



Safety Data Sheet

Miller Boro Zinc® 10-10

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03
Canadian Workplace Hazardous Material Information System (WHMIS) 2015
Mexico NOM-018-STPS-2000; NOM-018-STPS-2015
GHS (Globally Harmonized System)

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name Miller Boro Zinc® 10-10
Pure substance/mixture Mixture

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

Recommended use Soluble Fertilizer
Uses advised against None known

1.3. Details of the supplier of the safety data sheet

Manufacturer Miller Chemical and Fertilizer, LLC
120 Radio Rd
Hanover, PA 17331
Tel.: 717-632-8921
Fax.: 717-646-1104

Internet <http://www.millerchemical.com>

E-mail info@millerchemical.com

1.4. Emergency telephone number CHEMTREC: +1 800 424 9300 or International +1 703 527 3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

OSHA Regulatory Status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)
GHS Classification Acute tox. Oral, Cat. 4; H302
Repr. Tox. Cat. 2; H361

2.2. Label elements

Symbols/Pictograms

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Warning

Hazard StatementsHarmful if swallowed
Suspected of damaging fertility or the unborn child**Precautionary Statements****Prevention**P203 - Obtain, read and follow all safety instructions before use.
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection**Response**P301 + P317 - IF SWALLOWED: Get medical help.
P318 - If exposed or concerned, get medical advice.
P330 - Rinse mouth**Storage**

P405 - Store locked up

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Additional information

Not applicable

**Hazards not otherwise
classified (HNOC)**

None known

SECTION 3: Composition/information on ingredients**Pure substance/mixture****Mixture**

Chemical Name	CAS Number	TSCA: United States	Canada (DSL)	Mexico	OSHA Regulatory Status	WHMIS	Weight-%
Boric acid	10043-35-3	A	Y	Y	H361 - Suspected of damaging fertility or the unborn child	H361	50 - 65
Zinc Sulfate	7446-19-7	A	Present (DSL)	Y	H302 - Harmful if swallowed	--	20 - 30
Citric Acid	77-92-9	A	Y	Y	Skin Irritant Category 2; H315. Specific target organ toxicity - single exposure. Category 3	--	< 5
Malic acid	6915-15-7	A	Y	Y	Eye Irrit. 2 H319	--	< 3

Y: Complies ; A: Active ; - / N: Exempt / Not Listed

Additional information

PA Right to Know: This product contains proprietary ingredients. This product contains the following chemicals subject to the reporting requirements of Section 13 Title III of the Superfund Amendments and Reauthorization act of 1986 and 40 CFR part 372 (the corresponding CAS numbers and typical percent by weight are also provided).

SECTION 4: First aid measures**4.1. Description of first aid measures****General Advice**

When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Eye Contact

Immediately flush eyes with plenty of water for at least 15 minutes, while holding eyelids apart to ensure flushing of entire surface. Call a physician.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and wash before reuse. Get medical attention.

Ingestion

DO NOT INDUCE VOMITING. If vomiting occurs naturally, reduce the risk of aspiration by leaning their body forward. Clean mouth with water and afterwards drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

Inhalation

Remove to fresh air. If breathing has stopped, apply artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

May cause irritation to mucous membranes and respiratory tract.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment should be symptomatic and supportive. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable Extinguishing Media**

Alcohol-resistant foam. Carbon dioxide (CO₂). Water spray (fog). Dry chemical. Halon.

Unsuitable Extinguishing Media

None known.

5.2. Special hazards arising from the substance or mixture

Dust in sufficient concentration can result in an explosive mixture in air. Minimize dust and open flame.

5.3. Advice for firefighters**Special protective equipment for firefighters**

Wear a self-contained breathing apparatus and chemical protective clothing.

Fire-fighting measures

Water mist may be used to cool closed containers. No special fire protection measures are necessary. Standard procedure for chemical fires.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Evacuate non-essential personnel, eliminate ignition sources, and wear protective equipment (See Section VIII). Shut off source of leak only if safe to do so. Wear respiratory equipment if exposure limits are exceeded.

For non-emergency personnel

Keep unauthorized personnel away.

For emergency responders

Keep unauthorized personnel away. Use personal protection recommended in Section 8.

