin irritation

**Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide:**

Species: Rabbit  
Result: No skin irritation

**Propylidynetrimethanol, propoxylated, esters with acrylic acid:**

Method: OECD Test Guideline 439  
Result: No skin irritation  
Remarks: Based on data from similar materials

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

**Glycerol, propoxylated, esters with acrylic acid:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

**4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

**2-benzyl-2-dimethylamino-4-morpholinobutyrophenone:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:****2-Propenoic acid, 2-[2-(ethenoxy)ethoxy]ethyl ester:**

Species: Rabbit  
Result: No eye irritation  
Method: OECD Test Guideline 405

**Propoxylated neopentyl glycol diacrylate esters:**

Species: Rabbit  
Result: No eye irritation

**Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide:**

Species: Rabbit  
Result: No eye irritation

**Propylidynetrimethanol, propoxylated, esters with acrylic acid:**

Result: No eye irritation



Method: OECD Test Guideline 437  
Remarks: Based on data from similar materials

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Species: Rabbit  
Result: No eye irritation  
Method: OECD Test Guideline 405

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Species: Rabbit  
Result: No eye irritation  
Method: OECD Test Guideline 405

**Glycerol, propoxylated, esters with acrylic acid:**

Species: Rabbit  
Result: Irritation to eyes, reversing within 21 days  
Method: OECD Test Guideline 405

**4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid:**

Species: Rabbit  
Result: No eye irritation  
Method: OECD Test Guideline 405

**2-benzyl-2-dimethylamino-4-morpholinobutyrophenone:**

Species: Rabbit  
Result: No eye irritation  
Method: OECD Test Guideline 405

**Respiratory or skin sensitisation**

**Skin sensitisation**

May cause an allergic skin reaction.

**Respiratory sensitisation**

Not classified based on available information.

**Components:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Method: OECD Test Guideline 429  
Result: positive  
Assessment: Probability or evidence of skin sensitisation in humans

**Propoxylated neopentyl glycol diacrylate esters:**

Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Method: OECD Test Guideline 429  
Result: positive  
Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans

**Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide:**

Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Method: OECD Test Guideline 429  
Result: positive  
Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans

**Propylidynetrimethanol, propoxylated, esters with acrylic acid:**

Test Type: Buehler Test  
Exposure routes: Skin contact

Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: positive  
Remarks: Based on data from similar materials  
Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Test Type: Maximisation Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: positive  
Assessment: Probability or evidence of skin sensitisation in humans

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Test Type: Maximisation Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Result: negative

**Glycerol, propoxylated, esters with acrylic acid:**

Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Method: OECD Test Guideline 429  
Result: positive  
Assessment: Probability or evidence of skin sensitisation in humans

**4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid:**

Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Method: OECD Test Guideline 429  
Result: positive  
Assessment: Probability or evidence of skin sensitisation in humans

**2-benzyl-2-dimethylamino-4-morpholinobutyrophenone:**

Test Type: Maximisation Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Result: negative

**Chronic toxicity**

**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative

**Propoxylated neopentyl glycol diacrylate esters:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471

Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative  
Remarks: Based on data from similar materials

**Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

: Test Type: Chromosome aberration test in vitro  
Result: negative

: Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

: Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: negative

: Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

**Glycerol, propoxylated, esters with acrylic acid:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Test Type: Chromosome aberration test in vitro  
Result: negative

**4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative

**2-benzyl-2-dimethylamino-4-morpholinobutyrophenone:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471

Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Hamster  
Application Route: Ingestion  
Result: negative

### Carcinogenicity

Not classified based on available information.

### Reproductive toxicity

May damage fertility. May damage the unborn child.

