1. IDENTIFICATION OF THE SUBSTRATE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name/designation: Caltech FCP Liquid Catalyst

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

Relevant identified uses: Curing agent

Recommended restrictions: Reserved for industrial and professional use.

1.3 Supplier details

Alumasc Building Products Ltd
White House Works, Bold Road, Sutton, St Helens, Merseyside, United Kingdom, WA9 4JG
Tel: +44 (0)1744 648400
e-mail: technical@alumascroofing.com

1.4 Emergency telephone number

Association / Organisation:National Poisons Information Service
Emergency telephone numbers:0344 892 0111 (Healthcare professionals only)
Other emergency telephone numbersAlumasc Building Products: +44 17 4464 8400
(Mon-Thurs – 08.30-17.00 Fri – 08.30-16.00)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP][1]:
H315 - Skin Corrosion/Irritation Category 2, H317 - Sensitisation (Skin) Category 1, H319 - Serious Eye Damage/Eye Irritation Category 2, H351 - Carcinogenicity Category 2, H361 - Reproductive Toxicity Category 2, H373 - Specific Target Organ Toxicity - Repeated Exposure Category 2, H411 - Hazardous to the Aquatic Environment Long-Term Hazard Category 2

2.2 Label elements

Hazard pictures:

Signal word: Warning

Hazardous component(s) to be indicated on label: Material contains dibenzoyl peroxide, triethyl phosphate, diethylene glycol.

Hazard statements:
H242 Heating may cause a fire.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P234 Keep only in original packaging.
P235 Keep cool.
P240 Ground and bond container and receiving equipment.

Precautionary statements response:
P370+P378 In case of fire: Use alcohol resistant foam or fine spray/water fog to extinguish.
P302+P352 IF ON SKIN: Wash with plenty of water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

Precautionary statement(s) Storage	P403 Store in a well-ventilated place. P411 Store at temperatures not exceeding ...°C/...°F. P410 Protect from sunlight.
Precautionary statements disposal:	P501: Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

2.3 Other hazards

diethylene glycol monobutyl ether	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)

This substance/mixture does not meet the criteria for classification as Persistent, Bioaccumulative, and Toxic (PBT) in accordance with Annex XIII, Commission Delegated Regulation (EU) 2017/2100, and Commission Regulation (EU) 2018/605.

This substance/mixture does not meet the criteria for classification as very Persistent and very Bioaccumulative (vPvB) in accordance with Annex XIII, Commission Delegated Regulation (EU) 2017/2100, and Commission Regulation (EU) 2018/605.

This substance/mixture does not meet the criteria for classification as Persistent, Mobile and Toxic (PMT) in accordance with Commission Delegated Regulation (EU) 2023/707.

This substance/mixture does not meet the criteria for classification as very Persistent and very Mobile (vPvM) in accordance with Commission Delegated Regulation (EU) 2023/707.

The substance/mixture does not contain components considered to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605, nor is it included in the list established under REACH Article 59(1), at concentrations equal to or greater than 0.1% (w/w).

No further product hazard information.

3. COMPOSITION AND INFORMATION ABOUT THE COMPONENTS

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. 94-36-0 2.202-327-6 3.617-008-00-0 4.01-2119511472-50	39-41	dibenzoyl peroxide	Organic Peroxides Type B, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2; H241, H317, H319 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not available

1. 78-40-0 2.201-114-5 3.015-013-00-7 4.01-2119492852-28	19	triethyl phosphate	Acute Toxicity (Oral) Category 4; H302 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: 1	Not available
1. 112-34-5 2.203-961-6 3.603-096-00-8 4.01-2119475104-44	9.5	diethylene glycol monobutyl ether * -	Serious Eye Damage/Eye Irritation Category 2; H319 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not available
1. 111-46-6 2.203-872-2 3.603-140-00-6 4.01-2119457857-21	5.5	diethylene glycol	Acute Toxicity (Oral) Category 4; H302 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not available
1. 128-37-0 2.204-881-4 3.Not Available 4.01-2119565113-46	0.1	2,6-di-tert-butyl-4-methylphenol	Hazardous to the Aquatic Environment Long-Term Hazard Category 1; H410 [3]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor:1	Not available
Legend:	1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties.				

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye contact:

If this product comes in contact with the eyes:
Immediately hold the eyelids apart and flush the eye with 2% sodium carbonate solution or 5% sodium ascorbate solution then wash
continuously for at least 15 minutes with fresh running water.
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.
Transport to hospital (or doctor) without further delay.
Removal of contact lenses should only be undertaken by trained personnel..

Skin contact:

If skin contact occurs:
Immediately remove all contaminated clothing, including footwear.
Flush skin and hair with running water (and soap if available).
Seek medical attention in event of irritation.

Inhalation:

If fumes or combustion products are inhaled remove from contaminated area.
Lay patient down. Keep warm and rested.
Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
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.
Transport to hospital, or doctor, without delay.

Ingestion: If swallowed do NOT induce vomiting.
If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
Observe the patient carefully.
Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
Seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11.

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

Treat symptomatically.
To treat poisoning by the higher aliphatic alcohols (up to C7):
Gastric lavage with copious amounts of water.
It may be beneficial to instill 60 ml of mineral oil into the stomach.
Oxygen and artificial respiration as needed.
Electrolyte balance: it may be useful to start 500 ml. M/6 sodium bicarbonate intravenously but maintain a cautious and conservative attitude toward electrolyte replacement
unless shock or severe acidosis threatens.
To protect the liver, maintain carbohydrate intake by intravenous infusions of glucose.
Haemodialysis if coma is deep and persistent. [GOSSELIN, SMITH HODGE: Clinical Toxicology of Commercial Products, Ed 5)

BASIC TREATMENT

Establish a patent airway with suction where necessary.
Watch for signs of respiratory insufficiency and assist ventilation as necessary.
Administer oxygen by non-rebreather mask at 10 to 15 l/min.
Monitor and treat, where necessary, for shock.
Monitor and treat, where necessary, for pulmonary oedema.
Anticipate and treat, where necessary, for seizures.
DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a
strong gag reflex and does not drool.
Give activated charcoal.
ADVANCED TREATMENT

Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
Positive-pressure ventilation using a bag-valve mask might be of use.
Monitor and treat, where necessary, for arrhythmias.
Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
If the patient is hypoglycaemic (decreased or loss of consciousness, tachycardia, pallor, dilated pupils, diaphoresis and/or dextrose strip or glucometer readings below 50
mg), give 50% dextrose.
Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
Drug therapy should be considered for pulmonary oedema.
Treat seizures with diazepam.
Proparacaine hydrochloride should be used to assist eye irrigation.

EMERGENCY DEPARTMENT

Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium,
phosphorus and magnesium, may assist in establishing a treatment regime. Other useful analyses include anion and osmolar gaps, arterial blood gases (ABGs), chest
radiographs and electrocardiograph.
Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome.

