

SECTION 1 - PRODUCT & COMPANY IDENTIFICATION

ARYSTA LifeScience South Africa (Pty) Ltd
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Product Name: **VERSUS 457,5 SL**
Product Use: Herbicide
Creation Date: May 2010
Revision Date: August 2012

24 Hr Emergency Number: 082 771 2712
In case of Poisoning:
Poison Information Centre 082 446 8946
Tygerberg Hospital: (021) 931 6129
Poison Emergency Enquiries (021) 689 5227
In case of Spillage:
HAZMAT: 0800 147 112

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Common Name: Dicamba DMA salt/2,4-D DMA salt/MCPA DMA salt
Chemical name : Dicamba –dimethylammonium salt/
2,4-D - dimethylammonium salt/
MCPA - dimethylammonium salt (IUPAC)
Use: Selective herbicide suitable for the control of broadleaf weeds.
Formulation: Versus 457,5 SL
(Dicamba 120 g/l + 2,4-D 180 g/l + MCPA 157,5 g/l)
Soluble Liquid

Hazardous ingredients of toxicological concern:

| <u>Inert:</u> | <u>concern:</u> | <u>% present:</u> |
|---------------|-----------------|-------------------|
| Reactant | Irritant, | 16,62% |

Symbol: Xn, Xi
Indication of Danger: Harmful and irritant

RISK-PHRASE(S) R20, R36, R37, R38,

SECTION 3 - HAZARD IDENTIFICATION

Toxic to fish. .

Inhalation:

Harmful if inhaled. Moderately irritating to respiratory tract.

Ingestion:

Toxic if large amounts are swallowed.

Skin Contact:

May cause skin irritation

Eye Contact:

Extremely irritating and corrosive to eyes.

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SECTION 4 - FIRST AID MEASURES AND PRECAUTIONS

Inhalation:

Vapour inhalation is unlikely; inhalation of spray drift or vapours may cause irritation of the respiratory tract. In case of inhalation, remove source of contamination, or leave contaminated area to fresh air as rapidly as possible. Keep victim from contact for at least 2-3 days.

Skin contact:

If irritation occurs, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Dermal absorption may lead to systemic poisoning. **Seek medical advice immediately if irritation persists.**

Eye contact:

Immediately flush eyes with gently flowing lukewarm water or saline solution for 15 minutes, holding the eyelids open.

Seek medical attention.

Ingestion:

Unlikely to occur under occupational conditions. In case of deliberate ingestion, have victim rinse mouth thoroughly with water.

Do not induce vomiting. Give plenty of water to drink.

Seek medical advice immediately. If breathing has stopped, apply artificial respiration.

Further Medical treatment:

Treatment is symptomatic.

If substantial amounts have been ingested, spontaneous emesis may occur. If vigorous emesis has not occurred, measures should be taken to empty the stomach and limit gastrointestinal absorption by gastric intubation, aspiration and lavage, following placement of a cuffed endotracheal tube.

Repeated administration of charcoal at half or more the original dosage every 2-4 hours may be beneficial.

If gastric aspiration and lavage is not performed due to delay in treatment, and if the patient is fully alert, administer charcoal and laxative orally, at the dosages indicated above.

Administer intravenous fluids to accelerate excretion of the chlorophenoxy compound, and to limit concentration of the toxicant in the kidney. A urine flow of 4-6 ml/minute is desirable. Intravenous saline/dextrose has sufficed to rescue comatose patients who drank 2,4-D and mecoprop several hours before hospital admission.

- CAUTION: Monitor urine protein and cells, BUN, serum creatinine, serum electrolytes, and fluid intake/output carefully to insure that renal function remains unimpaired and that fluid overload does not occur.
- Forced alkaline diuresis has been used successfully in management of suicidal ingestions of chlorophenoxy compounds where myoglobinuria is present. Alkalinizing the urine by including sodium bicarbonate (44-88 mEq per liter) in the intravenous solution apparently accelerates excretion of 2,4-D dramatically and mecoprop excretion substantially. Urine pH should be maintained in the 7.6-8.8 range. Include potassium chloride as needed to offset increased potassium losses: add 20-40 mEq of potassium chloride to each liter of intravenous solution. Monitor serum electrolytes carefully. There may possibly be some hazard to the kidneys when urine concentrations of toxicant are very high, so the integrity of renal function and fluid balance should be monitored carefully as the chlorophenoxy compound is excreted.

SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media:

Small fires: Carbon dioxide, dry chemical powders, regular foam and water spray.

Large fires: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk. Dike fire control water for later disposal; do not scatter the material. Do not use straight streams.

Special hazards:

The material does not burn. It is not explosive. Should the chemical be involved in a general fire, ensure chemical protective clothing are used. It can produce toxic fumes of hydrogen chloride, which forms mists of hydrochloric acid with moisture and phosgene; and carbon monoxide.

Protective clothing:

Wear suitable personal protective equipment including approved respiratory protection.

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SECTION 6 - ACCIDENTAL RELEASE MEASURES (SPILLAGE)**Personal precautions:**

Chemical protective clothing usage is advised, i.e. wear neoprene gloves, cotton overalls and safety goggles.

Environmental precautions:

Do not allow spill to contaminate water supplies. Dike far ahead of liquid spills for later disposal.

Large spills:

Keep spectators away. Isolate hazard area and deny entry. Stay upwind, out of low-lying areas, and ventilate closed spaces before entering. Cover spill with absorbent material.

Sweep into disposal container. Wash area with detergent and water and follow with clean water rinse. Do not allow spill to contaminate water supplies. Prevent entry into waterways, sewers, basements or confined areas. Dike far ahead of liquid spills for later disposal.

Small spills:

Take up with sand or other noncombustible absorbent material and place into containers for later disposal.

Spill/Leak Procedures:

Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Shut off all ignition sources.

SECTION 7 - HANDLING AND STORAGE REQUIREMENTS**HANDLING:**

Relatively safe to handle. Handle all crop protection chemicals with care and caution. Do not eat, drink, smoke or go to the toilet with pesticide-contaminated hands. Always wash hands thoroughly after handling pesticides or waste.

STORAGE:

Do not store near heat. Store in a dry, cool, well-ventilated warehouse in well-labeled containers. Not to be stored next to foodstuffs and water supplies. Keep away from children and animals. Local regulations should be complied with.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION**Occupational exposure limits: Not established for**

Versus

For 2,4-D:

| | |
|--------------|-------------------------------|
| IARC | 15 |
| IDLH | +100 mg/m ³ TWA |
| OSHA | Not listed |
| NIOSH values | REL: 10 mg/m ³ TWA |

Engineering control measures:

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.

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Respirator:

An approved respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing:

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves:

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

Eye protection:

The use of safety goggles is recommended.

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.

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SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

| | |
|------------------------------|---|
| Appearance: | A light brown to amber solution. |
| Odour: | Mild amine odour. |
| Flammability: | Not flammable. |
| Explosive properties: | Not explosive. |
| Flash point: | Not applicable; water based formulation. |
| Oxidising properties: | No oxidising properties. |
| pH: | 10 - 11 |
| Viscosity: | Not available. |
| Relative density: | 1.084 g/ml(.0.01) at 20 °C. |
| Stability: | Stable in aqueous solutions. |
| Suspensibility: | Not applicable |
| Dilution stability: | Stable in aqueous solutions after 18 hours. |
| Boiling point: | Not available. |

SECTION 10 - STABILITY AND REACTIVITY

Hazardous decomposition Product(s) :

Storage stability:

Versus is stable at elevated temperatures and at low temperatures. Do not store near crop protection chemicals, feed, fertilizers or seed.

Incompatibility:

Oxidizing agents.

Hazardous decomposition products:

Hydrogen chloride, carbon monoxide, carbon dioxide.

