



OzCrop Flumioxazin 500 WG Herbicide

OzCrop Pty Ltd

Chemwatch: 5312-93

Version No: 3.1.1.1

Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 3

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S.GHS.AUS.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

| | |
|-------------------------------|---|
| Product name | OzCrop Flumioxazin 500 WG Herbicide |
| Synonyms | APVMA Code: 86429 |
| Proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains flumioxazin) |
| Other means of identification | Not Available |

Relevant identified uses of the substance or mixture and uses advised against

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|--------------------------|------------|
| Relevant identified uses | Herbicide. |
|--------------------------|------------|

Details of the supplier of the safety data sheet

| | |
|-------------------------|---|
| Registered company name | OzCrop Pty Ltd |
| Address | G13/25 Solent Circuit Norwest NSW 2153 Australia |
| Telephone | (02) 8123 0170 |
| Fax | (02) 8123 0171 |
| Website | http://www.ozcrop.com.au |
| Email | orders@ozcrop.com.au |

Emergency telephone number

| | |
|-----------------------------------|--|
| Association / Organisation | In Transport Emergency DIAL 000 |
| Emergency telephone numbers | 1800 033 111 (24 hours - Australia wide) |
| Other emergency telephone numbers | Not Available |

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

| | |
|--------------------|---|
| Poisons Schedule | S7 |
| Classification [1] | Reproductive Toxicity Category 1B, Acute Aquatic Hazard Category 1, Chronic Aquatic Hazard Category 1 |
| Legend: | 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI |

Label elements

| | |
|---------------------|--|
| Hazard pictogram(s) | |
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SIGNAL WORD **DANGER**

Hazard statement(s)

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| H360 | May damage fertility or the unborn child. |
| H410 | Very toxic to aquatic life with long lasting effects. |

Precautionary statement(s) Prevention

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| P201 | Obtain special instructions before use. |
| P281 | Use personal protective equipment as required. |
| P273 | Avoid release to the environment. |

Precautionary statement(s) Response

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| P308+P313 | IF exposed or concerned: Get medical advice/attention. |
| P391 | Collect spillage. |

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OzCrop Flumioxazin 500 WG Herbicide

Precautionary statement(s) Storage

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| P405 | Store locked up. |
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Precautionary statement(s) Disposal

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| P501 | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

| CAS No | %[weight] | Name |
|---------------|-----------|--|
| 103361-09-7 | 50 | <u>flumioxazin</u> |
| Not Available | balance | Ingredients determined not to be hazardous |

SECTION 4 FIRST AID MEASURES

Description of first aid measures

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|--------------|--|
| Eye Contact | <p>If this product comes in contact with eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with water. ▶ If irritation continues, seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| Skin Contact | <p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation. |
| Inhalation | <ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary. |
| Ingestion | <ul style="list-style-type: none"> ▶ For advice, contact a Poisons Information Centre or a doctor at once. ▶ Urgent hospital treatment is likely to be needed. ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Transport to hospital or doctor without delay. |

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.
- ▶ Water spray or fog - Large fires only.

Special hazards arising from the substrate or mixture

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| Fire Incompatibility | ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
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Advice for firefighters

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| Fire Fighting | <ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Use water delivered as a fine spray to control fire and cool adjacent area. ▶ DO NOT approach containers suspected to be hot. ▶ Cool fire exposed containers with water spray from a protected location. ▶ If safe to do so, remove containers from path of fire. ▶ Equipment should be thoroughly decontaminated after use. |
| Fire/Explosion Hazard | <ul style="list-style-type: none"> ▶ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions. ▶ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions). ▶ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion. ▶ In the same way as gases and vapours, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL) are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC). |