Acidosis may respond to hyperventilation and bicarbonate therapy.
Haemodialysis might be considered in patients with severe intoxication.
Consult a toxicologist as necessary. BRONSTEIN, A.C. and CURRANCE, P.L. EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994
For C8 alcohols and above.
Symptomatic and supportive therapy is advised in managing patients.
All persons handling organic phosphorus ester materials regularly should undergo regular medical examination with special stress on the central nervous systems. Whilst
atropine or pyridine-2-aldoxime methiodide (PAM) are beneficial antidotes for acute phosphate ester poisonings, they are of little value in reversing acute or chronic neurological
damage due to phosphites and some types of aryl phosphate.
Toxic myocarditis may follow ingestion of oxidizing agents such as peroxides.

BASIC TREATMENT

Establish a patent airway with suction where necessary.
Watch for signs of respiratory insufficiency and assist ventilation as necessary.
Administer oxygen by non-rebreather mask at 10 to 15 l/min.
Monitor and treat, where necessary, for pulmonary oedema .
Monitor and treat, where necessary, for shock.
Anticipate seizures .
DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a
strong gag reflex and does not drool.
DO NOT attempt neutralisation as exothermic reaction may occur.
Skin burns should be covered with dry, sterile bandages, following decontamination.

ADVANCED TREATMENT

Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
Positive-pressure ventilation using a bag-valve mask might be of use.
Monitor and treat, where necessary, for arrhythmias.
Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
Drug therapy should be considered for pulmonary oedema.
Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
Treat seizures with diazepam.
Proparacaine hydrochloride should be used to assist eye irrigation.
BRONSTEIN, A.C. and CURRANCE, P.L.
EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

5. FIRE-FIGHTING MEASSURES

5.1 Extinguishing media

FOR SMALL FIRE:
Water spray, foam, CO2 or dry chemical.
DO NOT use water jets.
FOR LARGE FIRE:
Flood fire area with water from a distance.

5.2 Special hazards arising from the substance or mixture

Fire Incompatibility Avoid storage with reducing agents.
Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous

5.3. Advice for firefighters

Fire Fighting

Alert Fire Brigade and tell them location and nature of hazard.
May be violently or explosively reactive.
Wear breathing apparatus plus protective gloves in the event of a fire.
Prevent, by any means available, spillage from entering drains or water courses.

Fire/Explosion Hazard

Will not burn but increases intensity of fire.
May explode from friction, shock, heat or containment.
Heating may cause expansion or decomposition leading to violent rupture of containers.
Heat affected containers remain hazardous.
Decomposes on heating and produces acrid and toxic fumes of:
carbon dioxide (CO2)
phosphorus oxides (POx)
other pyrolysis products typical of burning organic material.
Benzoyl peroxide decomposes when heated with formation of dense white toxic smoke of benzoic acid, phenyl benzoate, terphenyls,
biphenyls, and carbon dioxide.
Organic peroxides provide internal oxygen for combustion, so burn intensely.
Simple smothering actions are not effective against established fires.
NOTE: A Type F Organic Peroxide:
neither detonates in the cavitated state nor deflagrates
shows low or no effect when heated under confinement and
possesses low or no explosive power.
NOTE: A Type E Organic Peroxide:
neither detonates nor deflagrates at all and
shows low or no effect when heated under confinement

6. ACCIDENTIAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

See section 8

6.2 Environmental Precautions

See section 12

6.3 Methods and material for containment and cleaning up

Minor Spills

Slippery when spilt.
Clean up all spills immediately.
No smoking, naked lights, ignition sources.
Avoid all contact with any organic matter including fuel, solvents, sawdust, paper or cloth and other incompatible materials, as ignition may result.
Avoid breathing dust or vapours and all contact with skin and eyes.

Major Spills

Slippery when spilt.
Clear area of personnel and move upwind.
Alert Fire Brigade and tell them location and nature of hazard.
May be violently or explosively reactive.
Wear full body protective clothing with breathing apparatus.

6.4 Reference to other sections

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

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Safe handling:

Mix only as much as is required
DO NOT return the mixed material to original containers
For oxidisers, including peroxides.
· Avoid personal contact and inhalation of dust, mist or vapours.
· Provide adequate ventilation.
· Always wear protective equipment and wash off any spillage from clothing.

Fire and explosion protection

See section 5

Other information

Store in original containers in an isolated approved flammable materials storage area.
Keep containers securely sealed as supplied.
WARNING: Gradual decomposition during storage in sealed containers may lead to a large pressure build-up and subsequent explosion.
No smoking, naked lights, heat or ignition sources.
FOR MINOR QUANTITIES:
Ensure that:
packages are not opened in storage area,
the goods are kept at least 3 metres from sources of heat as well as all other dangerous goods and all other materials which might react with this material might react to cause a fire, a chemical reaction or explosion,
materials for absorbing and neutralising spills are kept near the storage;
procedures are displayed at the storage describing actions to be taken in the event of a spill or fire.
adequate numbers and types of portable fire extinguisher are provided in or near the storage area.
FOR PACKAGE STORAGE:
If the material is stored in an indoor fireproof cabinet, the cabinet must be vented to outside the building containing the cabinet.
Packages must be protected from exposure to weather unless the packages are: (i) sole packages of more than 20 l capacity (ii) of metallic or plastic construction (iii) securely closed and are not to be opened in the storage area (iv) stored in such a manner that rain water, contaminated with the material, is collected and disposed of safely.

7.2 Conditions for safe storage, including any incompatibilities

Suitable container:

Metal packagings meeting the test criteria of Packing Group I, must NOT be used; this avoids unnecessary confinement.
Packagings for organic peroxides must be constructed so that none of the materials, which are in contact with the contents, will catalyse or otherwise dangerously affect the properties of their contents.
For combination packages, cushioning materials must not be readily combustible and must NOT cause decomposition of the organic peroxide if leakage occurs.
Generally only stainless steel 316, polyethylene or glass lined equipment is suitable for use when working with organic peroxides.
Some plastics may be incompatible with this material, check with manufacturer for storage suitability.
DO NOT repack. Use containers supplied by manufacturer only.
Check that containers are clearly labelled

Type E and F Liquid Organic Peroxides, UN 3107, and UN 3109, UN 3117 and UN 3119 are to be packed to the requirements of Packing method OP8 of the UN Dangerous Goods Code, with maximum mass of 200 kg. or 225 l. volume, in a plastic drum/ container or plastic inner receptacle in metal outer drum.

Storage incompatibility:

For benzoyl peroxide:
Avoid reaction with acids, alkalis, oxidising and reducing agents, metals and metal oxides, and combustible materials.
Amines and solutions of cobalt salts used as promoters and accelerators in polyester compounds if mixed with benzoyl peroxide will cause spontaneous decomposition (detonation).
Alkalis cause rapid decomposition of benzoyl peroxide with generation of large volumes of carbon dioxide gas (CO2) and may pressurise containers.
Avoid contact with copper, brass, lead and zinc.