SECTION 11 - TOXICOLOGICAL INFORMATION

| | |
|--|---|
| Acute oral LD₅₀: | 1478,4 – 1848 mg/kg |
| Acute dermal LD₅₀: | >4000 mg/kg |
| Acute inhalation LC₅₀: | >9 mg/l |
| Acute skin irritation: | May irritate the skin |
| Acute eye irritation: | Severe eye and surrounding tissue damage. |
| Dermal sensitisation: | Probability of sensitization is very low. |

SECTION 12 - ECOLOGICAL INFORMATION

Degradability:

Rapidly degraded in aerobic soils (aerobic half-life MCPA = 24 days)

Rate of degradation :

2,4-D residues peak approximately 14 days after application, and then degrade rapidly 14 to 42 days after application. At an application rate of 5.6 kg/ha., less than 5% remains after 70 days. Small amounts remain after 385 days when applied at rates 11.2 and 22.4 kg/ha. Microbes degrade Dicamba in soil. DT50 <14d Koc = 2 under conditions amenable to rapid degradation. MCPA DT50 <7d after initial lag phase. Duration of residual activity of MCPA is c. 3-4 months after application of 3Kg /ha.

ECOTOXICOLOGY:

Birds:

Practically non-toxic

2,4-D: LD50 lies between 625 to 2000 mg/kg (bobwhite quail)

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**Fish**

DicambaTech: LC₅₀(96h): Rainbow trout and Blue gill sunfish : 135mg/l
 MCPA: LC50 : LC₅₀/96h/rainbow trout = 101 mg (MCPA DMA 500 g/l)/ litre
 2,4-D : 96-hour LC₅₀ : > 110 mg/l (Rainbow trout)

Non target organisms**Other (2,4-d Amine480 SL):**

Parasitic Wasp: *Aphidius rhopalosiphi* : Harmless.

Spider *Pardosa sp.* : Harmless.

Toxicity to bees:

Oral: 72-hour LD50 >100 µg formulation/bee

Contact: 72-hour LD50 >200 µg formulation/bee

Earthworms:

Low risk to soil microorganisms

SECTION 13 - DISPOSAL CONSIDERATION

Controlled incineration:

The product is stable under normal temperatures and pressures. Contact with strong oxidisers may cause fire or explosion. The dimethylamine salts decomposes at its melting point. Incineration at high temperatures (1000°C) with sufficient residence time leads to complete detoxification and destruction and is the most environmentally acceptable method for disposal. Incineration at low temperatures could lead to the formation of chlorinated dibenzo-p-dioxins. The non persistence and detoxification of this product in soil indicates that burial in non-crop areas, away from water supplies, would be an acceptable method for the disposal of small quantities of Versus discharge in surface water and sewers should be avoided.

Package product wastes:

Non-combustible containers must be triple rinsed using the normal diluent at a volume equal to approximately 10% of the drum's capacity. Add the rinsing mixture to the spray mixture or use the recommended disposal methods. Containers must be punctured and disposed of in specified landfill areas.

SECTION 14 - TRANSPORT INFORMATION

UN NUMBER 3082

ADR/RID

Substance name: Environmentally hazardous substance, liquid, no.s. (2,4-D amine, Dicamba, MCPA)

Substance ID NR: 3082

Hazard ID NR: 90

Label: 9

Item No: 11o (C).

IMDG/IMO

Packaging group: III

Class: 9, MARINE POLLUTANT

Shipping name: Environmentally hazardous substance, liquid, no.s. (2,4-D amine, Dicamba, MCPA)

AIR/IATA

Class: 9

Packaging group: III

Shipping name: Environmentally hazardous substances, liquid, no.s. (2,4-D amine, Dicamba, MCPA).

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SECTION 15 - REGULATORY INFORMATION

Symbol: Xn, Xi

Indication of Danger: Harmful and irritant

Risk phrases:

R20 Harmful by inhalation
R36 irritating to eyes
R37 Irritating to respiratory system
R38 Irritating to skin
R67 Vapours may cause drowsiness and dizziness.

Safety phrases:

S2 Keep out of reach of children.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37 Wear suitable protective clothing and gloves.
S45 In case of accident or if you feel unwell, seek medical advice immediately

SECTION 16 - OTHER INFORMATION

Packaging:

Packed in 15 ml, 100 ml, 200, 500 ml and 1, 5, 10, 20 and 25 litres plastic containers and labelled according to South African regulations and guidelines.

Disclaimer:

THIS MSDS SUMMARIZES 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 MUST REVIEW THIS MSDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS.

OUR RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECTED TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

Please read all labels carefully before using the product.

This MSDS is prepared in accord with SANS

MATERIAL SAFETY DATA SHEET