1. Identification of Substance & Company

Product

Product name	Ryene Fluid
Product code	Not assigned
HSNO approval	HSR002564,
Approval description	Embalming Products (Flammable, Acutely toxic, Corrosive) Group Standard 2020
UN number	3286
Proper Shipping Name	FLAMMABLE LIQUID, TOXIC, CORROSIVE, NOS (contains methanol/formaldehyde)
DG class	3, 6.1, 8
Packaging group	III
Hazchem code	3WE
Uses	Cauterant fluid

Company Details

Company	**SANTER SUPPLIES**
Address	18 Faulke Avenue Wainuiomata Lower Hutt 5014 New Zealand
Website	www.santersupplies.com

Emergency Telephone Number: 0800 764 766

2. Hazard Identification

Approval

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO, Approval HSR002564, Embalming Products (Flammable, Acutely toxic, Corrosive) Group Standard 2020). The substance has been classified as hazardous according to the criteria in the Hazardous substances (Hazard Classification) Notice 2020.

GHS 7 Classes	Hazard Statements
Flammable liquid category 3	H226 - Flammable liquid and vapour.
Acute toxicity category 3 (oral)	H301 - Toxic if swallowed.
Acute toxicity category 3 (dermal)	H311 - Toxic in contact with skin.
Acute toxicity category 2 (inhalation)	H330 - Fatal if inhaled.
STOT* single exposure category 3	H335 - May cause respiratory irritation.
Skin corrosive category 1B	H314 - Causes severe skin burns and eye damage.
Eye damage category 1	H318 - Causes serious eye damage.
Mutagen category 2	H341 - Suspected of causing genetic defects.
Carcinogen category 1	H350 - May cause cancer.
Skin sensitiser category 1	H317 - May cause an allergic skin reaction.
STOT* repeated exposure category 1	H372 - Causes damage to organs through prolonged or repeated exposure.

*STOT – System Target Organ Toxicity

SYMBOLS

DANGER

Other Classifications

There are no other classifications that are known to apply.

Precautionary Statements

Prevention
P102 - Keep out of reach of children.
P103 - Read label before use.
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from ignition sources. No smoking.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P260 - Do not breathe vapours.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P284 - Wear respiratory protection.

Response
P101 - If medical advice is needed, have product container or label at hand.
P308+P313 - IF exposed or concerned: Get medical advice/ attention.
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P361 - Remove/Take off immediately all contaminated clothing.
P363 - Wash contaminated clothing before reuse.
P310 - Immediately call a POISON CENTRE or doctor/physician.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P304+P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P310 - Immediately call a POISON CENTRE or doctor/physician.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P301+P312 - IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
P330 - Rinse mouth.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTRE or doctor/physician.

Storage
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulation.

3. Composition / Information on Ingredients

Component	CAS/Identification	Concentration
Potassium Hydroxide	1310-58-3	2 - 10%
Methanol	67-56-1	60 - 70%
Phenol	108-95-2	30 -36%
Formaldehyde	50-00-0	0.5-5.0

This is a commercial product whose exact ratio of components may vary slightly. Trace quantities of impurities are also likely.

4. First Aid

General Information

If medical advice is needed, have product container or label at hand. You should call the National Poisons Centre if you feel that you may have been harmed or irritated by this product. The number is 0800 764 766 (0800 POISON) (24 hr emergency service).

Recommended first aid facilities	Ready access to running water is recommended. Accessible eyewash is recommended.

Exposure

Swallowed	IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. Rinse mouth. If conscious, give plenty of water to drink. DO NOT INDUCE vomiting. If vomiting occurs, place victim face downwards, with the head turned to the side and lower than the hips to prevent vomit entering the lungs.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE or doctor/physician.
Skin contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTRE or doctor/physician.
Inhaled	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing - avoid becoming a casualty. Immediately call a POISON CENTRE or doctor/physician. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep victim at rest until fully recovered. If breathing is laboured and patient cyanotic (blue), ensure airways are clear and have a qualified person give oxygen through a face mask. If breathing has stopped, apply artificial respiration at once. In event of cardiac arrest, apply cardiopulmonary resuscitation (CPR) if trained.