Glycols and their ethers undergo violent decomposition in contact with 70% perchloric acid. This seems likely to involve formation of the glycol perchlorate esters (after scission of ethers) which are explosive, those of ethylene glycol and 3-chloro-1,2-propanediol being more powerful than glyceryl nitrate, and the former so sensitive that it explodes on addition of water.
For alkyl phosphates
For monoalkyl phosphates
· The rate of hydrolysis of most simple monoalkyl phosphates passes through a maximum lying in the pH range of 3 to 5.
· At alkaline pH values, the hydrolysis rate drops sharply. At acid pH values, a minimum is observed (at pH 1), then the hydrolysis rate increases again with acidity of the medium. Since the pKa values for the first and second steps of dissociation of methyl phosphate are 1.54 and 6.31, respectively, it can be assumed that the hydrolysis rate maximum at pH 4 corresponds to the highest monoanion concentration in the solution.
As a class, organic peroxides are amongst the most hazardous materials commonly used in the workplace or laboratory.
Several are highly flammable and extremely sensitive to shock, heat, spark, friction, impact and light and readily react with strong oxidising and reducing agents.
Organic compounds, especially finely divided materials, can ignite on contact with concentrated peroxides.
Strongly reduced material such as sulfides, nitrides, and hydrides may react explosively with peroxides.
Incidents involving interaction of active oxidants and reducing agents, either by design or accident, are usually very energetic and examples of so-called redox reactions.
Organic peroxides as a class are highly reactive.
They are thermally unstable and prone to undergoing exothermic self-accelerating decomposition.
Organic peroxides may decompose explosively, burn rapidly, be impact and/or friction sensitive and react dangerously with many other substances.
Amines and polyester accelerators (cobalt salts, for example) if mixed with organic peroxides / organic peroxide mixtures will cause rapid / spontaneous decomposition with fire / explosion hazard.
Avoid any contamination.
Avoid finely divided combustible materials
Avoid all external heat.
Avoid mixing or reaction with acids, alkalies, reducing agents, metal powders, metal oxides, transition metals and their compounds.
Avoid storage with reducing agents.
Alcohols
are incompatible with strong acids, acid chlorides, acid anhydrides, oxidising and reducing agents.
reacts, possibly violently, with alkaline metals and alkaline earth metals to produce hydrogen
react with strong acids, strong caustics, aliphatic amines, isocyanates, acetaldehyde, benzoyl peroxide, chromic acid, chromium oxide,
dialkylzincs, dichlorine oxide, ethylene oxide, hypochlorous acid, isopropyl chlorocarbonate, lithium tetrahydroaluminate, nitrogen
dioxide, pentafluoroguanidine, phosphorus halides, phosphorus pentasulfide, tangerine oil, triethylaluminium, triisobutylaluminium
should not be heated above 49 deg. C. when in contact with aluminium equipment
Peroxides decompose over time and give off oxygen.
Peroxides require controlled storage for stability.
DANGER: Explosion hazard, never mix peroxides with accelerators or promoters.
A number of phosphate and thiophosphate esters are of limited thermal stability and undergo highly exothermic self-accelerating decomposition reactions which may be catalysed by impurities.
The potential hazards can be reduced by appropriate thermal control measures.
BRETHERICK L.: Handbook of Reactive Chemical Hazards
Thermal decomposition of organophosphate esters, in the presence of trimethylolpropane or its homologues (common components of synthetic lubricants), may produce bicyclic phosphates and phosphites. These may occur be produced in as little as 5 minutes at 650 deg C.
These bicyclic compounds are a class of materials with neurotoxic properties which produce convulsive seizures in test animals.
Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous

Hazard categories in accordance with Regulation (EC) No 2012/18/EU (Seveso III)

E1: Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1

Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of;

E1 Lower- / Upper-tier requirements: 100 / 200

7.3. Specific end use(s)

See section 1.2

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
dibenzoyl peroxide	Dermal 13.3 mg/kg bw/day (Systemic, Chronic) Inhalation 39 mg/m³ (Systemic, Chronic) Dermal 0.034 mg/cm² (Local, Chronic) Oral 2 mg/kg bw/day (Systemic, Chronic) *	0.00002 mg/L (Water (Fresh)) 0.000602 mg/L (Water - Intermittent release) 0.000002 mg/L (Water (Marine)) 0.013 mg/kg sediment dw (Sediment (Fresh Water)) 0.001 mg/kg sediment dw (Sediment (Marine)) 0.003 mg/kg soil dw (Soil) 0.35 mg/L (STP)
triethyl phosphate	Dermal 2 mg/kg bw/day (Systemic, Chronic) Inhalation 9.9 mg/m³ (Systemic, Chronic) Dermal 1 mg/kg bw/day (Systemic, Chronic) * Inhalation 1.74 mg/m³ (Systemic, Chronic) * Oral 1 mg/kg bw/day (Systemic, Chronic) * Oral 5 mg/kg bw/day (Systemic, Acute) *	0.632 mg/L (Water (Fresh)) 9 mg/L (Water - Intermittent release) 0.063 mg/L (Water (Marine)) 5 mg/kg sediment dw (Sediment (Fresh Water)) 0.5 mg/kg sediment dw (Sediment (Marine)) 0.64 mg/kg soil dw (Soil) 298.5 mg/L (STP)
diethylene glycol monobutyl ether	Inhalation 67.5 mg/m³ (Local, Chronic) Inhalation 101.2 mg/m³ (Local, Acute) Oral 6.25 mg/kg bw/day (Systemic, Chronic) *	1.1 mg/L (Water (Fresh)) 11 mg/L (Water - Intermittent release) 0.11 mg/L (Water (Marine)) 4.4 mg/kg sediment dw (Sediment (Fresh Water)) 0.44 mg/kg sediment dw (Sediment (Marine)) 0.32 mg/kg soil dw (Soil) 56 mg/kg food (Oral)
diethylene glycol	Dermal 43 mg/kg bw/day (Systemic, Chronic) Inhalation 44 mg/m³ (Systemic, Chronic) Inhalation 60 mg/m³ (Local, Chronic) Dermal 21 mg/kg bw/day (Systemic, Chronic) * Inhalation 12 mg/m³ (Systemic, Chronic) * Inhalation 12 mg/m³ (Local, Chronic) *	Not Available

* Values for General Population

Occupational Exposure Limits (OEL)
INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs)	dibenzoyl peroxide	Dibenzoyl peroxide	5 mg/m3	Not Available	Not Available	Not Available
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	diethylene glycol monobutyl ether	2-(2-Butoxyethoxy) ethanol	10 ppm / 67.5 mg/m3	101.2 mg/m3 / 15 ppm	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	diethylene glycol monobutyl ether	2-(2-Butoxyethoxy) ethanol	10 ppm / 67.5 mg/m3	101.2 mg/m3 / 15 ppm	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	diethylene glycol	2,2'-Oxydiethanol	23 ppm / 101 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	2,6-di-tert-butyl-4-methylphenol	2,6-Di-tert-butyl-p-cresol	10 mg/m3	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
dibenzoyl peroxide	1,500 mg/m3	Not Available
triethyl phosphate	Not Available	Not Available
diethylene glycol monobutyl ether	Not Available	Not Available
diethylene glycol	Not Available	Not Available
2,6-di-tert-butyl-4-methylphenol	Not Available	Not Available

