SECTION 1 - PRODUCT & COMPANY IDENTIFICATION

ARYSTA LifeScience South Africa (Pty) Ltd
Co. Reg. No.: 2009/019713/07
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Product Name: **ASTRA 360 SL**
Product Use: Herbicide
Creation Date: December 2011
Revision Date: August 2019

24 Hr Emergency Number:
In case of Poisoning:
Poisons Helpline 0861 555 777
In case of Spillage:
Spill Tech Oil & Chemical Pollution Control 086 100 0366 / 083 253 6618

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Active ingredient: Triclopyr 377,0 g/l plus Clopyralid 137,0 g/l both as the triethylamine salt.
360,0 g/l ae
(270,0 + 90,0 acid equivakent)
Chemical Names: ((3,5,6-trichloro-2-pyridinyl)oxy)acetic acid), as the triethylamine salt plus (3,6-dichloro-2-pyridinecarboxylic acid), as the triethylamine salt
CAS No's: 057213-69-1 and 057754-85-5
Chemical Family: Mixture
Chemical Formula: C13H19C 3N2O3 and C8H10C 2N2O3
NIOSH/RTECS no: Mixture
Use A **s**elective systemic herbicide for use as is indicated on the label.

Hazardous ingredients of toxicological concern:

Inert:	% present:
Triclopyr	> 27 % v/v
Clopyralid	> 09 % v/v

Symbol: Xn, N
Indication of Danger: Harmful, Environmentally Hazardous Substance

RISK-PHRASE(S) R22, R36, R37, R48/22, R50/53

SECTION 3 - HAZARD IDENTIFICATION

Potential health effects:
This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.
Eye:
May cause severe eye irritation with moderate corneal injury. Effects may be slow to heal. Vapors of amines may cause swelling of the cornea resulting in visual disturbances such as blurred, smoky or halo vision.
Skin:
Prolonged exposure is not likely to cause significant skin irritation. Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.
Ingestion:
Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing larger amounts may cause injury. Ingestion may cause gastrointestinal irritation or ulceration.
Inhalation:
Single exposure to vapors is not likely to be hazardous.
Systemic (other target organ) effects:

In animals, effects have been reported on the following organs: heart, kidney, and liver.

SECTION 4 - FIRST AID MEASURES AND PRECAUTIONS

Eyes:
Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.
Skin: Wash off in flowing water or shower.
Ingestion:
Do not induce vomiting. Give large amounts of water or milk if available and transport to medical facility. Do not give anything by mouth to an unconscious person.
Inhalation:
Remove to fresh air if effects occur. Consult a physician.
Note to physician:
May cause tissue destruction leading to stricture. If lavage is performed, endotracheal and/or esophageal control is suggested. Exposure to amine vapors may cause minor transient edema of the corneal epithelium (glaucopsia) with blurred vision, blue haze and halos around bright objects. Effects disappear in a few hours and temporarily reduce ability to drive vehicle.
No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

SECTION 5 - FIRE-FIGHTING MEASURES

Flammable limits
LFL: Not determined
UFL: Not determined
Extinguishing media: Foam, CO2
Fire and explosion hazards: Irritating vapors under fire conditions. Material is a water solution and except under gross fire conditions should not burn. Avoid contaminating water supplies with run-off water.
Fire-fighting equipment: Under fire conditions use positive pressure, self-contained breathing apparatus and full protective clothing.

SECTION 6 - ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions: Avoid contact with skin and eyes. Do not breathe in spray or fumes. For personal protection see Section 8.
Environmental precautions: Do not allow entering 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. Considered as Marine Pollutant.
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 damp earth or sand 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.
To decontaminate spill area, tools and equipment, wash with a suitable solution (i.e. organic solvent, detergent bleach or caustic). 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.

SECTION 7 - HANDLING AND STORAGE REQUIREMENTS

Handling: Avoid contact with eyes, skin and clothing. Avoid inhalation of spray and vapour. Use with adequate ventilation. Do not eat, drink or smoke while working. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the pesticide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. 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.

Storage: Keep under lock and key and out of reach of unauthorised persons, children and animals. Store in its original labelled container in isolated, dry, cool and well-ventilated area. Not to be stored next to feeds, food and water supplies. Local regulations should be complied with.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

Exposure guidelines:

3,5,6-Trichloro-2-pyridyloxyacetic acid (Triclopyr), triethylamine salt: 2 mg/M3 as acid equivalent,
Skin. *Triethylamine:* ACGIH TLV is 1 ppm, TWA, 3 ppm STEL, Skin, A4. OSHA PEL is 10 ppm TWA, 15 ppm STEL.
3,6-Dichloropicolinic acid (Clopyralid): 10 mg/M3.
Ethanol (ethyl alcohol): ACGIH TLV and OSHA PEL are 1000 ppm. ACIGH classification is A4.
PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.
A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

Engineering controls:

Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

Recommendations For Manufacturing, Commercial Blending, And Packaging Workers:

Respiratory protection:

Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying respirator.

Skin protection:

When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material. Selection of specific items such as face shield, gloves, boots, apron, or full-body suit will depend on operations.

Eye protection:

Use chemical goggles. If vapor exposure causes eye discomfort, use a NIOSH approved full-face respirator.

Applicators and all other handlers:

Refer to the product label for personal protective clothing and equipment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: A clear amber liquid.
Odour: Slight amine smell
Explosive properties: Non explosive.
Flammability: Non flammable.
Corrosive properties: Corrosive to mild steel.
Density: 1.14 g/ml @ 20 oC
Vapor Pressure: Similar to that of water.
At 100°C the vapor pressure of water is 760 mmHg (1 atm) or equal to the atmospheric pressure on the liquid (in an open container).
At 25 oC the vapor pressure of water is 23,76 mmHg
Vapor Density (Air =1): Not determined
Solubility in water: Miscible in water.
Solubility in organic solvents: *(data for active ingredient)*
The product is soluble in methanol, but is insoluble in most organic solvents.
Flash point: 66 ° C
Boiling point: Approximately 100°C

SECTION 10 - STABILITY AND REACTIVITY

Stability: **(Conditions To Avoid)**
Store under cool, dry conditions. Avoid elevated temperatures and direct sunlight.
Incompatibility: **(Specific materials to avoid)**
Avoid acid, oxidizing material, halogenated organics, brass, copper, zinc, and aluminum.
Hazardous decomposition products:
Hydrogen chloride, nitrogen oxides under fire conditions; chlorinated pyridine.
Hazardous polymerization:
Not known to occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute oral LD50 (Rat): 2164 mg/kg (male) and 1521 (female).
Acute dermal LD50 : >2000 mg/kg. in rabbits.

Acute inhalation LC50 (4 h):
Single exposure to vapors is not likely to be hazardous.
LC50 for rats is >1.06 mg/L for 4 hours.
Acute skin irritation:
Prolonged exposure is not likely to cause significant skin irritation.
Acute eye irritation:
May cause severe eye irritation and/or moderate corneal injury.
Dermal sensitisation:
May cause allergic skin reaction in susceptible individuals. With the dilute mix, no allergic skin reaction is expected.
Carcinogenicity:
Triclopyr and clopyralid did not cause cancer in laboratory animals. This material contains ethanol. Epidemiology studies provide evidence that drinking of alcoholic beverages (containing ethanol) is associated with cancer, and IARC has classified alcoholic beverages as carcinogenic to humans.
Teratogenicity:
Triclopyr did not cause birth defects in laboratory animals. Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure.
Mutagenicity:
For triclopyr and clopyralid, in-vitro and animal mutagenicity studies were negative.
Reproductive Effects:
For triclopyr and clopyralid, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent.
Other information:
The ADI for triclopyr is RfD: 0.025 mg/kg/day and the ADI for clopyralid is RfD 0.5 mg/kg/day.

SECTION 12 - ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:
MOVEMENT & PARTITIONING:
Based largely or completely on component information. Bioconcentration potential is low (BCF <100 or Log Pow <3).
DEGRADATION & PERSISTENCE:
Based largely or completely on data for major components. Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD is >40%). [*Biochemical oxygen demand (BOD) theoretical oxygen demand (ThOD)]*
The principle route of degradation is microbial and will occur readily.
Half-life in soils is dependent on soil type.
ECOTOXICOLOGY:
Based on information for triclopyr TEA salt and triethylamine. Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 is between 10 and 100 mg/L in the most sensitive species). Based on information for clopyralid. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50 is >100 mg/L in most sensitive species).

SECTION 13 - DISPOSAL CONSIDERATION

Pesticide disposal:
Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused 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 to drain 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 10 % of that of the container. Add the rinsings 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 dump site. Prevent contamination of food, feedstuffs, drinking water and eating utensils.
Comply with local legislation applying to waste disposal.

SECTION 14 - TRANSPORT INFORMATION

UN No.:	3082
ADR Road	
Shipping name:	Environmentally hazardous substance, liquid, n.o.s (contains Triclopyr and Clopyralid)
Class:	9
Packaging group:	III
Hazard ID:	90
Air (IATA)	
Shipping name:	Environmentally hazardous substance, liquid, n.o.s (contains Triclopyr and Clopyralid)
Class:	9
Packing Group:	III
Pack Instr. Passenger:	911
Pack Instr. Cargo:	911
Sea - IMO/IMDG	
Shipping name:	Environmentally hazardous substance, liquid, n.o.s (contains Triclopyr and Clopyralid)
Packing Group:	III
Tremcard No:	30GM6-III

This product is considered a Marine Pollutant.

SECTION 15 - REGULATORY INFORMATION

Hazard Symbol:	Xn, N
Indication of Danger:	Harmful, Dangerous for the Environment
Risk Phrases:	
R22	Harmful if swallowed
R38	Irritating to skin
R43	May cause sensitisation by skin contact
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R65	Harmful: may cause lung damage if swallowed
Safety Phrases :	
S24	Avoid contact with skin
S35	This material and its container must be disposed of in a safe way
S37	Wear suitable gloves
S57	Use appropriate containment to avoid environmental contamination
S62	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label

SECTION 16 - OTHER INFORMATION

Packaging:
Packed in 5, 10, 20 and 25 ℓ polyethylene plastic containers and labelled according to 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.