Advice to Doctor

Treat symptomatically

5. Firefighting Measures

Fire and explosion hazards:	Vapours may form an explosive mixture in air which can be ignited by many sources such as pilot lights, open flames, electrical motors, switches and static electricity.
Suitable extinguishing substances:	Carbon dioxide, extinguishing powder, foam.
Unsuitable extinguishing substances:	Unknown.
Products of combustion:	Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Water. May form toxic mixtures in air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures.
Protective equipment:	Self-contained breathing apparatus. Safety boots, non-flammable overalls, gloves, hat and eye protection.
Hazchem code:	3WE

6. Accidental Release Measures

Containment	If greater than 100L is stored, secondary containment and emergency plans to manage any potential spills must be in place. In all cases design storage to prevent discharge to storm water.
Emergency procedures	In the event of spillage alert the fire brigade to location and give brief description of hazard. Stop the source of the leak, if safe to do so. Shut off all possible sources of ignition. Wear protective equipment to prevent skin, eye and respiratory exposure. Clear area of any unprotected personnel. Contain using sand, earth or vermiculite. Do not use sawdust. Prevent by whatever means possible any spillage from entering drains, sewers, or water courses. (If this occurs contact your regional council immediately).

Clean-up method Use absorbent (soil, sand or other inert material). Rags are not recommended for the clean-up of spills, as they may create fire or environmental hazard. Collect and seal in properly labelled containers or drums for disposal. If contamination of crops, sewers or waterways has occurred advise local emergency services.

Disposal Mop up and collect recoverable material into labelled containers for recycling or salvage. Recycle containers wherever possible. This material may be suitable for approved landfill. Dispose of only in accord with all regulations.

Precautions Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation.

7. Storage & Handling

Storage Store locked up. Avoid storage of harmful substances with food. Store out of reach of children. Containers should be kept closed in order to minimise contamination. Keep from extreme heat and open flames. Avoid contact with incompatible substances as listed in Section 10. Location test certificates must be available if storing >500 L (closed > 5 L), 1500 L (closed ≤ 5 L), 250 L (open). Containers (and outer packaging) must bear the prescribed labelling, including the Hazchem code, UN number, flammability warning and name of contents.

Handling Keep exposure to a minimum, and minimise the quantities kept in work areas. See section 8 with regard to personal protective equipment requirements. Avoid skin and eye contact and inhalation of vapour, mist or aerosols.

8. Exposure Controls / Personal Protective Equipment

Workplace Exposure Standards

A workplace exposure standard (WES) has not been established by WorkSafe NZ for this product. There is a general limit of 3mg/m^3 for respirable particulates and 10mg/m^3 for inhalable particulates when limits have not otherwise been established.

NZ Workplace Exposure Stds	Ingredient	WES-TWA	Ceiling	WES-STEL
	Formaldehyde$_{(carc\ 1,\ dsen)}$	0.3ppm	-	0.6ppm
	Methanol$_{(skin)}$	200ppm, 262mg/m^3	-	250ppm, 328mg/m^3
	Phenol$_{(skin)}$	1ppm, 3.8mg/m^3	-	2ppm, 7.7mg/m^3
	Potassium hydroxide	-	2mg/m^3	-

Biological exposure index	Ingredient	Determinant	Sampling time	BEI
	Methanol	Methanol in urine	End of shift	15mg/L
	Phenol	Total phenol in urine	End of shift	100mg/L

Engineering Controls

In industrial situations, it is expected that employee exposure to hazardous substances will be controlled to a level as far below the WES as practicable by applying the hierarchy of control required by the Health and Safety at Work Act (2015) and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016. Exposure can be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe air borne concentrations of mists, dusts or vapours are high, you are advised to modify processes or increase ventilation.

Personal Protective Equipment

General Personal Protective Equipment (PPE) should not be used as the primary means of exposure protection, except in the event of an accident or emergency situation or where all other means of protection have proven to inadequate. Clean PPE after use or dispose of as appropriate. Store PPE for re-use in a clean place. Regular training on the correct use of PPE should be provided. In particular the correct fitting and use of respirators and where applicable the cleaning of respirators should be undertaken.