8.2 Exposure controls

8.2.1. Appropriate engineering Controls:	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard 'physically' away from the worker and ventilation that strategically 'adds' and 'removes' air in the work environment.
8.2.2. Personal protection:	
Eye and face protection:	Chemical goggles. Full face shield may be required for supplementary but never for primary protection of eyes. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
Skin protection:	See Hand protection below.
Hands/feet protection:	Wear chemical protective gloves, e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber **NOTE:** The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed. DO NOT wear cotton or cotton-backed gloves. DO NOT wear leather gloves. Promptly hose all spills off leather shoes or boots or ensure that such footwear is protected with PVC over-shoes.
Body protection:	See Other protection below
Other protection	Overalls. PVC Apron. PVC protective suit may be required if exposure severe. Eyewash unit. Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets). Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot an shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds.

Respiratory protection	**Respiratory protection is only required in the likelihood that relevant exposure limits may be approached or exceeded, e.g. application in enclosed spaces with restricted air exchange. Concentrations of potentially hazardous substances in air will remain low during normal outdoor application and will not pose a risk to the applicator.** Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

8.2.3. Environmental exposure controls
See section 12

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Important health, safety and environmental information

Physical state:	Liquid	**Relative density (Water = 1)**	1.18
Colour:	White	**Partition coefficient n-octanol / water**	Not Available
Odour:	Not Available	**Auto-ignition temperature (°C)**	Do not allow evaporation to dryness.
Odour threshold:	Not Available	**Decomposition temperature (°C)**	400-500 mPas
pH (as supplied):	Not available	**Viscosity (cSt)**	Not Available
Melting point/freezing point (°C):	0	**Molecular weight (g/mol)**	Not Available
Boiling point (°C):	Not Available	**Taste**	Not Available
Flash point (°C):	Above SADT	**Oxidising properties**	Peroxide content 39-41
Evaporation rate [kg/(s m²)]:	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Flammability	Not Available	**Volatile Component (%vol)**	Not Available
Upper Explosive Limit (%):	Not Available	**Gas group**	Not Available
Lower Explosive Limit (%):	Not Available	**pH as a solution (1%)**	Not Available
Vapour pressure (kPa)	Not Available	**VOC g/L**	Not Available
Solubility in water	Miscible	**Ignition Distance (cm)**	Not Available
Vapour density (Air = 1)	Not Available	**Flame Duration (s)**	Not Available
Heat of Combustion (kJ/g)	Not Available	**Enclosed Space Ignition Deflagration Density (g/m3)**	Not Available
Flame Height (cm)	Not Available	**Nanoform Particle Characteristics**	Not Available
Enclosed Space Ignition Time Equivalent (s/m3)	Not Available	**Explosive properties**	SADT 50 C
Nanoform Solubility	Not Available		
Particle Size Not Available	Not Available		

9.2 Other information

Not Available

10. STABILITY AND REACTIVITY

10.1.Reactivity

See section 7.2

10.2. Chemical stability

Unstable in the presence of incompatible materials.
Product is considered stable under normal handling conditions.
Prolonged exposure to heat.
Hazardous polymerisation will not occur.

NOTE:
A range of exothermic decomposition energies for peroxides is given as 200-340 kJ/mol.
The relationship between energy of decomposition and processing hazards has been the subject of discussion; it is suggested that values of energy releases per unit of mass, rather than on a molar mass basis (J/g) be used in the

assessment. For example, in open vessel processes (with man-hole size openings, in an industrial setting), substances with exothermic decomposition energies below 500 J/g are unlikely to present a danger, whilst those in closed vessel processes (opening is a safety valve or bursting disk) present some danger where the decomposition energy exceeds 150 J/g. BRETHERICK: Handbook of Reactive Chemical Hazards, 4th Edition

10.3 Possibility of hazardous reactions

See section 7.2

10.4 Conditions to avoid

See section 7.2

10.5 Incompatible materials

See section 7.2

10.6. Hazardous decomposition products

See section 5.3

11. TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

a) Acute Toxicity	Based on available data, the classification criteria are not met.
b) Skin Irritation/Corrosion	Based on available data, the classification criteria are not met.
c) Serious Eye Damage/Irritation	There is sufficient evidence to classify this material as eye damaging or irritating.
d) Respiratory or Skin sensitisation	There is sufficient evidence to classify this material as sensitising to skin or the respiratory system.
e) Mutagenicity	Based on available data, the classification criteria are not met.
f) Carcinogenicity	Based on available data, the classification criteria are not met.
g) Reproductivity	Based on available data, the classification criteria are not met.
h) STOT - Single Exposure	Based on available data, the classification criteria are not met.
i) STOT - Repeated Exposure	Based on available data, the classification criteria are not met.
j) Aspiration Hazard	Based on available data, the classification criteria are not met.

Inhaled:	The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Aliphatic alcohols with more than 3-carbons cause headache, dizziness, drowsiness, muscle weakness and delirium, central depression, coma, seizures and behavioural changes. Secondary respiratory depression and failure, as well as low blood pressure and irregular heart rhythms, may follow. The inhalation of organic peroxide dusts or vapours can produce throat and lung irritation and cause an asthma-like effect. Over-exposure can cause tears, salivation, lethargy, slow breathing, breathing difficulties, headache, weakness, tremor, stupor and swelling of the lung. Organic phosphates are very stable and highly hazardous. There are a number of effects they can have on the body, including excitement of the central nervous system, and irritation of the skin and respiratory tract. One case report described kidney and liver damage in two people who consumed large quantities of alcoholic beverages and worked in a closed room with paint containing diethylene glycol monobutyl ether. However, synergistic interaction between them is yet unproven.
Ingestion:	Accidental ingestion of the material may be damaging to the health of the individual. Overexposure to non-ring alcohols causes nervous system symptoms. These include headache, muscle weakness and inco-ordination, giddiness, confusion, delirium and coma. At sufficiently high doses the material may be nephrotoxic (i.e. poisonous to the kidney). Ingestion of organic peroxides may produce nausea, vomiting, abnormal pain, stupor, bluish discoloration of skin and mucous membranes. Inflammation of the heart muscle may also occur. Ingestion of diethylene glycol monobutyl ether may cause blueness in the extremities or tongue, rapid breathing and heart beat, low blood pressure, muscle pain and discomfort, unconsciousness and impaired kidney function with large doses.

