

Safety Data Sheet

GHS Hazardous Chemical
Dangerous Goods by Road & Rail, by Air and by Sea

Triforine Rose Fungicide

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

IDENTIFICATION

Product Name: Triforine Rose Fungicide

Other Names: Triforine Rose Fungicide Professional Concentrate.

Product Code(s): 20L, 5L, 1L, 500mL, 250mL

USE: As a fungicide for the control of Black Spot, Powdery Mildew and Rust in Roses

COMPANY DETAILS: Kendon Chemical & MNFG. Co. Pty Ltd
A.B.N. 27 004 281 967
8-10 Abbot Street
Fairfield, Victoria 3078
Phone: 03 9497 2822
Fax: 03 9499 7225

Emergency Telephone No: **Business Hrs** **03 9497 2822**
After Hrs **0418-530-461 (General Manager)**

2. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: Clear, light yellow, flammable liquid with >60% Ethanol (Flash Point 13°C). May cause harm to the unborn child. Do not expose pregnant women to this product. Irritating to eyes.

Target Organs: Central nervous system; Liver; Reproductive system.

Dangerous Goods Information: Dangerous Goods by Road & Rail, by Air and by Sea

Proper Shipping Name: FLAMMABLE LIQUID UN 1993 Class 3 PG II
FLAMMABLE LIQUID, N.O.S. (ETHANOL >60%)

GHS Hazardous Chemical Information:

Classified as a Hazardous Chemical to the Australian GHS Criteria

Signal Word: DANGER

Classification: Flammable Liquid - Category 2
Reproductive Toxicity - Category 1B
Eye Damage / Irritation - Category 2A
STOT (Single Exposure) - Category 3



Hazard Statements: Highly flammable liquid and vapour
May damage the unborn child.
Causes serious eye irritation.
May cause drowsiness and dizziness.

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Precautionary Statements

- Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
No smoking.
Use non-sparking tools. Take action to prevent static discharges.
Wear protective gloves & clothing, eye protection / face protection.
Avoid breathing vapours / mist / spray.
Use only outdoors or in a well-ventilated area.
In case of inadequate ventilation, wear respiratory protection.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.

- Response

IF exposed or concerned: Get medical advice/attention.
IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair): Wash with plenty of soap and water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
In case of fire, use foam, dry chemical, or carbon dioxide or water spray to extinguish.

- Storage

Store locked up, in a cool, well-ventilated area. Keep container cool and tightly closed.

- Disposal

Dispose of contents / container in accordance with the Local, State & Federal EPA waste regulations.

ACUTE HEALTH EFFECTS

Swallowed: May cause irritation to mouth, throat and stomach with effects including mucous build up, irritation to the tongue and lips and pains in the stomach. May cause headaches, drowsiness, and dizziness and intoxication due to the >60% Ethanol ingredient.

Eye: Causes irritation to the eyes, with effects including: tearing, pain, stinging and blurred vision.

Skin: May cause irritation to the skin, with effects including redness and itchiness. May be harmful if absorbed through the skin.

Inhaled: May cause irritation to the nose, throat and respiratory system with effects including dizziness, headache and possible confusion.

Chronic: Prolonged or repeated skin contact may lead to dermatitis.

The 2.5% Dimethyl Formamide ingredient is classified as Category 2 Toxic to Reproduction: May cause harm to the unborn child, at concentrations >0.5%, by oral, skin and inhalation contact.

Other Information: Persons with pre-existing liver impairment, skin and respiratory disorders may be at an increased risk from exposure to the Ethanol ingredient.

Poisons Standard Schedule: S5 (due to Dimethyl Formamide ingredient at ≤10% and >2%).

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3. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE NAME	Proportion	CAS Number
Triforine *	2.0%	26644-46-2
Ethanol (Denatured)	>60%	64-17-5
N,N-Dimethyl Formamide	2.5%	68-12-2
Emulsifiers	1-10%	
Defoamer	<1%	
Stabiliser	<1%	

* Full Chemical Name for Triforine: Formamide, N,N'-[1,4-Piperazinediylbis(2,2,2-Trichloroethylidene)]bis-

4. FIRST AID MEASURES

Swallowed: If swallowed, DO NOT induce vomiting. Seek urgent medical assistance.

Eye: If material is splashed into eyes, flush with plenty of water for at least 15 minutes, ensuring eye lids are held open. Immediately transport to hospital or doctor.

Skin: If material is splashed onto the skin, remove any contaminated clothing and wash skin thoroughly with water and soap if available. If irritation persists, transport to hospital or doctor.

Inhaled: Remove victim to fresh air. Apply resuscitation if victim is not breathing. Transport to hospital or doctor immediately.

First Aid Facilities: Eye wash fountain, safety shower and normal wash room facilities.