6.2. Environmental precautions

Avoid runoff to waterways and sewers.

6.3. Methods and material for containment and cleaning up

Recover free product. To clean up residue, flush sparingly with water or use an absorbent. Avoid runoff to waterways and sewers. It may be necessary to remove contaminated soil. If product is flammable or combustible, use non-sparking tools. If acidity (low pH) is a problem, neutralize with hydrated lime, soda ash, or sodium bicarbonate. If alkalinity (high pH) is a problem, neutralize with dilute acetic acid or dilute hydrochloric (muriatic) acid. If required, notify state and local authorities.

Disposal Method Solids must be disposed of in a permitted waste management facility. Recovered liquids may be reprocessed or incinerated. Incineration must be handled in a permitted facility. Dispose of material in accordance with all Federal, State and Local regulations. Local regulations may be more stringent than Federal or State.

6.4. Reference to other sections

See Section 8 for exposure controls and personal protection. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Wear protective equipment when handling. Wash thoroughly after handling. Do not get in eyes. Do not breathe vapor, mist, or dust. Avoid prolonged or repeated contact with skin. Do not swallow.

7.2. Conditions for safe storage, including any incompatibilities

For industrial use only. Keep container closed when not in use. Provide adequate ventilation when containers are open. Keep out of reach of children.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

Occupational exposure limits No information available

Boric acid - 10043-35-3

OSHA	Not established
ACGIH	6 mg/m ³
Canada - British Columbia - OEL- STELs	6 mg/m ³
Canada - Ontario - OEL - STEVs	6 mg/m ³ STEL

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Page 6 of 13Canada - Ontario - OEL - TWA EVs 2 mg/m³**Biological Limit Values** No information available**8.2. Exposure controls****Engineering Measures** Use mechanical ventilation (dilution and local exhaust) to control exposure.**Personal protective equipment****Eye/Face Protection** Chemical goggles or face shield with safety glasses. Always wear eye protection when working with chemicals.**Skin and Body Protection** Rubber gloves. Clean protective body covering, rubber apron, and rubber boots.**Hand Protection** For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.**Respiratory Protection** If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection programs must be in compliance with OSHA requirements in 29 CFR 1910.134.**Hygiene Measures** Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking or smoking. If contact occurs, remove contaminated clothing. If needed, take First Aid action shown in Section 4. Launder contaminated clothing before use.**Environmental Exposure Controls** Dispose of in accordance with local regulations.

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SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties****Appearance:**

Physical State	Crystalline Granules
Color	White, Lime Green and/or Blue
Odor	Slight to Moderate
pH	4.0 - 7.0 @ 20 °C
Melting point / Freezing point	Not applicable
Boiling Point / Boiling Range	Not determined
Freezing Point	Not determined
Flash Point	Not determined
Evaporation Rate	Not determined
Flammability (solid, gas)	Not determined
Vapor Pressure	Not determined
Vapor Density	Not determined
Density	No data available
Bulk Density	Varies with different grades
Water Solubility	Soluble
Partition coefficient	No information available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No information available.
Kinematic viscosity	No data available
Oxidizing Properties	Not applicable
Particle Size	No information available
Percent Volatile	Not determined
VOC Content (%)	Not applicable

9.2. Other information**9.2.1. Information with regard to physical hazard classes**

No data available

9.2.2. Other safety characteristics

Not applicable

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10.1. Reactivity	Stable under normal conditions
10.2. Chemical stability	Stable under normal conditions
10.3. Possibility of hazardous reactions	No specific hazard known
10.4. Conditions to avoid	Extreme temperatures and wet/humid conditions
10.5. Incompatible materials	Strong oxidizing agents Reducing agents Sodium hypochlorite Strong alkalis
10.6. Hazardous decomposition products	None known

SECTION 11: Toxicological information**General Information**

Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Information on Likely Routes of Exposure

Inhalation	May cause irritation
Skin	May cause irritation
Eyes	May cause irritation.
Ingestion	May cause irritation

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**Boric acid**

LD50s and LC50s 2000 mg/kg Dermal LD50 Rabbit 0.16 mg/L Inhalation LC50 Rat 4 h 2660 mg/kg Oral LD50 Rat 2120 mg/m³ Inhalation LC50 Rat 4 h 3765 mg/kg Oral LD50 Rat Monograph 53 [1991]

