Rowe Scientific Mixed Indicator ROWE SCIENTIFIC

Chemwatch Hazard Alert Code: 2

Issue Date: 19/11/2021 Print Date: 19/11/2021 S.GHS.AUS.EN

Chemwatch: 6609-44
Version No: 6.1
Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

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

Product Identifier	
Product name	Rowe Scientific Mixed Indicator
Chemical Name	Not Applicable
Synonyms	CM2206; CM2308; CM2312
Proper shipping name	ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
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 Indicator for Sulphur Dioxide determination in Wine industries.

Details of the supplier of the safety data sheet

Registered company name	ROWE SCIENTIFIC
Address	11 Challenge Boulevard Wangara WA 6065 Australia
Telephone	+61 8 9302 1911
Fax	+61 8 9302 1905
Website	http://rowe.com.au/
Email	rowewa@rowe.com.au

Emergency telephone number

Association / Organisation	ROWE SCIENTIFIC
Emergency telephone numbers	+61 8 9302 1911 (24 Hrs)
Other emergency telephone numbers	Not Available

SECTION 2 Hazards identification

Classification of the substance or mixture

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

Poisons Schedule	Not Applicable
Classification ^[1]	Flammable Liquids Category 3, Serious Eye Damage/Eye Irritation Category 2A, Hazardous to the Aquatic Environment Long-Term Hazard Category 3
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)





Signal word Warning

Hazard statement(s)

H226	Flammable liquid and vapour.
H319	Causes serious eye irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.

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P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P273	Avoid release to the environment.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P264	Wash all exposed external body areas thoroughly after handling.

Precautionary statement(s) Response

P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam to extinguish.	
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
P337+P313	If eye irritation persists: Get medical advice/attention.	
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].	

Precautionary statement(s) Storage

P403+P235 Store in a well-ventilated place. Keep cool.

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
64-17-5	30-60	ethanol
61-73-4	<1	methylene blue
493-52-7	<1	methyl red
7732-18-5	balance	water
Legend:	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	If this product comes in contact with the eyes: Wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.
Inhalation	 If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. Transport to hospital, or doctor.
Ingestion	 If swallowed do NOT induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Seek medical advice.

Indication of any immediate medical attention and special treatment needed

For acute or short term repeated exposures to ethanol:

- Acute ingestion in non-tolerant patients usually responds to supportive care with special attention to prevention of aspiration, replacement of fluid and correction of nutritional deficiencies (magnesium, thiamine pyridoxine, Vitamins C and K).
- ▶ Give 50% dextrose (50-100 ml) IV to obtunded patients following blood draw for glucose determination.
- Comatose patients should be treated with initial attention to airway, breathing, circulation and drugs of immediate importance (glucose, thiamine).
 Decontamination is probably unnecessary more than 1 hour after a single observed ingestion. Cathartics and charcoal may be given but are probably not effective in single ingestions.
- Fructose administration is contra-indicated due to side effects.

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SECTION 5 Firefighting measures

Extinguishing media

- Alcohol stable foam.
- ► Dry chemical powder.
- 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. May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or water course. If safe, switch off electrical equipment until vapour fire hazard removed. 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	 Liquid and vapour are flammable. Moderate fire hazard when exposed to heat or flame. Vapour forms an explosive mixture with air. Moderate explosion hazard when exposed to heat or flame. Vapour may travel a considerable distance to source of ignition. Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit toxic fumes of carbon monoxide (CO). Combustion products include: 	

SECTION 6 Accidental release measures

HAZCHEM

Personal precautions, protective equipment and emergency procedures

•2Y

carbon dioxide (CO2)

other pyrolysis products typical of burning organic material

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

	► Remove all ignition sources.
Minor Spills	 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 small quantities with vermiculite or other absorbent material. Wipe up. Collect residues in a flammable waste container.
Major Spills	Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. May be violently or explosively reactive. Wear 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. Water spray or fog may be used to disperse / absorb vapour. Contain spill with sand, earth or vermiculite. Use only spark-free shovels and explosion proof equipment. 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

Safe handling

Precautions for safe handling

▶ Avoid all personal contact, including inhalation.

Wear protective clothing when risk of overexposure 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 generation of static electricity.

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- ► DO NOT use plastic buckets.
- Earth all lines and equipment.
- ▶ Use spark-free tools when handling.
- 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.
- ▶ DO NOT allow clothing wet with material to stay in contact with skin
- ▶ Store in original containers in approved flame-proof area.
- No smoking, naked lights, heat or ignition sources
- Other information

 DO NOT store in pits, depressions, basements or areas where vapours may be trapped.

