

VILLA BRENNO 700 SC

MATERIAL SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: BRENNO 700 SC
Herbicide
UN No.: 3082
Supplier: Villa Crop Protection (Pty) Ltd.
PO Box 10413,
Aston Manor, 1630, South Africa
Telephone: (011) 396 2233
Fax: (011) 396 4666
Website: www.villacrop.co.za

Emergency telephone numbers:

24 Hr Transport / Spill emergency no:

Envirosure. +27 31 205 4918
(Hazcall24) +27 86 044 4411

(Client: Villa Crop Protection)

Griffon Poison Information Centre +27 82 446 8946

(Client: Villa Crop Protection)

Poisoning Emergency telephone numbers:

Griffon Poison Information Centre +27 82 446 8946

Poisons Information Centre +27 861 555 777

Villa Crop Protection Emergency number:

National Safety, Health and Environmental Manager:

+27 63 698 0668

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name: 1) ACETOCHLOR
2) ATRAZINE
3) TERBUTHYLAZINE
4) BENOXACOR

Chemical Name: 1) 2-chloro-N-ethoxymethyl-6'-ethylaceto-0-toluidide (IUPAC)
2) 6-chloro-N2-ethyl-N4-isopropyl-1,3,5-triazine-2,4-diamine (IUPAC);
3) N²-tert-butyl-6-chloro-N⁴-ethyl-1,3,5-triazine-2,4-diamine (IUPAC)
4) (±)-4-dichloroacetyl-3,4-dihydro-3-methyl-2H-1,4-benzoxazine (IUPAC)

CAS No.: 1) 34256-82-1
2) 1912-24-9
3) 5915-41-3
4) 98730-04-2

Chemical Family: 1) chloroacetamide
2) triazine,
3) triazine
4) herbicide safener

Chemical Formula: 1) C₁₄H₂₀ClNO₂
2) C₈H₁₄ClN₅
3) C₉H₁₆ClN₅

4) C₁₁H₁₁Cl₂NO₂
Molecular weight: 1) 269.8 2) 215.7
3) 229.7 4) 260.1

Use: A suspension concentrate herbicide with safener for selective control of most annual broadleaf weeds, as well as grasses in maize.

Formulation: ACETOCHLOR: 250g/l plus
ATRAZINE 225 g/l plus
TERBUTHYLAZINE: 225 g/l plus
BENOXACOR 13 g/l
Soluble Concentrate

Hazardous ingredients of toxicological concern:

Ingredient:	Concern:	% present:
ACETOCHLOR:	harmful	25 % w/v
ATRAZINE:	water contamination risk	23 % w/v
TERBUTHYLAZINE:	harmful	23 % w/v
solvent:	severe eye and skin irritant	4 % w/v

Symbols: Xi, Xn, N

Risk-phrase(s): R 23/24/25, R 36/37/38, R43,
R48/22, R50, R53

3. HAZARD IDENTIFICATION

Toxicity class:

WHO II (a.i.) 9. Moderately hazardous.

Likely routes of exposure: Skin contact, ingestion and inhalation.

Ingestion: Harmful when swallowed

Inhalation: Harmful by inhalation. May cause irritation to respiratory tract. Aspiration into lungs may cause chemical pneumonitis.

Eye and Skin contact: May cause irritation to the skin, eyes and respiratory system. Skin (allergic) reaction may occur. May cause skin sensitisation.

4. FIRST AID MEASURES AND PRECAUTIONS

Irritant effects on skin, eyes and mucous membranes are the most common reactions. Symptoms of poisoning include abdominal pain, diarrhoea and vomiting.

Inhalation: Immediately remove source of contamination or move person to fresh air. If breathing has stopped, perform artificial respiration and administer oxygen. Keep person warm and at rest. Treat symptomatically and supportively as and when required. **Seek medical advice.**

Skin contact: Remove contaminated clothing, shoes and leather goods immediately. Gently wipe off excess chemical. Wash skin gently and thoroughly with non-abrasive soap or mild detergent and large amounts of water until no evidence of chemical remains

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(approximately 15 to 20 minutes). Seek medical advice if necessary.

Eye contact: Flush eyes immediately with large amounts of gently flowing cold water or normal saline solution, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15 to 20 minutes). If irritation persists, get medical attention.