OzCrop Flumioxazin 500 WG Herbicide

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| | <ul style="list-style-type: none"> ▶ When processed with flammable liquids/vapors/mists, ignitable (hybrid) mixtures may be formed with combustible dusts. Ignitable mixtures will increase the rate of explosion pressure rise and the Minimum Ignition Energy (the minimum amount of energy required to ignite dust clouds - MIE) will be lower than the pure dust in air mixture. The Lower Explosive Limit (LEL) of the vapour/dust mixture will be lower than the individual LELs for the vapors/mists or dusts. ▶ A dust explosion may release of large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people. ▶ Usually the initial or primary explosion takes place in a confined space such as plant or machinery, and can be of sufficient force to damage or rupture the plant. If the shock wave from the primary explosion enters the surrounding area, it will disturb any settled dust layers, forming a second dust cloud, and often initiate a much larger secondary explosion. All large scale explosions have resulted from chain reactions of this type. ▶ Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport. ▶ Build-up of electrostatic charge may be prevented by bonding and grounding. ▶ Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. ▶ All movable parts coming in contact with this material should have a speed of less than 1-meter/sec. ▶ A sudden release of statically charged materials from storage or process equipment, particularly at elevated temperatures and/ or pressure, may result in ignition especially in the absence of an apparent ignition source. ▶ One important effect of the particulate nature of powders is that the surface area and surface structure (and often moisture content) can vary widely from sample to sample, depending of how the powder was manufactured and handled; this means that it is virtually impossible to use flammability data published in the literature for dusts (in contrast to that published for gases and vapours). ▶ Autoignition temperatures are often quoted for dust clouds (minimum ignition temperature (MIT)) and dust layers (layer ignition temperature (LIT)); LIT generally falls as the thickness of the layer increases. <p>Combustion products include: carbon monoxide (CO) carbon dioxide (CO₂) hydrogen fluoride nitrogen oxides (NO_x) other pyrolysis products typical of burning organic material.</p> |
| HAZCHEM | 2Z |

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

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| Minor Spills | <p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> ▶ Clean up all spills immediately. ▶ Avoid contact with skin and eyes. ▶ Wear impervious gloves and safety glasses. ▶ Use dry clean up procedures and avoid generating dust. ▶ Vacuum up (consider explosion-proof machines designed to be grounded during storage and use). ▶ Do NOT use air hoses for cleaning ▶ Place spilled material in clean, dry, sealable, labelled container. |
| Major Spills | <p>Environmental hazard - contain spillage. Moderate hazard.</p> <ul style="list-style-type: none"> ▶ CAUTION: Advise personnel in area. ▶ Alert Emergency Services and tell them location and nature of hazard. ▶ Control personal contact by wearing protective clothing. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Recover product wherever possible. ▶ IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal. ▶ ALWAYS: Wash area down with large amounts of water and prevent runoff into drains. ▶ If contamination of drains or waterways occurs, advise Emergency Services. |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

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|---------------|---|
| Safe handling | <ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT enter confined spaces until atmosphere has been checked. ▶ DO NOT allow material to contact humans, exposed food or food utensils. ▶ Avoid contact with incompatible materials. ▶ When handling, DO NOT eat, drink or smoke. ▶ Keep containers securely sealed when not in use. ▶ Avoid physical damage to containers. ▶ Always wash hands with soap and water after handling. ▶ Work clothes should be laundered separately. Launder contaminated clothing before re-use. ▶ Use good occupational work practice. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. ▶ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some |
|---------------|---|

Continued...

OzCrop Flumioxazin 500 WG Herbicide

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| | <p>other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)</p> <ul style="list-style-type: none"> ▶ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame. ▶ Establish good housekeeping practices. ▶ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. ▶ Use continuous suction at points of dust generation to capture and minimise the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimise the probability of a "secondary" explosion. According to NFPA Standard 654, dust layers 1/32 in.(0.8 mm) thick can be sufficient to warrant immediate cleaning of the area. ▶ Do not use air hoses for cleaning. ▶ Minimise dry sweeping to avoid generation of dust clouds. Vacuum dust-accumulating surfaces and remove to a chemical disposal area. Vacuums with explosion-proof motors should be used. ▶ Control sources of static electricity. Dusts or their packages may accumulate static charges, and static discharge can be a source of ignition. ▶ Solids handling systems must be designed in accordance with applicable standards (e.g. NFPA including 654 and 77) and other national guidance. ▶ Do not empty directly into flammable solvents or in the presence of flammable vapors. ▶ The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges. <p>Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.</p> <ul style="list-style-type: none"> ▶ Do NOT cut, drill, grind or weld such containers. ▶ In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit. |
| Other information | <ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ Store in a cool, dry area protected from environmental extremes. ▶ Store away from incompatible materials and foodstuff containers. ▶ Protect containers against physical damage and check regularly for leaks. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. <p>For major quantities:</p> <ul style="list-style-type: none"> ▶ Consider storage in banded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams). ▶ Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities. |

