

## SAFETY DATA SHEET

### Section 1. Identification of the material and the supplier

Product: **Floranid Twin Club**  
 Product Use: Fertilizer  
 Restriction of Use: Refer to Section 15

New Zealand Supplier: Horticulture Ltd  
 Address: 10 Firth Street  
 Drury, 2113

Telephone: +64 9 294 8453  
 Fax Number: +64 9 294 7272

**Emergency Telephone: 0800 764 766 (National Poison Centre)**

Date of SDS Preparation: 15 June 2021

### Section 2. Hazards Identification

**Not classified as hazardous or mixture according to Regulation (EC) No. 1272/2008 which meets New Zealand jurisdiction criteria as per EPA Hazardous Substances (Classification) Notice 2020.**

### Section 3. Composition / Information on Ingredients

Ingredients	Wt%	CAS NUMBER.
Ammonium Nitrate	>= 1 - < 10	6484-52-2
N,N''-(Isobutylidene)Diurea	>= 10 - <= 45	6104-30-9
Iron Sulphate	<= 5	7720-78-7
Borates, Tetra Sodium Salts, Pentahydrate	<= 1	12179-04-3
Disodium [[N,N'-Ethylenebis[N-(Carboxymethyl)Glycinato]](4-)-N,N',O,O',ON,ON']Cuprate(2-)	<= 0,5	14025-15-1

### Section 4. First Aid Measures

Routes of Exposure:

If in Eyes: Rinse immediately with plenty of water. If eye irritation persists: Get medical advice/attention.

If on Skin: Rinse and then wash skin thoroughly with water and soap. If skin irritation occurs, seek medical advice and attention.

If Swallowed: Clean mouth with water and drink afterwards plenty of water. Call a physician immediately.

If Inhaled Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult.

**Most important symptoms and effects, both acute and delayed**

Symptoms: Ingestion may provoke the following symptoms: Methaemoglobinemia  
 Inhalation of decomposition products in high concentration may cause shortness of breath (lung oedema).

Notes to doctor: Treat symptomatically.

**Section 5. Fire Fighting Measures**

<b>Hazard Type</b>	Non Flammable
<b>Hazards from combustion products</b>	Can decompose at above 100 °C. Thermal decomposition products: Nitrogen monoxide, nitrogen dioxide, dinitrogenoxide, ammonia Isobutyraldehyde
<b>Suitable Extinguishing media</b>	Water Not suitable: Foam Dry chemical Carbon dioxide (CO2) Sand
<b>Precautions for firefighters and special protective clothing</b>	In the event of fire, wear self-contained breathing apparatus. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
<b>HAZCHEM CODE</b>	<b>None allocated.</b>

**Section 6. Accidental Release Measures**

Ensure adequate air ventilation. Wear protective gloves/protective clothing/eye protection as advised in section 8.

Do not flush into surface water or sanitary sewer system. Retain and dispose of contaminated wash water.

Use mechanical handling equipment. Dispose of according to Section 13.

**Section 7. Handling and Storage**

**Precautions for Handling:**

- Protect from contamination.
- Keep away from direct sunlight. Protect against heat.
- Protect from moisture.
- Keep away from sources of ignition - No smoking.
- Keep away from combustible materials.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
- No smoking. Risk of explosion if heated under confinement.
- Wash hands before breaks and at the end of workday.

**Precautions for Storage:**

- When stored loose do not mix with other fertilizers.
- Store well away from other substances.
- Keep away from direct sunlight.
- Protect against heat.
- Protect from contamination.
- Protect from moisture and in a dry place.

**WORKPLACE EXPOSURE STANDARDS (provided for guidance only)**

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>

No ingredients have exposure limits

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices NOV 2019 11TH EDITION.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
<b>ammonium nitrate</b>	Workers	Inhalation	Specific effects	36 mg/m <sup>3</sup>
Remarks:	Exposure time: 1 d			
	Workers	Skin contact	Specific effects	5,12 mg/kg
Remarks:	Exposure time: 1 d			
	Consumers	Ingestion	Specific effects	2,56mg/kg bw/day
Remarks:	Exposure time: 1 d			
	Consumers	Inhalation	Specific effects	8,9 mg/m <sup>3</sup>
Remarks:	Exposure time: 1 d			
<b>N,N''-(isobutylidene)diurea</b>	Workers	Skin contact	systemic effects	37,5 mg/m <sup>3</sup>
Remarks:	Continuous exposure			
	Workers	Inhalation	systemic effects	66,12 mg/m <sup>3</sup>
Remarks:	Continuous exposure			
	Consumers	Skin contact	systemic effects	18,75 mg/m <sup>3</sup>
Remarks:	Continuous exposure			
	Consumers	Inhalation	systemic effects	16,31 mg/m <sup>3</sup>
Remarks:	Continuous exposure			
	Consumers	Ingestion	systemic effects	9,375 mg/m <sup>3</sup>
Remarks:	Continuous exposure			
<b>iron sulphate</b>	Workers	Skin contact	Acute effects, systemic effects	2,8 mg/kg
Remarks:	Exposure time: 24 h			
	Workers	Inhalation	Acute effects, systemic effects	9,9 mg/m <sup>3</sup>
	Workers	Skin contact	Chronic effects, systemic effects	2,8 mg/kg
Remarks:	Exposure time: 24 h			
	Workers	Inhalation	Chronic effects, systemic effects	9,9 mg/m <sup>3</sup>

