

Nichino America, Inc.
TALUS[®] Insect Growth Regulator
Safety Data Sheet

1. IDENTIFICATION

Product Name: TALUS[®] Insect Growth Regulator
General Use: Insecticide
Product Description: Dry Flowable
PMRA PCP. No.: 32383

Manufacturer
Main Headquarters: Nihon Nohyaku Co., Ltd., Kyobashi OM Building, 19-8
Kyobashi 1-chome, Chuo-ku, Tokyo 104-8386 JAPAN

Company Name: Engage Agro Corporation
1030 Gordon St.
Guelph, ON
N1G 4X5
Phone: 519-826-7878
www.engageagro.com

Telephone Numbers: **For Chemical Emergency, Spill, Leak, Exposure or
Accident, Call: 1-866-613-3336**

2. HAZARD(S) IDENTIFICATION

Classified according to OSHA 29 CFR 1910.1200 HCS

Classification: Carcinogenicity 1A
Combustible Dust

Signal word: **DANGER**



Hazard statements: May cause cancer.
May form combustible dust concentrations in the air.

Precautionary statements

Prevention:

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.

Response:

If exposed or concerned: Get medical advice/attention.

Storage:

Store locked up.

Disposal:

Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Percentage
Buprofezin CAS Name: 4H-1,3,5-Thiadiazin-4-one, 2- [(1,1-dimethylethyl)imino]tetrahydro-3-(1- methylethyl)-5-phenyl-, (2Z)-	953030-84-7	70.00%
Titanium dioxide	13463-67-7	0.1% to 1%
Citric acid	77-92-9	0.1% to 1%
Quartz	14808-60-7	0% to 1%
Kaolin	1332-58-7	10% to 20%
*Other ingredients:		19.80% to 7.00%

***Specific chemical identity and percentage of composition withheld as a trade secret**

4. FIRST AID MEASURES

Inhalation:

Move person to fresh air. If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth-to-mouth if possible. Call a poison control center or doctor immediately 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 eye 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 eye. Call a poison control center or doctor for treatment advice.

Ingestion: Call 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. Do not give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Refer to Section 11 Toxicological Information.

Note to physician: There is no specific antidote. All treatment should be based on observed signs and symptoms of distress in the patient. Overexposure to materials other than this product may have occurred.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media	Alcohol-resistant foam, carbon dioxide, dry chemicals, and water spray.
Unsuitable extinguishing media	No information available
Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products)	Carbon dioxide, carbon monoxide, nitrogen oxides, and sulfur dioxide.
Special protective equipment and precautions for fire-fighters	Firemen should wear positive pressure self-contained breathing apparatus (SCBA).

6. ACCIDENTAL RELEASE MEASURES

General and Disposal: Use proper protective equipment to minimize personal exposure (see Section 8). Take all necessary action to prevent and to remedy the effects of the spill. Ensure that the disposal is in compliance with federal or local disposal regulations (see Section 13). Notify the appropriate authorities immediately (see Section 15 for any applicable Reportable Quantity (RQ)). Report to authorities if water enters watercourse or sewer.

Land Spill or Leak:

Evacuate non-essential personnel. Carefully sweep up, place in a metal drum and hold for waste disposal. Avoid raising dust. If a large spill occurs, wear protective clothing and self-contained breathing apparatus to avoid contact. Prevent spills from entering sewers, watercourse, or low areas.

Liquid spills on the floor or other impervious surfaces should be contained or diked and then absorbed with sawdust, sand, bentonite, or other absorbent clay. Collect contaminated absorbent, and place it in a metal drum. Thoroughly scrub the floor or other impervious surface with a strong industrial-type detergent and rinse with water.

Liquid spills that soak into the ground should be dug up and placed in metal drums. When a large spill or leakage is found, wear protective clothing and respirator to avoid exposure.

Avoid contaminated absorbents or water flow into ponds, rivers, and lakes, due to the danger of acute toxicity to aquatic organisms.

7. HANDLING AND STORAGE

Handling Precautions:

- Open container with care.
- Use adequate ventilation.
- Avoid handling near an open flame or heat source or ignition source.
- Do not contaminate water by cleaning of equipment or disposal of waste.
- Avoid contact with skin, eyes, or clothing.
- Do not eat, drink, smoke, or chew gum or tobacco while handling this product and until hands and face are thoroughly washed with soap and water.
- Do not use the toilet before thoroughly washing hands.
- Remove contaminated clothing immediately and wash thoroughly before reuse.