Skin contact:	The material may accentuate any pre-existing dermatitis condition Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. All organic peroxides are irritating to the skin and if allowed to remain on the skin, may produce inflammation; some are allergenic. Open cuts, abraded or irritated skin should not be exposed to this material 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. Most liquid alcohols appear to act as primary skin irritants in humans. Significant percutaneous absorption occurs in rabbits but not apparently in man. Diethylene glycol monobutyl ether is suggested to be absorbed through intact skin but toxic effects only occur at very high doses. There is some evidence to suggest that the material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.
Eye:	Eye contact with organic peroxides can cause clouding, redness, swelling and burns of the eye on prolonged contact. Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals. Prolonged eye contact may cause inflammation characterised by a temporary redness of the conjunctiva (similar to windburn).
Chronic:	Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems. Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility. Prolonged or repeated skin contact with benzoyl peroxide may result in allergic skin reactions even at diluted concentrations. Ingestion results in abdominal pain, low body oxygen and severe depression. Chronic effects of exposure include allergic reactions characterised by redness, itching, oozing, crusting, and scaling of the skin and asthmatic wheezing. Although it does not exhibit complete carcinogenic or tumour-initiating activity, it has been associated with certain tumours of like papillomas and squamous cell carcinomas. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Persistent exposure over a long period of time to peroxides produces allergic skin reactions (redness and scaling of the skin) and asthmatic wheezing.

Caltech FCP Liquid Catalyst

Toxicity	Irritation
Not available	Not available

dibenzoyl peroxide

Toxicity	Irritation
dermal (mammal) LD50: >1000 mg/kg[2]	Eye (Rodent - rabbit): 500mg/24H - Mild
Oral (Rat) LD50: 7710 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
	Skin (Human - woman): 1% - Moderate
	Skin (Human): 0.5%
	Skin (Human): 5%/48H
	Skin (Human): 5%/8W(intermittent) - Severe
	Skin: no adverse effect observed (not irritating)[1]

triethyl phosphate

Toxicity	Irritation
Dermal (rabbit) LD50: >20000 mg/kg[1]	Eye (Rodent - rabbit): 100mg - Moderate
Inhalation (Rat) LC50: >8.817 mg/L4h[1]	Eye: adverse effect observed (irritating)[1]
Oral (Rat) LD50: 1165 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]

diethylene glycol monobutyl ether

Toxicity	Irritation
Dermal (rabbit) LD50: 11890 mg/kg[2]	Eye (Rodent - rabbit): 50mg - Mild
Inhalation (Rat) LC50: >4.6 mg/l4h[1]	Eye: no adverse effect observed (not irritating)[1]
Oral (Rat) LD50: 12565 mg/kg[2]	Skin (Human): 112mg/3D (intermittent) - Mild
	Skin (Rodent - rabbit): 500mg - Mild
	Skin: no adverse effect observed (not irritating)[1]

TCPP

Toxicity	Irritation
dermal (rat) LD50: >2000 mg/kg[1]	Eye (Rodent - rabbit): 100mg/24H - Moderate
Oral (Rat) LD50: 890 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
	Skin (Human): 500mg/48H - Mild
	Skin (Rodent - rabbit): 500mg/48H - Moderate
	Skin: no adverse effect observed (not irritating)[1]

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

DIBENZOYL PEROXIDE	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
TRIETHYL PHOSPHATE	For toxicological endpoints, the NOAEL is 1000 mg/kg bw for subacute toxicity, a NOEL of 625 mg/kg bw/day for teratogenicity and about 335 mg/kg bw for fertility effects. On the basis of all data on genotoxicity, a mutagenic effect of TEP is not assumed. The substance is harmful with a narcotic effect and, at high doses, shows certain neurotoxic properties (inhibition of cholinesterase) without indicating delayed neurotoxicity. The substance is not irritant to the skin. Studies on experimental animals showed no irritation properties. The most comprehensive documented, actual study (OECD Guideline 405, GLP) showed moderate irritation in 1 of 3 animals. According to the classification guideline this does not lead to a classification as irritant Triethylphosphate administered orally or i.p. to rodents is eliminated rapidly and comprehensively (90% within 16 hours). The very low acute dermal toxicity indicates a markedly lower adsorption than with oral administration. In a subchronic study (rat; oral, up to 6700 mg/kg bw) retarded weight gain, elevated liver and adrenals weight were observed (a validated NOEL or NOAEL cannot be given, the approx. NOEL based on the available data is about 670 mg/kg bw). A subacute 28-day study performed according actual guidelines after oral administration to rats determined a NOEL of 100 mg/kg bw (increased liver metabolism). An increase of liver metabolism is of no toxicological relevance, therefore a NOAEL of 1000 mg/kg bw was derived. After high doses to rats a depressive effect on the central nervous system and slight inhibition of cholineesterases are described. In mice, a NOAEL of 274 mg/kg bw was determined in an oral study (1/5 LD 50 = 274 mg/kg bw for 4 weeks) . In rats a NOEL following inhalatory exposure (5h/d for 12 d) of 366 mg/m3 was determined. Conclusion: low toxicity, no serious damage in oral doses up to 6700 mg/kg bw. The NOAEL in the most relevant tests was 1000 mg/kg bw/day. Reproductive Toxicity In an early study using a small number of animals the litter size was reduced after repeated feeding to both sexes (rat) beginning at 670 mg/kg bw, although no symptoms of poisoning in the parent animals were described for the 670 mg/kg bw dose. The NOEL for effects on the litter size was 335 mg/kg bw/day. Neither testicular weights nor the histological investigation of the testes revealed remarkable findings in this study (max. dose 6700 mg/kg bw/day). A more recent 28-day study with doses up to 1000 mg/kg bw also showed no effect on the testicular weight [Bayer 1992]. A teratogenicity study in rats showed no evidence of a teratogenic potential up to the highest dose of 625 mg/kg bw/day (NOEL developmental toxicity). In the highest dose there was reduction of body weight gain, food intake and feces excretion as a sign of maternal toxicity (NOEL 125 mg/kg bw/day). Genetic Toxicity Aside from several Ames tests with negative results, triethylphosphate induces gene mutations without metabolic activation in S. typhimurium his C117, some bacteria, viruses and a yeast strain. For clarification of the endpoint gene mutation a HPRT test in V79 cell cultures was done. This test revealed a negative result with and without metabolic activation. In an in vitro UDS test on rat hepatocytes triethylphosphate showed no DNA-damaging effect. The results for Drosophilia melanogaster in the limited documented recessive-lethal tests are contradictory, while in vivo studies on the mouse (cytogenetics in the bone marrow, dominant lethal test) were negative.