 Keep containers securely sealed.
 - Store away from incompatible materials in a cool, dry well ventilated area.
 - Protect containers against physical damage and check regularly for leaks.
 - ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container	125mL indicator bottles.
Storage incompatibility	Avoid storage with oxidisers

SECTION 8 Exposure controls / personal protection

Control parameters

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Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	ethanol	Ethyl alcohol	1000 ppm / 1880 mg/m3	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
ethanol	Not Available	Not Available	15000* ppm

Ingredient	Original IDLH	Revised IDLH
ethanol	3,300 ppm	Not Available
methylene blue	Not Available	Not Available
methyl red	Not Available	Not Available
water	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
methylene blue	E	≤ 0.01 mg/m³
methyl red	E	≤ 0.01 mg/m³
Notes:	Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the	

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.

Exposure controls

Appropriate engineering controls

General exhaust is adequate under normal operating conditions

Personal protection











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No special equipment for minor exposure i.e. when handling small quantities OTHERWISE:

Safety glasses with side shields.

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 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

Eye and face protection

No special equipment needed when handling small quantities. **OTHERWISE**: Wear chemical protective gloves, e.g. PVC.

Body protection

See Other protection below

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Other protection

No special equipment needed when handling small quantities.

OTHERWISE:

- Overalls.
- Barrier cream.
- Eyewash 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:

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Material	СРІ
BUTYL	A
NEOPRENE	A
NATURAL RUBBER	С
NATURAL+NEOPRENE	С
NITRILE	С
NITRILE+PVC	С
PE/EVAL/PE	С
PVA	С
PVC	С
VITON	С

^{*} 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

 $\label{NOTE:As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -$

Respiratory protection

Type A 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 5 x ES	Air-line*	A-2	A-PAPR-2 ^
up to 10 x ES	-	A-3	-
10+ x ES	-	Air-line**	-

^{* -} Continuous Flow; ** - Continuous-flow or positive pressure demand

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)

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Clear reddish blue flammable liquid with characteristic ethanol odour; mixes with water.		
Physical state	Liquid	Relative density (Water = 1)	0.90
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)	78 initial	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	27	Taste	Not Available
Evaporation rate	3.2 арргох	Explosive properties	Not Available
Flammability	Flammable.	Oxidising properties	Not Available
Upper Explosive Limit (%)	19.0	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	3.3	Volatile Component (%vol)	100
Vapour pressure (kPa)	5.3 @ 20C	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (%)	Not Available
Vapour density (Air = 1)	1.9 approx	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

^{*} 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.

^{^ -} Full-face

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Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Ingestion

information on toxicological effects			
Inhaled	Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and		

dizziness, slowing of reflexes, fatigue and inco-ordination. Accidental ingestion of the material may be damaging to the health of the individual. Ingestion of ethanol (ethyl alcohol, "alcohol") may produce nausea, vomiting, bleeding from the digestive tract, abdominal pain, and diarrhoea. Effects on the body:

<1.5 g/L	Mild: impaired vision, co-ordination and reaction time; emotional instability
1.5-3.0 g/L	Moderate: Slurred speech, confusion, inco-ordination, emotional instability, disturbances in perception and senses, possible blackouts, and impaired objective performance in standardized tests. Possible double vision, flushing, fast heart rate, sweating and incontinence. Slow breathing may occur rarely and fast breathing may develop in cases of metabolic acidosis, low blood sugar and low blood potassium. Central nervous system depression may progress to coma.
3-5 g/L	Severe: cold clammy skin, low body temperature and low blood pressure. Atrial fibrillation and heart block have been reported. Depression of breathing may occur, respiratory failure may follow serious poisoning, choking on vomit may result in lung inflammation and swelling. Convulsions due to severe low blood sugar may also occur. Acute liver inflammation may develop.

Blood concentration Effects

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of **Skin Contact** vesicles, scaling and thickening of the skin. The material may accentuate any pre-existing skin condition

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may Eye produce conjunctivitis.