	Consumers	Ingestion	Acute effects, systemic effects	1,4 mg/kg
Remarks:	Exposure time: 24 h			
	Consumers	Skin contact	Acute effects, systemic effects	1,4 mg/kg
Remarks:	Exposure time: 24 h			
	Consumers	Inhalation	Acute effects, systemic effects	2,5 mg/m <sup>3</sup>
	Consumers	Ingestion	systemic effects, Chronic effects	1,4 mg/kg
Remarks:	Exposure time: 24 h			
	Consumers	Skin contact	Chronic effects, systemic effects	1,4 mg/kg
Remarks:	Exposure time: 24 h			
	Consumers	Inhalation	Chronic effects, systemic effects	2,5 mg/m <sup>3</sup>

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**

Substance name	Environmental Compartment	Value
ammonium nitrate	Fresh water	0,45 mg/l
	Marine water	0,045 mg/l
	Ceiling Limit Value	4,5 mg/l
N,N''-(isobutylidene)diurea	Fresh water	0,5 mg/l
	Marine water	0,05 mg/l
	Fresh water sediment	1,76 mg/l
	Marine sediment	0,176 mg/l
	Soil	10,7 mg/l
	Behaviour in waste water treatment	640 mg/l
iron sulphate	Water	
Remarks:	This product has no known ecotoxicological effects.	
	Behaviour in waste water treatment	2483 mg/l
	Fresh water sediment	246000 mg/kg
	Marine sediment	246000 mg/kg
	Soil	276000 mg/kg

**Engineering Controls**

No particular/specific measures required.

**Personal Protection Equipment**

<b>Eyes</b>	In case of dust formation: Tightly fitting safety goggles.
<b>Hands</b>	Wear gloves.
<b>Skin</b>	Not required.
<b>Respiratory</b>	Breathing apparatus only if aerosol or dust is formed.

**Section 9 Physical and Chemical Properties**

<b>Appearance</b>	Granular
<b>Colour</b>	Various
<b>Odour</b>	Odourless
<b>Odour Threshold</b>	Not available
<b>pH</b>	ca. 6,2, Concentration: 100 g/l (20 °C)
<b>Boiling Point</b>	Not available
<b>Crystallization temperature</b>	Not available
<b>Melting Point</b>	Not available
<b>Freezing Point</b>	Not available
<b>Flash Point</b>	Not available
<b>Flammability</b>	The product is not flammable.
<b>Upper and Lower Explosive Limits</b>	Not available
<b>Vapour Pressure @ 50°C</b>	Not available
<b>Bulk Density</b>	ca. 860 kg/m <sup>3</sup>
<b>Solubilities</b>	Soluble
<b>Log Pow</b>	Not available
<b>Auto-ignition Temperature</b>	Not available
<b>Decomposition Temperature</b>	Not available
<b>Viscosity, dynamic</b>	Not available
<b>Particle Characteristics</b>	Not available
<b>Explosive Properties</b>	Not available

## Section 10. Stability and Reactivity

<b>Stability of Substance</b>	Stable under recommended storage conditions.
<b>Possible hazardous reactions</b>	Evolution of ammonia under influence of alkalies.
<b>Conditions to Avoid</b>	Keep away from heat and sources of ignition.
<b>Incompatible Materials</b>	Oxidizing substances Strong acids and strong bases
<b>Hazardous Decomposition Products</b>	Nitrogen monoxide, nitrogen dioxide, dinitrogenoxide, Ammonia, Isobutyraldehyde

## Section 11 Toxicological Information

### Acute Effects:

<b>Swallowed</b>	Not applicable. LD50 (Rat): > 2.000 mg/kg
<b>Dermal</b>	Not applicable.
<b>Inhalation</b>	Not applicable.
<b>Eye</b>	Not applicable.
<b>Skin</b>	Not applicable.