	Based on laboratory and animal testing, exposure to the material may result in irreversible effects and mutations in humans. For alkyl phosphates, their salts and esters: Acute toxicity: The alkyl phosphates, their salts and esters are relatively non-toxic in single-dose studies. Animal testing showed that the esters do not accumulate in the body. Irritation: Some of the alkyl phosphates are reported to irritate the eye. Generally, animal testing suggests that the lighter the species, the more likely eye irritation is to occur. Animal testing showed that some alkyl phosphates were not irritating to the skin, while others were irritating but not sensitizing. Again, the lighter species were more likely to cause irritation. Reproductive toxicity: Animal testing showed that potassium C9-15 alkyl phosphate did not cause toxicity to the embryo or the foetus, and did not cause birth defects. NOTE: 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. The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
DIETHYLENE GLYCOL MONOBUTYL ETHER	This category includes diethylene glycol ethyl ether (DGEE), diethylene glycol propyl ether (DGPE) diethylene glycol butyl ether (DGBE) and diethylene glycol hexyl ether (DGHE) and their acetates. Studies show that they can cause kidney and liver damage, skin and eye irritation as well as blood changes but do not cause damage to the reproductive, genetic and developmental abnormalities, sensitisation or respiratory systems. However, DGEE is reported to cause sperm insufficiency.
DIETHYLENE GLYCOL	Diglycolic acid is formed following the oxidation of accidentally ingested diethylene glycol in the body and can lead to severe complications with fatal outcome.
2,6-DI-TERT-BUTYL-4-METHYLPHENOL	* 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 hepatoxicity, 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. Due to this ability of BHT to exert prooxidant effects at high concentrations, it has been used to induce experimental models of oxidative stress in several animals and fungi in order to study the protective effects of other compounds. 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-phenoxyl 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-phenoxyl 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 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 as 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 . However, in a similar study no evidence of the carcinogenicity of BHT administered to mice was observed. Several studies have demonstrated the potential of BHT to act either as a tumor promotor or as a tumor suppressor, modulating the carcinogenicity of some well-known carcinogens. Barbara Nieva-Echevarria etal: Comprehensive reviews in Food Science and Food Safety, Vol 14, Dec 2014 https://onlinelibrary.wiley.com/doi/10.1111/1541-4337.12121/pdf Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the possibility of producing mutation. for bridged alkyl phenols: Acute toxicity: 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 Repeat dose toxicity: Repeat dose studies on the members of this category include both subchronic and chronic exposures. The liver is identified as the target organ in rats for all of the substances tested. ferroptosis inhibitors are currently being treated systemically rather than specifically, which may have multiple side effects. For example,Desferoxamin (DFO), an iron chelating agent, is known to have a short half-life, need long-term subcutaneous infusions, and provoke ototoxicity and neurotoxicity. Deferasirox (DFX), an iron chelator, is associated with gastrointestinal and renal toxicity . 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. Liver tumours have been reported.
Caltech FCP Liquid Catalyst& 2,6-DI-TERT-BUTYL-4-METHYLPHENOL	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.
Caltech FCP Liquid Catalyst& DIBENZOYL PEROXIDE & 2,6-DI-TERT-BUTYL-4- METHYLPHENOL	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions.

Caltech FCP Liquid Catalyst& TRIETHYL PHOSPHATE	Alkyl esters of phosphoric acid exhibit a low to moderate acute toxicity and metabolised. From studies done on mice, they are not likely to cause gene damage or affect reproduction. However, 2-ethylhexanoic acid produced an effect on newborn rats at high doses to the pregnant female.
Caltech FCP Liquid Catalyst& DIBENZOYL PEROXIDE	Benzoyl peroxide may cause double vision, breathing problems, excess saliva and tear formation, redness of the skin and changes in motor activity. It did not produce blood or biochemical adverse effects, gene mutation or evidence of cancer. Repeated oral administration may result in decreased weights of testes and the newborn.
DIBENZOYL PEROXIDE & DIETHYLENE GLYCOL & 2,6-DI-TERT-BUTYL-4-METHYLPHENOL	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.
DIBENZOYL PEROXIDE & 2,6-DI-TERT-BUTYL-4-METHYLPHENOL	The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.
TRIETHYL PHOSPHATE & DIETHYLENE GLYCOL MONOBUTYL ETHER	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Acute Toxicity	✗	**Carcinogenicity**	✗
Skin Irritation/Corrosion	✗	**Reproductivity**	✗
Serious Eye Damage/Irritation	✓	**STOT - Single Exposure**	✗
Respiratory or Skin Sensitisation	✓	**STOT - Repeated Exposure**	✗
Mutagenicity	✗	**Aspiration Hazard**	✗

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

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

Many chemicals may mimic or interfere with the body s hormones, known as the endocrine system. Endocrine disruptors are chemicals that can interfere with endocrine (or hormonal) systems.
Endocrine disruptors interfere with the synthesis, secretion, transport, binding, action, or elimination of natural hormones in the body. Any system in the body controlled by hormones can be derailed by hormone disruptors. Specifically, endocrine disruptors may be associated with the development of learning disabilities, deformations of the body various cancers and sexual development problems.
Endocrine disrupting chemicals cause adverse effects in animals. But limited scientific information exists on potential health problems in humans. Because people are typically exposed to multiple endocrine disruptors at the same time, assessing public health effects is difficult.

11.2.2. Other information

See Section 11.1

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish [mg/l]:
Hazardous ingredients:

Caltech FCP Liquid Catalyst				
End Point	**Test Duration (hr)**	**Species**	**Value**	**Source**
Not Available	Not Available	Not Available	Not Available	Not Available

dibenzoyl peroxide				
End Point	**Test Duration (hr)**	**Species**	**Value**	**Source**
EC50	72h	Algae or other aquatic plants	0.042mg/l	2
EC50	48h	Crustacea	0.11mg/l	2
EC10(ECx)	504h	Crustacea	0.001mg/l	2
LC50	96h	Fish	0.06mg/l	2

triethyl phosphate				
End Point	**Test Duration (hr)**	**Species**	**Value**	**Source**
BCF	1008h	Fish	0.5-0.8	7
EC50	72h	Algae or other aquatic plants	901mg/l	2
NOEC(ECx)	504h	Crustacea	31.6mg/l	2
LC50	96h	Fish	>100mg/l	2

diethylene glycol monobutyl ether				
End Point	**Test Duration (hr)**	**Species**	**Value**	**Source**
EC50	72h	Algae or other aquatic plants	1101mg/l	2
EC50	48h	Crustacea	>100mg/l	1
NOEC(ECx)	96h	Algae or other aquatic plants	>=100mg/l	1
EC50	96h	Algae or other aquatic plants	>100mg/l	1
LC50	96h	Fish	1300mg/l	2

diethylene glycol				
End Point	**Test Duration (hr)**	**Species**	**Value**	**Source**
EC50	72h	Algae or other aquatic plants	>6500<13000mg/l	2
EC50	48h	Crustacea	>100mg/l	2
NOEC(ECx)	192h	Algae or other aquatic plants	800mg/l	1
EC50	96h	Algae or other aquatic plants	4566mg/l	2
LC50	96h	Fish	>100mg/l	4

naphtha petroleum, heavy, hydrotreated				
End Point	**Test Duration (hr)**	**Species**	**Value**	**Source**
BCF	1344h	Fish	220-2800	7
EC50	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
EC50	96h	Algae or other aquatic plants	0.758mg/l	2
LC50	96h	Fish	0.199mg/l	2
ErC50	72h	Algae or other aquatic plants	>0.42mg/l	1