Storage Precautions:

- Keep container closed. Store in original container.
- Keep container at room temperature or store in a cool, dry place.
- Avoid storage in direct sunlight, excessive heat or cold.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

(Local exhaust): Ventilation may be necessary under certain confined conditions. If practical, use ventilation at the sources of air contamination. Control airborne contaminants below the exposure guidelines (see below for any applicable OSHA / ACGIH exposure limits).

Personal Protective Equipment (PPE):

Applicators and other handlers of agricultural products must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Agricultural Use Requirements – for uses of this product that are covered by the Worker Protection Standard 40 CFR Part 170 - PPE required for early entry into treated areas:

- Coveralls over long-sleeved shirt and long pants
- Waterproof gloves
- Socks and chemical-resistant footwear

Manufacturing and packaging personnel:

- When there is significant potential for eye contact, wear chemical safety goggles.
- Waterproof gloves, especially when prolonged or repeated contact is anticipated.
- Ensure good ventilation. Avoid breathing dust. If ventilation is inadequate, use approved respiratory protection equipment when airborne exposure limits are exceeded.

Exposure Limits:

<u>Ingredient:</u>	<u>ACGIH</u>	<u>OSHA</u>
Kaolin CAS 1332-58-7	2 mg/m ³ TWA (particulate matter containing no asbestos and <1% crystalline silica, respirable fraction)	15 mg/m ³ TWA (total dust); 5 mg/m ³ TWA (respirable fraction)
Quartz CAS 14808-60-7	0.025 mg/m ³ TWA (respirable fraction)	Not established
Titanium dioxide CAS 13463-67-7	10 mg/m ³ TWA	15 mg/m ³ TWA (total dust)

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

OSHA = Occupational Safety and Health Administration

TWA = Time Weighted Averages are based on 8h/day, 40h/week exposures

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Tan
Odor:	Faint Odor
Physical state:	Solid
pH:	6.3 (as a 1 % w/w solution)
Melting point/freezing point	104.8 °C (220.64 °F) (technical active ingredient)
Initial boiling point and boiling range	252.3 °C (486.14 °F) (technical active ingredient)
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapor pressure	5×10^{-5} Pa at 25 °C (technical active ingredient)
Vapor density	No data available
Relative density	15.6 lbs./cubic ft.
Solubility	637 µg/L at 20 °C (technical active ingredient)
Partition coefficient (n-octanol/water)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	Not applicable

10. STABILITY AND REACTIVITY

Reactivity	No dangerous reaction known under conditions of normal use.
Chemical stability	Stable for at least two years at ambient temperature.
Possibility of hazardous reactions	Hazardous polymerization will not occur.
Conditions to avoid	None known.
Incompatible materials	No data available.
Hazardous decomposition products	In the event of fire, carbon dioxide, carbon monoxide, and nitrogen oxides, and sulfur dioxide.

11. TOXICOLOGICAL INFORMATION

The following data were developed using formulated product:

Acute Studies:

Oral LD₅₀ (rat):	> 5000 mg/kg (males and females)
Dermal LD₅₀ (rat):	> 2000 mg/kg (males and females)
Inhalation LC₅₀ (rat):	> 2.2 mg/L (4 hrs.) (males and females)
Eye irritation (rabbit):	Mild irritant
Skin irritation (rabbit):	Slight irritant
Skin sensitization (guinea pig):	Not a sensitizer

The following data were developed using buprofezin technical:

Subchronic and Chronic Effects:

In a 24-day dermal toxicity study, histopathologic alterations were observed in the liver of high-dose female rats (1000 mg/kg/day) and the skin of high-dose male rats (1000 mg/kg/day). In subchronic (90-day) studies with buprofezin, increased organ weight and microscopic changes in the liver and thyroid of both male and female rats, and in the kidney of male rats, were observed in animals exposed to approximately 69 mg/kg/day. Upon chronic (up to 2-year) exposure to buprofezin, effects included increased liver weight (dogs, rats, mice at doses \geq to approximately 17 mg/kg/day), increased thyroid weight (dogs, rats at doses \geq approximately 9 mg/kg/day), elevated incidences of hyperplasia or hypertrophy of hepatocytes (rats, mice at doses \geq 90 mg/kg/day), and hyperplasia of thyroid epithelial cells (rats only at \geq approximately 9 mg/kg/day).