Eyes  Protect eyes with goggles, safety glasses or full face mask. Avoid wearing contact lenses. Select eye protection in accordance with AS/NZS 1337.

Skin

Avoid any skin contact. Wear suitable protective clothing, e.g. overalls or aprons, rubber boots and impervious gloves. Nitrile gloves are recommended. Neoprene and latex gloves provide fair to limited protection and can be used for short term use. Protective gloves or suitably resistant material must comply with AS 2161. Replace frequently. Gloves should be checked for tears or holes before use. Protective clothing must comply with AS 2919, AS3765.1 or AS3765.2. PVC or rubber boots must comply with AS/NZS 2210.2 and selected and maintained in accordance with AS/NS2210.1. Remove protective clothing and wash exposed areas with soap and water prior to eating, drinking or smoking.

Respiratory

A respirator when airborne concentrations approach the WES (section 8). Respirators must have filters appropriate to the duty and comply with AS/NZS1716 and selected, used and maintained in accordance with AS/NS 1715. Use a full face respirator with a formaldehyde cartridge. If using a respirator, ensure that the cartridges are correct for the potential air contamination and are in good working order. Fit testing and clear guidelines and training for use and maintenance of PPE are necessary.
Supplied Air respirator should be considered in the event of excessive exposure (e.g. higher than WES).

WES Additional Information

Not applicable

9. Physical & Chemical Properties

Appearance	Clear liquid
Odour	Seer
Odour Threshold	no data
pH	6.8 - 7.2
Freezing/melting point	no data
Boiling Point	87.7°C
Flashpoint	29.4°C
Flammability	no data
Upper & lower flammable limits	no data
Vapour pressure	no data
Vapour density	Heavier than air
Specific gravity/density	Greater than 1.0
Solubility	miscible in water
Partition coefficient	no data
Auto-ignition temperature	no data
Decomposition temperature	no data
Viscosity	no data
Particle Characteristics	no data

10. Stability & Reactivity

Stability	Stable
Conditions to be avoided	Flammable substance. Keep away from sources of ignition at all times. Containers should be kept closed in order to avoid contamination.
Incompatible groups	Strong oxidisers, strong alkalis, strong mineral acids.
Substance Specific Incompatibility	none known
Hazardous decomposition products	May form formaldehyde gas, oxides of carbon, hydrocarbons.
Hazardous reactions	none known

11. Toxicological Information

Summary

IF SWALLOWED: may cause burns to the mouth and digestive tract.
IF IN EYES: may cause permanent eye damage, intense pain, redness, swelling and watering.
IF ON SKIN: may cause skin burns. This substance may be absorbed through the skin. Sensitised individuals may experience an allergic skin reaction. Toxic by skin contact.
IF INHALED: fatal if inhaled. may damage to the mucous membranes in the respiratory tract.
CHRONIC TOXICITY: formalin is a known carcinogen. Exposure may cause damage to kidneys, eyes, central nervous system, liver, heart. Methanol may cause blindness.

Supporting Data

Acute	**Oral**	Using LD_{50}'s for ingredients, the Acute Toxicity Estimate (ATE) (oral) for the mixture is between 300 and 2,000 mg/kg. Data considered includes: Formaldehyde 260 mg/kg (Guinea pig), Methanol LD_{50} (oral): 870mg/kg (mouse), 5628mg/kg (rat), 300mg/kg (human), Phenol 100 mg/kg (cat), 282 mg/kg bw (mouse).
	Aspiration	This mixture is not considered an aspiration hazard.
	Dermal	Using LD_{50}'s for ingredients, the Acute Toxicity Estimate (ATE) (dermal) for the mixture is between 500 and 1000 mg/kg. Data considered includes: Formaldehyde 270 mg/kg (rabbit), Methanol LD_{50} (dermal): 15800mg/kg (rabbit), 393 mg/kg bw (primates), , Phenol 525 mg/kg bw (rat).
	Inhaled	Using LD50's for ingredients, the Acute Toxicity Estimate (ATE) (inhalation) for the mixture is between 0.05-0.5mg/L in air. Data considered includes: Methanol 64000ppm/4H (rat), 52mg/L/4h (monkey), Phenol 0.117 mg/L (mouse), dust/mist, Formaldehyde 0.497 mg/l (mouse, vapour),
	Eye	The mixture is considered to be corrosive to the eye, because Formaldehyde is considered to be a eye corrosive.
	Skin	The mixture is considered to be corrosive to the skin, because Formaldehyde is considered to be a skin corrosive.
Chronic	**Sensitisation**	The mixture is considered to be a contact sensitizer, because Formaldehyde present in greater than 0.1% is known to be a contact sensitizer.
	Mutagenicity	The mixture is considered to be a suspected mutagen, because at least one of the ingredients (Formaldehyde) present in greater than 0.1% is suspected to be a mutagen.
	Carcinogenicity	The mixture is considered to be a known or presumed carcinogen, because at least one of the ingredients (Formaldehyde) present in greater than 0.1% is known or presumed to be a carcinogen. (IARC). Phenol is not classifiable as to its carcinogenicity to humans (Group 3).
	Reproductive / Developmental	This mixture is considered a reproductive/developmental toxicant (methanol, phenol). Animal studies have shown that exposure to methanol may affect offspring, e.g. increased fetal deaths, reduced fetal weight and fetal malformations. Animal studies have shown that exposure to phenol may reduce fetal weight and litter numbers. Phenol is a suspected reproductive and developmental toxicant.
	Systemic	The mixture is considered to be a known or presumed target organ toxicant, because at Formaldehyde and Methanol present in greater than 1% are known or presumed to be a target organ toxicant. The mixture is highly irritating to the upper respiratory tract. May cause inflammation of the lining of the nose, throat and lungs, with bronchopneumonia nd edema possible from extremely irritating exposure. Prolonged inhalation of high concentrations may cause central nervous system depression. Chronic overexposure to methanol may cause eye damage in humans. Prolonged exposure to phenol vapours and mists may result in digestive disturbances, nervous disorders and skin eruptions and can cause damage to kidney and liver.
	Aggravation of existing conditions	None known.

12. Ecological Data

Summary

This mixture is not considered ecotoxic towards aquatic organisms. In all cases prevent run-off to drains, sewers and waterways.

Supporting Data

Aquatic	Using EC_{50}'s for ingredients, the calculated EC_{50} for the mixture is > 100 mg/L. Data considered includes: Formaldehyde 4.960mg/L (96hr, Channel catfish), 40 mg/L (48hr, daphnia magna), , Methanol >100mg/L, Phenol 8.9 mg/l (96hr, Oncorhynchus mykiss), 3.1 mg/l (48hr, Ceriodaphnia dubia), 150 mg/l (96hr, Selenastrum capricornutum (Algae)).
Bioaccumulation	Formaldehyde and methanol are not bioaccummulative.
Degradability	Formaldehyde degrades rapidly.
Soil	No evidence of toxicity towards soil organims
Terrestrial vertebrate	See acute toxicity, see section 11.
Terrestrial invertebrate	The mixture is not considered harmful to terrestrial invertebrates.
Biocidal	Not applicable

13. Disposal Considerations

Restrictions	There are no product-specific restrictions, however, local council and resource consent conditions may apply, including requirements of trade waste consents.
Disposal method	Disposal of this product must comply with the Hazardous Substances (Disposal) Notice 2017 and the requirements of the Resource Management Act for which approval should be sought from the Regional Authority. The substance must be treated and therefore rendered non-hazardous before discharge to the environment.
Contaminated packaging	Disposal of contaminated packaging must comply with the Hazardous Substances (Disposal) Notice 2017 clause 12. Ensure that the package is rendered incapable of containing any substance and is disposed in a manner that is consistent with the requirements of the substance it contained and the material of the package. If possible reuse or recycle packaging.

14. Transport Information

Land Transport Rule: Dangerous Goods 2005 - NZS 5433:2007
Transport according to NZS 5433 (Transport of Hazardous Substances on Land). Considered a dangerous good for transport.

UN number:	3286	**Proper shipping name:**	FLAMMABLE LIQUID, TOXIC, CORROSIVE, NOS (contains methanol/formaldehyde)
Class(es)	3	**Packing group:**	III
Precautions:	Flammable liquid	**Hazchem code:**	3WE

IMDG

UN number:	3286	**Proper shipping name:**	FLAMMABLE LIQUID, TOXIC, CORROSIVE, NOS (contains methanol/formaldehyde)
Class(es)	3	**Packing group:**	III
Precautions:	Flammable liquid	**EmS**	F-E, S-D

IATA

UN number:	3286	**Proper shipping name:**	FLAMMABLE LIQUID, TOXIC, CORROSIVE, NOS (contains methanol/formaldehyde)
Class(es)	3	**Packing group:**	III
Precautions:	Flammable liquid		

15. Regulatory Information

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO). Approval code: HSR002564, Embalming Products (Flammable, Acutely toxic, Corrosive) Group Standard 2020. All ingredients appear on the New Zealand Inventory of Chemicals NZIoC.

Specific Controls

Key workplace requirements are:	
SDS	To be available within 10 minutes in workplaces storing any quantity.
Inventory	An inventory of all hazardous substances must be prepared and maintained.
Packaging	All hazardous substances should be appropriately packaged including substances that have been decanted, transferred or manufactured for own use or have been supplied
Labelling	Must comply with the Hazardous Substances (Labelling) Notice 2017.
Emergency plan	Required if > 1000L is stored.
Certified handler	Required for any quantity.
Tracking	Required.
Bunding & secondary containment	Required if > 1000L is stored.
Signage	Required if > 1000L is stored.
Location compliance certificate	Required if > 250 L is stored.
Flammable zone	Must be established if > 100 L (closed containers), 25 L (decanting), 5 L (open occasionally), 1 L (open containers in continuous use) is stored.
Fire extinguisher	If > 500L present.

Note: The above workplace requirements apply if only this particular substance is present. The complete set of controls for a location will depend on the classification and total quantities of other substances present in that location.

Other Legislation

In New Zealand, the use of this product may come under the Resource Management Act and Regulations, the Health and Safety at Work Act 2015 and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, local Council Rules and Regional Council Plans.

16. Other Information

Abbreviations

Approval Code	Approval HSR002564, Embalming Products (Flammable, Acutely toxic, Corrosive) Group Standard 2020 Controls, EPA. www.epa.govt.nz
CAS Number	Unique Chemical Abstracts Service Registry Number
EC_{50}	Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species)
EPA	Environmental Protection Authority (New Zealand)
GHS	Globally Harmonised System of Classification and Labelling of Chemicals, 7th revised edition, 2017, published by the United Nations.
HAZCHEM Code	Emergency action code of numbers and letters that provide information to emergency services, especially fire fighters
HSNO	Hazardous Substances and New Organisms (Act and Regulations)
IARC	International Agency for Research on Cancer
LEL	Lower Explosive Limit
LD_{50}	Lethal Dose 50% – dose which is fatal to 50% of a test population (usually rats).
LC_{50}	Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population (usually rats)
NZIoC	New Zealand Inventory of Chemicals
STEL	Short Term Exposure Limit - The maximum airborne concentration of a chemical or biological agent to which a worker may be exposed in any 15 minute period, provided the TWA is not exceeded
STOT RE	System Target Organ Toxicity – Repeated Exposure
STOT SE	System Target Organ Toxicity – Single Exposure
TWA	Time Weighted Average – generally referred to WES averaged over typical work day (usually 8 hours)
UEL	Upper Explosive Limit

UN Number	United Nations Number
WES	Workplace Exposure Standard - The airborne concentration of a biological or chemical agent to which a worker may be exposed during work hours (usually 8 hours, 5 days a week). The WES relates to exposure that has been measured by personal monitoring using procedures that gather air samples in the worker's breathing zone.

References

Data	Unless otherwise stated comes from the EPA HSNO chemical classification information database (CCID).
Controls	EPA notices, www.epa.govt.nz, Health and Safety at Work (Hazardous Substances) Regulations 2017, www.legislation.govt.nz
WES	The latest NZ Workplace Exposure Standards, published by WorkSafe NZ and available on their web site – www.worksafe.govt.nz.
Other References:	Suppliers SDS

Review

Date	Reason for review
December 2024	Not applicable - New SDS

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