



Safety Data Sheet (SDS) Report.

Issue Date: 2018-07-05

Sample Description:

The sample information was submitted and identified on client's behalf to be:

Product Name	:	5 Star Ball Pen
Physical State	:	Liquid
Data Received	:	Jul 03, 2018
Initial Version Date	:	Dec 14, 2015 Jul 05,
Data Reviewed	:	2018

Service Requested:

Based on the information provided by the applicant, the Safety Data Sheet (SDS) was generated according to requirements of Regulation (EC) No 1907/2006 (REACH) with its amendment Commission Regulation (EU) 2015/830, Regulation (EC) No 1272/2008, for details please refer to attached pages.

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1. Product Identifier

Product name	5 Star Ball Pen
Synonyms	Not Available
Other means of identification	333328

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

Relevant identified uses	For writing
Uses advised against	Not Applicable

1.3. Details of the supplier of the safety data sheet

EVO GLOBAL HOLDINGS LIMITED
Newland House, Unit 2
Express Way, Tuscany Park
Normanton
UK
WF6 2TZ
info@evo-group.co.uk

Units 5&6 Grants Drive
Greenogue Business Park
Rathcoole
Dublin
Ireland
D24 W56C

1.4. Emergency telephone number

National Poisons Information Service (Birmingham Centre)
City Hospital 0344 892 0111 or NHS 111
+353 (0)1 809 2166 (Beaumont Hospital, Republic of Ireland only, 8am-10pm, 7 days a week)

SECTION 2 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification according to regulation (EC) No 1272/2008 [CLP]	Not Applicable
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2.2. Label elements

CLP label elements	Not Applicable
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SIGNAL WORD	NOT APPLICABLE
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Hazard statement(s)

Not Applicable

Supplementary statement(s)

EUH210	Safety data sheet available on request
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Precautionary statement(s) Prevention

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

2.3. Other hazards

Ingestion may produce health damage*.

Cumulative effects may result following exposure*.

May produce discomfort of the eyes*.

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

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**3.1.Substances**

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

1.CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP]
1.57-55-6 2.200-338-0 3.Not Available 4.Not Available	20	<u>Propane-1,2-diol</u>	Not Applicable
1.24969-06-0 2.Not Available 3.Not Available 4.Not Available	18	<u>Epoxy resin</u>	Not Applicable
1.100-51-6 2.202-859-9 3.603-057-00-5 4.Not Available	15	<u>benzyl alcohol</u>	Acute Toxicity (Inhalation) Category 4, Acute Toxicity (Oral) Category 4; H332, H302
1.65113-55-5 2.265-449-9 3.Not Available 4.Not Available	15	<u>C.I. Solvent Black 46</u>	Not Applicable
1.147-14-8 2.205-685-1 3.Not Available 4.Not Available	10	<u>BX</u>	Not Applicable
1.52080-58-7 2.Not Available 3.Not Available 4.Not Available	9	<u>solvent violet 8</u>	Not Applicable
1.122-99-6 2.204-589-7 3.603-098-00-9 4.Not Available	9	<u>ethylene glycol phenyl ether</u>	Acute Toxicity (Oral) Category 4, Eye Irritation Category 2; H302, H319
1.102-71-6 2.203-049-8 3.Not Available 4.Not Available	1	<u>triethanolamine</u>	Not Applicable

SECTION 4 FIRST AID MEASURES**4.1. Description of first aid measures**

General	<ul style="list-style-type: none"> ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary. <p>If this product comes in contact with eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with water. ▶ If irritation continues, seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. <p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
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Eye Contact	<p>If this product comes in contact with eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with water. ▶ If irritation continues, seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary.
Ingestion	<ul style="list-style-type: none"> ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

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.

for copper intoxication:

- ▶ Unless extensive vomiting has occurred empty the stomach by lavage with water, milk, sodium bicarbonate solution or a 0.1% solution of potassium ferrocyanide (the resulting copper ferrocyanide is insoluble).
 - ▶ Administer egg white and other demulcents.
 - ▶ Maintain electrolyte and fluid balances.
 - ▶ Morphine or meperidine (Demerol) may be necessary for control of pain.
 - ▶ If symptoms persist or intensify (especially circulatory collapse or cerebral disturbances, try BAL intramuscularly or penicillamine in accordance with the supplier's recommendations.
 - ▶ Treat shock vigorously with blood transfusions and perhaps vasopressor amines.
 - ▶ If intravascular haemolysis becomes evident protect the kidneys by maintaining a diuresis with mannitol and perhaps by alkalinising the urine with sodium bicarbonate.
 - ▶ It is unlikely that methylene blue would be effective against the occasional methaemoglobinemia and it might exacerbate the subsequent haemolytic episode.
 - ▶ Institute measures for impending renal and hepatic failure.
- [GOSSELIN, SMITH & HODGE: Commercial Toxicology of Commercial Products]
- ▶ A role for activated charcoal or emesis is, as yet, unproven.
 - ▶ In severe poisoning CaNa₂EDTA has been proposed.

[ELLENHORN & BARCELOUX: Medical Toxicology]

Clinical experience of benzyl alcohol poisoning is generally confined to premature neonates in receipt of preserved intravenous salines.

- ▶ Metabolic acidosis, bradycardia, skin breakdown, hypotonia, hepatorenal failure, hypotension and cardiovascular collapse are characteristic.
- ▶ High urine benzoate and hippuric acid as well as elevated serum benzoic acid levels are found.
- ▶ The so-called 'gasping syndrome' describes the progressive neurological deterioration of poisoned neonates.
- ▶ Management is essentially supportive.

SECTION 5 FIREFIGHTING MEASURES

5.1. Extinguishing media

- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

5.2. 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
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5.3. Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ 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.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ 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). <p>Combustion products include carbon dioxide (CO₂), aldehydes, hydrogen chloride, phosgene, nitrogen oxides (NO_x), sulfur oxides (SO_x), other pyrolysis products typical of burning organic material. May emit poisonous fumes. WARNING: Long standing in contact with air and light may result in the formation of potentially explosive peroxides.</p>

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment.
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Major Spills	<p>Moderate hazard.</p> <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves.
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6.4. Reference to other sections

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

SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps.
Fire and explosion protection	See section 5
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ No smoking, naked lights or ignition sources. ▶ Store in a cool, dry, well-ventilated area.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Polythene drum. ▶ Packaging as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<p>Benzyl alcohol:</p> <ul style="list-style-type: none"> ▶ may froth in contact with water ▶ slowly oxidises in air, oxygen forming benzaldehyde ▶ is incompatible with mineral acids, caustics, aliphatic amines, isocyanates ▶ reacts violently with strong oxidisers, and explosively with sulfuric acid at elevated temperatures ▶ corrodes aluminium at high temperatures ▶ is incompatible with aluminium, iron, steel ▶ attacks some nonfluorinated plastics; may attack, extract and dissolve polypropylene <p>Benzyl alcohol contaminated with 1.4% hydrogen bromide and 1.2% of dissolved iron(II) polymerises exothermically above 100 deg. C.</p> <ul style="list-style-type: none"> ▶ 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. <p>Alcohols</p> <ul style="list-style-type: none"> ▶ 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

7.3. Specific end use(s)

See section 1.2

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

DERIVED NO EFFECT LEVEL (DNEL)

Not Available

PREDICTED NO EFFECT LEVEL (PNEC)

Not Available

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Germany Recommended Exposure Limits - Substances for which no MAK value can be established at present	Propane-1,2-diol	Propylene glycol	Not Available	Not Available	Not Available	Metal-working fluids, components (see Section Xc)
Germany Recommended Exposure Limits - Substances for which no MAK value can be established at present	benzyl alcohol	Benzyl alcohol	Not Available	Not Available	Not Available	Not Available
Germany Recommended Exposure Limits - MAK Values (English)	ethylene glycol phenyl ether	2-Phenoxyethanol	110 mg/m ³ / 20 ppm	I (2) ppm	Not Available	Not Available


