



# MATERIAL SAFETY DATA SHEET

## FUNGINEX

**Date Issued:** June 2014 and is valid for 3 years from this date.

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### 1. PRODUCT AND COMPANY IDENTIFICATION

**TRADE NAME:** FUNGINEX

**SUPPLIER:** EFEKTO

PO BOX 652147

BENMORE

2010

**TEL No.** 011 287 5700

**EMERGENCY TELEPHONE NUMBERS:**

**SPILLAGES:** 083 1233 911

**Fax:** 086 685 3129

**POISONINGS:**

**National Poison Centre** 021-9386084 (office hours).

021-9316129 (after hours).

082 446 8946

**Use:** A systemic fungicide for the control of powdery mildew, rust and black spot(roses) on indoor and smaller plants, in the garden, as is listed on the label.

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### 2. HAZARDS IDENTIFICATION

- Harmful
- Irritant

**Likely routes of exposure:** May be absorbed through the intact skin, and through inhalation of fine mist.

**Eye contact:**

The product is minimally toxic, however caution should be practiced when handling the product. The product might be irritating.

**Skin contact:**

This product is minimally toxic, however caution should be practiced when handling the product.

**Ingestion:**

Harmful by ingestion. See point 4 for symptoms.

**Inhalation:**

Repeated or prolonged inhalation may cause harmful effects.

See point 4 for symptoms.

**Carcinogenicity:** There is no quantification of cancer risk for triforine.

**Teratogenicity/ Teratogenicity/ Mutagenicity:** No effects were observed in any study



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**UN No.:** Not regulated.  
**Symbols:** Xn-Harmful  
**Risk-phrase(s):** R20, R36/38

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Active ingredients:**

Active ingredients.	CAS No.:	EC No.:
Triforine 3.0 g/kg	26644-46-2	247-872-0
Inerts Balance	-	-

**Chemical Name:** [piperazine-1,4-diylbis(2,2,2-trichloroethane-1,1-diyl)]diformamide (IUPAC)  
**Chemical Family:** Azole analogue  
**Chemical Formula:** C<sub>10</sub>H<sub>14</sub>Cl<sub>6</sub>N<sub>4</sub>O<sub>2</sub>  
**NIOSH/RTECS No.:** Not available.

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### 4. FIRST-AID MEASURES

Triforine is a piperazine derivative used as a systemic fungicide. Reports of adverse effects on humans are few.

**Symptoms of Poisoning:**

Over exposure to vapors may cause headaches, dizziness, and nausea.

**Inhalation:**

Remove from exposure area to fresh air immediately. If breathing has stopped, give mechanical artificial respiration (not direct mouth-to-mouth). Get medical attention immediately.

**Skin contact:**

Wash contaminated areas with soap and water. Treat respiratory difficulty with mechanical artificial respiration. Get medical attention immediately.

**Eye contact:**

Irrigate eyes with water or saline solution. If symptoms of poisoning occur, treat respiratory difficulty with mechanical artificial respiration and oxygen.

**Ingestion:**

Administration of oxygen and gastric lavage must be performed by qualified medical personnel. Get medical attention immediately.

**Advice to physician:**

Treat symptomatically and supportively. There is no Antidote.

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### 5. FIRE-FIGHTING MEASURES

**Fire and explosion hazard:**



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Explosion hazard, when exposed to heat or flame-contents under pressure.

**Extinguishing agents:**

Extinguish small fires with carbon dioxide, dry powder, Halon, water spray, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock. Contain water used for fire fighting for later disposal

**Firefighting:**

Move containers from fire area if possible. Fight fire from maximum distance. Stay away from storage tank ends. Contain fire control water for later disposal. Do not scatter material, extinguish only if flow can be stopped. Use flooding amounts of water as a fog, solid streams may be ineffective. Cool containers with flooding amounts of water as far a distance as possible. Use water spray to absorb toxic vapours. Avoid breathing toxic vapours. Keep upwind. Consider evacuation of downwind area if material is leaking.

**Special Hazards:**

When heated to decomposition, it emits acrid smoke and fumes.

**Personal protective equipment:**

Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

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### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:**

Avoid contact with skin and eyes. Do not breathe in spray mist. For personal protection see Section 8.

**Environmental precautions:**

Do not allow spilled material to enter drains or watercourses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.

**Occupational spill:**

Do not touch spilled material. Stop leak if you can do so without risk. Neutralise with sodium hydroxide and allow standing for 4 hours. For **small spills**, sweep up with sand or other suitable absorbent material, such as sawdust, and place into containers for later disposal. Move containers from spill area. For **larger spills**, contain material far ahead of spill for later disposal. Keep spectators away. Isolate hazard area and deny entry. Ventilate closed spaces before entering.

