Loctite 4860 #423-6821 #431-4404

RS Components

Chemwatch Hazard Alert Code: **2**

Chemwatch: **5241-66**
Version No: **4.1**
Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

Issue Date: **20/08/2021**
Print Date: **01/02/2022**
L.GHS.AUS.EN.E

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

Product Identifier

Product name	Loctite 4860 #423-6821 #431-4404
Chemical Name	Not Applicable
Synonyms	Cyanoacrylate Adhesive.; Product Code: 423-6821, 431-4404
Proper shipping name	AVIATION REGULATED LIQUID, N.O.S. Not subject to this Code (see SP 106) (contains ethyl cyanoacrylate)
Chemical formula	Not Applicable
Other means of identification	Not Available

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

Relevant identified uses	Adhesive.

Details of the supplier of the safety data sheet

Registered company name	**RS Components**
Address	25 Pavesi Street Smithfield NSW 2164 Australia
Telephone	+1 300 656 636
Fax	+1 300 656 696
Website	www.au.rs-online.com
Email	Not Available

Emergency telephone number

Association / Organisation	**CHEMWATCH EMERGENCY RESPONSE**
Emergency telephone numbers	+61 1800 951 288
Other emergency telephone numbers	+61 2 9186 1132

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

SECTION 2 Hazards identification

Classification of the substance or mixture

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

COMBUSTIBLE LIQUID, regulated for storage purposes only

ChemWatch Hazard Ratings

	Min	Max
Flammability	1	
Toxicity	0	
Body Contact	2	
Reactivity	1	
Chronic	2	

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

Poisons Schedule	S5
Classification [1]	Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2A, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Hazardous to the Aquatic Environment Acute Hazard Category 3
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*

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Label elements

Hazard pictogram(s)	
Signal word	**Warning**

Hazard statement(s)

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H402	Harmful to aquatic life.

Precautionary statement(s) Prevention

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P261	Avoid breathing mist/vapours/spray.
P273	Avoid release to the environment.
P264	Wash all exposed external body areas thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s) Response

P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Precautionary statement(s) Storage

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

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
7085-85-0	25-50	ethyl cyanoacrylate
77-89-4	25-50	triethyl O-acetylcitrate
123-31-9	0.01-<0.1	hydroquinone
94-36-0	0.01-<0.1	dibenzoyl peroxide
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available*	

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	**Eyelid Adhesion** • Wash thoroughly with water and apply moist pad; maintain in position. • **DO NOT** force separation. • Transport to hospital, or doctor without delay. • Minor eye contamination should be treated by copious washing with water or 1% sodium carbonate solution. • The eye will generally open without further action, typically in one to two days. there should be no residual damage. • Adhesive introduced • Removal of contact lenses after eye injury should only be undertaken by skilled personnel. **Adhesive in the Eye:**

Continued...

	▸ Adhesive will attach itself to eye proteins and will disassociate from these over intermittent periods, usually within several hours. ▸ This will result in weeping until clearance of the protein complex. ▸ It is important to understand that disassociation will normally occur within a matter of hours even with gross contamination.
Skin Contact	Cyanoacrylate adhesives is a very fast setting and strong. they bond human tissues including skin in seconds. Experience shows that accidents involving cyanoacrylates are best handled by passive, non-surgical first aid. **Skin Contact:** ▸ Remove excessive adhesive. ▸ Soak in warm water - the adhesive should loosen from the skin in several hours. Dried adhesive does not present a health hazard. ▸ Contact with clothes, fabric, rags or tissues may generate heat, and strong irritating odours; skin burns may also ensue. **Skin Adhesion:** ▸ **IMMEDIATELY** immerse affected areas in warm soapy water. ▸ **DO NOT** force bonded surfaces apart. ▸ Use a gentle rolling action to peel surfaces apart if possible. It may be necessary to use a blunt edge such as a spatula or spoon handle. Do NOT attempt to pull the surfaces apart with a direct opposing action. ▸ Remove any cured material with warm, soapy water. ▸ Seek medical attention without delay. ▸ A solvent such as acetone may be used (with care!) to separate bonded skin surfaces. **NEVER** use solvent near eyes, mouth, cuts, or abrasions.
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	▸ For material bonded in the mouth seek medical/dental attention. ▸ If lips are accidentally stuck together apply lots of warm water and encourage maximum wetting and pressure from saliva inside the mouth. ▸ Peal or roll lips apart. ▸ Do NOT attempt to pull the lips with direct opposing action. ▸ It is almost impossible to swallow cyanoacrylates. The adhesive solidifies and adheres in the mouth. Saliva will lip the adhesion in one or two days. ▸ For advice, contact a Poisons Information Centre or a doctor.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

It should never be necessary to use surgical means to separate tissues which become accidentally bonded. The action of physiological fluids or warm soapy water will cause this adhesive to eventually fail.

