

SAFETY DATA SHEET

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This revision issued: November, 2013

Section 1 - Identification of The Material and Supplier



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Trade Name: Boundary® 750 WG Herbicide
Chemical nature: Isoxaflutole is an ungrouped fluorinated herbicide.
Product Use: Agricultural herbicide for use as described on the product label.
Creation Date: November, 2013
This version issued: November, 2013 and is valid for 5 years from this date.

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as: Xi, Irritating. N, Dangerous to the environment. Hazardous according to the criteria of SWA.

Not subject to the ADG Code when transported in Australia by Road or Rail in packages 500kg(L) or less; or IBCs (refer to SP AU01). However if transported by Air or Sea, this provision does not apply. Then the product is classed as Dangerous (Class 9 Environmentally Hazardous) by IATA and IMDG respectively. See details below and in Section 14 of this SDS.

Risk Phrases: R50, R63, R36/38. Very toxic to aquatic organisms. Possible risk of harm to the unborn child. Irritating to eyes and skin.

Safety Phrases: S22, S36, S61, S24/25. Do not breathe dust. Wear suitable protective clothing. Avoid release to the environment. Refer to special instructions/Safety Data Sheets. Avoid contact with skin and eyes.

SUSMP Classification: S5

ADG Classification: Class 9: Miscellaneous Dangerous Goods.

UN Number: 3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.



GHS Signal word: WARNING

HAZARD STATEMENT:

- H315: Causes skin irritation.
- H320: Causes eye irritation.
- H335: May cause respiratory irritation.
- H361: Suspected of damaging fertility or the unborn child.
- H400: Very toxic to aquatic life.

PREVENTION

- P102: Keep out of reach of children.
- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P261: Avoid breathing dusts.
- P264: Wash contacted areas thoroughly after handling.
- P281: Use personal protective equipment as required.

RESPONSE

- P362: Take off contaminated clothing and wash before reuse.
- P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P302+P352: IF ON SKIN: Wash with plenty of soap and water.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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P308+P313: If exposed or concerned: Get medical advice.

P332+P313: If skin irritation occurs: Get medical advice.

P337+P313: If eye irritation persists: Get medical advice.

P391: Collect spillage.

P370+P378: In case of fire, use carbon dioxide, dry chemical, foam, water fog. Water fog or fine spray is the preferred medium for large fires.

STORAGE

P402+P404: Store in a dry place. Store in a closed container.

P403+P235: Store in a well-ventilated place. Keep cool.

DISPOSAL

P501: Dispose of contents and containers as specified on the registered label.

Emergency Overview

Physical Description & colour: Brown granules.

Odour: Characteristic but weak odour.

Major Health Hazards: irritating to eyes and skin, possible risk of harm to the unborn child.

Potential Health Effects

Inhalation:

Short term exposure: Available data indicates that this product is not harmful. However product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

Long Term exposure: No data for health effects associated with long term inhalation.

Skin Contact:

Short term exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. However product is a skin irritant. Symptoms may include itchiness and reddening of contacted skin. Other symptoms may also become evident, but all should disappear once exposure has ceased.

Long Term exposure: No data for health effects associated with long term skin exposure.

Eye Contact:

Short term exposure: This product is an eye irritant. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment may cause permanent damage.

Long Term exposure: No data for health effects associated with long term eye exposure.

Ingestion:

Short term exposure: Significant oral exposure is considered to be unlikely. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.

Long Term exposure: No data for health effects associated with long term ingestion.

Carcinogen Status:

SWA: No significant ingredient is classified as carcinogenic by SWA.

NTP: No significant ingredient is classified as carcinogenic by NTP.

IARC: No significant ingredient is classified as carcinogenic by IARC.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc, %	TWA (mg/m ³)	STEL (mg/m ³)
Isoxaflutole	141112-29-0	750g/kg	not set	not set
Other non hazardous ingredients	secret	to 100	not set	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak" is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

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Section 4 - First Aid Measures

General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call.