Chronic	Prolonged exposure to ethanol may cause damage to the liver and cause scarring. It may also worsen damage caused by other agents.	
Rowe Scientific Mixed	TOXICITY	IRRITATION
Indicator	Not Available	Not Available
	тохісіту	IRRITATION
	Dermal (rabbit) LD50: 17100 mg/kg ^[1]	Eye (rabbit): 500 mg SEVERE
	Inhalation(Rat) LC50; 64000 ppm4h ^[2]	Eye (rabbit):100mg/24hr-moderate
ethanol	Oral(Rat) LD50; 7060 mg/kg ^[2]	Eye: adverse effect observed (irritating) ^[1]
		Skin (rabbit):20 mg/24hr-moderate
		Skin (rabbit):400 mg (open)-mild
		Skin: no adverse effect observed (not irritating) ^[1]
	TOXICITY	IRRITATION
methylene blue	Oral(Rat) LD50; 1180 mg/kg ^[2]	Not Available
	TOXICITY	IRRITATION
methyl red	Not Available	Not Available
water	TOXICITY	IRRITATION
	Oral(Rat) LD50; >90000 mg/kg ^[2]	Not Available
Legend:	Value obtained from Europe ECHA Registered Substates specified data extracted from RTECS - Register of Toxic	nces - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwis

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of ETHANOL vesicles, scaling and thickening of the skin.

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After i.v. administration Methylene Blue may cause nausea, vomiting, abdominal and chest pain, headache, dizziness, mental confusion, profuse sweating, and hypertension; with very high doses methaemoglobinemia and ahemolysis may occur. Methylene Blue activates a normally dormant reductase enzyme system which reduces the methylene blue to leucomethylene blue, which in turn is able to reduce methaemoglobin to haemoglobin. Methylene Blue is absorbed from the gastrointestinal tract. It is believed to be reduced in the tissues to the leuco form which is slowly excreted, mainly in the urine together with some unchanged drug. Methylene Blue imparts a blue color to urine and faeces. In large doses Methylene Blue can produce methaemoglobinaemia. Although intra-amniotic injection of Methylene Blue has been used to diagnose premature rupture of fetal membranes or to identify separate amniotic sacs in twin pregnancies, there have been several reports of hemolytic anemia (Heinz-body anemia) and hyperbilirubinemia in neonates exposed to Methylene Blue in the amniotic cavity. In most cases, exchange transfusions and/or phototherapy are required to control the jaundice. Methylene Blue should be used with caution in the treatment of toxic methemoglobinemia; high doses can cause hemolytic anemias and patients with glucose-6-phosphate dehydrogenase (G6PD) deficiencies are particularly susceptible. A rapid disappearance of cyanosis in response to Methylene Blue would be expected within one hour but might not occur if the patient has erythrocyte G6PD or NADPH-diaphorase deficiency or if methemoglobinemia is due to the ingestion of compounds such as aniline or dapsone. A second dose has been recommended if cyanosis does not disappear within 1 hour of Methylene Blue administration but results of a study in animals and of a patient with aniline poisoning indicated that an increased dosage of Methylene Blue might be of no additional benefit and could be potentially dangerous in that it could enhance Heinz body formation. Methylene Blue should not be injected s.c. as it may cause necrotic abscesses. It should not be given by intrathecal injection as neural damage has occurred. Methylene Blue should be used with caution in patients with glucose-6-phosphate dehydrogenase deficiency. For nitric oxide synthase (NOS) inhibitors:

Nitric oxide provokes many cellular responses and modulates physiological functions differently depending on the organ system. Systemic nitric oxide inhibition may be limited by the widespread involvement of nitric oxide in most body systems. To further complicate matters, depending on the disease studied, changes in nitric oxide may either ameliorate or exacerbate the pathophysiology of the disease. This proves to be a particular challenge in patients with co-morbidities

Nitric oxide inhibition could be detrimental to patients with cardiovascular and renal diseases. Nitric oxide is cardio-protective during ischemic events by causing coronary vasodilation and improving oxygen delivery. Nitric oxide inhibition also suppresses statin-induced oxygen delivery to myocardium. Nitric oxide inhibition could contribute to endothelial dysfunction and inflammatory syndrome in patients with autoimmune disease, leading to an escalation of cardiovascular morbidity and mortality. One animal study shows that chronic NOS inhibition may also produce long-term biological effects by enhancing early atherogenesis in animals

In patients with chronic kidney disease, nitric oxide inhibition aggravates endothelial dysfunction, vasoconstriction, blood pressure elevation and atherosclerosis, thereby worsening kidney disease progression, particularly in the setting of diabetic nephropathy. Nitric oxide inhibition is also demonstrated in insulin resistance. Erectile dysfunction and micturition disorders are also mediated by nitric oxide, and could be adversely affected by nitric oxide inhibition.

In a clinical trial on patients with severe sepsis and hypotension, L-NMMA ('Tilarginine'), the endogenous nonselective NOS inhibitor, caused a fall in cardiac output, worsening tissue perfusion.

The use of nitric oxide inhibitors in patients with poly-pharmacy remains a challenge, as there is inadequate understanding of interactions between nitric oxide inhibitors and other drugs. Known interactions have already been reported with statins, fibrates, thiazolidinediones, metformin, antioxidant vitamins, aspirin, n-3 polyunsaturated fatty acids and plant flavonoids.

Methylene blue, a nitric oxide inhibitor, has been used for many years in septic shock and anaphylactic shock. It was alleged to improve mortality by elevating blood pressure and systemic vascular resistance in these clinical scenarios. Nevertheless, outcome studies on the use of nitric oxide inhibitors in cardiogenic shock delivered disappointing results. Human studies were conducted only with nonselective I-arginine analogs, which fail to reduce mortality in septic shock. In fact, nonselective nitric oxide synthase (NOS) inhibitor treatment alone elevates mortality. Phenothiazine derivatives are classic examples of the fact that few drugs have just one effect. Although it is common to think of these agents as clinically useful in the treatment of emotional disorders, especially schizophrenic reactions, phenothiazines also have medical importance as antiemetic agents and as adjuncts to anesthetic or analgesic drugs. In addition to these useful therapeutic effects, various phenothiazine derivatives may exhibit antihistaminic, adrenergic blocking, anticholinergic, or metabolic-endocrine actions. Such an array of pharmacodynamic actions contributes to the wide variety of adverse effects that these drugs may evoke.

Phenothiazines antagonize alpha1- and alpha2-adrenergic receptors, D2-dopaminergic receptors, H1- and H2-histaminergic receptors and muscarinic cholinergic receptors (weakly). They therefore have antiemetic activity at the CTZ (D2-receptors, H1- and H2-receptors and muscarinic cholinergic receptors) and at high doses at the vomiting center (alpha2-receptors).

Adverse behavioral effects are sometimes seen, even though most drugs in this class are useful as antipsychotic agents. In general, the rule seems to be that the more seriously disturbed the patient, the better these drugs are tolerated. Patients with mild anxiety usually tolerate small doses.

Phenothiazines may cause unwanted, unattractive, and uncontrolled face or body movements

Phenothiazines may cause hypotension because of central effects and an alpha-adrenergic receptor-blocking action resulting in arteriolar vasodilation. Sedation and extra pyramidal reactions such as rigidity, tremors, weakness and restlessness may occur at high doses. Antimuscarinic toxicity is frequently more pronounced in poisonings from these drugs, rather than their membrane-stabilizing cardiac effects. However, heart block and wide complex tachycardias and refractory hypotension are occasionally reported in overdoses of these agents. Fatalities are rare, even in massive ingestions of these drugs. The most common clinical presentation of phenothiazine overdose is neurotoxicity, manifesting as delirium, agitation, coma, seizures, and other antimuscarinic effect.

As cationic polymers possess unique physical structures and surface properties, various kinds of cationic polymers have been developed over the past few decades for a wide spectrum of nanomedical applications in the central nervous system (CNS). Although cationic polymers could be successfully used for gene transfer, drug delivery, and diagnostic imaging, after entering into the CNS, they may cause neurotoxicity and induce CNS damage, which seriously limits their applications. The neurotoxic effects of cationic polymers on CNS are mostly studied in mice, and have not been examined in detail.

While evaluating the neurotoxicity of cationic polymers, the surface charge, surface area, coating, size, shape, and the basic materials that cationic polymers are made up of are expected to show important roles, and should be carefully considered. Apoptosis, necrosis, autophagy, oxidative stress, inflammation, and inflammasome; which are expected to be the most important problems in the evaluation of cationic polymers-induced neurotoxicity.

The substance is classified by IARC as Group 3:

Equivocal tumorigen by RTEC criteria.

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

METHYL RED

METHYLENE BLUE

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.

Detailed analysis of molecular structure indicates that the azo colourant can split off cancer-causing arylamines.

The azo linkage, a double bond between two nitrogen atoms, is considered the most unstable part of an azo dye.

METHYL RED & WATER

No significant acute toxicological data identified in literature search.