SECTION 5 Firefighting measures

Extinguishing media

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

Special hazards arising from the substrate or mixture

Fire Incompatibility	▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear full body protective clothing with breathing apparatus. ▸ Prevent, by any means available, spillage from entering drains or water course. ▸ Use water delivered as a fine spray to control fire and cool adjacent area. ▸ Avoid spraying water onto liquid pools. ▸ **DO NOT** approach containers suspected to be hot. ▸ Cool fire exposed containers with water spray from a protected location. ▸ If safe to do so, remove containers from path of fire.
Fire/Explosion Hazard	▸ Combustible. ▸ Slight fire hazard when exposed to heat or flame. ▸ Heating may cause expansion or decomposition leading to violent rupture of containers. ▸ On combustion, may emit toxic fumes of carbon monoxide (CO). ▸ May emit acrid smoke. ▸ Mists containing combustible materials may be explosive. Combustion products include: carbon dioxide (CO_2) nitrogen oxides (NOx) other pyrolysis products typical of burning organic material.
HAZCHEM	2Z

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

Continued...

See section 12

Methods and material for containment and cleaning up

Minor Spills	If cloth has been used to wipe up spills, immediately soak the cloth in water to produce polymerisation and prevent possibility of autoignition. ▸ Clean up all spills immediately. ▸ Avoid breathing vapours and contact with skin and eyes. ▸ Control personal contact with the substance, by using protective equipment. ▸ Contain and absorb spill with sand, earth, inert material or vermiculite. ▸ Wipe up. ▸ Place in a suitable, labelled container for waste disposal.
Major Spills	Moderate hazard. ▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves. ▸ Prevent, by any means available, spillage from entering drains or water course. ▸ No smoking, naked lights or ignition sources. ▸ Increase ventilation. ▸ Stop leak if safe to do so. ▸ Contain spill with sand, earth or vermiculite. ▸ Collect recoverable product into labelled containers for recycling. ▸ Absorb remaining product with sand, earth or vermiculite. ▸ Collect solid residues and seal in labelled drums for disposal. ▸ Wash area and prevent runoff into drains. ▸ If contamination of drains or waterways occurs, advise emergency services.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	▸ **DO NOT** allow clothing wet with material to stay in contact with skin ▸ Avoid all personal contact, including inhalation. ▸ Wear protective clothing when risk of exposure occurs. ▸ Use in a well-ventilated area. ▸ Prevent concentration in hollows and sumps. ▸ **DO NOT** enter confined spaces until atmosphere has been checked. ▸ Avoid smoking, naked lights or ignition sources. ▸ Avoid contact with incompatible materials. ▸ When handling, **DO NOT** eat, drink or smoke. ▸ Keep containers securely sealed when not in use. ▸ Avoid physical damage to containers. ▸ Always wash hands with soap and water after handling. ▸ Work clothes should be laundered separately. ▸ Use good occupational work practice. ▸ Observe manufacturer's storage and handling recommendations contained within this SDS. ▸ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
Other information	Consider storage under inert gas. ▸ Store in original containers. ▸ Keep containers securely sealed. ▸ Store in a cool, dry, well-ventilated area. ▸ Store away from incompatible materials and foodstuff containers. ▸ Protect containers against physical damage and check regularly for leaks. ▸ Observe manufacturer's storage and handling recommendations contained within this SDS. ▸ **NOTE:** May develop pressure in containers; open carefully. Vent periodically.

Conditions for safe storage, including any incompatibilities

Suitable container	▸ Metal can or drum ▸ Packaging as recommended by manufacturer. ▸ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	For cyanoacrylates: ▸ Avoid contact with acids, bases, amines. ▸ Avoid contact with clothes, fabric, rags (especially cotton and wool) rubber or paper; contact may cause polymerisation. ▸ Cyanoacrylate adhesives undergo anionic polymerization in the presence of a weak base, such as water, and are stabilized through the addition of a weak acid. The stabiliser is usually in the form of a weak acidic gas such as SO2, NO, or BF3. An essential function of the stabiliser is to prevent polymerisation in the container, which is usually made of polyethylene. If too little stabiliser is added, the product will be prone to premature polymerization and if too much is added it will be less active and function less effectively as an adhesive. ▸ When the adhesive contacts a slightly alkaline surface, trace amounts of adsorbed water or hydroxide ions (OH-) that are present on the substrate's surface neutralise the acidic stabilizer in the adhesive, resulting in rapid polymerisation. ▸ Unmodified cyanoacrylate adhesives do not polymerise readily on acidic surfaces such as wood or dichromated metals. ▸ Cyanoacrylate adhesives (or super-glues) do not wet or adhere well to polyolefins. The surface tension of the adhesive is much higher than that of the substrate. However, polyolefins can be primed for adhesion with cyanoacrylates by certain chemical compounds normally considered to be activators for cyanoacrylate polymerisation. ▸ Free radical stabilisers such as hydroquinone are added to improve storage stability ▸ Segregate from alcohol, water. ▸ Avoid reaction with oxidising agents

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Continued...

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	hydroquinone	Hydroquinone	2 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	dibenzoyl peroxide	Benzoyl peroxide	5 mg/m3	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
triethyl O-acetylcitrate	5.2 mg/m3	57 mg/m3	1,400 mg/m3
hydroquinone	3 mg/m3	20 mg/m3	120 mg/m3
dibenzoyl peroxide	15 mg/m3	1,200 mg/m3	7,000 mg/m3

Ingredient	Original IDLH	Revised IDLH
ethyl cyanoacrylate	Not Available	Not Available
triethyl O-acetylcitrate	Not Available	Not Available
hydroquinone	50 mg/m3	Not Available
dibenzoyl peroxide	1,500 mg/m3	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
ethyl cyanoacrylate	E	≤ 0.1 ppm
triethyl O-acetylcitrate	D	> 0.1 to ≤ 1 ppm
Notes:	*Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.*	

MATERIAL DATA

Exposure controls

Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.
Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.
An approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

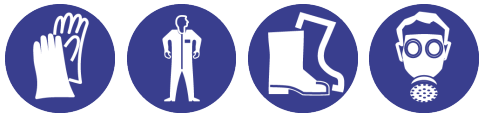
Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at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

Within each range the appropriate value depends on:

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

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

Personal protection



Eye and face protection

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and

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	remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]
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. The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended. Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: · frequency and duration of contact, · chemical resistance of glove material, · glove thickness and · dexterity Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent). · When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. · Contaminated gloves should be replaced. As defined in ASTM F-739-96 in any application, gloves are rated as: · Excellent when breakthrough time > 480 min · Good when breakthrough time > 20 min · Fair when breakthrough time < 20 min · Poor when glove material degrades For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task. Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: · Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. · Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Body protection	See Other protection below
Other protection	▸ Overalls. ▸ P.V.C apron. ▸ Barrier cream. ▸ Skin cleansing cream. ▸ Eye wash unit.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection:
Loctite 4860 #423-6821 #431-4404

Material	CPI
NATURAL RUBBER	A
NATURAL+NEOPRENE	A
NEOPRENE	A
NEOPRENE/NATURAL	A
NITRILE	A
PVC	A

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

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

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

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

^ - Full-face
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

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SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Colourless liquid with an irritating odour; polymerises in presence of water.

Physical state	Liquid	**Relative density (Water = 1)**	1.07 @ 20 C
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Available	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	>149	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	80-93.4	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Combustible.	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Applicable	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Applicable	**Volatile Component (%vol)**	<3 (VOC)
Vapour pressure (kPa)	<0.1	**Gas group**	Not Available
Solubility in water	Reacts	**pH as a solution (Not Available%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system. Cyanoacrylate vapours are irritating to the upper respiratory tract. In very dry atmospheres (below 50% relative humidity), vapour will irritate the eyes and respiratory system. High vapour concentrations may cause pneumonitis or other respiratory complications including chemical bronchitis. When relative humidity is adjusted above 55% by use of suitable humidifiers there should be little or no irritant effects. Such vapours produce no acute or chronic effects in normal industrial exposures with appropriate industrial hygiene controls. Inhalation hazard is increased at higher temperatures. Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination
Ingestion	Uncured cyanoacrylates are difficult to swallow as saliva cures the surface of the adhesive with negligible bonding. The cured material is considered to be non-hazardous. The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.
Skin Contact	Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. The material may accentuate any pre-existing dermatitis condition The material will bond human tissues within seconds. A large drop undergoing curing on the skin may cause thermal burns. No permanent skin damage is known to occur from a single dermal exposure although a small proportion of individuals show sensitisation and allergic skin reactions

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	following repeated and prolonged exposure. Monomeric homologues of the n-alkyl cyanoacrylates (from methyl to octyl) undergo an exothermic reaction on polymerisation. The heat of polymerisation and the release of toxic metabolites upon degradation (thought to be formaldehyde and cyanoacetate) probably account for death or damage to the cells of tissues following exposure. Irritant dermatitis may occur following exposure to monomer vapours at low relative humidity. When the humidity is raised above 55%, skin complaints generally cease. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur. Vapour exposure to 40-60 ppm cyanoacrylate is objectionable producing lachrymation, rhinorrhoea and blurred vision. The material is capable of gluing the eyelids together. Free moisture on the eyeball usually cures the surface of the adhesive with negligible bonding. If the eyeballs or lids are bonded, the eye will become mobile after 1-2 days without permanent damage. Weeping and double vision may occur during this time. Although cyanoacrylates do not bond to the eyeball the cured material may scratch the cornea.
Chronic	Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a substantial number of individuals, and/or of producing a positive response in experimental animals. Substances that can cause occupational asthma (also known as asthmagens and respiratory sensitisers) can induce a state of specific airway hyper-responsiveness via an immunological, irritant or other mechanism. Once the airways have become hyper-responsive, further exposure to the substance, sometimes even to tiny quantities, may cause respiratory symptoms. These symptoms can range in severity from a runny nose to asthma. Not all workers who are exposed to a sensitiser will become hyper-responsive and it is impossible to identify in advance who are likely to become hyper-responsive. Substances than can cuase occupational asthma should be distinguished from substances which may trigger the symptoms of asthma in people with pre-existing air-way hyper-responsiveness. The latter substances are not classified as asthmagens or respiratory sensitisers Wherever it is reasonably practicable, exposure to substances that can cuase occupational asthma should be prevented. Where this is not possible the primary aim is to apply adequate standards of control to prevent workers from becoming hyper-responsive. Activities giving rise to short-term peak concentrations should receive particular attention when risk management is being considered. Health surveillance is appropriate for all employees exposed or liable to be exposed to a substance which may cause occupational asthma and there should be appropriate consultation with an occupational health professional over the degree of risk and level of surveillance. Dermatitis may result from prolonged exposures. On repeated and prolonged exposure by skin contact or inhalation, a small proportion of individuals develop allergic sensitivities.

Loctite 4860 #423-6821 #431-4404	**TOXICITY**	**IRRITATION**
	Oral (Rat) LD50: >5000 mg/kg[2]	Not Available
ethyl cyanoacrylate	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 233.2 mg/kg[2]	Not Available
	Inhalation(Rat) LC50; 5.278 mg/L4h[2]	
	Oral (Rat) LD50; 190.8 mg/kg[2]	
triethyl O-acetylcitrate	**TOXICITY**	**IRRITATION**
	dermal (guinea pig) LD50: >11360 mg/kg[1]	Eye: no adverse effect observed (not irritating)[1]
	Oral (Rat) LD50; 7000 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
hydroquinone	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg[1]	Skin (human): 2% - mild
	Oral (Rat) LD50; 320 mg/kg[2]	Skin (human): 5% - SEVERE
dibenzoyl peroxide	**TOXICITY**	**IRRITATION**
	dermal (mammal) LD50: >1000 mg/kg[2]	Eye (rabbit): 500 mg/24h - mild
	Oral (Rat) LD50; 7710 mg/kg[2]	Skin effects (MAK): very weak
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*	

ETHYL CYANOACRYLATE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production. For methyl cyanoacrylate (MCA) and ethyl cyanoacrylate (ECA) From the data available, the key toxicological features of MCA and ECA seem to be as a result of local activity at the site of contact. Human data indicate that liquid MCA and ECA are not skin irritants as a result of single exposure. However, there are indications from human studies that repeated exposure can result in skin irritant effects. Eye irritancy has been observed in humans exposed to liquid cyanoacrylate adhesives. No conclusions can be drawn with respect to the skin sensitisation potential of MCA; the only study available did not provide any meaningful information. For ECA, there are a number of reports, but in only two individuals are the data consistent with a skin sensitisation response. It should be borne in mind that there are likely to be considerable difficulties in performing tests on a substance that polymerises rapidly on the skin; although speculative, it seems plausible that the removal of hardened adhesive could contribute to some of the skin reactions observed. The main health effects that have been observed to date in relation to occupational exposure to MCA and ECA are eye and respiratory tract irritation. A number of studies, both case reports and workplace surveys, have been reported in which occurrences of asthma have also been

Continued...