**Group 2A - Probably
Carcinogenic to Humans
NTP (National Toxicology
Program)**

Male Rat - Not Tested; Female Rat - Not Tested; Male Mice - No Evidence; Female Mice - No Evidence

Zinc Sulfate

Oral LD50 500 mg/kg (rat)

Malic acid

Oral LD50 1600 mg/kg (mouse)
Carcinogenicity Not listed as a carcinogen by NTP. Not evaluated by IARC.
Skin Corrosion/Irritation No data available

Skin Sensitization No data available

Mutagenicity No data available

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties This product does not contain any known or suspected endocrine disruptors

11.2.2. Other information Not applicable

SECTION 12: Ecological information**Citric Acid****96-Hour LC50**

Lepomis macrochirus: 1516 mg/L [static]

72-Hour EC50

Daphnia magna: 120 mg/L

WGK Classification (AwSV)

57 WGK: 1

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors

12.7. Other Adverse Effects

Ecotoxicity: Large spills could possibly damage vegetation. Contamination of waterways could possibly cause fish kills. Prevent spread and runoff into drains, storm sewers, and ditches that lead to waterways.

Aquatic Toxicity: Data not available

Environmental Fate: Data not available

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal Methods**

If uncontaminated, recover and reuse as product. If contaminated with other materials, the nature and extent of contamination may require use of specialized disposal methods. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging

Product residue may remain in empty containers. Empty containers should be taken to an approved waste handling site for recycling or disposal.

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TDG -Canada	Not regulated
DOT	Not regulated
ADR	Not regulated
RID	Not regulated
ADN	Not regulated
IATA	Not regulated
IMDG/IMO	Not regulated
ICAO	Not regulated

14.1. UN number or ID number None**14.2. UN proper shipping name** None**14.3. Transport hazard class(es)** None**14.4. Packing group** None**14.5. Environmental hazards** No**14.6. Special precautions for user** Not applicable**14.7. Maritime transport in bulk according to IMO instruments**
Not applicable

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SECTION 15: Regulatory information**Global Inventories**

Pure substance/mixture

Mixture

Chemical Name	CAS Number	Canada (DSL)	Mexico	TSCA: United States
Boric acid	10043-35-3	Y	Y	A
Zinc Sulfate	7446-19-7	Present (DSL)	Y	A
Citric Acid	77-92-9	Y	Y	A
Malic acid	6915-15-7	Y	Y	A

Y: Complies ; A: Active ; - / N: Exempt / Not Listed

EPA**CWA (Clean Water Act)**

Not regulated

CAA (Clean Air Act)

Not regulated

U.S. State Right-to-Know Regulations

Chemical Name	CAS Number	California Proposition 65	Massachusetts	Minnesota	New Jersey	Pennsylvania
Boric acid	10043-35-3	N	N	N	0241	N
Zinc Sulfate	7446-19-7	N	Present	N	2044 3012	Environmental hazard
Citric Acid	77-92-9	N	N	N	N	N
Malic acid	6915-15-7	N	N	N	N	N

Y: Listed ; N: Not Listed

CANADA**WHMIS**

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR

Boric acid

H361

SECTION 16: Other information**Prepared by**Miller Chemical and Fertilizer, A Huber Company, Global Regulatory Affairs
regulatory.affairs@huber.com**Issue Date**

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Reason for Version

New Format. Revised in entirety. No changes to data.
OSHA (Occupational Safety and Health Administration of the US Department of Labor).

Abbreviations and acronyms

OSHA (Occupational Safety and Health Administration of the US Department of Labor)
WHMIS (Workplace Hazardous Materials Information System)
GHS (Globally Harmonized System)
IARC (International Agency for Research on Cancer)
PPE (Personal Protection Equipment)

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TWA (Time-Weighted Average)
TLV® (Threshold Limit Value)
STEL (Short Term Exposure Limit)
RQ (Reportable Quantity) (RQ/% in mixture)
DOT (Department of Transportation)
TDG (Transport of Dangerous Goods) Canada
IATA (International Air Transport Association)
IMDG (International Maritime Dangerous Goods)
ICAO (International Civil Aviation Organization)

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet