

SAFETY DATA SHEET



1. COMPANY AND PRODUCT INFORMATION

Product identifier: N-Edge®

Recommended use: Fertilizer coating

Recommended restrictions: Use in accordance with supplier's recommendations.

Manufacturer/Importer/Supplier/Distributor information

Company name: CHS Inc.

Address: 5500 Cenex Drive
Inver Grove Heights, MN 55077

Telephone: (800) 232-3639
International Dialing Code 001
(651) 355-6000

Emergency: Call CHEMTREC day or night
Within USA/Canada 1-800-424-9300
Outside USA/Canada +1 703-527-3887 (collect calls accepted)

2. HAZARD(S) IDENTIFICATION

Physical hazards: Not classified

Health hazards: Serious eye damage/eye irritation Category 1
Skin irritation Category 2
Acute Oral Toxicity Category 4

Label elements

Hazard symbol(s)



Signal word: Danger

Hazard statement(s): Causes serious eye damage and skin irritation. Harmful if swallowed.

Precautionary statement(s)

Prevention: Do not handle until all safety precautions have been read and understood. When using this product, wear eye, face, skin and clothing protection. Do not eat, drink or smoke when using this product. After handling this product, wash hands, forearms and face thoroughly.

If exposed or concerned: Immediately call poison control center or doctor for further treatment advice. **If on skin:** Wash thoroughly with water. **If swallowed or in eyes:** Rinse eyes (if contacts, remove before) cautiously with water for several minutes. Remove and wash contaminated clothing before reuse. Dispose of contents/container to a licensed hazardous waste facility in accordance with state and local agencies.

Hazard(s) not otherwise Classified (HNOC):

None Known

3. COMPOSITION OF CHEMICALS (INGREDIENTS)

Hazardous components

Chemical name	Common Name	CAS number	%
N-(n-butyl)-thiophosphoric triamide	NBPT	94317-64-3	10-50
Dimethyl sulfoxide	DMSO	67-68-5	10-50
Benzoic aldehyde	Benzaldehyde	100-52-7	1-10

Non-Hazardous components

Chemical name	Common Name	CAS number	%
Non-hazardous dye		Proprietary	0.1-5

Composition comments: All concentrations are in percent by weight. Exact percentage values for components are proprietary in accordance with 29 CFR 1910.1200(i). Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

4. FIRST AID MEASURES

- General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice.
- Inhalation:** If inhaled, bring to fresh air. Allow victim to rest.
- Skin contact:** Remove all contaminated clothing immediately. Wash immediately with soap and plenty of water. If irritation develops and persists, get medical advice/attention. Launder contaminated clothing before reuse.
- Eye contact:** Wash immediately with large amounts of water for 15 minutes, lifting the upper and lower lids until no evidence of product remain. Get medical attention.
- Ingestion:** Rinse mouth thoroughly. Do NOT induce vomiting. Obtain emergency medical attention. Call a Poison Center or doctor if you feel unwell.

Most important symptoms/effects, acute and delayed: Risk of serious damage to eyes and health hazard if swallowed.

Medical attention and special treatment need: Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Foam, Dry Powder, Carbon Dioxide (CO₂), Water Spray, Sand.

Unsuitable extinguishing media: Do not use heavy water stream.

Specific hazards arising from the chemical: Not easily combustible.

Hazardous combustion products may include: Carbon oxides, sulfur oxides and irritating vapors.

Advice for firefighters: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Wear appropriate personal protective equipment. (See Section 8) Ventilate area.

Environmental Precautions: Do not empty into drains or waters. Do not touch or walk through the spilled material; stop leak if you can do it without risk. Soak with sand or other non-combustible absorbent material or suitable vacuum and place in labeled sealable containers. Immediately notify authorities if liquid enters sewers or public waters.

7. HANDLING AND STORAGE

Precautions for safe handling: Employees should wash their hands and face before eating, drinking, or smoking and before leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not eat, drink or smoke when using this product.