	linked to exposure to ECA and/or MCA. The available information does not allow conclusions to be drawn regarding whether asthma was induced by an allergenic or an irritation mechanism. In many of the bronchial challenge tests, it seems that the challenge concentrations involved were directly irritant. In a human experimental study using MCA vapour, no sensory irritant effects were reported at 1 ppm (4.5 mg/m3) (a human no-observed-adverse-effect level [NOAEL]); throat and nose "irritation" were subjectively reported from 2 to 20 ppm (9.1 to 91 mg/m3) or more. Eye irritation and "burning" were reported from 4 to 15 ppm (18 to 68 mg/m3) or more. At concentrations above 20 ppm (91 mg/m3), lacrimation and rhinorrhoea were reported (except in one individual for whom rhinorrhoea was reported at around 7 ppm [32 mg/m3]), and these were more pronounced at 50-60 ppm (227-272 mg/m3) (a level at which burning pain in the eyes was also reported). In the absence of similar quantitative data for ECA, it would seem reasonable to assume that a similar dose-response relationship exists for ECA as for MCA, given their close structural similarities, similar physicochemical properties, and, for most end-points, similar toxicological profiles. Genotoxicity: There is no evidence of mutagenic response in several test assays * [AIHAAP]
TRIETHYL O-ACETYLCITRATE	Somnolence, vascular changes. Acetyl Triethyl Citrate, Acetyl Tributyl Citrate, Acetyl Trihexyl Citrate, and Acetyl Trioctyl Citrate all function as plasticizers in cosmetics. Additionally, the Trihexyl and Trioctyl forms are described as skin-conditioning agents-emollients, These ingredients were sufficiently similar in structure that safety test data on one were considered applicable to all. Approximately 99% of orally administered Acetyl Tributyl Citrate is excreted-intermediate metabolites include acetyl citrate, monobutyl citrate, acetyl monobutyl citrate, dibutyl citrate, and acetyl dibutyl citrate. In acute, short-term, subchronic, and chronic feeding studies, these ingredients were relatively nontoxic. Differences from controls were either not statistically significant or not related to any organ toxicity. Ocular exposures produced moderate reactions that cleared by 48 hours after instillation. Dermal application was not toxic in rabbits. In a guinea pig maximization test, Acetyl Triethyl Citrate was a sensitizer whereas Acetyl Tributyl Citrate was not. Limited clinical testing of Acetyl Triethyl Citrate and Acetyl Tributyl Citrate was negative for both skin irritation and sensitization. These clinical data were considered more relevant than the guinea pig maximization data, suggesting to the Cosmetic Ingredient Review Expert Panel that none of these ingredients would be a sensitizer. Physiologic effects noted with intravenous delivery of Acetyl Triethyl Citrate or Acetyl Tributyl Citrate include dose-related decreases in blood pressure and intestinal muscular spasms. These ingredients were not genotoxic in bacterial or mammalian test systems. No significant differences in tumor induction (lymphomas) were noted in rats fed Acetyl Tributyl Citrate for 2 year. Acetyl Tributyl Citrate was not a developmental or reproductive toxicant in studies in mice and rats. Based on all the available data, these ingredients were considered safe as used in cosmetics. Final report on the safety assessment of acetyl triethyl citrate, acetyl tributyl citrate, acetyl trihexyl citrate, and acetyl trioctyl citrate Int J Toxicol . 2002;21 Suppl 2:1-17.doi: 10.1080/10915810290096504. for citric acid (and its inorganic citrate salts) Based on many experimental data in animals and on human experience, citric acid is of low acute toxicity. The NOAEL for repeated dose toxicity for rats is 1200 mg/kg/d. The major, reversible (sub)chronic toxic effects seem to be limited to changes in blood chemistry and metal absorption/excretion kinetics. Citric acid is not suspected of being a carcinogen nor a reprotoxic or teratogenic agent. The NOAEL for reproductive toxicity for rats is 2500 mg/kg/d. Further, it is not mutagenic *in vitro* and *in vivo*. Also, the sensitising potential is seen as low. In contrast, irritation, in particular of the eyes but also of the respiratory pathways and the skin, is the major toxicological hazard presented by citric acid The CIR Expert Panel (Panel) assessed the safety of citric acid, 12 inorganic citrate salts, and 20 alkyl citrate esters as used in cosmetics, concluding that these ingredients are safe in the present practices of use and concentration. Citric acid is reported to function as a pH adjuster, chelating agent, or fragrance ingredient. Some of the salts are also reported to function as chelating agents, and a number of the citrates are reported to function as skin-conditioning agents but other functions are also reported. The Panel reviewed available animal and clinical data, but because citric acid, calcium citrate, ferric citrate, manganese citrate, potassium citrate, sodium citrate, diammonium citrate, isopropyl citrate, stearyl citrate, and triethyl citrate are generally recognized as safe direct food additives, dermal exposure was the focus for these ingredients in this cosmetic ingredient safety assessment.