Legend:
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

ery toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.
Wastes resulting from use of the product must be disposed of on site or at approved waste sites. For benzoyl peroxide:
Benzoyl peroxide has a melting point of 104 -106 °C, vapor pressure of 0.00929 Pa, solubility of 9.1 mg/L in water at 25 C, and log Pow of 3.43 at 25 C.
Environmental Fate: For indirect photolysis in the atmosphere, the half-life is estimated to be 3 days. The substance is readily biodegradable and hydrolyses rapidly in water. The main hydrolysis product of benzoyl peroxide is benzoic acid.
For Alky Esters of Phosphoric Acid:
Environmental Fate: The chemicals in this category have low melting points, high boiling points or decomposition temperatures, and low vapor pressures.
Terrestrial Fate: If released into the environment, these chemicals will exist predominantly in the soil or the aquatic environment depending on the environmental compartment that they first contact. In tests, tris (2-ethylhexyl) phosphate exhibited 0% biodegradation after 28 days.
Aquatic Fate: The tri-esters are slightly soluble and the others are moderately soluble to soluble in water and are hydrolytically stable.
DO NOT discharge into sewer or waterways.

12.2 Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
dibenzoyl peroxide	LOW (Half-life = 14 days)	LOW (Half-life = 21.25 days)
triethyl phosphate	HIGH	HIGH
diethylene glycol monobutyl ether	LOW	LOW
diethylene glycol	LOW	LOW
2,6-di-tert-butyl-4-methylphenol	HIGH	HIGH

12.3 Bioaccumulation potential

Ingredient	Bioaccumulation
dibenzoyl peroxide	LOW (LogKOW = 3.46)
triethyl phosphate	LOW (BCF = 1.3)
diethylene glycol monobutyl ether	LOW (BCF = 0.46)
diethylene glycol	LOW (BCF = 180)
2,6-di-tert-butyl-4-methylphenol	HIGH (BCF = 2500)

12.4. Mobility in soil

Ingredient	Bioaccumulation
dibenzoyl peroxide	LOW (Log KOC = 771)
triethyl phosphate	LOW (Log KOC = 47.96)
diethylene glycol monobutyl ether	LOW (Log KOC = 10)
diethylene glycol	HIGH (Log KOC = 1)
2,6-di-tert-butyl-4-methylphenol	LOW (Log KOC = 23030)

12.5 Results of PBT and vPvB assessment

	P	B	T	PBT criteria fulfilled?	vP	vB	vPvB criteria fulfilled?
Caltech FCP Liquid Catalyst	✗	✗	✗	No	✗	✗	No
dibenzoyl peroxide	✗	✗	✓	No	✗	✗	No
triethyl phosphate	✗	✗	✗	No	✓	✗	No
diethylene glycol monobutyl ether	No data available	No data available	No data available	No	No data available	No data available	No
diethylene glycol	✗	✗	✓	No	✗	✗	No
2,6-di-tert-butyl-4-methylphenol	✓	✗	✗	No	✓	✗	No

12.6. Endocrine disrupting properties

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

12.7. Other adverse effects

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

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal Considerations:	Disposal of this product and its packaging must comply with all applicable environmental protection and waste disposal legislation, including any requirements set by local authorities. Any unwanted or non-recyclable material should be disposed of through a licensed waste disposal contractor. Transportation of such waste may be subject to ADR (International Carriage of Dangerous Goods by Road) regulations and must be managed in accordance with those requirements.
Waste code:	08 01 11* waste paint and varnish containing organic solvents or other hazardous substances.
Special precautions:	This material and its container must be disposed of in a safe way. Caution should be exercised when handling empty containers that have not been properly cleaned or rinsed, as they may retain hazardous residues. Spillage and wash water from cleaning tools must be prevented from entering soil, watercourses, drains, or sewer systems. Empty containers should be directed to authorised waste disposal or appropriate local recycling facilities. **DO NOT** seal or stopper drums being decontaminated as CO2 gas is generated and may pressurise containers.
Further information available via:	https://www.alumascroofing.com/downloads/disposal-guides/

14. TRANSPORT INFORMATION

Labels required:

Hazchem: 2W

Land transport (ADR):

14.1 UN number	3109	
14.2 UN proper shipping name	ORGANIC PEROXIDE TYPE F, LIQUID (contains dibenzoyl peroxide)	
14.3 Transport hazard class(es)	Class: Subsidiary Hazard:	5.2 N/A
14.4 Packing group	Not Applicable	
14.5 Environmental hazard	Environmentally hazardous	
14.6 Special precautions for user	Hazard identification (Kemler): Classification code: Hazard label: Special provisions: Limited quantity: Transport Category: Tunnel restriction code:	539 P1 5.2 122 274 125ml 2 D

Air transport (ICAO-IATA/DGR):

14.1 UN number	3109	
14.2 UN proper shipping name	Organic peroxide type F, liquid * (contains dibenzoyl peroxide)	
14.3 Transport hazard class(es)	ICAO/IATA class: ICAO/IATA Subsidiary Hazard: ERG code:	5.2 N/A 5L
14.4 Packing group	Not Applicable	
14.5 Environmental hazard	Environmentally hazardous	
14.6 Special precautions for user	Special provisions:	A20 A150 A802

	Cargo only packing instruction:	570
	Cargo only maximum qty/pack:	25 L
	Passenger and cargo packing instruction:	570
	Passenger and cargo maximum qty/pack:	10L
	Passenger and cargo limited qty packing instructions:	Forbidden
	Passenger and cargo limited maximum qty/pack:	Forbidden

Sea transport (IMDG-Code/GGVSee):

14.1 UN number	3109	
14.2 UN proper shipping name	ORGANIC PEROXIDE TYPE F, LIQUID (contains dibenzoyl peroxide)	
14.3 Transport hazard class(es)	IMDG class:	5.2
	IMDG Subsidiary Hazard:	Not applicable
14.4 Packing group	Not Applicable	
14.5 Environmental hazard	Marine Pollutant	
14.6 Special precautions for user	EMS number:	F-J, S-R
	Special provisions:	122 274
	Limited quantities:	125ml

Inland waterways transport (ADN):

14.1 UN number	3109	
14.2 UN proper shipping name	ORGANIC PEROXIDE TYPE F, LIQUID (contains dibenzoyl peroxide)	
14.3 Transport hazard class(es)	Class:	5.2
	Subsidiary Hazard:	N/A
14.4 Packing group	Not Applicable	
14.5 Environmental hazard	Environmentally hazardous	
14.6 Special precautions for user	Classification code:	P1
	Special provisions:	122; 274
	Limited quantity:	125ml
	Equipment required:	PP,EX, A
	Fire cones numbers:	0

14.7. Maritime transport in bulk according to IMO instruments

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

Not applicable.