Advice to Doctor: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Highly flammable liquid and vapour. Avoid all sources of ignition, heat and naked flames. The Ethanol vapours may form an explosive mixture with air. These vapours may travel to a source of ignition (e.g. pilot lights, heaters, electrical equipment) and flash back. Will burn if involved in a fire. Containers may explode in the heat of a fire.

Extinguishing Media: Use foam, dry chemical, or carbon dioxide or water spray. Use water spray to cool fire-exposed containers.

Protective Equipment: Wear a self-contained breathing apparatus in pressure-demand and full protective gear.

Flash Point: 13°C (Ethanol)

Autoignition Temperature: 363°C (Ethanol)

Explosion Limits, Lower: 2.2% (Dimethyl Formamide) **Explosion Limits, Upper:** 19% (Ethanol)

6. ACCIDENTAL RELEASE MEASURES

Spillage: Keep unnecessary people away; stay upwind. Shut off ignition sources, no flares, smoking or flames in hazard area. Stop leak if you can do it without risk. Water spray will dilute the Ethanol in the product and reduce the flammable Ethanol vapour released.

Contain the spill. Avoid run-off into the sewerage system and to drains which lead to waterways. Take up with an inert absorbent such as sand, dirt or vermiculite. Do not use combustible materials such as sawdust. Use non-sparking tools. Place into sealed, clean, labelled drum(s) for later disposal.

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7. HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. Do not inhale the vapour or spray mist. When handling the concentrate use spark-proof tools and explosion proof equipment. Take precautionary measures against static discharges by earthing equipment.

Storage: Keep away from sources of heat or ignition, in a dry, well-ventilated area, out of direct sunlight. Store in tightly closed containers away from incompatible substances such as Strong Alkalis, Acids, Combustibles and Oxidizing Agents. Check regularly for leaks.

Store in accordance with Work Health & Safety Regulations or Occupational Health & Safety Regulations and Dangerous Goods (Storage & Handling) Regulations.

Also consider AS 1940 The Storage & Handling of Flammable and Combustible Liquids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Standards determined by Safe Work Australia (formerly ASCC, formerly NOHSC)

Dimethyl Formamide 10 ppm 30 mg/m³ TWA Skin

Ethanol 1,000 ppm 1,880 mg/m³ TWA

Skin: Absorption through the skin may be a significant source of exposure.

Personal Protection Equipment

GLOVES: Wear impervious gloves (e.g. Butyl Rubber, Neoprene, Viton, Nitrile Rubber, Polyethylene).

EYES: Faceshield.

RESPIRATORY PROTECTION: Avoid breathing of vapours. Where adequate ventilation is not available, select and use organic vapour respirators in accordance with AS/NZS 1715/1716.

CLOTHING: Wear overalls and long sleeved clothing, apron or splash suit from Butyl Rubber, Neoprene, PVC, Nitrile Rubber.

Engineering Controls

Maintain adequate ventilation at all times. Use local exhaust ventilation for point sources of vapours. Prevent accumulation of vapours in hollows or sumps. Eliminate any sources of ignition.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear light yellow liquid with an Ethanol (alcohol) odour.

Boiling Point 78°C (Ethanol)

Melting Point: <-10°C

Vapour Pressure: 43 mm Hg at 20°C (Ethanol)

Vapour Density: 1.6 (Air = 1) (Ethanol)

Evaporation Rate: 2.5 (n-Butyl Acetate = 1) (Ethanol)

Specific Gravity: 0.83

Solubility: Soluble in water

Flash Point: 13 °C

Flammability Limits: Lower: 3.3% Upper: 19% (Ethanol)

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of use.

Conditions to Avoid: Heat, flames, and ignition sources.

Incompatible Materials: Strong Alkalis, Acids, Nitrates and Oxidizing Agents.

Hazardous Decomposition Products: Emits acrid smoke and fumes when heated to decomposition.

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Hazardous Reactions: The Ethanol vapours may form an explosive mixture with air.
Ethanol in this product IF mixed with Oxidising Agents causes a high fire risk and an explosion risk.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Overall Product: No overall product data is available.
See below for Toxicological Data on the ingredients in this product.

Triforine (as 100%):

Acute Oral Toxicity LD50 (rat): >16000 mg/kg
Acute Dermal Toxicity LD50 (rat): >10000 mg/kg
Acute Inhalation Toxicity LC50 (rat): >4.5 mg/L/1 hr [HSDB]

Carcinogenic, Mutagenic, Genetic, Reproductive Effects:

The active ingredient Triforine does not cause cancer in test animals or humans. It is not mutagenic and does not cause genetic damage, birth defects or any adverse reproductive effects.