HYDROQUINONE	The material may produce severe skin irritation after prolonged or repeated exposure, and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) thickening of the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration. Hydroquinone is rapidly and extensively absorbed from the gut and lungs of animals. Absorption via the skin is slow but may be accelerated with vehicles such as alcohols. Hydroquinone distributes rapidly and widely among tissues. It is metabolized to 1,4-benzoquinone and other oxidised products, and is detoxified by conjugation to monoglucuronide, monosulfate, and mercapturic derivatives. The excretion of hydroquinone and its metabolites is rapid, and occurs primarily via the urine. Hydroquinone exhibits moderate acute oral toxicity for animals. Limited data suggest that powdered hydroquinone causes transient eye irritation and corneal opacity in dogs and guinea-pigs; in rabbits powdered hydroquinone induced slight irritation of the eye. Hydroquinone may be a skin sensitiser in animals. The ability to induce sensitization has been found to vary from "weak" to "strong" depending on the test procedure and vehicle used. Repeated oral dosing caused tremors and reduced activity .>=64 mg/kg), reduced body weight gain (>=200 mg/kg), convulsions (..400 mg/kg), and nephropathy in F-344 rats (>=100 mg/kg). No adverse effects on the kidneys were reported in Sprague-Dawley rats treated for the same length of time with the same dose levels. Effects in mice include tremors and convulsions (400 mg/kg), increased liver weight (>=25 mg/kg), and irritation of the forestomach (>=200 mg/kg). A functional observational battery and neuropathological examinations of rats failed to give any evidence of persistent or structural neurotoxicity after repeated dosing for 90 days. A NOEL for all effects was 20 mg/kg per day. Fourteen days of repeated dermal dosing caused reduced body weights of male rats at the 3840 mg/kg dose level (6% relative to the controls), but the body weights of female rats at this dose level and of mice at 4800 mg/kg were comparable to controls. There were no clinical signs of toxicity in either species. Prolonged dermal dosing over 13 weeks with 2.0, 3.5, or 5.0% hydroquinone in an oil-in-water emulsion cream resulted in minimal to minor dermal irritation, but no overt toxicity. No adverse effects or compound-related effects occurred in organ weight, clinical pathology, or histopathology. A NOEL was not determined because of the dermal irritation in all treated groups, but the NOAEL was the highest dose level of 5% hydroquinone (74 mg/kg in males and 110 mg/kg in females) based on the lack of systemic effects. **Reproductive effects:** A two-generation reproduction study was conducted in rats. The NOAEL for reproductive effects through two generations was 150 mg/kg per day (the highest dose tested). **Genetic toxicity:** Numerous genotoxicity studies of hydroquinone have been conducted. Hydroquinone is not mutagenic in the *Salmonella*/microsome test. Other data indicate that hydroquinone induces structural chromosome aberrations and c-mitotic effects *in vivo* in mouse bone-marrow cells following ip injection. *In vitro* studies with various cell lines showed that hydroquinone was capable of inducing gene mutations, structural chromosome aberrations, sister-chromatid exchange, and DNA damage. Hydroquinone produces adducts with DNA *in vitro*, but recent *in vivo* studies were unable to produce DNA adducts. While several experiments with hydroquinone have shown mutagenic effects; the relevance of these results to human risk is uncertain . The majority of positive mutagenicity studies use routes of exposure (parenteral or *in vitro*) which are not relevant to human exposures. A dominant lethal assay in rats was negative. **Carcinogenicity:** Sprague-Dawley rats treated for two-years with hydroquinone in the diet showed "atrophy of the liver cord cells, lymphoid tissue of the spleen, adipose tissue, and striated muscle together with superficial ulceration and hemorrhage of the stomach mucosa" but no carcinogenesis. Two-year studies performed by the NTP reported that hydroquinone exposure was associated with some evidence of carcinogenicity in F-344 rats and B6C3F1 mice. In the NTP study, renal tubular cell adenomas occurred in male rats and mononuclear cell leukemia in female rats, and hepatocellular neoplasms, mainly adenomas, in female mice. The NTP concluded that these data indicated "some evidence of carcinogenic activity" in male and female rats and in female mice. In an another study using F-344 rats and B6C3F1 mice, renal tubular cell adenomas were also noted in male rats; hepatocellular adenomas and renal cell hyperplasia were noted in male mice; and hyperplasia of the forestomach was noted in both male and female mice fed 0.8% hydroquinone diets for two years. The evidence provided by cancer bioassay studies is considered limited A U.S.E.P.A. review of the NTP bioassay found the bioassay results provide limited evidence of carcinogenicity in animals. **Mechanisms:** Covalent binding and oxidative stress are mechanisms postulated to be associated with hydroquinone-induced toxicity. Oxidised hydroquinone metabolites may covalently bind cellular macromolecules or alkylate low molecular weight nucleophiles (e.g., glutathione (GSH))