#### Components:

#### **2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 422  
Result: negative

#### **Propoxylated neopentyl glycol diacrylate esters:**

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 421  
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

#### **Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide:**

Effects on fertility : Test Type: Fertility  
Species: Rat  
Application Route: Ingestion  
Result: positive

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

#### **Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Effects on foetal development : Test Type: Fertility/early embryonic development  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: negative

#### **2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Effects on fertility : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: positive

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: positive

Reproductive toxicity - Assessment : Clear evidence of adverse effects on development, based on animal experiments., Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

**Glycerol, propoxylated, esters with acrylic acid:**

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

**4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid:**

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 422  
Result: negative

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 422  
Result: negative

**2-benzyl-2-dimethylamino-4-morpholinobutyrophenone:**

Effects on fertility : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 415  
Result: negative

Effects on foetal development : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 415  
Result: positive

Reproductive toxicity - Assessment : Clear evidence of adverse effects on development, based on animal experiments.

**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Not classified based on available information.

**Repeated dose toxicity**

**Components:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Species: Rat  
NOAEL: 160 mg/kg  
Application Route: Ingestion  
Exposure time: 28 Days  
Method: OECD Test Guideline 407

**Propoxylated neopentyl glycol diacrylate esters:**

Species: Rat  
NOAEL: 1,000 mg/kg  
Application Route: Ingestion

Exposure time: 28 Days  
Method: OECD Test Guideline 407

**Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide:**

Species: Rat  
NOAEL: 100 mg/kg  
LOAEL: 300 mg/kg  
Application Route: Ingestion  
Exposure time: 90 Days

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Species: Rat  
NOAEL: 1,000 mg/kg  
Application Route: Ingestion  
Exposure time: 90 Days  
Method: OECD Test Guideline 408

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Species: Rat  
NOAEL: 75 mg/kg  
LOAEL: 220 mg/kg  
Application Route: Ingestion  
Exposure time: 90 Days  
Method: OECD Test Guideline 408

**Glycerol, propoxylated, esters with acrylic acid:**

Species: Rat  
NOAEL: 250 mg/kg  
LOAEL: 750 mg/kg  
Application Route: Ingestion  
Exposure time: 28 Days  
Method: OECD Test Guideline 422  
Remarks: Based on data from similar materials

**4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid:**

Species: Rat  
NOAEL: > 900 mg/kg  
Application Route: Ingestion  
Exposure time: 5 Weeks  
Method: OECD Test Guideline 422

**2-benzyl-2-dimethylamino-4-morpholinobutyrophenone:**

Species: Rat  
NOAEL:  $\geq$  100 mg/kg  
Application Route: Ingestion  
Exposure time: 28 Days

**Aspiration toxicity**

Not classified based on available information.

## SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Components:**

**2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 6.8 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 55 mg/l  
Exposure time: 48 h

Method: OECD Test Guideline 202



Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 10 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 0.78 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.26 mg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC50: 741 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

**Propoxylated neopentyl glycol diacrylate esters:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 2.7 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 37 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202



Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 11 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 1 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC: 2 mg/l  
Exposure time: 28 d



**Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 1 - 10 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.53 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202



Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 2.01 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

EC10 (Pseudokirchneriella subcapitata (green algae)): 1.56 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50: > 1,000 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

**Propylidynetrimethanol, propoxylated, esters with acrylic acid:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 1 - 10 mg/l  
Exposure time: 96 h

Method: OECD Test Guideline 203  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10 - 100 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials



Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 10 - 100 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
  
EC10 (Desmodesmus subspicatus (green algae)): > 1 - 10 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 90 µg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203  
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1.18 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Remarks: No toxicity at the limit of solubility



Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): 260 µg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 8.1 µg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 211  
Remarks: No toxicity at the limit of solubility

Toxicity to microorganisms : EC50: > 100 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Toxicity to fish : LC50 (Zebrafish): 9 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 15.3 mg/l  
Exposure time: 24 h  
Method: OECD Test Guideline 202



Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 1.6 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
  
NOEC (Desmodesmus subspicatus (green algae)): 0.39 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : IC50: > 100 mg/l  
Exposure time: 3 h



**Glycerol, propoxylated, esters with acrylic acid:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 5.74 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 91.4 mg/l  
aquatic invertebrates : Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 12.2 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