Acute Toxicity	×	Carcinogenicity	X
Skin Irritation/Corrosion	×	Reproductivity	×
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	×

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Respiratory or Skin sensitisation

Mutagenicity

X

STOT - Repeated Exposure

X

Aspiration Hazard

X

Legend: X - Data either not available or does not fill the criteria for classification

Legend: X – Data either not available or does not fill the criteria for classification

— Data available to make classification

SECTION 12 Ecological information

Toxicity

Rowe Scientific Mixed Indicator	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Availabl
	Endpoint	Test Duration (hr)	Species	Value	Sourc
	EC50(ECx)	96h	Algae or other aquatic plants	<0.001mg/L	4
	EC50	72h	Algae or other aquatic plants	275mg/l	2
ethanol	LC50	96h	Fish	>100mg/l	2
	EC50	48h	Crustacea	>79mg/L	4
	EC50	96h	Algae or other aquatic plants	<0.001mg/L	4
	Endpoint	Test Duration (hr)	Species	Value	Source
methylene blue	EC50(ECx)	48h	Algae or other aquatic plants	0.028mg/L	4
	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	96h	Fish	2.74mg/L	4
methyl red	LC50	96h	Fish	7mg/L	4
	EC50	96h	Algae or other aquatic plants	26mg/L	4
water	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Availab
Legend:	V3.12 (QSAR)	- Aquatic Toxicity Data (Estimated) 4. U	HA Registered Substances - Ecotoxicological Informatio JS EPA, Ecotox database - Aquatic Toxicity Data 5. ECI ((Japan) - Bioconcentration Data 8. Vendor Data		

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. **DO NOT** discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
ethanol	LOW (Half-life = 2.17 days)	LOW (Half-life = 5.08 days)
methyl red	HIGH	HIGH
water	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
ethanol	LOW (LogKOW = -0.31)
methyl red	MEDIUM (LogKOW = 4.1701)

Mobility in soil

Ingredient	Mobility
ethanol	HIGH (KOC = 1)
methyl red	LOW (KOC = 79.72)

SECTION 13 Disposal considerations

Waste treatment methods

► Recycle wherever possible.

Product / Packaging disposal

- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

SECTION 14 Transport information

Issue Date: 19/11/2021 Print Date: 19/11/2021

Labels Required



Land transport (ADG)

UN number	1170	
UN proper shipping name	ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	
Transport hazard class(es)	Class 3 Subrisk Not Applicable	
Packing group	III	
Environmental hazard	Not Applicable	
Special precautions for user	Special provisions 144 223 Limited quantity 5 L	

Air transport (ICAO-IATA / DGR)

Air transport (ICAO-IATA / DGR	• 9			
UN number	1170			
UN proper shipping name	Ethanol or Ethanol. solut	tion		
Transport hazard class(es)	ICAO/IATA Class ICAO / IATA Subrisk	3 Not Applicable		
	ERG Code	3L		
Packing group	III			
Environmental hazard	Not Applicable			
	Special provisions		A3 A58 A180	
	Cargo Only Packing Instructions		366	
	Cargo Only Maximum Qty / Pack		220 L	
Special precautions for user	Passenger and Cargo Packing Instructions		355	
	Passenger and Cargo Maximum Qty / Pack		60 L	
	Passenger and Cargo Limited Quantity Packing Instructions		Y344	
	Passenger and Cargo Limited Maximum Qty / Pack		10 L	

Sea transport (IMDG-Code / GGVSee)

UN number	1170		
UN proper shipping name	ETHANOL (ETHYL A	ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	
Transport hazard class(es)		3 Not Applicable	
Packing group	III .		
Environmental hazard	Not Applicable		
Special precautions for user	EMS Number Special provisions Limited Quantities		

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
ethanol	Not Available
methylene blue	Not Available
methyl red	Not Available
water	Not Available

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Product name	Ship Type
ethanol	Not Available
methylene blue	Not Available
methyl red	Not Available
water	Not Available

SECTION 15 Regulatory information

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

ethanol is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

methylene blue is found on the following regulatory lists

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 7

methyl red is found on the following regulatory lists

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule $\bf 6$

Australian Inventory of Industrial Chemicals (AIIC)

water is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

Australian Inventory of Industrial Chemicals (AIIC)

Australian Inventory of Industrial Chemicals (AIIC)

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

Chemical Footprint Project - Chemicals of High Concern List

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

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (ethanol; methylene blue; methyl red; water)
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	Yes
Vietnam - NCI	Yes
Russia - FBEPH	Yes
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	19/11/2021
Initial Date	25/05/2007

SDS Version Summary

Version	Date of Update	Sections Updated
5.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification
6.1	19/11/2021	Classification, Name

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

 $\begin{array}{lll} {\sf PC-TWA: Permissible Concentration-Time Weighted Average} \\ {\sf PC-STEL: Permissible Concentration-Short Term Exposure Limit} \\ \end{array}$

IARC: International Agency for Research on Cancer

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Rowe Scientific Mixed Indicator

Version No: 6.1

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit $_{\circ}$

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

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