Conditions for safe storage, including any incompatibilities

| | |
|-------------------------|--|
| Suitable container | <ul style="list-style-type: none"> ▶ Polyethylene or polypropylene container. ▶ Check all containers are clearly labelled and free from leaks. |
| Storage incompatibility | <ul style="list-style-type: none"> ▶ Avoid reaction with oxidising agents |

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Not Available

EMERGENCY LIMITS

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|-------------------------------------|---------------|---------------|---------------|---------------|
| OzCrop Flumioxazin 500 WG Herbicide | Not Available | Not Available | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|-------------|---------------|---------------|
| flumioxazin | Not Available | Not Available |

OCCUPATIONAL EXPOSURE BANDING

| Ingredient | Occupational Exposure Band Rating | Occupational Exposure Band Limit |
|-------------|-----------------------------------|-----------------------------------|
| flumioxazin | D | > 0.01 to ≤ 0.1 mg/m ³ |


Notes:

Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

Exposure controls

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| Appropriate engineering controls | <p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <ul style="list-style-type: none"> ▶ Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction. ▶ Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace. ▶ In spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of: <ul style="list-style-type: none"> (a): particle dust respirators, if necessary, combined with an absorption cartridge; (b): filter respirators with absorption cartridge or canister of the right type; (c): fresh-air hoods or masks ▶ Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding. |
|----------------------------------|--|

OzCrop Flumioxazin 500 WG Herbicide

| | <p>▶ Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.</p> <table border="1" data-bbox="384 271 1489 409"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min.)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td> <td>2.5-10 m/s (500-2000 f/min.)</td> </tr> </tbody> </table> <p>Within each range the appropriate value depends on:</p> <table border="1" data-bbox="384 450 1114 611"> <thead> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> </thead> <tbody> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only</td> <td>2: Contaminants of high toxicity</td> </tr> <tr> <td>3: Intermittent, low production.</td> <td>3: High production, heavy use</td> </tr> <tr> <td>4: Large hood or large air mass in motion</td> <td>4: Small hood-local control only</td> </tr> </tbody> </table> <p>Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.</p> | Type of Contaminant: | Air Speed: | direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion) | 1-2.5 m/s (200-500 f/min.) | grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion). | 2.5-10 m/s (500-2000 f/min.) | Lower end of the range | Upper end of the range | 1: Room air currents minimal or favourable to capture | 1: Disturbing room air currents | 2: Contaminants of low toxicity or of nuisance value only | 2: Contaminants of high toxicity | 3: Intermittent, low production. | 3: High production, heavy use | 4: Large hood or large air mass in motion | 4: Small hood-local control only |
|--|---|----------------------|------------|--|----------------------------|--|------------------------------|------------------------|------------------------|---|---------------------------------|---|----------------------------------|----------------------------------|-------------------------------|---|----------------------------------|
| Type of Contaminant: | Air Speed: | | | | | | | | | | | | | | | | |
| direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion) | 1-2.5 m/s (200-500 f/min.) | | | | | | | | | | | | | | | | |
| grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion). | 2.5-10 m/s (500-2000 f/min.) | | | | | | | | | | | | | | | | |
| Lower end of the range | Upper end of the range | | | | | | | | | | | | | | | | |
| 1: Room air currents minimal or favourable to capture | 1: Disturbing room air currents | | | | | | | | | | | | | | | | |
| 2: Contaminants of low toxicity or of nuisance value only | 2: Contaminants of high toxicity | | | | | | | | | | | | | | | | |
| 3: Intermittent, low production. | 3: High production, heavy use | | | | | | | | | | | | | | | | |
| 4: Large hood or large air mass in motion | 4: Small hood-local control only | | | | | | | | | | | | | | | | |
| <p>Personal protection</p> |  | | | | | | | | | | | | | | | | |
| <p>Eye and face protection</p> | <p>▶ Safety glasses with side shields</p> <p>▶ Chemical goggles.</p> <p>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]</p> | | | | | | | | | | | | | | | | |
| <p>Skin protection</p> | <p>See Hand protection below</p> | | | | | | | | | | | | | | | | |
| <p>Hands/feet protection</p> | <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> • frequency and duration of contact, • chemical resistance of glove material, • glove thickness and • dexterity <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> • When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. • When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. • Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. • Contaminated gloves should be replaced. <p>As defined in ASTM F-739-96 in any application, gloves are rated as:</p> <ul style="list-style-type: none"> • Excellent when breakthrough time > 480 min • Good when breakthrough time > 20 min • Fair when breakthrough time < 20 min • Poor when glove material degrades <p>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.</p> <p>It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.</p> <p>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.</p> <p>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:</p> <ul style="list-style-type: none"> • Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. • Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.</p> <ul style="list-style-type: none"> ▶ polychloroprene. ▶ nitrile rubber. ▶ butyl rubber. ▶ fluorocautchouc. ▶ polyvinyl chloride. | | | | | | | | | | | | | | | | |