Inhalation: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Skin Contact: Quickly and gently brush away excess particles. Wash gently and thoroughly with warm water (use non-abrasive soap if necessary) for 10-20 minutes or until product is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts) and completely decontaminate them before reuse or discard. If irritation persists, repeat flushing and seek medical attention.

Eye Contact: Quickly and gently brush particles from eyes. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the product is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately. Take special care if exposed person is wearing contact lenses.

Ingestion: If product is swallowed or gets in mouth, do NOT induce vomiting; wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

Section 5 - Fire Fighting Measures

Fire and Explosion Hazards: The major hazard in fires is usually inhalation of heated and toxic or oxygen deficient (or both), fire gases. There is little risk of an explosion from this product if commercial quantities are involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. This product, if scattered, may form flammable or explosive dust clouds in air.

Fire decomposition products from this product are likely to be toxic and corrosive if inhaled. Take appropriate protective measures.

Extinguishing Media: In case of fire, use carbon dioxide, dry chemical, foam, water fog. Water fog or fine spray is the preferred medium for large fires. Try to contain spills, minimise spillage entering drains or water courses. Avoid the use of water jets.

Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade. There is little danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Recommended personal protective equipment is full fire kit and breathing apparatus. Do not scatter spilled material with high pressure water jets.

Flash point: No data

Upper Flammability Limit: No data.

Lower Flammability Limit: No data.

Autoignition temperature: No data.

Flammability Class: No data.

Section 6 - Accidental Release Measures

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective clothing including eye/face protection. All skin areas should be covered. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. No special recommendations for clothing materials. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that dusts are likely to build up in cleanup area, we recommend that you use a suitable Dust Mask. Use a P1 mask, designed for use against mechanically generated particles e.g. silica & asbestos.

Stop leak if safe to do so, and contain spill. Because of the environmentally hazardous nature of this product, special care should be taken to restrict release to waterways or drains. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Consider vacuuming if appropriate. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this SDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

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Section 7 - Handling and Storage

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

Storage: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule of poison. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

SWA Exposure Limits

TWA (mg/m³)

STEL (mg/m³)

Exposure limits have not been established by SWA for any of the significant ingredients in this product.

The ADI for Isoxaflutole is set at 0.02mg/kg/day. The corresponding NOEL is set at 2mg/kg/day. ADI means Acceptable Daily Intake; NOEL means No-observable-effect-level. Data from Australian ADI List, Dec 2012.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Ventilation: This product should only be used in a well ventilated area. If natural ventilation is inadequate, use of a fan is suggested.

Eye Protection: Protective glasses or goggles should be worn when this product is being used. Failure to protect your eyes may cause them harm. Emergency eye wash facilities are also recommended in an area close to where this product is being used.

Skin Protection: Prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. See below for suitable material types.

Protective Material Types: We suggest that protective clothing be made from the following materials: PVC.

Respirator: If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable Dust Mask.

Eyebaths or eyewash stations and safety deluge showers should, if practical, be provided near to where this product is being handled commercially.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Brown granules.
Odour:	Characteristic but weak odour.
Boiling Point:	Not available.
Freezing/Melting Point:	Isoxaflutole melts about 140°C.
Volatiles:	Nil at 100°C.
Vapour Pressure:	Nil at normal ambient temperatures.
Vapour Density:	Not applicable.
Specific Gravity:	No data. Bulk density 0.555-0.625
Water Solubility:	Dispersible.
pH:	4.0-6.0 (1% at 23°C)
Volatility:	Nil at normal ambient temperatures.
Odour Threshold:	No data.
Evaporation Rate:	Not applicable.
Coeff Oil/water distribution:	No data
Viscosity:	Not applicable.
Autoignition temp:	No data.

Section 10 - Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities: strong acids, strong bases, strong oxidising agents.

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Fire Decomposition: Combustion forms carbon dioxide, and if incomplete, carbon monoxide and possibly smoke. Water is also formed. May form nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. May form oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. May form hydrogen fluoride gas and other compounds of fluorine. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product will not undergo polymerisation reactions.

Section 11 - Toxicological Information

Local Effects:

Target Organs: liver, thyroid.