Ethanol (as 100%):

Acute Oral Toxicity (LD50 rat): 6200 mg/kg
Acute Dermal Toxicity (LD50 rabbit): >20000 mg/kg
Acute Inhal'n Toxicity (LD50 rat): >8000 mg/L/4hrs
Eye Irritation (rabbit): Eye irritation (meets the GHS eye irritation criteria)
Skin Irritation (rabbit): Slight skin irritation

Vapours may irritate the eyes and respiratory tract. Liquid may irritate the skin.

Swallowing Ethanol may cause harmful central nervous system effects (drowsiness and dizziness).

Dimethyl Formamide (as 100%):

Acute Oral Toxicity (LD50 rat): 2800 mg/kg
Acute Dermal Toxicity (LD50 rabbit): 1500 mg/kg
Acute Inhal'n Toxicity (LD50 rat): 9-15 mg/L/4hrs
Eye Irritation (rabbit): Eye irritation
Skin Irritation (rabbit): No irritation

Teratogenic Effects: Based on clear evidence from animal experiments there is a high risk of teratogenic effects. Pregnant women must not be exposed to Dimethyl Formamide.

CATEGORY 1B TOXIC TO REPRODUCTION: May damage the unborn child
(At concentrations >0.3%).

The European Chemicals Agency has added DMF to the Candidate List for EU Substances of Very High Concern list requiring Authorisation due to its classification as a Reproductive Hazard.

For Information go to: <https://echa.europa.eu/candidate-list-table/-/dislist/details/0b0236e1807dec94>

ED/169/2012 Decision in 2012: <https://echa.europa.eu/documents/10162/52c73750-c192-457c-9c48-2bd9776cec88> and search on the DMF CAS No. 68-12-2

12. ECOLOGICAL INFORMATION

This Triforine Rose Fungicide product concentrate may be harmful to aquatic organisms.
Avoid contaminating waterways. Each ingredient is biodegradable

Overall Product: No data available. See below for Ecotoxicological Data on the ingredients in this product.

Triforine (as 100%):

Biodegradable. The potential for bioaccumulation is expected to be low.

Acute Aquatic Fish toxicity LC50 (Rainbow Trout, 96hrs): >1000 mg/L
Acute Aquatic Daphnia toxicity EC50 (Daphnia, 48hrs): 117 mg/L

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Issue Date: 10 March 2026

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Hydrolysis half life of 2-3 days. Aerobic soil half life of 19 days.

(From PubChem Chemical Information at <https://pubchem.ncbi.nlm.nih.gov/>)

Ethanol (as 100%):

Readily biodegradable. No bioaccumulation is to be expected. When treated properly, no impairment in the function of waste or water-treatment plants are to be expected.

Acute Aquatic Fish toxicity LC50 (Leuciscus idus, 48hrs):	8140 mg/L
Acute Aquatic Daphnia toxicity EC50 (Daphnia, 48hrs):	9268-14221 mg/L
Acute Aquatic Bacterial toxicity EC5 (Pseudomonas putida, 16hrs):	6500 mg/L
Biological Oxygen Demand: BOD5	0.93-1.67 g/g
Chemical Oxygen Demand: COD	1.99 g/g
Theoretical Oxygen Demand: TOD	2.10 g/g

Octanol Water Partition Co-efficient (log Pow): -0.32

(From Merck SDS at <https://www.sigmaaldrich.com/AU/en/search>)

Dimethyl Formamide (as 100%):

Readily biodegradable. No bioaccumulation is to be expected. When treated properly, no impairment in the function of waste or water-treatment plants are to be expected.

Acute Aquatic Fish toxicity LC50 (L.Macrochirus, 96hrs):	6300 mg/L
Acute Aquatic Daphnia toxicity EC50 (Daphnia, 48hrs):	15700 mg/L
Acute Aquatic Algae toxicity IC50 (Desmodesmus Subspicatus, 96hrs):	>500 mg/L
Theoretical Oxygen Demand: TOD	1.86 g/g

Octanol Water Partition Co-efficient (log Pow): -0.85

(From Merck SDS at <https://www.sigmaaldrich.com/AU/en/search>)

13. DISPOSAL CONSIDERATIONS

Disposal: In accordance with the Local, State & Federal EPA waste regulations.

Advise its flammable, reproductive toxic, irritant and narcotic hazardous nature.

Normally suitable for reaction or incineration by an EPA approved waste facility.

Processing, use or contamination of this product may change the waste management options.

The unclean container must also be handled as hazardous waste until cleaned.

14. TRANSPORT INFORMATION

Dangerous Goods by Road & Rail, by Air and by Sea

UN Number:	1993
Proper Shipping Name:	FLAMMABLE LIQUID, N.O.S. (ETHANOL >60%)
Dangerous Goods Class:	3
Subsidiary risk:	-
Packing Group:	II
Hazchem Code:	•3YE (but this is NOT applicable to containers <200L)

Australian Emergency Response Guide Book 2024 (Free 390 page pdf)

<https://www.ntc.gov.au/codes-and-guidelines/australian-dangerous-goods-code>

Guide 127 Flammable Liquids (Water-Miscible)

Marine Pollutant (IMDG Code): No

•3YE The • as part of the Hazchem Code denotes that **alcohol resistant foam** is the preferred firefighting medium. If not available use the next most effective medium.