| | |
|-------------------------|---|
| | Gloves should be examined for wear and/ or degradation constantly. |
| Body protection | See Other protection below |
| Other protection | <ul style="list-style-type: none"> ▶ Overalls. ▶ P.V.C. apron. ▶ Barrier cream. ▶ Skin cleansing cream. ▶ Eye wash unit. |

Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|------------------------------------|----------------------|----------------------|------------------------|
| up to 10 x ES | P1 Air-line* | - - | PAPR-P1 - |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- ▶ Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- ▶ The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- ▶ Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- ▶ Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- ▶ Use approved positive flow mask if significant quantities of dust becomes airborne.
- ▶ Try to avoid creating dust conditions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | | | |
|---|---|--|----------------|
| Appearance | Off-white granular solid with a mild odour; dispersible in water. | | |
| Physical state | Divided Solid | Relative density (Water = 1) | Not Available |
| Odour | Not Available | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | Not Available |
| pH (as supplied) | Not Applicable | Decomposition temperature | Not Available |
| Melting point / freezing point (°C) | Not Available | Viscosity (cSt) | Not Applicable |
| Initial boiling point and boiling range (°C) | Not Available | Molecular weight (g/mol) | Not Applicable |
| Flash point (°C) | Not Available | Taste | Not Available |
| Evaporation rate | Not Available | Explosive properties | Not Available |
| Flammability | Not Available | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | Not Available | Surface Tension (dyn/cm or mN/m) | Not Applicable |
| Lower Explosive Limit (%) | Not Available | Volatile Component (%vol) | Not Available |
| Vapour pressure (kPa) | Not Available | Gas group | Not Available |
| Solubility in water | Partly miscible | pH as a solution (1%) | Not Available |
| Vapour density (Air = 1) | Not Available | VOC g/L | Not Available |

SECTION 10 STABILITY AND REACTIVITY

| | |
|---|--|
| Reactivity | See section 7 |
| Chemical stability | <ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur. |
| Possibility of hazardous reactions | See section 7 |
| Conditions to avoid | See section 7 |
| Incompatible materials | See section 7 |
| Hazardous decomposition products | See section 5 |

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

| | |
|--------------|--|
| Inhaled | The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures. |
| Ingestion | The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. |
| Skin Contact | The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. |
| Eye | Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. |
| Chronic | Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material. Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis, caused by particles less than 0.5 micron penetrating and remaining in the lung. |

| | | |
|-------------------------------------|---|---------------|
| OzCrop Flumioxazin 500 WG Herbicide | TOXICITY | IRRITATION |
| | Not Available | Not Available |
| flumioxazin | TOXICITY | IRRITATION |
| | dermal (rat) LD50: >2000 mg/kg ^[2] | Not Available |
| | Inhalation (rat) LC50: >3.93 mg/l/4H ^[2] | |
| | Oral (rat) LD50: >5000 mg/kg ^[2] | |
| Legend: | 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances | |

| | |
|-------------|---|
| FLUMIOXAZIN | Following ingestion, flumioxazin is rapidly absorbed, extensively metabolized and eliminated. Dermal absorption is slow and limited in extent. It has low acute oral, dermal and inhalation toxicity. It is a slight eye irritant, but not a skin irritant or sensitiser. In repeated dose studies in mice, rats and dogs, flumioxazin caused liver toxicity characterised by alterations in liver function and enzyme activities. Oral and dermal exposure induced anaemia and other haematological disturbances in rats. Flumioxazin was negative in studies designed to detect its potential to damage genetic material (DNA), and it did not induce cancers in life-time exposure studies in animals. In developmental studies, an increased incidence of foetal death, impaired foetal development and growth retardation was observed in rats, following oral or dermal exposure at levels which were not toxic to the dams. This has necessitated a label warning statement to alert women of child-bearing age to avoid mixing, loading or spraying any product containing flumioxazin. Female rats received 0, 3000 or 10000 ppm flumioxazin in the diet for up to 5 weeks. The majority of the changes were observed in both treated groups. Anaemia was indicated by significantly reduced RBC, haemoglobin, haematocrit, MCV and MCH, and myeloid/erythroid ratio in the bone marrow. The erythroblast count and the incidence of siderocytes in peripheral blood were increased from day 2. The neutrophil count was initially transiently decreased followed by an increase. Clinical chemistry revealed elevated serum iron levels and lower AST activity. Reduced triglycerides and a slightly increased sodium level were detected at 10,000 ppm only. Spleen and liver weights were increased at necropsy. Elevated urinary coproporphyrin and free erythrocyte protoporphyrin were detected at 3000 ppm. Pregnant rats were given a single oral dose of 0 or 400 mg/kg bw flumioxazin on gestation day-12 and dams were killed on various gestation days thereafter. For the treated group, embryo death was increased from gestation day-15. A high incidence of enlarged foetal heart was observed on days 14 and 15, with a lower incidence from day-16, and no increased incidence by days 17 to 20. The incidence of foetal oedema was increased from day-14, and peaked on days 15-16, but gradually recovered by day-20. Closure of the interventricular foremen was delayed by treatment. Foetal RBC count and the haemoglobin level were reduced during days 13-16, and serum protein level was lower during days 15-16, and all recovered by gestation day-20. Flumioxazin was not mutagenic or genotoxic in an Ames test using <i>S. typhimurium</i> strains TA98, TA100, TA1535, TA1537 and TA1538, and <i>E. coli</i> WP2uvrA, a chromosomal aberration assay in rat bone marrow cells in vivo, and an unscheduled DNA synthesis study in rat hepatocytes in vivo. The ADI for flumioxazin was established at 0.003 mg/kg bw/day based on a NOEL of 3 mg/kg bw/day in an oral developmental study in rats and using a 1,000-fold safety factor in view of the nature and irreversibility of the effect. |
|-------------|---|

| | | | |
|-----------------------------------|---|--------------------------|---|
| Acute Toxicity | ✗ | Carcinogenicity | ✗ |
| Skin Irritation/Corrosion | ✗ | Reproductivity | ✓ |
| Serious Eye Damage/Irritation | ✗ | STOT - Single Exposure | ✗ |
| Respiratory or Skin sensitisation | ✗ | STOT - Repeated Exposure | ✗ |
| Mutagenicity | ✗ | Aspiration Hazard | ✗ |

Legend: ✗ – Data either not available or does not fill the criteria for classification
 ✓ – Data available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

| | | | | | |
|-------------------------------------|----------|--------------------|---------|-------|--------|
| OzCrop Flumioxazin 500 WG Herbicide | ENDPOINT | TEST DURATION (HR) | SPECIES | VALUE | SOURCE |
|-------------------------------------|----------|--------------------|---------|-------|--------|

Continued...

OzCrop Flumioxazin 500 WG Herbicide

| | | | | | |
|--------------------|---|---------------------------|----------------|---------------|---------------|
| | Not Available | Not Available | Not Available | Not Available | Not Available |
| flumioxazin | ENDPOINT | TEST DURATION (HR) | SPECIES | VALUE | SOURCE |
| | Not Available | Not Available | Not Available | Not Available | Not Available |
| Legend: | Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data | | | | |

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
DO NOT discharge into sewer or waterways.

Persistence and degradability

| | | |
|-------------------|---------------------------------------|---------------------------------------|
| Ingredient | Persistence: Water/Soil | Persistence: Air |
| | No Data available for all ingredients | No Data available for all ingredients |

Bioaccumulative potential

| | |
|-------------------|---------------------------------------|
| Ingredient | Bioaccumulation |
| | No Data available for all ingredients |

Mobility in soil

| | |
|-------------------|---------------------------------------|
| Ingredient | Mobility |
| | No Data available for all ingredients |



SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

| | |
|-------------------------------------|--|
| Product / Packaging disposal | <ul style="list-style-type: none"> ▶ Containers may still present a chemical hazard/ danger when empty. ▶ Return to supplier for reuse/ recycling if possible. Otherwise: <ul style="list-style-type: none"> ▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product. ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. |
|-------------------------------------|--|

SECTION 14 TRANSPORT INFORMATION

Labels Required

| | |
|-------------------------|---|
| |  |
| Marine Pollutant |  |
| HAZCHEM | 2Z |

Land transport (ADG)

| | |
|-------------------------------------|---|
| UN number | 3077 |
| UN proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains flumioxazin) |
| Transport hazard class(es) | Class : 9 Subrisk : Not Applicable |
| Packing group | III |
| Environmental hazard | Environmentally hazardous |
| Special precautions for user | Special provisions : 274 331 335 375 AU01 Limited quantity : 5 kg |

Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to this Code when transported by road or rail in;

- (a) packagings;
 (b) IBCs; or
 (c) any other receptacle not exceeding 500 kg(L).
 - Australian Special Provisions (SP AU01) - ADG Code 7th Ed.