Conditions for safe storage: Keep container tightly closed and in a well-ventilated area. Long-term storage at temperatures above 100°F (36°C) and long term storage of opened containers, can adversely impact the efficacy of products containing N-(n-butyl)-thiophosphoric triamide. Store in accordance with all applicable local, state, and national regulations.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

Control Parameters

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Substance	PEL-TWA (8 hour)	PEL-STEL (15 min)
N-(n-butyl)-thiophosphoric triamide (94317-64-3)	Not Applicable	Not Applicable
Dimethyl sulfoxide (67-68-5)	Not Applicable	Not Applicable
Benzaldehyde (100-52-7)	Not Applicable	Not Applicable

ACGIH Threshold Limit Values

Substance	TLV-TWA (8 hour)	TLV-STEL (15 min)
N-(n-butyl)-thiophosphoric triamide (94317-64-3)	Not Applicable	Not Applicable
Dimethyl sulfoxide (67-68-5)	Not Applicable	Not Applicable
Benzaldehyde (100-52-7)	Not Applicable	Not Applicable

Other Exposure Limits:

Dimethyl sulfoxide:
8-Hr (AIHA WEEL-TWA): 250 ppm

Benzaldehyde:
8-Hr (AIHA WEEL-TWA): 2 ppm

(AIHA: American Industrial Hygiene Association, WEEL: Workplace Environmental Exposure Levels, TWA: Time-Weighted Average)

Appropriate engineering controls:

Use local ventilation.

Personal protective equipment:

Eye and face protection:

Chemical-goggles or safety glasses with side-protection shield.

Skin and hand protection:

Long-sleeve shirts, pants, gloves (e.g. polyethylene/ethylene vinyl alcohol) and boots are recommended. Wear suitable protective clothing.

Other information:

Avoid all unnecessary exposure. Do not eat, drink, or smoke during use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Physical state: Liquid

Color: Green

Odor: Characteristic odor

Odor threshold: Not Available

pH: ≥ 8 (10 g/L water @ 20°C)

Freezing point: $\approx -23.3^{\circ}\text{C}$ (-10°F)

Boiling point: $\geq 100^{\circ}\text{C}$ (212°F)

Flash point: $\geq 96^{\circ}\text{C}$ (205°F)

Other information-Flammability Does not support combustion at 920C

Evaporation rate: Not Available

Flammability (solid, gas): Not Available

Explosive limits: Not Available

Vapor pressure: Not Available

Relative Density: Not Available

Density (Specific gravity): 1.13-1.15 g/L @ 20°C (68°F)

Solubilities (water, other): Soluble in water

Partition coefficient (n-octanol/water): Not Available

Auto-ignition temperature: Not Available

Viscosity: Not Available

Other information

Bulk density: Not Available

VOC (Weight %): Not Available

10. STABILITY AND REACTIVITY

Reactivity: This product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability: Not established.

Possibility of hazardous reactions: Not known to cause any hazardous reactions.

Conditions to avoid: Direct sunlight and temperature extremes.

Incompatible materials: Strong oxidizing agents. Strong acids and bases.

Hazardous decomposition Products: This product contains components which may decompose to release: fume, carbon dioxide and carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Oral: Harmful if swallowed.

Inhalation: Yes. May cause irritation of the nose, throat and respiratory tract.

Ingestion: Yes. May result in serious health hazard.

Skin: Yes. Skin contact and absorption are possible. Causes skin irritation.

Eye: Yes. Risk of serious damage to eyes.

Symptoms related to the physical, chemical, and toxicological characteristics: May cause serious eye damage. May cause irritation to nose and throat if inhaled. Skin sensitization (an allergic reaction) may develop. Inhalation may lead to dizziness, nausea, unconsciousness and other narcotic effects.

Acute toxicity:

Components

N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3)

Oral LD50 (rat)	>2823 mg/kg
Dermal LD50 (rat)	>2000 mg/kg
NOAEL (rat)	445 mg/kg, 1 day

Skin corrosion/irritation	Irritating to the skin
Serious eye damage	Causes serious eye damage
Respiratory sensitization	Not classified
Skin sensitization	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Suspected of damaging fertility
Specific target organ toxicity, single exposure	Not classified
Specific target organ toxicity, repeated exposure	Not classified
Aspiration hazard	Not classified
Chronic effects	Prolonged exposure may cause chronic effects
Further information	Symptoms may be delayed

Dimethyl sulfoxide (CAS 67-68-5)

Oral LD50 (male rat)	14500 mg/kg
ATE US Oral	14500.000 mg/kg body weight

Skin corrosion/irritation	Causes skin irritation pH >=8
Serious eye damage	Causes serious eye damage pH >=8
Respiratory sensitization	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
Specific target organ toxicity, single exposure	Not classified
Specific target organ toxicity, repeated exposure	Not classified
Aspiration hazard	Not classified
Potential adverse human health effects and symptoms	Based on available data, the classification criteria are not met. Harmful if swallowed.
Symptoms/injuries after skin contact	Causes skin irritation
Symptoms/injuries after eye contact	Causes serious eye damage
Symptoms/injuries after ingestion	Swallowing a small quantity of this material will result in serious health hazard