Continued...

	resulting in enzyme inhibition, alterations in nucleic acids and oxidative stress; however, redox cycling is not likely to contribute significantly to oxidative stress. The reaction of hydroquinone metabolites with GSH results in the formation of conjugates which can be further processed to cysteine conjugates which are postulated to cause kidney toxicity Cell proliferation associated nephrotoxicity in a sensitive strain and species of animal (male F344 rat) has been postulated to be involved in the production of renal tumors in rats. **Interaction with Phenols:** A number of studies reporting interactive effects between hydroquinone and other phenolic compounds. Coadministration of hydroquinone and phenol (75 mg/kg), when given by intraperitoneal injection twice per day, produced a synergistic decrease in bone marrow cellularity in B6C3F1 mice that was similar to that induced by benzene. This compound treatment was significantly more myelotoxic than that observed when either hydroquinone or phenol was administered separately. Associated *in vitro* studies suggested that this interactive effect was due to a phenol-induced stimulation of the myeloperoxidase-mediated conversion of hydroquinone to 1,4-benzoquinone in the bone marrow. Subsequent studies have indicated that interactions between hydroquinone and other phenolic compounds can result in a variety of cytotoxic, immunotoxic and genotoxic effects.
DIBENZOYL PEROXIDE	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. For benzoyl peroxide: The acute oral toxicity of benzoyl peroxide is very low: LD50 >2,000 mg/kg bw in mice, and 5,000 mg/kg bw in rats. No deaths occurred in male rats following inhalation of 24.3 mg/L. Visible effects included eye squint, dyspnea, salivation, lacrimation, erythema and changes of respiratory rates and motor activity. Benzoyl peroxide was slightly irritating to skins in 24 hr-patch tests. Benzoyl peroxide was not irritating to the eyes of rabbits if washed out within 5 minutes after instillation, however, if the chemical was not washed out until 24 hours later, it proved to be irritating. Positive results from sensitisation tests in guinea pigs and mice, and from a maximization test in human volunteers, indicate that benzoyl peroxide is a skin sensitiser. In the combined repeated dose and reproduction/developmental toxicity study (OECD TG 422), benzoyl peroxide did not produce hematological or biochemical adverse effects. Repeated administration by oral gavage up to 1,000 mg/kg bw/day for 29 days resulted in decreased weights of testes and epididymis in male rats. The NOAEL for repeated dose toxicity was 500 mg/kg bw/day. This substance did not cause gene mutation in bacteria (OECD TG 471 & 472) and *in vitro* chromosomal aberration in CHL (Chinese Hamster Lung) cells. An *in vivo* mammalian erythrocytes micronucleus test (OECD TG 474) produced negative result. The available evidence supports the conclusion that benzoyl peroxide is not a mutagen. There is no evidence to suggest that benzoyl peroxide is a carcinogen. However, there is some evidence from nonguidelines studies that benzoyl peroxide is a skin tumour promoter. In the combined repeated dose and reproduction/developmental toxicity study [OECD TG 422], no treatment-related changes in precoital time, rate of copulation, fertility and gestation were noted in any treated group. Adverse effects were shown at the highest dose of 1,000 mg/kg bw/day in parental male rats with the reduction of reproductive organ weight and slight testes degeneration. In parental female rats, no adverse effects were observed during the test period. The NOAEL for reproduction toxicity in male rats was 500 mg/kg bw/day. In the offspring, the only effect seen was that body weight gain of pups at dose of 1,000 mg/kg bw/day was significantly decreased. The NOAEL for developmental toxicity was 500 mg/kg bw/day.
TRIETHYL O-ACETYLCITRATE & HYDROQUINONE & DIBENZOYL PEROXIDE	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.
HYDROQUINONE & DIBENZOYL PEROXIDE	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.

