1. PRODUCT AND COMPANY IDENTIFICATION

SUPPLIER: **DOW AGROSCIENCES(PTY) LTD**
Private Bag X160,
Bryanston.
2021

EMERGENCY TELEPHONE NUMBERS
SPILLAGES:
Emergency telephone (+27) 032 5330716 or
082 887 8079
Fax (+27) 032 5336134

POISONINGS:
National Poison Centre 021-9386084 (office hours).
021-9316129 (after hours).
UOFS Pharmacology/Toxicology information centre:
0824910160
Trade Name CONFRONT 360 SL
Use A selective systemic herbicide for use as is indicated on the label.

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: $C_{13}H_{19}C\ell_3N_2O_3$ and $C_8H_{10}C\ell_2N2O_3$
NIOSH/RTECS no: Mixture
EINECS no: Mixture
UN no: 3082

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.
Cancer information:
See SECTION 11
Teratology (birth defects):
See SECTION 11
Reproductive effects:
See SECTION 11

4. FIRST AID MEASURES

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.

5. FIRE FIGHTING MEASURES

Flammable limits
LFL: Not determined
UFL: Not determined
Extinguishing media: Foam, CO_2
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.

6. ACCIDENTAL RELEASE MEASURES

Action to take for spills: Absorb small spills with inert materials such as Zorball, Hazorb or sand. Report large spills to Dow AgroSciences emergency number.

7. HANDLING AND STORAGE

Precautions to be taken in Handling and Storage:
Keep out of reach of children. Harmful if swallowed, inhaled, or absorbed through skin. May cause severe eye irritation. May cause allergic skin reactions in some individuals. Avoid contact with eyes, skin, and clothing. Store in original container with the lid tightly closed.

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: Dow AgroSciences Industrial Hygiene Guideline is 2 mg/M^3 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): Dow AgroSciences Industrial Hygiene Guideline is 10 mg/M^3.
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.

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 ^{o}C 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 ^{o}C
Boiling point:
Approximately 100°C

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.

11. TOXICOLOGICAL INFORMATION

Acute oral LD_{50} (Rat):
2164 mg/kg (male) and 1521 (female).
Acute dermal LD_{50} :
>2000 mg/kg. in rabbits.
Acute inhalation LC_{50} (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 Rfd for triclopyr is RfD: 0.025 mg/kg/day and the Rfd for clopyralid is RfD 0.5 mg/kg/day.

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 (LC_{50}/EC_{50} 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 (LC_{50}/EC_{50} is >100 mg/L in most sensitive species).

13. DISPOSAL CONSIDERATIONS

If the waste cannot be disposed of by use according to label instructions, contact your local pesticide or environmental control authority, or a hazardous waste representative at the nearest regional office for guidance.

Pesticide disposal:
Excess wastes are toxic. Improper disposal of excess wastes is a violation of local regulations.
Contaminated absorbents, surplus product (in diluted form), etc., should be buried in approved landfill. The disposal area should not be subjected to flooding and must be sited well away from streams, springs, dams and wells. The waste area must be securely denied off and labeled with warning signs. Comply with any local legislation applying to waste disposal.

Package product wastes:
Emptied containers retain vapour and product residues. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed. Containers must be triple rinsed with water and should not be reused. Puncture and transport to a scrap metal facility for disposal in approved landfill site. Comply with any local legislation applying to disposal.

14. TRANSPORT INFORMATION

UN NUMBER: 3082

ADR
Shipping name: Environmentally Hazardous Substance, liquid , n.o.s. (Contains Triclopyr and Clopyralid)
Class: 9
Packing Group: III

IMDG
Shipping name: Environmentally Hazardous Substance, liquid , n.o.s. (Contains Triclopyr and Clopyralid)
Marine Pollutant
Class: 9
Packing Group: III

Tremcard no: 90GM6-III

15. REGULATORY INFORMATION

Symbol : Xn, N
Indication of danger: Harmful;
Dangerous for the Environment

Risk Phrases :
Harmful if swallowed. (R22)
Risk of serious damage to eyes.(R41)
May cause sensitisation by skin contact. (R43)
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environmen. (R50/53)

Safety Phrases :
Keep out of reach of children. (S2)
Keep away from food, drink and animal feeding stuff (S13)
Avoid contact with skin and eyes. (S24/25)
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. (S 26)
Wear eye/face protection. (S 39)
If swallowed, seek medical advice immediately and show this container or label. (S46)
This material and its container must be disposed of as hazardous waste. (S60)
Avoid release to the environment. Refer to special instructions/Safety data sheet. (S61)

16. OTHER INFORMATION

Compiled by: Danie Fourie

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulations(s) containing this product, it is the recipient's sole responsibility to ensure the transfers of all relevant information from this MSDS to their own MSDS.

REFERENCES
- Applicable own physical and chemical, toxicity and ecotoxicity research studies.

- Environmental Fate of Triclopyr. C.Ganapathy, Dept of Pesticide Regulation, Sacramemto CA.
- Clopyralid Herbicide Fact Sheet, C. Cox, Journal of Pesticide Reform v.18,n.4, Winter98.
- Dow Agrosciences USA Confront MSDS Revised Section: 15 Reference: DR-0297-555 Replaces MSDS Dated: 1/18/01 Document Code: D03-080-003 Replaces Document Code: D03-080-002
- EINECS PLUS CD, 1999.
- DAS Europe Triclopyr technical MSDS.
- DAS Europe Clopyralid MSDS.
- SABS *0265:1999*.
- IATA Dangerous Goods Regulations, Effective 1 January 2003.

END OF MSDS.