Germany TRGS 900 - Limit Values for the Workplace Atmosphere (German)	ethylene glycol phenyl ether	2-Phenoxyethanol	110 mg/m ³ / 20 ppm	Not Available	Not Available	Not Available
Germany Recommended Exposure Limits - MAK Values (English)	triethanolamine	Triethanolamine	5 mg/m ³	l(4) ppm	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
Propane-1,2-diol	Propylene glycol; (1,2-Propanediol)	30 mg/m ³	1300 mg/m ³	7900 mg/m ³
benzyl alcohol	Benzyl alcohol	30 ppm	49 ppm	49 ppm
ethylene glycol phenyl ether	Phenoxyethanol, 2-; (Phenyl cellosolve)	20 ppm	20 ppm	44 ppm
triethanolamine	Triethanolamine; (Trihydroxytriethylamine)	15 mg/m ³	51 mg/m ³	1100 mg/m ³

Ingredient	Original IDLH	Revised IDLH
All ingredients	Not Available	Not Available

8.2. Exposure controls

8.2.1. Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard 'physically' away from the worker and ventilation that strategically 'adds' and 'removes' air in the work environment.</p>
8.2.2. Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ 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.
Skin protection	See Hand protection below
Hands/feet protection	<p>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.</p> <p>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.</p> <p>Suitability and durability of glove type is dependent on usage.</p> <ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Overalls. ▶ P.V.C. apron. ▶ Barrier cream.
Thermal hazards	Not Available

Respiratory protection

Type AK-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

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

Appearance	Black liquid		
Physical state	Liquid	Relative density (Water = 1)	Not Available
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)	Not Available	Molecular weight (g/mol)	Not Available

Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Flammable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Not Available	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

9.2. Other information

Not Available

SECTION 10 STABILITY AND REACTIVITY

10.1.Reactivity	See section 7.2
10.2.Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
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

SECTION 11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Inhaled	<p>The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting. Copper poisoning following exposure to copper dusts and fume may result in headache, cold sweat and weak pulse. Capillary, kidney, liver and brain damage are the longer term manifestations of such poisoning. Inhalation of freshly formed metal oxide particles sized below 1.5 microns and generally between 0.02 to 0.05 microns may result in 'metal fume fever'. Symptoms may be delayed for up to 12 hours and begin with the sudden onset of thirst, and a sweet, metallic or foul taste in the mouth.</p> <p>Inhalation of benzyl alcohol may affect breathing (causing depression and paralysis of breathing and lower blood pressure).</p>
Ingestion	<p>Ingestion of propylene glycol produced reversible central nervous system depression in humans following ingestion of 60 ml. Symptoms included increased heart-rate (tachycardia), excessive sweating (diaphoresis) and grand mal seizures in a 15 month child who ingested large doses (7.5 ml/day for 8 days) as an ingredient of vitamin preparation.</p> <p>Excessive repeated ingestions may cause hypoglycaemia (low levels of glucose in the blood stream) among susceptible individuals; this may result in muscular weakness, incoordination and mental confusion.</p> <p>Very high doses given during feeding studies to rats and dogs produce central nervous system depression (although one-third of that produced by ethanol), haemolysis and insignificant kidney changes.</p> <p>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.</p> <p>A metallic taste, nausea, vomiting and burning feeling in the upper stomach region occur after ingestion of copper and its derivatives. The vomitus is usually green/blue and discolours contaminated skin.</p> <p>Ingestion of large doses of benzyl alcohol may cause abdominal pain, nausea, vomiting, diarrhea. It may affect behavior/central nervous system and cause headache, somnolence, excitement, dizziness, ataxia, coma, convulsions, and other symptoms of central nervous system depression.</p> <p>Exposure to excessive amounts of benzyl alcohol has been associated with toxicity (hypotension, metabolic acidosis), particularly in neonates, and an increased incidence of kernicterus (a neurological condition that occurs in severe jaundice), particularly in small preterm infants. There have been rare reports of deaths, primarily in preterm infants, associated with exposure to excessive amounts of benzyl alcohol.</p>
Skin Contact	<p>The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.</p> <p>Toxic effects may result from skin absorption</p> <p>Exposure to copper, by skin, has come from its use in pigments, ointments, ornaments, jewellery, dental amalgams and IUDs (intra-uterine devices), and in killing fungi and algae. Although copper is used in the treatment of water in swimming pools and reservoirs, there are no reports of toxicity from these applications.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p>
Eye	<p>Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).</p> <p>Copper salts, in contact with the eye, may produce inflammation of the conjunctiva, or even ulceration and cloudiness of the cornea.</p>
Chronic	<p>There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.</p> <p>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> <p>Reactions to benzoic acid have been reported. It may worsen asthma, skin rash or skin disease (angio-oedema). Effect may be worse if exposed persons are also taking aspirin tablets.</p> <p>Copper has fairly low toxicity. Some rare hereditary conditions (Wilson disease or hepatolenticular degeneration) can lead to accumulation of copper on exposure, causing irreversible damage to a variety of organs (liver, kidney, CNS, bone, vision) and lead to death.</p> <p>Prolonged or repeated exposure to benzyl alcohol may cause allergic contact dermatitis.</p> <p>Prolonged or repeated ingestion may affect behavior/central nervous system with symptoms similar to acute ingestion. It may also affect the liver, kidneys, cardiovascular system, and metabolism (weight loss).</p> <p>Animal studies have shown this compound to cause lung, liver, kidney and CNS disorders.</p>

Oil ball- pen ink	TOXICITY	IRRITATION
	Not Available	Not Available
Propane-1,2-diol	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 11890 mg/kg ^[2]	Eye (rabbit): 100 mg - mild
	Dermal (rabbit) LD50: 20800 mg/kg ^[2]	Eye (rabbit): 500 mg/24h - mild
	Oral (rat) LD50: 20000 mg/kg ^[2]	Skin(human):104 mg/3d Intermittent Mod Skin(human):500 mg/7days mild
benzyl alcohol	TOXICITY	IRRITATION
	dermal (rat) LD50: 1000000 ppm/90M ^[2]	Skin (man): 16 mg/48h-mild
	Inhalation (rat) LC50: >4.178 mg/L/4h ^[2]	Skin (rabbit):10 mg/24h open-mild
BX	TOXICITY	IRRITATION
	Oral (rat) LD50: >10000 mg/kg ^[2]	[Manuf. C.G.]
		Eye (human): non-irritant Skin (human): non-irritant
solvent violet 8	TOXICITY	IRRITATION
	Not Available	* [Manufacturer]
		Eye (rabbit): irritating * Skin (rabbit): non-irritating *
ethylene glycol phenyl ether	TOXICITY	IRRITATION
	dermal (rat) LD50: 14391 mg/kg ^[1]	Eye (rabbit): 250 ug/24h - SEVERE
	Oral (rat) LD50: 1386 mg/kg ^[1]	Eye (rabbit): 6 mg - moderate Skin (rabbit): 500 mg/24h - mild
triethanolamine	TOXICITY	IRRITATION
	dermal (rat) LD50: >18080 mg/kg ^[2]	Eye (rabbit): 0.1 ml -
	Oral (rat) LD50: 5559.6 mg/kg(female) ^{+[2]}	Eye (rabbit): 10 mg - mild
		minor conjunctival irritation
		minor iritis,
		no corneal injury *
		no irritation *
		Skin (human): 15 mg/3d (int)-mild Skin (rabbit): 4 h occluded Skin (rabbit): 560 mg/24 hr- mild with significant discharge;
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

Acute Toxicity	☒	Carcinogenicity	☒
Skin Irritation/Corrosion	☒	Reproductivity	☒
Serious Eye Damage/Irritation	☒	STOT - Single Exposure	☒
Respiratory or Skin sensitisation	☒	STOT - Repeated Exposure	☒
Mutagenicity	☒	Aspiration Hazard	☒

Legend: ✘ – Data available but does not fill the criteria for classification
✔ – Data required to make classification available
☒ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source
Propane-1,2-diol	EC50	384	Crustacea	311.145mg/L	3
Propane-1,2-diol	EC50	96	Algae or other aquatic plants	10905.921mg/L	3
Propane-1,2-diol	EC50	48	Crustacea	>1000mg/L	4
Propane-1,2-diol	LC50	96	Fish	710mg/L	4
Propane-1,2-diol	NOEC	168	Fish	98mg/L	4
Epoxy resin	EC50	96	Algae or other aquatic plants	132.133mg/L	3
Epoxy resin	LC50	96	Fish	0.450mg/L	3
benzyl alcohol	EC03	168	Algae or other aquatic plants	=16mg/L	4
benzyl alcohol	LC50	96	Fish	10mg/L	4
benzyl alcohol	NOEC	336	Fish	5.1mg/L	2
benzyl alcohol	EC50	48	Crustacea	230mg/L	2
benzyl alcohol	EC50	72	Algae or other aquatic plants	500mg/L	2
C.I. Solvent Black 46	EC50	48	Crustacea	ca.0.011mg/L	2
C.I. Solvent Black 46	EC50	72	Algae or other aquatic plants	0.0034mg/L	2
C.I. Solvent Black 46	EC50	72	Algae or other aquatic plants	ca.0.0053mg/L	2
C.I. Solvent Black 46	NOEC	72	Algae or other aquatic plants	0.0014mg/L	2
BX	LC50	96	Fish	ca.46mg/L	2
BX	EC50	48	Crustacea	>100mg/L	2
BX	EC50	504	Crustacea	>1mg/L	2
BX	NOEC	504	Crustacea	>=1mg/L	2
BX	EC50	72	Algae or other aquatic plants	>100mg/L	2
ethylene glycol phenyl ether	EC50	384	Crustacea	25.027mg/L	3
ethylene glycol phenyl ether	EC50	96	Algae or other aquatic plants	429.444mg/L	3
ethylene glycol phenyl ether	LC50	96	Fish	106.514mg/L	3
ethylene glycol phenyl ether	NOEC	24	Fish	5mg/L	2
ethylene glycol phenyl ether	EC50	48	Crustacea	460mg/L	2
triethanolamine	LC50	96	Fish	0.0011807mg/L	4
triethanolamine	EC10	96	Algae or other aquatic plants	7.1mg/L	1
triethanolamine	EC50	48	Crustacea	609.88mg/L	2
triethanolamine	NOEC	504	Crustacea	16mg/L	2
triethanolamine	EC50	72	Algae or other aquatic plants	>107- <260mg/L	2

Legend:

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - Aquatic Toxicity Data (Estimated) 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

For Ethelene Glycol MonoalkylEthers and their Acetates:

log BCF: 0.463 to 0.732;

LC50 : 94 to > 5000 mg/L.(aquatic species).

Members of this category includeethylene glycol propyl ether (EGPE), ethylene glycol butyl ether (EGBE) andethylene glycol hexyl ether (EGHE).

Environmental Fate: Aquatic Fate -The ethers possess no functional groups that are readily subject to hydrolysisin the presence of waters.

For solvent dyes:

Environmental Fate: Solvent dyesare characterised as non-ionic or neutral dyes, and are hydrophobic incharacter and thus solubility in water is low, ranging from 0.2 mg/l to 34.3mg/l. Solvent dyes, like the disperse dyes, are hydrophobic. However, due totheir large, complex molecular structure, they have lower vapour pressures than disperse dyes. The partition coefficients (Kow) are very high for the non-ionicdyes (in the range of 420 for Solvent Yellow 1 to 11,220 for Solvent Yellow 2).

NOTE: Because of similarities in structure to thalidomide, concerns have been raised about the potential of all phthalimides (the basic building block of phthalocyanine) to cause malformation of a foetus in animals exposed to it. Animal studies, in part, appear to support this proposition. Phthalocyanine dyes are probably not biodegradable. Reversible reduction and decolourisation occurs under anaerobic conditions.

For Benzyl Alkyl Alcohols: Log Kow: 1.36 to 2.06; Vapor Pressure: 0.01 to 0.1 hPa (@ room temperature); Water Solubility: >5x10+3 mg/L.

Environmental Fate: Benzyl alkyl alcohols are liquids, under standard temperature and pressure conditions. These substances will partition primarily to the soil, secondarily to the water, and very slightly to the air.

Atmospheric Fate: Benzyl alcohol is expected to exist almost entirely in the vapor phase, in the ambient atmosphere.

For benzoates:

The environmental characteristics for benzoates is ultimately determined by the properties of counter-ions, and is assumed to be non-toxic.

Environmental Exposure and Fate: Distribution models indicate that water and soil are the main environmental pathways of benzyl alcohol, benzoic acid, sodium and potassium benzoates.

Novolization to the atmosphere or adsorption to sediments is expected. Physical chemical properties and use patterns indicate water to be the main pathway for these substances, however, based on the chemical structure and organic chemistry, no hydrolysis is expected at pH ranges of 4 – 11.

For copper:

Atmospheric Fate - Copper is unlikely to accumulate in the atmosphere due to a short residence time for airborne copper aerosols. Airborne coppers, however, may be transported over large distances. Air Quality Standards: no data available.

Aquatic Fate: Toxicity of copper is affected by pH and hardness of water.

For benzyl alcohol: log Kow : 1.1Koc : <5Henry's atm m3 /mol: 3.91E-07BOD 5: 1.55-1.6,33-62%COD : 96%ThOD: 2.519BCF : 4

Bioaccumulation: Not significant

Anaerobic Effects: Significant degradation.

Effects on algae and plankton: Inhibits degradation of glucose

Degradation Biological: Significant processes

Abiotic: RxnOH*, no photochem

Ecotoxicity: Fish LC50 (48 h): fathead minnow 770 mg/l; (72 h): 480 mg/l; (96 h) 460 mg/l. Fish LC50 (96 h) fathead minnow 10 ppm, bluegill sunfish 15 ppm; tidewater silverside fish 15ppm.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely.

For copper: Ecotoxicity -Significant effects are expected on various species of microalgae, some species of macroalgae, and a range of invertebrates, including crustaceans, gastropods and sea

urchins. Copper is moderately toxic to crab and their larvae and is highly toxic to gastropods (mollusks, including oysters, mussels and clams). In fish, the acute lethal concentrations of copper depends both on test species and exposure conditions. Waters with high concentrations of copper can have significant effects on diatoms and sensitive invertebrates, notably cladocerans (water fleas).

For Copper: Typical foliar levels of copper are: Uncontaminated soils (0.3-250 mg/kg); Contaminated soils (150-450 mg/kg); Mining/smelting soils (6.1-25 mg/kg to 80 mg/kg to 300 mg/kg).

Terrestrial Fate: Plants - Generally, vegetation reflects soil copper levels in its foliage. This is dependent upon the bioavailability of copper and the physiological requirements of species concerned. Crops are often more sensitive to copper than the native flora.

DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Propane-1,2-diol	LOW	LOW
Epoxy resin	LOW	LOW
benzyl alcohol	LOW	LOW
BX	HIGH	HIGH
ethylene glycol phenyl ether	LOW	LOW
triethanolamine	LOW	LOW

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
Propane-1,2-diol	LOW (BCF = 1)
Epoxy resin	LOW (LogKOW = 0.912)
benzyl alcohol	LOW (LogKOW = 1.1)
BX	LOW (BCF = 33)
ethylene glycol phenyl ether	LOW (LogKOW = 1.16)
triethanolamine	LOW (BCF = 4)

12.4. Mobility in soil

Ingredient	Mobility
Propane-1,2-diol	HIGH (KOC = 1)
Epoxy resin	MEDIUM (KOC = 2.443)
benzyl alcohol	LOW (KOC = 15.66)
BX	LOW (KOC = 10000000000)
ethylene glycol phenyl ether	LOW (KOC = 12.12)
triethanolamine	LOW (KOC = 10)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT Criteria fulfilled?	Not Available	Not Available	Not Available

12.6. Other adverse effects

No data available

SECTION 13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product / Packaging disposal	<p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▶ Reduction ▶ Reuse ▶ Recycling ▶ Disposal (if all else fails) <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.</p> <ul style="list-style-type: none"> ▶ 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.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
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Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

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

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

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

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

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

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

14.1. UN number	Not Applicable	
14.2. Packing group	Not Applicable	
14.3. UN proper shipping name	Not Applicable	
14.4. Environmental hazard	Not Applicable	