Ingestion: If patient is conscious have him/her rinse mouth thoroughly with water. Do not induce vomiting. Obtain medical advice immediately. Remove by gastric lavage and catharsis. Maintain blood pressure and airway. Give oxygen if respiration is depressed. Administration of gastric lavage or oxygen should only be performed by qualified medical personnel. Do not perform gastric lavage if victim is unconscious. **Never give anything by mouth to an unconscious person.**

Antidote: No specific antidote. Treat symptomatically and supportively.

Advice to physician: Keep patient under observation and treat symptomatically as indicated by his/her condition. No signs and symptoms of triazine poisoning are known or expected in humans. When large amounts have been ingested, consider gastric lavage or administer activated charcoal with water.

5. FIRE FIGHTING MEASURES

Fire/Explosion hazard:

Flammable properties: Non-flammable

Extinguishing agents: Powder, foam, carbon dioxide or water spray. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product, to prevent spreading. Use as little water as possible. Use spray or fog. Solid stream may cause spreading. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

Firefighting: Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire.

Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind. Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but must be contained for later disposal.

Do not scatter the material. Avoid pollution of waterways. Do not use high volume water jet, due to contamination risk. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

Special Hazards: This product will emit toxic fumes when burned, including carbon monoxide. May produce irritating or poisonous mists or other products of combustion.

Personal protective equipment:

Fire may produce irritating or poisonous vapours or gases (oxides of chlorine and sulphur) or other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions: Avoid contact with skin and eyes. Do not breathe in fumes. For personal protection see Section 8.

Environmental precautions: Product is toxic to fish and very toxic to algae. Is an environmentally hazardous substance.

Do not allow entering into drains or watercourses. Spillage or uncontrolled discharges into water courses (or public waters) to be reported immediately to the Police and to the Department of Water/Environmental Affairs.

Occupational spill: Do not touch spilled material; stop leak if you can do it without risk. Keep out unprotected persons and animals.

For spills: Soak up with absorptive material such as lime, damp earth or sand, diatomaceous earth or other suitable non-combustible absorbent material. Place the material into a clean, dry container and cover for subsequent disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Prevent material from spreading by damming in with absorptive material. Do not flush spilled material into drains. Keep spectators away and upwind.

Treat contaminated surfaces with water containing soda, soap or detergent. Add the solution to the drums already collected. Label drums with its content and dispose it in accordance with local regulations.

Open burning or dumping of this material is prohibited. Do not get water inside containers.

7. HANDLING AND STORAGE REQUIREMENTS

Handling: Harmful if swallowed. Avoid inhalation and contact with eyes and skin. Use with adequate ventilation. Do not handle broken packages without protective equipment. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the product gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Seek medical advice.

Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Workers should shower at the end of each workday. Launder all clothing before it is re-used again.

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Storage: Keep under lock and key and out of reach of uninformed persons, children and animals. Store in its original container in dry, cool, well-ventilated area. Avoid excess heat. Not to be stored next to foodstuffs and water supplies. Do not contaminate other pesticides and fertilizers.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

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:

It is essential to provide adequate ventilation. Ensure that control systems are properly designed and maintained. Only spark-resistant equipment should be used. Comply with occupational safety, environmental, fire and other applicable regulations.

Clothing: Employee must wear appropriate protective (impervious) clothing; boots, hat and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

Gloves: Employee must wear appropriate chemical resistant protective gloves (PVC or neoprene gloves) to prevent contact with this substance.

Eye protection: Use chemical resistant goggles or face shield.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Cream- white colour liquid.

Odour: Triazine-like odour.

Relative density: 1.11 gr/ml

Solubility in water: Miscible, forms suspension in water.

Flash point: Not applicable

Flammability: Non-flammability

pH: 6.2

10. STABILITY AND REACTIVITY

Stability: Stable for up to 2 years under normal warehouse conditions.

11. TOXICOLOGICAL INFORMATION

Acute oral LD50: ACETOCHLOR: 2148 mg/kg (technical)

ATRAZINE: 1869-3090 mg/kg (technical)

TERBUTHYLAZINE: 1590 - >2000 (technical)

Acute dermal LD50:

ACETOCHLOR: 4166 mg/kg (technical).