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

Product name	Group
dibenzoyl peroxide	Not Available
triethyl phosphate	Not Available
diethylene glycol monobutyl ether	Not Available
diethylene glycol	Not Available
2,6-di-tert-butyl-4-methylphenol	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
dibenzoyl peroxide	Not Available
triethyl phosphate	Not Available
diethylene glycol monobutyl ether	Not Available
diethylene glycol	Not Available
2,6-di-tert-butyl-4-methylphenol	Not Available

15. REGULATORY INFORMATION

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

dibenzoyl peroxide is found on the following regulatory lists
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances- ECICS
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

triethyl phosphate is found on the following regulatory lists
EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances- ECICS
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

diethylene glycol monobutyl ether is found on the following regulatory lists
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances- ECICS
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

diethylene glycol is found on the following regulatory lists
EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances- ECICS
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

2,6-di-tert-butyl-4-methylphenol is found on the following regulatory lists
EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances- ECICS
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

Additional Regulatory Information
Not Applicable

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

Information according to 2012/18/EU (Seveso III):
Seveso Category: E1

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
dibenzoyl peroxide	94-36-0	617-008-00-0	01-2119511472-50

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Organic Peroxides Type B; Sensitisation (Skin) Category 1; Serious Eye Damage/Eye Irritation Category 2	GHS01; GHS07; Dgr	H241; H317; H319
2	Organic Peroxides Type B; Sensitisation (Skin) Category 1; Serious Eye Damage/Eye Irritation Category 2; Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1; Explosives, Division 1.1; Acute Toxicity (Oral) Category 4; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3	GHS01; GHS07; Dgr; GHS09	H241; H317; H319; H410; H400; H201; H302; H335
Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.			

Ingredient	CAS number	Index No	ECHA Dossier
triethyl phosphate	78-40-0	015-013-00-7	01-2119492852-28

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Toxicity (Oral) Category 4	GHS07; Wng	H302
2	Acute Toxicity (Oral) Category 4; Serious Eye Damage/Eye Irritation Category 2; Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3; Germ Cell Mutagenicity Category 2; Carcinogenicity Category 1B; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3	GHS07; Wng	H302; H319; H336; H335
Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.			

Ingredient	CAS number	Index No	ECHA Dossier
diethylene glycol monobutyl ether	112-34-5	603-096-00-8	01-2119475104-44

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Serious Eye Damage/Eye Irritation Category 2	GHS07; Wng	H319
2	Serious Eye Damage/Eye Irritation Category 2; Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3; Specific Target Organ Toxicity - Single Exposure Category 2	GHS07; Wng	H319; H411; H336; H314
Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.			

Ingredient	CAS number	Index No	ECHA Dossier
diethylene glycol	111-46-6	603-140-00-6	01-2119457857-21

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Toxicity (Oral) Category 4	GHS07; Wng	H302
2	Acute Toxicity (Oral) Category 4; Specific Target Organ Toxicity - Repeated Exposure Category 2; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3	GHS08; Dgr	H302; H373; H336
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	01-2119565113-46

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Hazardous to the Aquatic Environment Long-Term Hazard Category 1	GHS09; Wng	H410

2	Hazardous to the Aquatic Environment Long-Term Hazard Category 1; Hazardous to the Aquatic Environment Acute Hazard Category 1; Acute Toxicity (Oral) Category 4; Skin Corrosion/Irritation Category 2; Acute Toxicity (Dermal) Category 4; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; Specific Target Organ Toxicity - Repeated Exposure Category 2; Germ Cell Mutagenicity Category 1B; Reproductive Toxicity Category 2; Sensitisation (Skin) Category 1; Specific Target Organ Toxicity - Single Exposure Category 1; Sensitisation (Respiratory) Category 1; Carcinogenicity Category 1B; Acute Toxicity (Oral) Category 3; Serious Eye Damage/Eye Irritation Category 1	GHS09; GHS08; GHS05; Dgr; GHS03; GHS02; GHS06	H410; H400; H315; H335; H373; H340; H361; H317; H370; H311; H331; H350; H301; H222; H229; H318
1	Acute Toxicity (Oral) Category 4; Skin Corrosion/Irritation Category 2; Serious Eye Damage/Eye Irritation Category 2; Hazardous to the Aquatic Environment Long-Term Hazard Category 2	GHS07; GHS09; Wng	H302; H315; H319; H411
2	Acute Toxicity (Oral) Category 4; Skin Corrosion/Irritation Category 2; Serious Eye Damage/Eye Irritation Category 2; Hazardous to the Aquatic Environment Long-Term Hazard Category 2	GHS07; GHS09; Wng	H302; H315; H319; H411
Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.			

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (dibenzoyl peroxide; triethyl phosphate; diethylene glycol monobutyl ether; diethylene glycol)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	No (triethyl phosphate)
Vietnam - NCI	Yes
Russia - FBEPH	Yes
UAE - Control List (Banned/RestrictedSubstances)	No (dibenzoyl peroxide; triethyl phosphate; diethylene glycol monobutyl ether; diethylene glycol; 2,6-di-tert-butyl-4-methylphenol)
Legend:	Yes = All CAS declared ingredients are on the inventory. No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets).

16. OTHER INFORMATION

SDS version summary:

Version	Date of Update	Section Updated
1.0	13/04/2026	Template Change

H201: Explosive; mass explosion hazard.
H222: Extremely flammable aerosol.
H229: Pressurised container: May burst if heated.
H241: Heating may cause a fire or explosion.
H301: Toxic if swallowed.
H302: Harmful if swallowed.

H311: Toxic in contact with skin.
H314: Causes severe skin burns and eye damage.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H331: Toxic if inhaled.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.
H340: May cause genetic defects.
H350: May cause cancer.
H361: Suspected of damaging fertility or the unborn child.
H370: Causes damage to organs.
H373: May cause damage to organs through prolonged or repeated exposure.
H400: Very toxic to aquatic life.
H411: Toxic to aquatic life with long lasting effects.

Other information

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered. For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
ES: Exposure Standard
OSF: Odour Safety Factor
NOAEL: No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index
DNEL: Derived No-Effect Level
PNEC: Predicted no-effect concentration
MARPOL: International Convention for the Prevention of Pollution from Ships
IMSBC: International Maritime Solid Bulk Cargoes Code
IGC: International Gas Carrier Code
IBC: International Bulk Chemical Code

AIIC: Australian Inventory of Industrial Chemicals
DSL: Domestic Substances List
NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCS: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas

NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	Classification Procedure
Organic Peroxides Type F, H242	On basis of test data
Sensitisation (Skin) Category 1, H317	Calculation method
Serious Eye Damage/Eye Irritation Category 2, H319	Calculation method
Hazardous to the Aquatic Environment Long-Term Hazard Category 1, H410	Expert judgement

The contents and format of this Safety Data Sheet comply with UK REACH (UK Regulation (EC) No 1907/2006 as amended) and UK CLP Regulation (UK Regulation (EC) No 1272/2008 as amended), including the requirements of Annex II of UK REACH

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