14.5. Transport hazard class(es)	Not Applicable	Not Applicable
14.6. Special precautions for user	Classification code	Not Applicable
	Special provisions	Not Applicable
	Limited quantity	Not Applicable
	Equipment required	Not Applicable
	Fire cones number	Not Applicable

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

Source	Ingredient	Pollution Category
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	benzyl alcohol	Y
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	BX	X
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	ethylene glycol phenyl ether	Z
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	triethanolamine	Z

SECTION 15 REGULATORY INFORMATION

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

PROPANE-1,2-DIOL(57-55-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Customs Inventory of Chemical Substances ECICS (English)
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

Germany Recommended Exposure Limits - Substances for which no MAK value can be established at present

EPOXY RESIN(24969-06-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Customs Inventory of Chemical Substances ECICS (English)

BENZYL ALCOHOL(100-51-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
European Customs Inventory of Chemical Substances ECICS (English)
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

Germany Recommended Exposure Limits - Substances for which no MAK value can be established at present

C.I. SOLVENT BLACK 46(65113-55-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

BX(147-14-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

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
European Customs Inventory of Chemical Substances ECICS (English)
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

Germany Recommended Exposure Limits - MAK Values - Carcinogens

Germany Recommended Exposure Limits - MAK Values - Pregnancy Risk Group Classifications & Germ Cell Mutagens

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

SOLVENT VIOLET 8(52080-58-7*) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

ETHYLENE GLYCOL PHENYL ETHER(122-99-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Customs Inventory of Chemical Substances ECICS (English)
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

Germany Recommended Exposure Limits - MAK Values - Pregnancy Risk Group Classifications & Germ Cell Mutagens

Germany Recommended Exposure Limits - MAK Values (English)

Germany TRGS 900 - Limit Values for the Workplace Atmosphere (German)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

TRIETHANOLAMINE(102-71-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
European Customs Inventory of Chemical Substances ECICS (English)
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

Germany Recommended Exposure Limits - MAK Values - Pregnancy Risk Group Classifications & Germ Cell Mutagens

Germany Recommended Exposure Limits - MAK Values (English)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - :98/24/EC, 92/85/EC, 94/33/EC, 91/689/EEC, 1999/13/EC, Commission Regulation (EU) 2015/830, Regulation (EC) No 1272/2008 and their amendments as well as the following British legislation: - The Control of Substances Hazardous to Health Regulations

Continued...

(COSHH) 2002 - COSHH Essentials - The Management of Health and Safety at Work Regulations 1999

15.2. Chemical safety assessment

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

15.3. Classification of Substances and Mixtures into Water Hazard Classes

PREPARATION IS WGK NON-HAZARDOUS TO WATERS

Name	WGK	Score	Source
Propane-1,2-diol	non-hazardous to waters		W: VwVwS
Epoxy resin	non-hazardous to waters	0	W: VwVwS
BENZYL ALCOHOL	non-hazardous to waters		W: VwVwS
C.I. SOLVENT BLACK 46	non-hazardous to waters	0	W: VwVwS
BX	non-hazardous to waters		W: VwVwS
solvent violet 8	non-hazardous to waters	0	W: VwVwS
ETHYLENE GLYCOL PHENYL ETHER	non-hazardous to waters		W: VwVwS
TRIETHANOLAMINE	non-hazardous to waters		W: VwVwS

National Inventory	Status
Australia - AICS	Y
Canada - DSL	N (C.I. Solvent Black 46)
Canada - NDSL	N (benzyl alcohol; Epoxy resin; solvent violet 8; triethanolamine; ethylene glycol phenyl ether; BX; Propane-1,2-diol)
China - IECSC	N (C.I. Solvent Black 46)
Europe - EINEC / ELINCS / NLP	N (Epoxy resin; solvent violet 8)
Japan - ENCS	N (C.I. Solvent Black 46)
Korea - KECI	N (C.I. Solvent Black 46)
New Zealand - NZIoC	N (C.I. Solvent Black 46; Epoxy resin)
Philippines - PICCS	N (C.I. Solvent Black 46)
USA - TSCA	Y
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Full text Risk and Hazard codes

H302	Harmful if swallowed
H319	Causes serious eye irritation
H332	Harmful if inhaled

Other information

The (M)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

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