Air transport (ICAO-IATA / DGR)

| | | |
|-------------------------------------|---|--------------------|
| UN number | 3077 | |
| UN proper shipping name | Environmentally hazardous substance, solid, n.o.s. * (contains flumioxazin) | |
| Transport hazard class(es) | ICAO/IATA Class | 9 |
| | ICAO / IATA Subrisk | Not Applicable |
| | ERG Code | 9L |
| Packing group | III | |
| Environmental hazard | Environmentally hazardous | |
| Special precautions for user | Special provisions | A97 A158 A179 A197 |
| | Cargo Only Packing Instructions | 956 |
| | Cargo Only Maximum Qty / Pack | 400 kg |
| | Passenger and Cargo Packing Instructions | 956 |
| | Passenger and Cargo Maximum Qty / Pack | 400 kg |
| | Passenger and Cargo Limited Quantity Packing Instructions | Y956 |
| | Passenger and Cargo Limited Maximum Qty / Pack | 30 kg G |

Sea transport (IMDG-Code / GGVSee)

| | | |
|-------------------------------------|---|---------------------|
| UN number | 3077 | |
| UN proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains flumioxazin) | |
| Transport hazard class(es) | IMDG Class | 9 |
| | IMDG Subrisk | Not Applicable |
| Packing group | III | |
| Environmental hazard | Marine Pollutant | |
| Special precautions for user | EMS Number | F-A , S-F |
| | Special provisions | 274 335 966 967 969 |
| | Limited Quantities | 5 kg |

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION**Safety, health and environmental regulations / legislation specific for the substance or mixture****FLUMIOXAZIN IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
 Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
 Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 7

Chemical Footprint Project - Chemicals of High Concern List
 International Air Transport Association (IATA) Dangerous Goods Regulations
 International Maritime Dangerous Goods Requirements (IMDG Code)
 United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

National Inventory Status

| National Inventory | Status |
|-------------------------------|------------------|
| Australia - AICS | No (flumioxazin) |
| Canada - DSL | No (flumioxazin) |
| Canada - NDSL | No (flumioxazin) |
| China - IECSC | No (flumioxazin) |
| Europe - EINEC / ELINCS / NLP | No (flumioxazin) |
| Japan - ENCS | No (flumioxazin) |
| Korea - KECI | No (flumioxazin) |
| New Zealand - NZIoC | Yes |
| Philippines - PICCS | No (flumioxazin) |
| USA - TSCA | No (flumioxazin) |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | No (flumioxazin) |

Continued...

| | |
|----------------|---|
| Vietnam - NCI | Yes |
| Russia - ARIPS | No (flumioxazin) |
| Legend: | Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets) |

SECTION 16 OTHER INFORMATION

| | |
|----------------------|------------|
| Revision Date | 01/11/2019 |
| Initial Date | 10/07/2018 |

SDS Version Summary

| Version | Issue Date | Sections Updated |
|---------|------------|--|
| 3.1.1.1 | 01/11/2019 | One-off system update. NOTE: This may or may not change the GHS classification |

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
 PC—STEL: Permissible Concentration-Short Term Exposure Limit
 IARC: International Agency for Research on Cancer
 ACGIH: American Conference of Governmental Industrial Hygienists
 STEL: Short Term Exposure Limit
 TEEL: Temporary Emergency Exposure Limit.
 IDLH: Immediately Dangerous to Life or Health Concentrations
 OSF: Odour Safety Factor
 NOAEL :No Observed Adverse Effect Level
 LOAEL: Lowest Observed Adverse Effect Level
 TLV: Threshold Limit Value
 LOD: Limit Of Detection
 OTV: Odour Threshold Value
 BCF: BioConcentration Factors
 BEI: Biological Exposure Index

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