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### 7. HANDLING AND STORAGE

**Handling:**

Harmful by inhalation or if swallowed. Avoid contact with eyes, prolonged contact with skin, and inhalation of dust and vapour. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if this product gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing.

**Storage:**

Keep out of reach of unauthorized persons, children and animals. Store in shaded, well-ventilated area, away from heat, sparks, open flames and other sources of ignition. Do not expose to direct sunlight or heat exceeding 50 °C. Not to be stored next to foodstuffs. Local regulations should be complied with.

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### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION



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**Occupational exposure limits:**

None specified.

**Engineering control measures:**

It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

**PERSONAL PROTECTIVE EQUIPMENT:**

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

**Respirator:**

An approved respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

**Clothing:**

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with the substance.

**Gloves:**

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

**Eye protection:**

The use of full-face protection is recommended.

*Emergency eye wash:* Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** A slight turbid amber to brown liquid.

**Odour:** Aromatic solvent odour.

**Flammability:** Not Flammable.

**Flash point:** 70 °C

**Density:** 1,07 g/ml

**Oxidising properties:** None known.

**pH:** Not available

**Viscosity:** 10,6 cP

**Solubility in water:**

The product is an emulsifiable concentrate and will mix with water.

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**10. STABILITY AND REACTIVITY****Stability:**

Stable up to 2 years under normal storage conditions Avoid extremes of temperature.

**Incompatibility:** None.

**Hazardous decomposition:**

Toxic oxides of nitrogen are released when the product decomposes on heating.



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### 11. TOXICOLOGICAL INFORMATION

All data is for technical material.

**Acute oral LD<sub>50</sub>:** > 5000 mg/kg in rats.

**Acute dermal LD<sub>50</sub>:** >2000 mg/kg

**Acute inhalation LC<sub>50</sub>:** >5,12 g/m<sup>l</sup> (aerosol).

**Acute skin irritation:** The product is not irritating to the skin.

**Acute eye irritation:** The product is irritating to eyes.

**Dermal sensitisation:** Not a skin sensitizer.

**Carcinogenicity:** There is no quantification of cancer risk for triforine.

**Teratogenicity/ Teratogenicity/ Mutagenicity:** No effects were observed in any study

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### 12. ECOLOGICAL INFORMATION

#### ECOTOXICOLOGY:

*All data is for technical material.*

**Birds:** practically non-toxic to birds.

**Acute oral LD<sub>50</sub>:** > 5000 mg/kg (Bobwhite quail).

**Fish LC<sub>50</sub> (96 hr):** >1000 mg/l (rainbow trout). Triforine is no more than slightly toxic to freshwater

fish. **Daphnia (LC<sub>50</sub> 48h):** 117 mg /l.

**Algae 96h(EC<sub>50</sub>):** 380 mg/l.

**Earthworms (LC<sub>50</sub>):** >1000 mg /kg.

**Bees:** Triforine is practically non-toxic to honey bees (LD<sub>50</sub> >100 µg/bee).

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### 13. DISPOSAL CONSIDERATIONS

#### Pesticide disposal:

Do not expose container to heat, flame, sparks or other sources of ignition.

#### Package product wastes:

If aerosol is leaking, handle with rubber gloves. Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed. Do not puncture or incinerate empty container.

Comply with local legislation applying to waste disposal.

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### 14. TRANSPORT INFORMATION

**UN NUMBER** Not regulated.

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### 15. REGULATORY INFORMATION

**Indication of danger:** Irritant.



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### Risk phrases:

**R20** Harmful by inhalation.  
**R36/38** Irritating to eyes and sin.

### Safety phrases

**S 2** Keep out of reach of children  
**S13** Keep away from food, drink and animal feeding stuffs.  
**S25** Avoid contact with eyes.  
**S36/39** Wear suitable protective clothing and eye/face protection.

**National legislation:** In accordance with the South African National Road Traffic Act, 1996 (Act 93 of 1996), the Fire Brigade Act, 1987 (Act 99 of 1987) and the Occupational Health and Safety Act, 1993 (Act. No. 85 of 1993)

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## 16. OTHER INFORMATION

**Compiled by:** Danie Fourie

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear.

It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulations(s) containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

### REFERENCES

- Triforine, RED EPA; 2008.
- Sumitomo Corporation (Summit Agro Europe)MSDS,14/02/2006.
- ECB-ESIS (European chemical Information System).
- ADR 2011, Part 3.
- IMDG Code, 2005 Edition, Vol. 2.
- IATA Dangerous goods regulations, Effective 1 January 2011

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**END OF MSDS.**