EC10 (Desmodesmus subspicatus (green algae)): 2.06 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50: > 1,000 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

**4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid:**

Toxicity to fish : LL50 (Cyprinus carpio (Carp)): > 100 mg/l  
Exposure time: 96 h  
Test substance: Water Accommodated Fraction  
Method: ISO 7346/1  
Remarks: Based on data from similar materials

Toxicity to daphnia and other : LL50 (Daphnia magna (Water flea)): > 100 mg/l  
aquatic invertebrates : Exposure time: 48 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): 105 mg/l  
Exposure time: 72 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 201

NOELR (Pseudokirchneriella subcapitata (green algae)): 1.2 mg/l  
Exposure time: 72 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50: > 1,000 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

**2-benzyl-2-dimethylamino-4-morpholinobutyrophenone:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 0.46 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): > 0.8 mg/l  
aquatic invertebrates : Exposure time: 24 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 2 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50: > 100 mg/l  
Exposure time: 30 min  
Method: OECD Test Guideline 209

## Persistence and degradability

### Components:

#### **2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 84.4 %  
Exposure time: 28 d

#### **Propoxylated neopentyl glycol diacrylate esters:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 51 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

#### **Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 0 - 10 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F

#### **Propylidynetrimethanol, propoxylated, esters with acrylic acid:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 65 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B  
Remarks: Based on data from similar materials

#### **Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 1 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

#### **2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 1 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301E

#### **Glycerol, propoxylated, esters with acrylic acid:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 72 - 85 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

#### **4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 42 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F

#### **2-benzyl-2-dimethylamino-4-morpholinobutyrophenone:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 3 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

## Bioaccumulative potential

**Components:**

**2-Propenoic acid, 2-[2-(ethenoxy)ethoxy]ethyl ester:**

Partition coefficient: : log Pow: 1.7  
n-octanol/water

**Propoxylated neopentyl glycol diacrylate esters:**

Partition coefficient: : log Pow: 2.41 - 3.87  
n-octanol/water

**Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide:**

Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): 18 - 72

Partition coefficient: : log Pow: 3.1 - 3.8  
n-octanol/water

**Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide:**

Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): < 5

Partition coefficient: : log Pow: 5.8  
n-octanol/water

**2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:**

Bioaccumulation : Bioconcentration factor (BCF): 13

Partition coefficient: : log Pow: 3.09  
n-octanol/water

**Glycerol, propoxylated, esters with acrylic acid:**

Partition coefficient: : log Pow: 2.52  
n-octanol/water

**4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid:**

Partition coefficient: : log Pow: 1.6 - 3.8  
n-octanol/water

**2-benzyl-2-dimethylamino-4-morpholinobutyrophenone:**

Partition coefficient: : log Pow: 2.91  
n-octanol/water

**Mobility in soil**

No data available

**Other adverse effects**

No data available

## SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
If not otherwise specified: Dispose of as unused product.

## SECTION 14. TRANSPORT INFORMATION

**International Regulations**

**UNRTDG**

Not regulated as dangerous goods

**IATA-DGR**

Not regulated as dangerous goods

**IMDG-Code**

Not regulated as dangerous goods

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**National Regulations****ADG**

Not regulated as dangerous goods

**SECTION 15. REGULATORY INFORMATION****Safety, health and environmental regulations/legislation specific for the substance or mixture**

Standard for the Uniform : No poison schedule number allocated  
Scheduling of Medicines and  
Poisons

Prohibition/Licensing : There is no applicable prohibition or notification/licensing  
Requirements requirements, including for carcinogens under Commonwealth,  
State or Territory legislation.

**The components of this product are reported in the following inventories:**

AICS : All ingredients listed or exempt.

**SECTION 16. OTHER INFORMATION****Further information**

Sources of key data used to : Internal technical data, data from raw material SDSs, OECD  
compile the Safety Data eChem Portal search results and European Chemicals Agency,  
Sheet <http://echa.europa.eu/>

Revision Date : 2020-01-16

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety

and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.