Benzaldehyde (CAS 100-52-7)

Oral LD50 (rat/adult) 1300 mg/kg
Dermal LD50 (rabbit/adult) >1250 mg/kg

Skin corrosion/irritation Causes skin irritation
Serious eye damage Causes serious eye damage
Respiratory or skin sensitization Not classified
Germ cell mutagenicity Not classified
Carcinogenicity Not classified
Reproductive toxicity Not classified
Specific target organ toxicity, single exposure Not classified
Specific target organ toxicity, repeated exposure Not classified
Aspiration hazard Not classified

Potential adverse human health effects and symptoms Based on available data, the classification criteria are not met. Harmful if swallowed.

Symptoms/injuries after skin contact Causes skin irritation
Symptoms/injuries after eye contact Causes serious eye damage
Symptoms/injuries after ingestion Swallowing a small quantity of this material will result in serious health hazard

12. ECOLOGICAL INFORMATION

Ecology-general: Readily biodegradable, 28 days

Ingredient Information:

N-(n-butyl)-thiophosphoric triamide (NBPT)
LC50, Bluegill (*Lepomis macrochirus*) 1140 mg/l
EC50, 48h, water flea (*Daphnia magna*) 290 mg/l

Dimethyl sulfoxide (67-68-5)
LC50, rainbow trout, 96h 32300 mg/l
EC50, *Daphnia*, 18h 58200 mg/l
LC50, fish, 96h 33500 mg/l
EC50, water flea (*Daphnia pulex*) 22300 mg/l
EC50, algae (*Lepomis macrochirus*) 48h 33500 mg/l
Threshold limit, algae, 48h 500 mg/l

Benzaldehyde (100-52-7)
LC50, fish, 96h 1.1 mg/l
Algae, 96h EC50 23.1 mg/l
Invertebrates, 48h EC50 16.2 mg/l

Persistence and degradability Inherently biodegradable. Not established.

Bioaccumulative potential Product Data Not Available

Mobility in soil Product Data Not Available

Mobility in general Product Data Not Available

Other adverse effects Product Data Not Available

13. DISPOSAL CONSIDERATIONS

Disposal instructions:

Dispose of contents and containers in hazardous or special waste collection point, an approved disposal plant, a licensed hazardous waste disposal contractor or authorized waste collection site in accordance with local, regional and national regulation, except for empty clean containers which can be disposed of as non-hazardous water. Biodegradable. Avoid release into the environment.

14. TRANSPORT INFORMATION

DOT: Not regulated as a hazardous material by DOT.

IATA: Not regulated as a dangerous good.

IMDG: Not regulated as a dangerous good.

15. REGULATORY INFORMATION

US Regulations

N-Edge is a not listed on the United States TSCA (Toxic Substances Control Act) inventory.

N-(n-butyl)-thiophosphoric triamide (NBPT) is subject to a Significant New Use Rule (SNUR) as specified in 40 CFR 721.6090.

Dimethyl sulfoxide and benzaldehyde are listed on the United States TSCA. (Toxic Substances Control Act) inventory.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpart D)

N-(n-butyl)-thiophosphoric triamide (NBPT) CAS 94317-64-3 1.0% One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4) Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1050) Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard	-Yes
Delayed Hazard	-Yes
Fire Hazard	-No
Pressure Hazard	-No
Reactivity Hazard	-No

SARA 302 Extremely Hazardous Substance: -No

SARA 311/312 Hazardous Chemical: -Yes

SARA 313 (TRI reporting): -No

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List: Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130): Not regulated.

Safe Drinking Water Act: Not regulated.

US State Regulations

California Proposition 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

New Jersey Right To Know Components: Dimethyl sulfoxide CAS 67-68-5
Benzaldehyde CAS 100-52-7

INVENTORIES

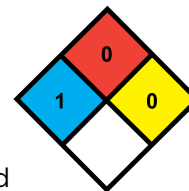
Canada	Domestic Substances List (DSL)	All components on inventory.
US	Toxic Substances Control Act (TSCA) Inventory	All components on inventory.

16. OTHER INFORMATION

Revision Date: 4-20-2016

NFPA Hazards

- Health Hazard: 1 Slight - Exposure could cause irritation but only minor residual injury even if no treatment is given.
- Fire Hazard: 0 Minimal - Materials that will not burn.
- Reactivity: 0 Minimal - Normally stable, even under fire exposure conditions, and are not reactive with water.
- Specific Hazard: None



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