



# MANTISSA

## PRODUCT SAFETY DATA SHEET

1. **Product Name:** **TYPHOON 360<sup>®</sup>**  
A herbicide for use in agriculture, horticulture, forestry and aquatic situations

**Marketed by:**  
Mantissa Corporation Ltd, New Zealand.

**Contact Points:**  
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2. **Composition**  
A soluble liquid containing 360 g/l (41% w/w) glyphosate as its isopropylamine salt\* with tallow alkyl amine ethoxylate (9% w/w) and water.  
\* contains 480 g/l of glyphosate isopropylamine salt, equivalent to 360 g/l glyphosate acid, CAS No. 38641-94-0.

**Hazardous components:**  
Tallow alkyl amine ethoxylate                      CAS No. 61791-26-2  
Classification:    Harmful Xn, Irritating Xi  
Risk phrases    R20, R36

3. **Hazards Identification**  
Health Hazards:  
May be irritating to eyes, causing pain and redness.  
Environmental Hazards, in case of accident (leaks and spills):  
Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

**HAZARD CLASSIFICATION: 6.1E, 6.4A, 9.1B**

4. **First Aid Measures**  
Eyes: Irrigate with clean water for at least 15 minutes. Seek medical attention if any irritation or redness persists.  
Skin: Remove contaminated clothing. Wash thoroughly with soap and water. Seek medical advice if any irritation persists  
Ingestion: If swallowed dilute by drinking water. Obtain medical advice. No significant adverse health effects are to develop unless a significant amount (more than a mouthful) has been ingested. Ingestion may cause nausea, vomiting and diarrhoea.  
Inhalation: Remove from exposure and provide maximum ventilation.

Guide to

Doctors: This product contains a glycine herbicide of low acute toxicity. Treatment should be symptomatic and supportive. There is no specific antidote. Ingestion may cause irritation of the gastrointestinal tract and the mouth, with nausea, vomiting and diarrhoea. Ingestion of large quantities of a similar product has been reported as resulting in hypertension and lung oedema.

## 5. Fire Fighting Measures

Typhoon 360 will burn.

Specific Hazards: If involved in a fire, fumes and vapours will be harmful and may include oxides of carbon, nitrogen and phosphorus. Fire fighters should wear full protective clothing and breathing apparatus.

Extinguishing media: Use dry chemical, foam, water spray, sand or earth.

Prevent entry of the product or contaminated water into watercourses ditches or drains by bunding the area with sand or earth if possible. Inform the water authorities if contamination of water is threatened or occurs.

## 6. Accidental Release (Spillage)

Wear suitable protective clothing (see Section 8). Remove contaminated clothing immediately. Do not eat drink or smoke. Keep bystanders away. Provide maximum ventilation. Absorb the spill onto absorbent clay or sand, sweep up and transfer to a labelled container for later removal to a safe place for disposal. Thoroughly scrub the area with an industrial detergent when all the spillage has been removed. Spills which soak into the ground should be dug up, placed in containers and removed to a safe place for disposal. Prevent the spillage or washing water from entering watercourses sewers or drains. Inform the authorities if contamination of water is threatened or occurs.

## 7. Storage and Handling

Keep in original container, tightly closed.

Keep cool and dry in a suitable agricultural chemical store under lock and key  
Do not store in direct sunlight.

Keep away from food, drink and animal feeding stuffs and out of reach of children.

**Do not store, mix or apply this product or dilute solutions of it in galvanised or unlined steel containers or sprayer tanks.** Use only stainless steel, aluminium, fibreglass, plastic (HDPE or PET) or plastic-lined containers.

## 8. Personal Protection

When using this product as a herbicide, refer to the label for details. In all other cases wear the following personal protective equipment:

Overalls, suitable protective rubber gloves and face-shield when handling the concentrated product or contaminated surfaces.

Decontaminate all personal protective equipment after use.

Occupational Exposure Limits: None applicable

## 9. Physical and Chemical Properties

Appearance:	A clear viscous amber liquid
Odour:	Faint, chemical
Solubility:	Completely soluble in water
Specific gravity:	1.165 at 20°C
Viscosity:	43cS at 20°C
Vapour pressure:	1.75 x 10 <sup>(-7)</sup> mm Hg at 25°C
Partition coefficient:	P=4.5 x 10 <sup>(-4)</sup>
pH:	4.5 (1% solution in water)
Flashpoint:	>113°C

## 10. Stability and Reactivity

Stability: Very stable. Stores for at least 2 years in original unopened containers in normal agricultural chemical storage conditions.

Reactivity: Avoid strong alkalis. **Avoid galvanised or unlined steel.** The product will react with these materials to produce hydrogen and highly combustible gas mixtures may form which could flash or explode causing severe injury.

## 11. Toxicological Information

### Acute Toxicity:

This product is of low acute toxicity:

Acute oral LD50:	>5,000 mg/kg.bw (rat)
Acute dermal LD50:	>2,000 mg/kg.bw (rat)
Inhalation LC50:	> 4.86 mg/litre over 4 hours
Irritancy:	Moderately irritating to eyes; mildly irritating to skin. Not a sensitiser in the M-K Maximisation Test
Carcinogenicity:	EPA category E (Non-carcinogenic)
Teratogenicity:	No indication of any teratogenic effects
Mutagenicity:	No mutagenic risk exhibited in a wide range of <i>in-vivo</i> and <i>in-vitro</i> tests.
Cholinesterase Inhibition:	Not a cholinesterase inhibitor, not neurotoxic.

## 12. Environmental Protection

Toxicity to:

Fish:	96-hour LC50 = 18.6 mg/l (Rainbow trout) = 11.9 mg/l (Bluegill sunfish)
Aquatic invertebrates:	48 hour EC50 (Daphnia spp) = 21.6 mg/l
Aquatic Algae:	72 hour EC50 = 17.4 mg/l (Scenedesmus) = 2 mg/l (Selenastrum)
Birds:	LD50 (Bobwhite quail) = >2000mg/kg.bw
Bees:	48-hour Acute Oral LD50 = > 100 ug/bee

This product is a herbicide and therefore toxic to all green plants. It is harmful to fish, aquatic invertebrates and aquatic plants.

Soil Mobility:	Strongly binds to clay particles. Not mobile.
Bio-degradation:	Slow to bio-degrade in the environment and waste water treatment plants. Microbial activity is the main degradation mechanism but aerobic and anaerobic degradation also occur.
Bio-accumulation:	Unlikely to bio-accumulate.

### 13. Disposal of Unwanted Product and Used Containers

Consult the local authorities before disposing of unwanted chemical.  
Dispose of used containers by triple-rinsing, puncturing and burning or landfill as permitted by local authorities. Do not re-use containers for any purpose.

### 14. Transport Information

Road Transport:	Environmentally hazardous liquid
UN Number:	3082
Proper Shipping Name:	Environmentally hazardous substance, liquid, N.O.S (contains glyphosate 360 g/l)
UN Class:	9
CPL Packing Group:	III
IMDG Code:	None

### 15. Regulatory Information

Risk Symbol:	Dangerous for the Environment N
Risk Phrases:	
R51	Toxic to aquatic organisms
R53	May cause long-term adverse effects in the aquatic environment.
Safety Phrases:	
S60	This material and its container must be disposed of as hazardous waste.
S61	Avoid release into the environment. Refer to special instructions / safety data sheets

### 16. Other Information

The above information is intended to give health and safety guidance on the storage and transport of the substance or product to which it relates. It is not intended to apply to the use of the product, for which purpose the product label and any appropriate technical usage literature available should be consulted and any relevant licences, consents or approvals complied with. The requirements or recommendations of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given.

The information provided in this safety data sheet is accurate to the best of the issuer's available knowledge at the date of publication, and will be updated as and when appropriate. No liability will be accepted for any loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet.

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