### Chronic Effects:

<b>Carcinogenicity</b>	Not applicable.
<b>Reproductive Toxicity</b>	Not applicable.
<b>Germ Cell Mutagenicity</b>	Not applicable.
<b>Aspiration</b>	Not applicable.
<b>STOT/SE</b>	Not applicable.
<b>STOT/RE</b>	Not applicable.

<b>ammonium nitrate</b>	
LD50 oral rat	LD50 (Rat): > 2.950 mg/kg Method: OECD Test Guideline 401
LD50 dermal rabbit	LD50 (Rat): > 5.000 mg/kg Method: OECD Test Guideline 402
LC50 Inhalation	> 88,8 mg/l
<b>N,N''-(isobutylidene)diurea</b>	
LD50 oral rat	LD50 (Rat): > 10.000 mg/kg Remarks: Calculation method
LD50 dermal rabbit	LD50 (Rat): > 2.000 mg/kg Method: OECD Test Guideline 402
<b>Iron Sulphate</b>	
LD50 oral rat	: LD50 (Rat): > 2.000 mg/kg Method: OECD Test Guideline 401  LD50 (Rat): 657 - 4.390 mg/kg Method: Calculation method  Acute toxicity estimate: 500 mg/kg Method: Converted acute toxicity point estimate
LD50 dermal rat	LD50 (Rat): > 1.992 mg/kg Method: Converted acute toxicity point estimate
LC50 inhalation rat (mg/l)	LC50 (Rat): > 2,0 mg/l Method: OECD Test Guideline 403
<b>disodium [[N,N'-ethylenebis[N-(carboxymethyl)glycinato]](4-)-N,N',O,O',ON,ON']cuprate(2-)</b>	
LD50 oral rat	LD50 Oral (Rat): > 1.750 mg/kg

### **Skin corrosion/irritation**

Product:  
Species: Rabbit  
Method: OECD Test Guideline 404  
Result: non-irritant

Components:  
ammonium nitrate:  
Species: Rabbit  
Method: OECD Test Guideline 404  
Result: non-irritant

iron sulphate:  
Method: OECD Test Guideline 404  
Result: Skin irritation  
Remarks: Irritating to skin and mucous membranes

Borates, tetra sodium salts, pentahydrate:  
Species: Rabbit  
Result: No skin irritation

### **Serious eye damage/eye irritation**

Product:  
Species: Rabbit  
Method: OECD Test Guideline 405  
Result: non-irritant

Components:  
ammonium nitrate:  
Species: Rabbit  
Method: OECD Test Guideline 405  
Result: Irritant

iron sulphate:

Method: OECD Test Guideline 405  
Result: Eye irritation

Borates, tetra sodium salts, pentahydrate:  
Species: Rabbit  
Assessment: Irritant  
Result: Moderate eye irritation

### **Respiratory or skin sensitisation**

Product:  
Result: non-sensitizing

Components:  
ammonium nitrate:  
Result: Does not cause skin sensitisation.

N,N''-(isobutylidene)diurea:  
Species: Mouse  
Method: OECD Guideline 429  
Result: Did not cause sensitisation on laboratory animals.

iron sulphate:  
Method: OECD TG 429  
Result: Did not cause sensitisation on laboratory animals.

Borates, tetra sodium salts, pentahydrate:  
Test Type: Buehler Test  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: Does not cause skin sensitisation.

### **Germ cell mutagenicity**

Product:  
Genotoxicity in vitro : Remarks: No data available

Components:  
ammonium nitrate:  
Genotoxicity in vitro : Method: OECD Test Guideline 471  
Result: negative

N,N''-(isobutylidene)diurea:  
Genotoxicity in vitro : Remarks: In vitro tests did not show mutagenic effects

Borates, tetra sodium salts, pentahydrate:  
Germ cell mutagenicity- Assessment  
: In vitro tests showed mutagenic effects

### **Carcinogenicity**

Product:  
Remarks: Contains no ingredient listed as a carcinogen

Components:  
ammonium nitrate:  
Species: Rat  
Remarks: Animal testing did not show any carcinogenic effects.

N,N''-(isobutylidene)diurea:

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SDS Prepared by: Technical Compliance Consultants (NZ) Ltd  
Tel: 64 9 475 5240 www.techcomp.co.nz

Remarks: Animal testing did not show any carcinogenic effects.

iron sulphate: Carcinogenicity - Assessment

: Did not show carcinogenic, teratogenic or mutagenic effects in animal experiments.

Borates, tetra sodium salts, pentahydrate:  
Carcinogenicity - Assessment

: Carcinogenicity classification not possible from current data.

