

**MATERIAL SAFETY DATA SHEET**

**SUBJECT:** CONFRONT 360 SL  
**DOCUMENT NO:** PS 057  
**EFFECTIVE DATE:** FEBRUARY 2003  
**REVISED DATE:** March 2010  
**REVISION NO:** 2  
**PAGE:** 1 of 5  
**ISSUE DATE:** 2/4/2014

**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 equivalent)

**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<sub>13</sub>H<sub>19</sub>Cl<sub>3</sub>N<sub>2</sub>O<sub>3</sub> and C<sub>8</sub>H<sub>10</sub>Cl<sub>2</sub>N<sub>2</sub>O<sub>3</sub>

**NIOSH/RTECS no:** Mixture

**EINECS no:** Mixture

**UN no:** 3082

**Risk phrases:** R22, R41, R43, R52/53

**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 (glauropsia) with blurred vision, blue haze and halos around bright objects. Effects

**MATERIAL SAFETY DATA SHEET**

**SUBJECT:** CONFRONT 360 SL  
**DOCUMENT NO:** PS 057  
**EFFECTIVE DATE:** FEBRUARY 2003  
**REVISED DATE:** March 2010  
**REVISION NO:** 2  
**PAGE:** 2 of 5  
**ISSUE DATE:** 2/4/2014

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<sub>2</sub>

**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 Zorbball, 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<sup>3</sup> 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<sup>3</sup>.

*Ethanol (ethyl alcohol):* ACGIH TLV and OSHA PEL are 1000 ppm. ACGIH 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 °C

**Vapor Pressure:**

Similar to that of water.

**MATERIAL SAFETY DATA SHEET**

**SUBJECT:** CONFRONT 360 SL  
**DOCUMENT NO:** PS 057  
**EFFECTIVE DATE:** FEBRUARY 2003  
**REVISED DATE:** March 2010  
**REVISION NO:** 2  
**PAGE:** 3 of 5  
**ISSUE DATE:** 2/4/2014

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 °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 °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<sub>50</sub> (Rat):**

2164 mg/kg (male) and 1521 (female).

**Acute dermal LD<sub>50</sub> :**

>2000 mg/kg. in rabbits.

**Acute inhalation LC<sub>50</sub> (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<sub>50</sub>/EC<sub>50</sub> is between 10 and 100 mg/L in the most sensitive species). Based on information for clopyralid. Material is practically non-toxic to Fish, Daphnia and Lemna sp, on an acute basis (LC<sub>50</sub>/EC<sub>50</sub> is >100 mg/L in most sensitive species). Clopyralid is toxic to algae LC<sub>50</sub> is 7.3 mg/l (Selenastrum capricornutum).

---

**13. DISPOSAL CONSIDERATIONS**

**MATERIAL SAFETY DATA SHEET**

**SUBJECT:** CONFRONT 360 SL  
**DOCUMENT NO:** PS 057  
**EFFECTIVE DATE:** FEBRUARY 2003  
**REVISED DATE:** March 2010  
**REVISION NO:** 2  
**PAGE:** 4 of 5  
**ISSUE DATE:** 2/4/2014

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 denuded 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  
**Classification code:** M6  
**Packing Group:** III  
**Hazard ID:** 90

**IMDG**

**Shipping name:** Environmentally Hazardous Substance, liquid, n.o.s. (Contains Triclopyr and Clopyralid)

**Class:** 9  
**Packing Group:** III

**IATA**

**Shipping name:** Environmentally Hazardous Substance, liquid, n.o.s. (Contains Triclopyr and Clopyralid)

**Class:** 9  
**Label:** 9  
**Packing Group:** III

**Tremcard no:** 90GM6-III

**15. REGULATORY INFORMATION**

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

**Risk Phrases :**

**R22** Harmful if swallowed.  
**R41** Risk of serious damage to eyes.  
**R43** May cause sensitisation by skin contact.  
**R52/53** Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Phrases :**

**S2** Keep out of reach of children.  
**S13** Keep away from food, drink and animal feeding stuff  
**S24/25** Avoid contact with skin and eyes.  
**S26** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
**S39** Wear eye/face protection.  
**S46** If swallowed, seek medical advice immediately and show this container or label.  
**S60** This material and its container must be disposed of as hazardous waste.  
**S61** Avoid release to the environment. Refer to special instructions/Safety data sheet.

**16. OTHER INFORMATION**

**Compiled by:** Danie Fourie

**REFERENCES**

- Applicable own physical and chemical, toxicity and ecotoxicity research studies.
- Environmental Fate of Triclopyr. C.Ganapathy, Dept of Pesticide Regulation, Sacramento 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.
- DAS Europe Triclopyr technical MSDS.
- DAS Europe Clopyralid MSDS.
- The Pesticide Manual, Thirteenth Edition, C.D.S. Tomlin, 2003
- SABS 0265:1999.
- IATA Dangerous Goods Regulations, Effective 1 January 2006.
- ECB-ECIS (European chemical Substances Information System).



**MATERIAL SAFETY DATA SHEET**  
**SUBJECT:** CONFRONT 360 SL  
**DOCUMENT NO:** PS 057  
**EFFECTIVE DATE:** FEBRUARY 2003  
**REVISED DATE:** March 2010  
**REVISION NO:** 2  
**PAGE:** 5 of 5  
**ISSUE DATE:** 2/4/2014

---

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.

---

**END OF MSDS.**