

MATERIAL SAFETY DATA SHEET



Date of Issue: 10 April, 2008

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name Sickle™ 540 Herbicide
Other names None
Product code and pack sizes 79229550 (20 L), 79216254 (110 L), 79263996 (1000 L)
Chemical group Glycine derivative
Recommended use Agricultural herbicide
Formulation Soluble Concentrate (SL)
Supplier Bayer CropScience Pty Ltd ABN 87 000 226 022
Address 391 - 393 Tooronga Road, East Hawthorn
Victoria 3123, Australia
Telephone (03) 9248 6888
Facsimile (03) 9248 6800
Website www.bayercropscience.com.au
Contact Development Manager (03) 9248 6888
Emergency Telephone Number 1800 033 111 – Orica SH&E Shared Services

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW **HAZARDOUS SUBSTANCE (see risk phrases below) – NON DANGEROUS GOOD**

Hazard classification Hazardous (National Occupational Health and Safety Commission – NOHSC).
Risk phrases R36/R38: Irritating to eyes and skin.
Safety phrases See Sections 4, 5, 6, 7, 8, 10, 12, 13.
ADG classification Not a “Dangerous good” for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.
SUSDP classification (Poisons Schedule) Schedule 5 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Glyphosate isopropylamine salt	[38641-94-0]	729 (≡ 540 glyphosate)
Ammonium Quaternary Compound	[Proprietary]	86
Other ingredients	Non-hazardous	425

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4. FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (telephone 13 11 26), and follow the advice given. Show this Material Safety Data Sheet to the doctor.

Inhalation	If inhaled, remove to fresh air and keep at rest. Obtain medical advice if at all worried.
Skin contact	Carefully remove contaminated clothing. Wash affected area with soap and water. Seek medical advice.
Eye contact	Rinse eyes immediately with clean water for at least 15 minutes, holding eye open. Seek medical advice.
Ingestion	Wash out mouth with water. DO NOT induce vomiting. Keep patient at rest and seek medical advice. Do not give anything by mouth to an unconscious or semi conscious person.
First Aid Facilities	Provide eye wash and safety showers in the workplace.
Medical attention	<u>Symptoms</u> <i>Local:</i> This product will irritate the eyes and skin. <i>Systemic:</i> In minor ingestions of glyphosate formulations , irritation of mucous membranes, hypersalivation, nausea, vomiting and diarrhoea may occur. Ingestion of higher doses may cause corrosive effects on the upper gastrointestinal tract. Renal (kidney) and hepatic (liver) impairment and acidosis (abnormal increase in acidity of body fluids) may follow. Seizures, acute respiratory distress (ARDS) and cardiogenic shock are possible. <u>Treatment:</u> Treatment should be symptomatic and supportive after decontamination. Intravenous fluid replacement is important and hemodialysis may be considered. Gastric lavage can be considered in severe ingestions, charcoal and cathartic applications are recommended. Monitor respiratory, cardiac, liver and kidney function. Monitor acidity of blood fluids. There is no antidote.

5. FIRE FIGHTING MEASURES

Extinguishing media	Water spray, foam, carbon dioxide, dry chemical.
Hazards from combustion products	In a fire, formation of oxides of carbon, nitrogen and phosphorous can be expected.
Precautions for fire fighters	Firefighters should wear full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). If possible and without risk, remove intact containers from exposure to fire. Otherwise, spray unopened containers with water to keep cool. Contain fire-fighting water by bunding area with sand or earth to prevent it entering any bodies of water. Dispose of fire control water or other extinguishing agent and spillage safely later.
Hazchem Code	Not applicable.

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6. ACCIDENTAL RELEASE MEASURES

Avoid contact with the spilled material or contaminated surfaces. When dealing with spills, do not smoke, eat or drink and wear personal protective clothing and equipment as described in Section 8 – PERSONAL PROTECTION. Prevent spilled material from entering drains or watercourses. Contain spill and absorb with earth, sand, clay, or other absorbent material. Collect and store in properly labelled, sealed drums for safe disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority.