### **Reproductive toxicity**

Product:  
Effects on fertility  
Remarks: No toxicity to reproduction

Effects on foetal development

: Remarks: Contains no ingredient listed as toxic to reproduction

Components:  
ammonium nitrate:  
Effects on fertility : Species: Rat

Remarks: Animal testing did not show any effects on fertility.

Effects on foetal development

: Species: Rat  
Remarks: Did not show teratogenic effects in animal experiments.

N,N''-(isobutylidene)diurea:  
Effects on fertility :

Remarks: Animal testing did not show any effects on fertility.

Effects on foetal development

: Remarks: Did not show teratogenic effects in animal experiments.

Borates, tetra sodium salts, pentahydrate:  
Reproductive toxicity - Assessment

: In animal testing, risk of impaired fertility was shown only after administration of very high doses of this substance.  
May damage fertility. May damage the unborn child.

### **STOT - single exposure**

Product:  
Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

Components:  
N,N''-(isobutylidene)diurea:  
Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

### **STOT - repeated exposure**



Product:

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Components:

N,N''-(isobutylidene)diurea:

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

iron sulphate:

Remarks: No known effect.

Repeated dose toxicity

Components:

ammonium nitrate:

Species: Rat

NOAEL: > 1.500 mg/kg Application Route: Oral Exposure time: 28 d

Species: Rat

NOAEL: = 256 mg/kg Application Route: Oral Exposure time: 52 w

Method: OECD Test Guideline 453

Species: Rat

NOAEL: >= 185 mg/kg Application Route: by inhalation Exposure time: 2 w

Method: Repeated Dose Inhalation Toxicity: 28-day or 14-day Study.

iron sulphate:

Species: Rat

NOAEL: 284 - 324 mg/kg Application Route: Oral Exposure time: 90 d

Remarks: Information given is based on data obtained from similar substances.

Species: Rat NOAEL: 100 mg/kg Application Route: Oral Exposure time: 49 d

Application Route: by inhalation

Remarks: This information is not available.

Application Route: Dermal

Remarks: This information is not available.

Further information

Product:

Remarks: Danger of methaemoglobin formation.

The product was not tested. The statement was derived from products of similar structure and composition.

## Section 12. Ecotoxicological Information

This product is not hazardous to the environment.

Floranid Twin Club	
Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 72 h Method: DIN 38412
Toxicity to bacteria	EC0 (Pseudomonas putida): ca. 640 mg/l Exposure time: 16 h Test Type: activated sludge

Product Name: Floranid Twin Club  
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<b>ammonium nitrate</b>	
Toxicity to fish	LC50 (Fish): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia (water flea)): 490 mg/l Exposure time: 48 h LC50 : 490 mg/l
Toxicity to algae	EC50 (Selenastrum capricornutum (green algae)): 1.700 mg/l Exposure time: 10 d
<b>N,N''-(isobutylidene)diurea:</b>	
Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)): > 1.000 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna): ca. 500 mg/l Exposure time: 48 h Method: Directive 84/449/EEC, C.2
Toxicity to bacteria	EC0 (Pseudomonas putida): ca. 640 mg/l
Toxicity to Algae	EC50 (Scenedesmus subspicatus): > 500 mg/l Exposure time: 72 h Method: DIN 38412
<b>Borates, tetra sodium salts, pentahydrate:</b>	
Toxicity to fish	40761 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); Static system)
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)): 242 mg/l Exposure time: 24 h

<b>Persistence and degradability</b>	No data available
<b>Bioaccumulation</b>	Bioaccumulation is unlikely.
<b>Mobility in Soil</b>	Moderately mobile in soils
<b>Other adverse effects</b>	No data available

### Section 13. Disposal Considerations

#### Disposal Method:

Triple rinse and dispose according to Local Regulations.

**Disposal methods to avoid:** Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

### Section 14 Transport Information

This product is NOT classified as a Dangerous Good for transport in NZ; NZS 5433:2012

### Section 15 Regulatory Information

**Not classified as hazardous or mixture according to Regulation (EC) No. 1272/2008 which meets New Zealand jurisdiction criteria as per EPA Hazardous Substances (Classification) Notice 2020.**

### Section 16 Other Information

#### Glossary

Cat	Category
EC <sub>50</sub>	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
LC <sub>50</sub>	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD <sub>50</sub>	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level

## References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices Nov 2017 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2012
5. HSW (Hazardous Substances) Regulations 2017

## Disclaimer

This document has been prepared by TCC (NZ) Ltd and serves as the suppliers Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to TCC (NZ) Ltd or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While TCC (NZ) have taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, TCC (NZ) Ltd accept no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS

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Please contact the New Zealand distributor, if further information is required.

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