Isoxaflutole is a SWA Class 3 Reproductive risk, possible risk of harm to the unborn child.

Classification of Hazardous Ingredients

Ingredient	Risk Phrases
Isoxaflutole	Conc>=5%: Xn; R63
LD ₅₀ (Oral), Rat >5000mg/kg	LD ₅₀ (Dermal), Rabbit >2000mg/kg
Chronic toxicity: Isoxaflutole caused specific target organ toxicity in experimental animal studies in the following organs: liver, thyroid. The observed effects do not appear to be relevant for humans.	
Mutagenicity: Isoxaflutole was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.	
Carcinogenicity: Isoxaflutole caused at high dose levels an increased incidence of tumours in the following organ(s): liver. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans.	
Toxicity to Reproduction: Isoxaflutole did not cause reproductive toxicity in a two-generation study in rats.	
developmental toxicity: Isoxaflutole caused developmental toxicity only at dose levels toxic to the dams. Isoxaflutole caused a delayed ossification of foetuses. The developmental effects seen with Isoxaflutole are related to maternal toxicity.	

Section 12 - Ecological Information

This product is very toxic to aquatic organisms. This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.

The following figures relate to Isoxaflutole

Birds: LD₅₀ mallard: >2150mg/kg LD₅₀ bobwhite quail: <2150mg/kg

Fish: LC₅₀ 96hr rainbow trout (*Oncorhynchus mykiss*): >65mg/L

Algae: EC₅₀ 72hr 10.5mg/L

Daphnia: EC₅₀ 48hr 5mg/L

Lemna gibba (duckweed): EC₅₀ 14 d 0.003mg/L

Biodegradability: The product is readily degradable in the environment.

Stability in soil: It has a low potential for leaching into groundwater or moving to deeper soil layers.

Bioaccumulation Bioconcentration factor (BCF): 11

Section 13 - Disposal Considerations

Disposal: Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182 <http://www.chemclear.com.au/> and for help with the disposal of empty drums, contact DrumMuster <http://www.drummuster.com.au/> where you will find contact details for your area.

Section 14 - Transport Information

Not subject to the ADG Code when transported by Road or Rail in Australia, in packages 500kg(L) or less; or IBCs, but classed as Dangerous by IATA and IMDG when carried by Air or Sea transport (see details below).

ADG Code: 3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Hazchem Code: 2Z

Special Provisions: 179, 274, AU01

Limited quantities: ADG 7 specifies a Limited Quantity value of 5 kg for this class of product.

Dangerous Goods Class: Class 9: Miscellaneous Dangerous Goods.

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Packaging Group: III

Packaging Method: P002, IBC08, LP02

Class 9 Miscellaneous Dangerous Goods shall not be loaded in the same vehicle or packed in the same freight container with Dangerous Goods of Class 1 (Explosives).

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations.

The following ingredient: Isoxaflutole, is mentioned in the SUSMP.

Section 16 - Other Information

This SDS contains only safety-related information. For other data see product literature.

Acronyms:

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail (7 th edition)
AICS	Australian Inventory of Chemical Substances
SWA	Safe Work Australia, formerly ASCC and NOHSC
CAS number	Chemical Abstracts Service Registry Number
Hazchem Code	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC	International Agency for Research on Cancer
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSMP	Standard for the Uniform Scheduling of Medicines & Poisons
UN Number	United Nations Number

Contact Points:

AUSTRALIA

Police and Fire Brigade:

Dial

000

If ineffective:

Dial

1100 (Exchange)

For emergency response:

Dial

1800 033 111

National Poisons Information Centre:

Dial 13 1126 (from anywhere in Australia)

Please read all labels carefully before using product.

The Safety Data Sheet (SDS) augments the label and should not be used in place of regulatory approved product labels which are attached to or accompanying the product container. This SDS provides important health, safety and environmental information for personnel that are manufacturing, distributing, transporting and storing the product, including emergency responders and other product handlers. The label provides information specifically for product users.

This SDS is prepared in accord with the SWA document "Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice" (December 2011)

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