Cancer Effects:

No treatment-related increases in tumor incidence were reported in male or female rats or male mice; female mice from the high-dose group (493 mg/kg/day) had an elevated incidence of liver tumors. The EPA has classified buprofezin into the category "Suggestive Evidence of Carcinogenicity, but not sufficient to assess human carcinogenic potential". The relevance of this finding to humans is unknown. Buprofezin has not been classified as a carcinogen by NTP, IARC, or OSHA.

Teratogenicity (Birth Defects):

Buprofezin is not a developmental toxicant.

Reproductive Effects:

Buprofezin is not a reproductive toxicant.

Neurotoxicity:

There was no evidence of neurotoxicity in rats upon subchronic (90-day) exposure to buprofezin.

Immunotoxicity:

In a 28-day immunotoxicity study in rats, the high-dose (346 mg/kg/day) female group had statistically significant decreases in antigen-specific, T-cell dependent antibody formation. These changes were concomitant with a 38% decrease in body weight gain in this group. The relevance of the immunosuppressive effect of buprofezin is unknown given the systemic toxicity observed at the same dose level.

Mutagenicity (Genetic Effects):

Buprofezin is not mutagenic or genotoxic.

Carcinogenic Effects				
	CAS Number	OSHA	IARC	NTP
Quartz	14808-60-7	-	Group 1- Carcinogenic to humans	Known Human Carcinogen
Titanium dioxide	13463-67-7	-	Group 2B- Possible carcinogenic to humans	Not listed

12. ECOLOGICAL INFORMATION

Ecological data were developed using buprofezin technical.

Environmental Precautions:

For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean highwater mark. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters.

13. DISPOSAL CONSIDERATIONS

General Disposal:

Any disposal practice must be in compliance with all federal, state/provincial, and local laws and regulations. State (provincial) and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Chemical additions, processing, storage or otherwise altering this material may make the waste disposal information presented in this MSDS incomplete, inaccurate, or otherwise inappropriate. Waste

characterization and disposal compliance are the responsibility solely of the party generating the waste or deciding to discard or dispose of the material.

Refer to appropriate federal (RCRA: 40 CFR.261), state/provincial, or local requirements for proper classification information. For regulatory information on the ingredient components, see Section 15.

Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, pesticide spray, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal:

For nonrefillable flexible containers (i.e., bags): Do not reuse or refill this container. Offer for recycling, if available.

14. TRANSPORT INFORMATION

DOT:	Not regulated
IATA:	UN 3077, Environmentally hazardous substance, solid, n.o.s., (buprofezin), Class 9, PG III.
IMDG:	UN 3077, Environmentally hazardous substance, solid, n.o.s., (buprofezin), Class 9, PG III, MARINE POLLUTANT; EmS: F-A, S-F

TALUS is not regulated for transport unless shipped by water or air.

15. REGULATORY INFORMATION

Specific Regulations: This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all of the information required by those regulations.

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION

Harmful if swallowed

U.S. Federal Regulatory Information:

EPA Registration Number: 71711-21

TSCA Inventory: Registered pesticide; exempt from TSCA.

Components on the TSCA inventory: Citric acid (77-92-9), Kaolin (1332-58-7), Quartz (14808-60-7), and Titanium dioxide (13463-67-7).

SARA Title III Notification and Information:

Section 302 (EHS) Ingredients: None

Section 304 (EHS)

or CERCLA Ingredients (RQ): None

Section 313 Ingredients: None

U.S. State Regulatory Information:

U.S. State Right-to-Know (RTK) Ingredients:

- Kaolin (CAS 1332-58-7)
- Crystalline silica, quartz (CAS 14808-60-7)
- Titanium dioxide (CAS 13463-67-7)
- Silica, amorphous, precipitated and gel (CAS 112926-00-8)

California Proposition 65 List:

- Titanium dioxide (13463-67-7) – This product contains a chemical known to the State of California to cause cancer (airborne, unbound particles of respirable size).
- Quartz (14808-60-7) – This product contains a chemical known to the State of California to cause cancer (airborne particles of respirable size).

16. OTHER INFORMATION

HMIS® Hazard Rating:

Health: 1*

Flammability: 0

Physical Hazard: 0

*indicates both acute and chronic health hazard

NFPA Hazard Rating:

Health: 2

Flammability: 0

Reactivity: 0

Specific Hazard: 0

Prepared by: Regulatory Affairs

Date: 7/25/2016

Reason for Editing: Updated sections 1 and 15.

Disclaimer of Expressed and Implied Warranties:

This information is provided in good faith but without express or implied warranty. Buyer assumes all responsibility for safety and use not in accordance with FIFRA label instructions.