7. HANDLING AND STORAGE

Handling	Keep out of reach of children. Product will irritate the eyes and skin. Avoid contact with eyes and skin. After use and before eating, drinking or smoking wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, face shield or goggles and contaminated clothing. Do NOT mix or apply the product or spray solution in unlined steel or galvanised containers as a highly flammable gas may form. Use stainless steel, brass, copper aluminium, plastic or plastic lined, fibreglass containers or spray tanks.
Storage	Store in the closed, original container in a cool, well ventilated area. Do not store for prolonged periods in direct sunlight. Do NOT store, the product or spray solution in unlined steel or galvanised containers as a highly flammable gas may form.
Flammability	Not flammable.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards	No value assigned by the National Occupational Health and Safety Commission (NOHSC).	
Biological limit values	None allocated.	
Engineering controls	Control process conditions to avoid contact. Use in a well-ventilated area only.	
Personal Protective Equipment	Eyes:	Wear a face shield or goggles.
	Clothing:	When using controlled droplet application wear protective waterproof clothing and impervious footwear.
	Gloves:	Wear elbow - length PVC gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, colourless to slight amber liquid
Odour:	Not available
pH:	4.9 – 5.1 (neat) 4.3 – 4.7 (7% w/w solution)
Vapour pressure:	2.1×10^{-3} mPa (25 °C) <i>Glyphosate isopropylamine salt</i>
Vapour density:	Not available
Boiling point:	Not available
Freezing/melting point:	Not available

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9. PHYSICAL AND CHEMICAL PROPERTIES - continued

Solubility:	Soluble in water
Specific Gravity:	1.240 at 20 °C
Flash Point:	Not relevant
Flammability (explosive) limits:	Not relevant
Auto-ignition temperature:	Not available
Partition coefficient (octanol/water):	Glyphosate isopropylamine salt : Log P _{OW} = -5.4 Glyphosate: Log P _{OW} = <-3.2 at 20 °C (pH 2-5)

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use and storage.
Conditions to avoid	Do not store for prolonged periods in direct sunlight.
Incompatible materials	Avoid strong acids, oxidising agents and strong reducing agents. Avoid unlined steel or galvanised containers when storing, mixing or applying the product or spray.
Hazardous decomposition products	In a fire, formation of oxides of carbon, nitrogen and phosphorous can be expected.
Hazardous reactions	Do NOT store, mix or apply the product or spray solution in unlined steel or galvanised containers as a highly flammable gas may form.

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

No acute toxicity studies have been performed on this product. Acute toxicological information is included for Glyphosate Isopropylamine Salt and Ammonium Quaternary Compound. The non-acute information pertains to Glyphosate.

Inhalation	Low inhalation toxicity. Breathing in mists or aerosols may produce respiratory irritation.
Skin contact	Irritating to skin. The Ammonium Quaternary Compound is a <u>skin irritant</u> . Glyphosate isopropylamine salt, had low acute dermal toxicity in the rat test, and Glyphosate was not sensitising in the test with guinea pigs.
Eye contact	Irritating to eyes. The Ammonium Quaternary Compound is an <u>eye irritant</u> .
Ingestion	Swallowing of glyphosate formulations may result in irritation of mucous membranes, hypersalivation, nausea, vomiting and diarrhoea.

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11. TOXICOLOGICAL INFORMATION - continued

ANIMAL TOXICITY DATA

Acute:

Oral toxicity	LD ₅₀ rat: > 5000 mg/kg. <i>Glyphosate isopropylamine salt</i>
Dermal toxicity	LD ₅₀ rabbit: > 5000 mg/kg. <i>Glyphosate isopropylamine salt</i>
Inhalation toxicity	LC ₅₀ (4 h) rat: > 1.3 mg/L. <i>Glyphosate isopropylamine salt</i>
Skin irritation	Skin irritation - <i>Ammonium Quaternary Compound</i> No skin irritation (rabbit). <i>Glyphosate isopropylamine salt</i>
Eye irritation	Eye irritation - <i>Ammonium Quaternary Compound</i> Slight eye irritation (rabbit). <i>Glyphosate isopropylamine salt</i>
Sensitisation	Not sensitising (guinea pigs). <i>Glyphosate</i> .

Chronic:

Animal studies have shown that glyphosate is not carcinogenic; not teratogenic, not mutagenic and not neurotoxic.

12. ECOLOGICAL INFORMATION

This product is non-selective and may severely injure or kill desirable plants should the product contact the foliage, green stems or fruit of such plants. Glyphosate isopropylamine salt is practically non-toxic to fish and aquatic invertebrates. Glyphosate has low toxicity to earthworms and is practically non-toxic to birds and bees. DO NOT contaminate streams, rivers or waterways with this product or used containers.

Ecotoxicity

For Glyphosate isopropylamine salt:

Fish toxicity:	LC ₅₀ (96 h) trout > 1000 mg/L
	LC ₅₀ (96 h) bluegill sunfish > 1000 mg/L
	LC ₅₀ (96 h) flathead minnows 97 mg/L
	LC ₅₀ (96 h) channel catfish 130 mg/L

Aquatic

invertebrate toxicity:	EC ₅₀ (48 h) water flea (<i>Daphnia magna</i>) 930 mg/L
Algal toxicity:	EC ₅₀ (72 h) green algae (<i>Scenedesmus subspicatus</i>) 72.9 mg/L

For Glyphosate:

Aquatic plant toxicity:	EC ₅₀ (7 d) duck weed (<i>Lemna gibba</i>): 25.5 mg/L
Bird toxicity:	LD ₅₀ bobwhite quail >3851 mg/kg

Environmental fate, persistence and degradability, mobility

Glyphosate in soil (field), DT₅₀ 1-130 d, depending on edaphic and climatic conditions. In water, DT₅₀ varies from a few to 91 d. Photodegradation in natural water occurs, DT₅₀ 33-77 d; no substantial photodegradation in soil was recorded over 31 d. In a lab. whole system with water and sediment DT₅₀ 27-146 d (aerobic), 14-22 d (anaerobic). Glyphosate and its metabolite strongly absorb to soil and have a low potential to leach to groundwater. Glyphosate does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Dispose of waste product via a reputable disposal contractor.

20 L container only

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on-site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt. Do not re-use empty container for any other purpose.

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13. DISPOSAL CONSIDERATIONS - continued

Container with dry-break connection (110 L)

If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. Empty container by pumping through dry-break connection system. Do not attempt to breach the valve system or the filling point, or contaminate the container with water or other products. Ensure that the coupler, pump, meter and hoses are disconnected, triple rinsed and drained after each use. When empty, or contents no longer required, return the container to the point of purchase. This container remains the property of Bayer CropScience Pty Ltd.

Schutz container with camlock valve connection (1000 L)

If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. The container must be vented before discharging contents. To empty connect a camlock fitted hose to the bottom valve. Remove top cap when discharging for venting purposes. When the container is empty, close all caps and valves and return the container to the point of purchase.

14. TRANSPORT INFORMATION

UN number	Not applicable
Proper shipping name	Not applicable
Class and Subsidiary Risk	Not applicable
Packing Group	Not applicable
EPG	Not applicable
Hazchem code	Not applicable
Marine Pollutant	No

15. REGULATORY INFORMATION

Not registered according to the Agricultural and Veterinary Chemicals Act 1988.
Australian Pesticides and Veterinary Medicines Authority registration number: 62604
See Section 2.

16. OTHER INFORMATION

Trademark information	Sickle™ is a Trademark of Bayer.
Preparation information	Replaces Sickle 540 Herbicide Experimental MSDS (14 March 2008) inclusion of the APVMA registration number.

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS 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.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request

END OF MSDS