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*

SECTION 12 Ecological information

Toxicity

Loctite 4860 #423-6821 #431-4404

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

ethyl cyanoacrylate

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

triethyl O-acetylcitrate

Endpoint	Test Duration (hr)	Species	Value	Source
NOEC(ECx)	72h	Algae or other aquatic plants	0.109mg/l	2
LC50	96h	Fish	>38<60mg/l	2
EC50	72h	Algae or other aquatic plants	>0.238mg/l	2
EC50	48h	Crustacea	7.82mg/l	2

Continued...

hydroquinone	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	NOEC(ECx)	72h	Algae or other aquatic plants	0.002mg/l	2
	ErC50	72h	Algae or other aquatic plants	0.335mg/l	1
	LC50	96h	Fish	0.044mg/l	2
	EC50	72h	Algae or other aquatic plants	<0.033mg/l	2
	EC50	48h	Crustacea	0.061mg/l	2
dibenzoyl peroxide	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	EC10(ECx)	504h	Crustacea	0.001mg/l	2
	LC50	96h	Fish	0.06mg/l	2
	EC50	72h	Algae or other aquatic plants	0.042mg/l	2
	EC50	48h	Crustacea	0.11mg/l	2
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*				

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
ethyl cyanoacrylate	LOW	LOW
triethyl O-acetylcitrate	LOW	LOW
hydroquinone	LOW	LOW
dibenzoyl peroxide	LOW (Half-life = 14 days)	LOW (Half-life = 21.25 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
ethyl cyanoacrylate	LOW (LogKOW = 1.4174)
triethyl O-acetylcitrate	LOW (LogKOW = 1.3393)
hydroquinone	LOW (BCF = 65)
dibenzoyl peroxide	LOW (LogKOW = 3.46)

Mobility in soil

Ingredient	Mobility
ethyl cyanoacrylate	LOW (KOC = 6.847)
triethyl O-acetylcitrate	LOW (KOC = 3062)
hydroquinone	LOW (KOC = 434)
dibenzoyl peroxide	LOW (KOC = 771)

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	▸ Containers may still present a chemical hazard/ danger when empty. ▸ Return to supplier for reuse/ recycling if possible. Otherwise: ▸ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ▸ Where possible retain label warnings and SDS and observe all notices pertaining to the product. ▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ▸ It may be necessary to collect all wash water for treatment before disposal. ▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▸ Where in doubt contact the responsible authority. ▸ Recycle wherever possible or consult manufacturer for recycling options. ▸ Consult State Land Waste Authority for disposal. ▸ Bury or incinerate residue at an approved site. ▸ Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14 Transport information

Labels Required

	
Marine Pollutant	NO

Continued...

HAZCHEM	2Z

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

Air transport (ICAO-IATA / DGR)

UN number	3334
UN proper shipping name	Aviation regulated liquid, n.o.s. * (contains ethyl cyanoacrylate)
Transport hazard class(es)	ICAO/IATA Class: 9 ICAO / IATA Subrisk: Not Applicable ERG Code: 9A
Packing group	III
Environmental hazard	Not Applicable
Special precautions for user	Special provisions: A27 Cargo Only Packing Instructions: 964 Cargo Only Maximum Qty / Pack: 450L Passenger and Cargo Packing Instructions: 964 Passenger and Cargo Maximum Qty / Pack: 450L Passenger and Cargo Limited Quantity Packing Instructions: Y964 Passenger and Cargo Limited Maximum Qty / Pack: 30 kg G

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

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

Not Applicable

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

Product name	Group
ethyl cyanoacrylate	Not Available
triethyl O-acetylcitrate	Not Available
hydroquinone	Not Available
dibenzoyl peroxide	Not Available

Transport in bulk in accordance with the ICG Code

Product name	Ship Type
ethyl cyanoacrylate	Not Available
triethyl O-acetylcitrate	Not Available
hydroquinone	Not Available
dibenzoyl peroxide	Not Available

SECTION 15 Regulatory information

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

ethyl cyanoacrylate is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australian Inventory of Industrial Chemicals (AIIC)

triethyl O-acetylcitrate is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

hydroquinone is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 2
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

dibenzoyl peroxide is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 2
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australian Inventory of Industrial Chemicals (AIIC)
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

National Inventory Status

National Inventory	Status

Continued...

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (ethyl cyanoacrylate; triethyl O-acetylcitrate; hydroquinone; dibenzoyl peroxide)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (triethyl O-acetylcitrate)
Vietnam - NCI	Yes
Russia - FBEPH	No (triethyl O-acetylcitrate)
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.*

SECTION 16 Other information

Revision Date	20/08/2021
Initial Date	23/02/2017

SDS Version Summary

Version	Date of Update	Sections Updated
3.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification
4.1	20/08/2021	Classification change due to full database hazard calculation/update.

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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
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

end of SDS