

# SAFETY DATA SHEET

**DOW AGROSCIENCES (NZ) LIMITED** 

Issue Date: 03.03.2017

# Garlon<sup>™</sup> 360 Herbicide

DOW AGROSCIENCES (NZ) LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product name:** Garlon<sup>TM</sup> 360 Herbicide **Purpose:** End use herbicide product

**COMPANY IDENTIFICATION** 

DOW AGROSCIENCES (NZ) LIMITED 89 PARITUTU ROAD 4342 NEW PLYMOUTH NEW ZEALAND

Customer Information Number: 0800-803-939

NZCustomerservice@corteva.com

**EMERGENCY TELEPHONE NUMBER** 

**24-Hour Emergency Contact:** +64 6 751 2407 **Local Emergency Contact:** 0800-844-455

For medical advice, contact the New Zealand Poisons Information Centre:

0800 POISON (0800 764 766) Transport Emergency Only Dial: 111

This SDS may not provide exhaustive guidance for all the HSNO controls assigned to this substance. The NZ EPA website <a href="www.epa.govt.nz">www.epa.govt.nz</a> should be consulted for a full list of triggered controls and cited regulations.

### 2. HAZARDS IDENTIFICATION

### Hazard classification

NEW ZEALAND HAZARDOUS SUBSTANCES CLASSIFICATION: Classified as hazardous according to criteria in the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001. Refer to Section 15 for HSNO Approval Number.

HSNO Hazard Classification: 3.1C, 6.1D, 6.5B, 6.9B, 8.1A, 8.3A, 9.1A, 9.2A, 9.3C

GHS label elements Hazard pictograms



Signal word: WARNING!

#### **Hazards**

Flammable liquid and vapour.

May be corrosive to metals.

Harmful if swallowed.

Causes serious eye damage.

May cause an allergic skin reaction.

May cause damage to organs (kidneys, liver) through prolonged or repeated exposure.

Very toxic to aquatic life with long lasting effects.

Very toxic to the soil environment.

Harmful to terrestrial vertebrates.

#### Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Keep container tightly closed. Keep only in original container

Do not breathe fumes/vapours/spray.

Do not eat, drink or smoke when using this product.

Avoid contact with skin or eyes.

Wear protective gloves/ protective clothing/ eye protection/ face protection.

Wash skin thoroughly after handling.

Contaminated work clothing should not be allowed out of the workplace.

#### Response

In case of fire: Use water fog, carbon dioxide, dry chemical or foam for extinction.

IF exposed or if you feel unwell: Call a POISON CENTER or doctor/ physician.

If medical advice is needed, have product container or label at hand.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Wash skin with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

If eye irritation persists: Get medical advice/ attention.

Specific treatment – see First aid instruction in Section 4 of this SDS.

Wash contaminated clothing before re-use.

Absorb spillage to prevent material damage.

Collect spillage

### **Storage**

Store in a well-ventilated place. Keep cool.

Store in corrosive resistant container with a resistant inner liner. Keep only in original container.

#### Disposal

Dispose of contents/ container to an approved waste disposal plant.

# 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CASRN	Concentration
Triclopyr Triethylamine Salt	57213-69-1	44.05 %
Ethanol; ethyl alcohol	64-17-5	< 3 %
Balance	Not available	> 53 %

### 4. FIRST AID MEASURES

Consult the National Poisons Information Centre (0800 POISON (0800 764 766)) or a doctor in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention immediately.

#### Description of first aid measures

**General advice:** First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

**Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**Eye contact:** Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

### 5. FIREFIGHTING MEASURES

Hazchem: •2X

**Suitable extinguishing media:** To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Unsuitable extinguishing media: No data available

### Special hazards arising from the substance or mixture

**Hazardous combustion products:** Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** This material will not burn until the water has evaporated. Residue can burn. May produce flash fire. Vapours are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes.

### Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Eliminate ignition sources. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

# **6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures: Evacuate area. Keep unnecessary and unprotected personnel from entering the area. Only trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep up-wind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapour to avoid fire or explosion. Vapour explosion hazard. Keep out of sewers. Refer to section 7: Handling, for additional precautionary measures. Eliminate all sources of ignition in vicinity of spill or released vapour to avoid fire or explosion. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8: Exposure Controls and Personal Protection.

groundwater. See Section 12: Ecological Information.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or

Methods and materials for containment and cleaning up: Contain spilled material if possible. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Corteva Agriscience for clean-up assistance. See Section 13: Disposal Considerations, for additional information.

### 7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Keep container closed. Keep away from heat, sparks and flame. Vapours are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Electrically ground and bond all equipment. Do not get in eyes. Avoid contact with skin and clothing. Avoid breathing vapour or mist. Do not swallow. Wash thoroughly after handling. Use with adequate ventilation. No smoking, open flames or sources of ignition in handling and storage area. Containers, even those that have been emptied, can contain vapours. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Minimize sources of ignition, such as static build-up, heat, spark or flame.

This substance is subject to a requirement for an emergency management plan, secondary containment and signage, whenever it is held in quantities of 100 L or more, either alone or in aggregate with other hazardous substances. See Hazardous Substances Emergency Management and Identification Regulations.

# 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### **Control parameters**

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Triclopyr Triethylamine Salt	Dow IHG	TWA	2 mg/m <sup>3</sup> SKIN, DSEN, BEI
Ethanol; ethyl alcohol	ACGIH	TWA	1,000 ppm
	ACGIH	STEL	1,000 ppm
	NZ OEL	WES-TWA	1,880 mg/m <sup>3</sup> 1,000 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

#### **Exposure controls**

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Issue Date: 03.03.2017

### Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under standard AS/NZS 2161.10: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to AS/NZS 2161.10) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapour cartridge with a particulate pre-filter.

**Other Information:** Selection and use of personal protective equipment should be in accordance with the recommendations in one or more of the relevant Australian/New Zealand Standards, including:

AS/NZS 1336: Eye and Face protection - Guidelines.

AS/NZS 1337: Personal eye protection - Eye and face protectors for occupational applications.

AS/NZS 1715: Selection, use and maintenance of respiratory protective equipment.

AS/NZS 2161: Occupational protective gloves. AS/NZS 2210: Occupational protective footwear. AS/NZS 4501: Occupational protective clothing.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance** 

Physical state Liquid.
Colour Pink

**Odour** Ammoniacal

Odour ThresholdNo test data availablepH9.510% pH Electrode

Melting point/range Not applicable

Freezing point No test data available
Boiling point (760 mmHg) No test data available

Flash point - closed cup 43 °C Setaflash Closed Cup ASTM D3828

Evaporation Rate (Butyl Acetate = 1)

Flammability (solid, gas)

No data available

Lower explosion limit

No test data available

Product name: Garlon™ 360 Herbicide

Upper explosion limit No test data available

**Vapour Pressure** No product data available. Triclopyr acid = 0.168 mPa @ 25°c

Relative Vapour Density (air = 1) Not applicable

Relative Density (water = 1) 1.1385 at 20 °C Digital Density Meter (Oscillating Coil)

Water solubility Soluble

Partition coefficient: n-octanol/water

Auto-ignition temperature

Decomposition temperature

Dynamic Viscosity

No test data available

No test data available

12.5 mPa.s at 25 °C

Kinematic Viscosity

No test data available

Explosive properties No Thermal

Oxidizing properties No

**Liquid Density** 1.1385 g/cm3 at 20 °C *Digital density meter* 

Molecular weight No product data available.

Triclopyr triethylamine salt = 357.6 g/mol

Issue Date: 03.03.2017

**Surface tension** 38.5 mN/m at 20 °C *EC Method A5* 

NOTE: The physical data presented above are typical values and should not be construed as a specification.

## 10. STABILITY AND REACTIVITY

**Reactivity:** No dangerous reaction known under conditions of normal use.

**Chemical stability:** Thermally stable at recommended temperatures and pressures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Active ingredient decomposes at elevated temperatures.

Incompatible materials: Avoid contact with: Oxidizers.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Nitrogen oxides.

# 11. TOXICOLOGICAL INFORMATION

### **Acute toxicity**

# **Acute oral toxicity**

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product: LD50, Rat, female, 4,100 mg/kg

#### Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: LD50, Rabbit, male and female > 5,000 mg/kg

### Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

As product: LC50, Rat, male and female, 4 Hour, Mist, > 5.4 mg/l. Maximum attainable concentration. No deaths occurred at this concentration.

#### Skin corrosion/irritation

Brief contact is essentially non-irritating to skin.

# Serious eye damage/eye irritation

May cause moderate eye irritation. May cause moderate corneal injury.

### Sensitization

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization: No relevant data found.

#### Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

#### Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient: In animals, effects have been reported on the following organs: Kidney.

## Carcinogenicity

For similar active ingredient: Triclopyr. Did not cause cancer in laboratory animals.

### Teratogenicity

For the active ingredient: Triclopyr triethylamine. Has been toxic to the foetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For the minor component(s): Has caused birth defects in laboratory animals at high doses.

#### Reproductive toxicity

For similar active ingredient(s). Triclopyr. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

### Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

### **Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

#### 12. ECOLOGICAL INFORMATION

### **Ecotoxicity**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

#### Acute toxicity to fish

LC50, Oncorhynchus mykiss (Rainbow trout), 96 Hour, 400 mg/l. OECD Test Guideline 203 or Equivalent

LC50, Lepomis macrochirus (Bluegill sunfish), semi-static test, 96 Hour > 100 mg/l

### Acute toxicity to aquatic invertebrates

EC50, Crassostrea virginica (Eastern oyster), static test, 48 Hour, 56 - 87 mg/l. Method not specified.

LC50, *Daphnia magna* (Water flea), static test, 48 Hour > 1,000 mg/l. OECD Test Guideline 202 or Equivalent

### Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, 107 mg/l, OECD Test Guideline 201 or Equivalent

ErC50, Anabaena flos-aquae (blue-green alga), 72 Hour, Growth inhibition > 100 mg/l

EC50, Lemna gibba (Duckweed), 7 d, Growth inhibition > 100 mg/l

Based on information for a similar material: ErC50, *Myriophyllum spicaturn*, 14 d, 0.241 mg/l NOEC, *Myriophyllum spicaturn*, 14 d, 0.0191 mg/l

# Persistence and degradability

**Triclopyr Triethylamine Salt** 

**Biodegradability:** For similar active ingredient(s). Triclopyr. Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

For similar active ingredient(s): Triclopyr. Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

# **Ethanol**

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready

biodegradability. 10-day Window: Pass **Biodegradation:** > 70 % **Exposure time:** 5 d

Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 2.08 mg/mg

Photodegradation: Atmospheric half-life (indirect photolysis): Sensitizer: OH radicals.2.99 d.

Estimated

#### **Balance**

Biodegradability: No relevant data found.

## **Bioaccumulative potential**

### **Triclopyr Triethylamine Salt**

**Bioaccumulation:** For similar active ingredient(s). Triclopyr. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

#### Ethanol

**Bioaccumulation:** Bioaccumulation is unlikely. Bioconcentration potential is low (BCF < 100 or

Partition coefficient: n-octanol/water (log Pow): -0.31 Measured

#### **Balance**

Bioaccumulation: No relevant data found.

#### **Mobility in Soil**

### **Triclopyr Triethylamine Salt**

For similar active ingredient(s): Potential for mobility in soil is very high (Koc between 0 and 50).

#### Ethanol

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 1.0 Estimated.

### **Balance**

No relevant data found.

#### Results of PBT and vPvB assessment

This product contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

# 13. DISPOSAL CONSIDERATIONS

**Disposal methods:** If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

Waste handling, treatment and disposal practices must be in compliance with the New Zealand Hazardous Substances (Disposal) Regulations 2001. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Regulations concerning waste management may vary in different locations.

This product when disposed of in its unused and uncontaminated state should be treated as a hazardous waste.

### 14. TRANSPORT INFORMATION

PUBLIC PASSENGER VEHICLE TRANSPORT: To be transported ONLY in the sealed original container. Maximum volume permitted to be transported: 1L.

Classification for ROAD and Rail transport:

Proper shipping name FLAMMABLE LIQUID, N.O.S. (Triclopyr triethylamine salt,

Ethanol)

UN number UN 1993

Class 3 Packing group III

**Environmental hazards** Triclopyr Triethylamine Salt

Classification for SEA transport (IMO-IMDG):

**Proper shipping name** FLAMMABLE LIQUID, N.O.S. (Triclopyr triethylamine salt,

Ethanol)

UN number UN 1993

Class 3 Packing group III

Marine pollutant Triclopyr Triethylamine Salt

Transport in bulk Consult IMO regulations before transporting ocean bulk

according to Annex I or II of MARPOL 73/78 and the

**IBC or IGC Code** 

Classification for AIR transport (IATA/ICAO):

**Proper shipping name** FLAMMABLE LIQUID, N.O.S. (Triclopyr triethylamine salt,

Ethanol)

UN number UN 1993

Class 3
Packing group III

Hazchem: •2X

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Compliance with the above land, rail, marine and air requirements is deemed to comply with the applicable requirements of the Hazardous substances Identification and Emergency Management Regulations.

### 15. REGULATORY INFORMATION

ACVMG APPROVAL NUMBER: Not required to be registered.

**HSNO Approval Code:** HSR100777

ADVICE TO PRODUCT USERS REGARDING HSNO CONTROLS: Users of this product should make reference to the New Zealand Hazardous Substances and New Organisms Act and Regulations for relevant risk management controls. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Refer to Environment Protection Authority publication; User Guide to the HSNO Controls Regulations. <a href="http://www.epa.govt.nz">http://www.epa.govt.nz</a>

# 16. OTHER INFORMATION

#### Revision

Identification Number: 101199615 / A157 / Issue Date: 03.03.2017 / Version: Replaces 31.10.2013

DAS Code: XRM-3724

Sections amended: 3, 6, 8, 11, 15

Legend

ACGIH	American Conference of Governmental Industrial Hygienists. Threshold Limit
	Values (TLV)
Dow IHG	Dow Industrial Hygiene Guideline
NZ OEL	New Zealand. Workplace Exposure Standards for Atmospheric Contaminants
SKIN, DSEN, BEI	Absorbed via Skin, Skin Sensitizer, Biological Exposure Indices
STEL	Short-term exposure limit
TWA	8-hour, time-weighted average
WES-TWA	Workplace Exposure Standard - Time Weighted average

#### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL -Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx -Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG -Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development: OPPTS - Office of Chemical Safety and Pollution Prevention: PBT - Persistent. Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation,

Issue Date: 03.03.2017

Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

DOW AGROSCIENCES (NZ) LIMITED urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDS's, we are not and cannot be responsible for (M)SDS's obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

© Dow AgroSciences (NZ) Ltd. 2017