Check the current ADG Code for Segregation requirements for Dangerous Goods of Class 8 (Corrosive) (In ADG Code 7th Edition, go to Chapter 9.1 on Incompatible Dangerous Goods & Chapter 9.2 on Segregation).

Note: ADG7 is available from the Australian National Transport Commission (NTC)
<https://www.ntc.gov.au/codes-and-guidelines/australian-dangerous-goods-code>

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15. REGULATORY INFORMATION

GHS Hazardous Chemical Information:

Classified as a Hazardous Chemical to the Australian GHS Criteria

Signal Word: DANGER

Classification: Flammable Liquid - Category 2
Reproductive Toxicity - Category 1B
Eye Damage / Irritation - Category 2A
STOT (Single Exposure) - Category 3



Hazard Statements: H225 - Highly flammable liquid and vapour
H360D - May damage the unborn child.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness and dizziness.

Precautionary Statements

- Prevention

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P242+243 - Use non-sparking tools. Take action to prevent static discharges.
P280 - Wear protective gloves & clothing, eye protection / face protection.
P261 - Avoid breathing vapours / mist / spray.
P271 - Use only outdoors or in a well-ventilated area.
P284 - In case of inadequate ventilation, wear respiratory protection.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.

- Response

P308+313 - IF exposed or concerned: Get medical advice/attention.
P301+330+312 - IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.
P303+352 - IF ON SKIN (or hair): Wash with plenty of soap and water.
P304+340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313 - If eye irritation persists: Get medical advice/attention.
P362+364 - Take off contaminated clothing and wash before reuse.
P370+378 - In case of fire, use foam, dry chemical, or carbon dioxide or water spray to extinguish.

- Storage

P405+403+235+233 - Store locked up, in a cool, well-ventilated area. Keep container cool and tightly closed.

- Disposal

P501 - Dispose of contents / container in accordance with the Local, State & Federal EPA waste regulations.

Dangerous Goods (see Sections 7 & 14)

Poison Standard Schedule: S5 (due to Dimethyl Formamide ingredient at ≤10% and >2%).

APVMA Approval No: 30517

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16. OTHER INFORMATION

SDS Dates and Revisions

SDS Original Preparation Dates : April 2000, June 05, April 09, Oct 09, March 14, Oct 16, 8 Sept 2021
SDS Latest Revision Date : 10 March 2026
Sections Changed in Latest Revision : Changes in Sections 1, 2, 3, 11, 12, 14, 15, 16

Contact Point: phone: (03) 9497 2822 email: CStory@Kendon.com.au
mobile: 0418-530-461 (General Manager)

SDS APPROVED: Kendon Chemical & MNFG.

Acronyms Used

ADG Code Australian Dangerous Goods Code for the Transport of Dangerous Goods by Road & Rail
Safe Work Australia Safe Work Australia (SWA) (since April 2009) administers ASCC & NOHSC documents.
HCIS Hazardous Chemical Information System at: <http://hcis.safeworkaustralia.gov.au/>
AICIS (AIIC) Australian Industrial Chemicals Introduction Scheme
(Australian Inventory of Industrial Chemicals) <https://www.industrialchemicals.gov.au/>
NZ EPA HSNO Environmental Risk Management Authority New Zealand, HSNO Chemical
CCID Classification Information Database. <https://www.epa.govt.nz/database-search/>
e-ChemPortal Global Portal to Information on Chemical Substances
<https://www.echemportal.org/echemportal/substance-search>
ECHA European Chemicals Agency at <http://echa.europa.eu/>
ECHA Chem Global Portal to Information on Chemical Substances
<https://www.echemportal.org/echemportal/substance-search>
WHS Workplace Hazardous Substance
CAS No. Chemical Abstracts Service Registry Number
UN No. United Nations Dangerous Goods Number
Poisons Standard SUSMP: Standard for the Uniform Scheduling of Medicines and Poisons

SDS Code Used This SDS has been prepared according to the Australian SWA Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals 16 June 2023 (123 page pdf)
www.safeworkaustralia.gov.au/doc/model-code-practice-preparation-safety-data-sheets-hazardous-chemicals.

This SDS summarises to the best of our knowledge the health and safety hazard information on the product and how to safely handle and use the product in the workplace, and should not be construed as guaranteeing specific technical properties. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace, including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company. Since methods and conditions are beyond our control, in inappropriate contexts we do not accept liability for any damages resulting from the use of, or reliance on, this information.

Reviewers Initials / Yr / Mth: JS2603