ATRAZINE: >3100 (technical)

TERBUTHYLAZINE: >2000 (technical)

Acute inhalation LC50:

ACETOCHLOR: >3.0 mg/l air (4 hr for rat) (technical)

ATRAZINE: >5.8 mg/l air (4 hr for rat) (technical)

TERBUTHYLAZINE: >5.3 mg/l air (4 hr for rat) (technical)

Acute skin irritation: Can be mildly irritating to the skin. Skin (allergic) reaction may occur.

Sensitization: Skin (allergic) reaction may occur. May cause moderate skin sensitization.

Acute eye irritation: May cause irritation to the eyes.

Carcinogenicity: Some studies have shown carcinogenicity of some of the ingredients.

Teratogenicity / Reproductive hazard:

Studies of some ingredient/s, using rats, indicated a teratogenic/reproductive effect. Teratogenic and developmental effects in humans are unlikely at expected levels of exposure. The product is not likely to have an effect on reproduction in humans under normal circumstances.

Mutagenicity: Animal genetic studies of some ingredients were inconclusive.

12. ECOLOGICAL INFORMATION

ACETOCHLOR: Animals - Extensively metabolized and readily eliminated in the excreta of rats. **Plants** - Rapidly absorbed and metabolized in germinating maize and soya beans. Is metabolized in intact plants by several metabolic routes, including hydrolytic/oxidative displacement of chlorine, N-dealkylation and glutathione displacement of chlorine, followed by formation of various sulfur-containing secondary catabolism products. In maize, major metabolites include oxanilic, sulfonic and sulfinylacetic acids, and carbohydrate conjugates. **Soil/Environment** - Adsorbed by soil, with little leaching. Microbial degradation accounts for most loss from soil; DT50 8-18 d. The major metabolites are water-soluble acids resulting from oxidative displacement of the chlorine (oxanilic acid), or from glutathione conjugation followed by catabolism to sulfur-containing acids, such as sulfonic and sulfinylacetic acids.

ATRAZINE: In **mammals**, following oral administration, **ATRAZINE** is rapidly and completely metabolised, primarily by oxidative dealkylation of the amino groups and by reaction of the chlorine atom with endogenous thiols. Diaminochlorotriazine is the main primary metabolite,

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which readily conjugates with glutathione. More than 50% of the dose is eliminated in the urine and around 33% in the faeces within 24 h. **Plants** In tolerant plants, **ATRAZINE** is readily metabolized to hydroxyatrazine and amino acid conjugates, with further decomposition of hydroxyatrazine by degradation of the side-chains and hydrolysis of the resulting amino acids on the ring, together with evolution of CO₂. In sensitive plants, unaltered **ATRAZINE** accumulates, leading to chlorosis and death. **Soil/Environment** Major metabolites under all conditions are desethylatrazine and hydroxyatrazine.

TERBUTHYLAZINE: In mammals, following oral administration, 72 to 84 % is eliminated in the urine and faeces within 24 h, and almost all within 48 h. A de-ethyl metabolite forms rapidly, followed by conjugates of products formed by oxidation of one methyl group of the *tert*-butyl moiety. All are rapidly excreted. **Plants** Triazine-tolerant plants (e.g. maize) rapidly de-chlorinate **TERBUTHYLAZINE** to hydroxy-terbuthylazine. Various amounts of de-ethylated and hydroxy de-ethylated metabolites are produced, depending on the plant species. **Soil/Environment** Adsorption on soils is strong.

ECOTOXICOLOGY: (Technical material)

Birds: Slightly toxic to birds.

ACETOCHLOR:	LD ₅₀ :	Bobwhite
quail:	928 mg/kg	
	Mallard ducks:	>2000 mg/kg
ATRAZINE:	Bobwhite quail:	940 mg/kg
	Mallard ducks:	>2000 mg/kg
TERBUTHYLAZINE:	Bobwhite quail:	>1000 mg/kg
	Mallard ducks:	>1000 mg/kg

Fish: Moderately toxic to fish.

ACETOCHLOR:	LC ₅₀ :	Rainbow
trout:	0.36 mg/l	
	Bluegill sunfish:	1.03 mg/l
ATRAZINE:	LC ₅₀ :	Rainbow trout: 4.5 - 11.0 mg/l
	Bluegill sunfish:	16 mg/l
TERBUTHYLAZINE:	Rainbow trout:	3.8-4.6 mg/l
	Bluegill sunfish:	7.5 mg/l

Daphnia: Very toxic to Daphnia.

ACETOCHLOR:	LC ₅₀	(48
h)	8.6 mg/l	
ATRAZINE:	LC ₅₀ (48 h)	6.9 mg/l
TERBUTHYLAZINE:	LC ₅₀ (48 h)	21-50.9 mg/l

Bees: Slightly toxic to bees.

ACETOCHLOR:	LC ₅₀ 48 hr (oral)	>100 µg/bee;
	(contact)	>200 µg/bee
ATRAZINE:	LC ₅₀ 48 hr (oral)	>97 µg/bee;
	(contact)	>100 µg/bee
TERBUTHYLAZINE:	LD ₅₀ (oral & contact)	>100 µg/bee

Earthworms:

ACETOCHLOR:	LC ₅₀ (14 d)	211 mg/kg soil
ATRAZINE:	LC ₅₀ (14 d)	78 mg/kg soil
TERBUTHYLAZINE:	LC ₅₀ (7 d)	>200 mg/kg soil

Algae: Very toxic to algae.

ACETOCHLOR:	E ₁ C ₅₀ (73hr)	
	<i>Selenastrum capricornutum</i>	0.52 µg/l
ATRAZINE:	EC ₅₀ (72hr)	
	<i>Scenedesmus subspicatus</i>	0.043 mg/l
TERBUTHYLAZINE:	EC ₅₀ (72hr)	
	<i>S. subspicatus</i>	0.016-0.024 mg/l

13. DISPOSAL CONSIDERATION

Pesticide disposal: Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be re-used or reprocessed. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers.

Comply with local legislation applying to waste disposal.

Container disposal: Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed.

TRIPLE RINSE empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow draining for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of a third of that of the container. Add the rinsing to the contents of the spray tank before destroying the container in the prescribed manner.

Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dumpsite. Prevent contamination of food, feedstuffs, drinking water and eating utensils.

Comply with local legislation applying to waste disposal.

14. TRANSPORT INFORMATION

UN No.:	3082
Road Transport ADR/IRD:	
Class:	9
Packing group:	III
Shipping name:	Environmentally hazardous substance, liquid, N.O.S.
ACETOCHLOR	250 g/l plus
ATRAZINE	225 g/l plus
TERBUTHYLAZINE:	225 g/l

Air Transport ICAO/IATA:

Class:	9
Packing group:	III

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Shipping name: Environmentally hazardous substance, liquid, N.O.S.

ACETOCHLOR 250 g/l plus

ATRAZINE 225 g/l plus

TERBUTHYLAZINE: 225 g/l

Maritime Transport IMDG/IMO:

Class: 9

Packing group: III

Shipping name: Environmentally hazardous substance, liquid, N.O.S.

ACETOCHLOR 250 g/l plus

ATRAZINE 225 g/l plus

TERBUTHYLAZINE: 225 g/l

MARINE POLLUTANT

15. REGULATORY INFORMATION

Symbol: Xi, Xn, N.
Indication of danger: Harmful, Irritating and environmentally dangerous substance.

Risk-phrase(s): R 23/24/25, R 36/37/38, R 43, R 48/22, R 50, R 53

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R 36/37/38 Irritating to eyes and skin.

R 43 May cause skin sensitisation by skin contact.

R 48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

R 50 Very toxic to aquatic organisms.

R 53 May cause long-term adverse effects in the aquatic environment.

Safety phrases:

S 1/2 Keep under lock and key and out of reach of children.

S 23 Do not breathe fumes/vapour/spray.

S 24/25 Avoid contact with skin and eyes.

S 28 After contact with skin, wash immediately with plenty of water.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 61 Avoid release to the environment. Refer to special instructions / Safety data sheets.

S 62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label

16. OTHER INFORMATION

Packing and Labelling: Packed in 1, 5, 10, 20 & 25 litres plastic containers and labelled according to the South African regulations and guidelines.

Disclaimer: The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed. All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.

END OF DOCUMENT

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For detailed information on revisions, contact the Registration holder.