

1 Identification

· Product identifier

· Trade name: **Badge® X2 Fungicide / Bactericide**

· Article number: US10-60906

· CAS Number:

EPA Registration No.: 10163-402

Active Ingredients: Copper Oxychloride (23.82%), CAS: 1332-40-7

Copper Hydroxide (21.49%), CAS: 20427-59-2

· Application of the substance / the mixture Agricultural Fungicide / Bactericide

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

Gowan Company, LLC.

P.O. Box 5569

Yuma, Arizona 85366-5569

(928) 783-8844

· Information department: sds@gowanco.com

· Emergency telephone number:

Chemtec® Emergency Telephone 24 - Hours: (Spills, leak or fire) Inside U.S. & Canada: (800) 424-9300

Outside the U.S. & Canada: +011 (703) 527-3887

For medical emergency (ProPharma Group®): (888) 478-0798

2 Hazard(s) identification

· Classification of the substance or mixture



Acute Toxicity - Inhalation 4 H332 Harmful if inhaled.

· Label elements

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



GHS07

· Signal word Warning

· Hazard-determining components of labeling:

Copper hydroxide

· Hazard statements

H332 Harmful if inhaled.

· Precautionary statements

P261 Avoid breathing dust.

P264 Wash thoroughly after handling.

P280 Wear protective gloves / eye protection / face protection.

· Hazard description:

May be fatal if swallowed. Causes substantial but temporary eye injury. Harmful if absorbed through skin. Harmful if inhaled. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Remove and wash contaminated clothing before reuse. Avoid contact with skin, eyes or clothing. Wear

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long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves (such as Natural Rubber, Selection Category A). Avoid breathing dust.

· **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 1
Fire = 0
Reactivity = 0

HAZARD INDEX:

- 4 Severe Hazard
- 3 Serious Hazard
- 2 Moderate Hazard
- 1 Slight Hazard
- 0 Minimal Hazard

· **Other hazards**

- **Results of PBT and vPvB assessment**
 - **PBT:** Not applicable in US.
 - **vPvB:** Not applicable in US.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

- **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 1332-40-7	Copper oxychloride ⚠ Acute Toxicity - Oral 3, H301	23.82%
CAS: 20427-59-2	Copper hydroxide ⚠ Acute Toxicity - Inhalation 2, H330; ⚠ Eye Damage 1, H318; ⚠ Acute Toxicity - Oral 4, H302	21.49%

4 First-aid measures

· **Description of first aid measures**

· **General information:**

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

You may also contact 1-888-222-1222 for emergency medical treatment information.

· **After inhalation:**

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

· **After 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.

· **After eye contact:**

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
 - Remove contact lenses, if present, after first 5 minutes, then continue rinsing eyes.
 - Call a poison control center or doctor for treatment advice.

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- **After swallowing:**
 - 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 a poison control center or doctor.
 - Do not give anything by mouth to an unconscious person.
- **Information for doctor:**
 - **Most important symptoms and effects, both acute and delayed** Unknown
 - **Indication of any immediate medical attention and special treatment needed**
Possible mucosal damage may contraindicate use of gastric lavage.

5 Fire-fighting measures

- **Extinguishing media**
 - **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** Hydrogen chloride (HCl)
- **Advice for firefighters**
 - **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· PAC-1:		
CAS: 20427-59-2	Copper hydroxide	4.6 mg/m ³
· PAC-2:		
CAS: 20427-59-2	Copper hydroxide	33 mg/m ³
· PAC-3:		
CAS: 20427-59-2	Copper hydroxide	200 mg/m ³

7 Handling and storage

- **Handling:**
 - **Precautions for safe handling**
May be fatal if swallowed. Causes substantial but temporary eye injury. Harmful if absorbed through skin. Harmful if inhaled. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Remove and wash contaminated clothing before reuse. Avoid contact with skin, eyes or clothing. Wear long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves (such as Natural Rubber, Selection Category A). Avoid breathing dust.
 - **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.

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- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
 - **Requirements to be met by storerooms and receptacles:**
Store under well-vented, cool and dry storage conditions. Do not store under moist conditions.
 - **Information about storage in one common storage facility:** Store away from foodstuffs.
 - **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store under well-vented, cool and dry storage conditions. Do not store under moist conditions.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
 - **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
 - **Additional information:**
The lists that were valid during the creation were used as basis.
Harmful if swallowed. Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing.
- **Exposure controls**
 - **Personal protective equipment:**
 - **General protective and hygienic measures:**
Wash hands before breaks and at the end of work.
Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users should remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing. Wash the outside of gloves before removing.
 - **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
 - **Protection of hands:**



Protective gloves

- **Material of gloves** Chemical-resistant gloves.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Safety glasses

- **Body protection:**
Mixers, loaders, applicators, and other handlers must wear the following:
 - long-sleeved shirt and long pants
 - shoes plus socks
 - protective eyewear (goggles, safety glasses, or face shield)
 - chemical-resistant gloves such as Natural Rubber

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Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent material that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

· Form:	Granulate
· Color:	Light blue
· Odor:	Faint aromatic
· Odor threshold:	Not determined.

· pH-value at 20 °C (68 °F): 7.67

· Change in condition

· Melting point/Melting range:	Undetermined.
· Boiling point/Boiling range:	Undetermined.

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not determined.

· Decomposition temperature: Not determined.

· Auto igniting: Product is not self-igniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

· Lower:	Not determined.
· Upper:	Not determined.

· Vapor pressure: Not applicable.

· Density at 20 °C (68 °F): 1.11 g/cm³ (9.26295 lbs/gal)

· Relative density	Not determined.
· Vapor density	Not applicable.
· Evaporation rate	Not applicable.

· Solubility in / Miscibility with

· Water: Dispersible.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

· Dynamic:	Not applicable.
· Kinematic:	Not applicable.

· Other information: No further relevant information available.

10 Stability and reactivity

· Reactivity: No further relevant information available.

· Chemical stability: Stable under normal conditions

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- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** None in particular. Store under well-vented, cool and dry storage conditions.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

Oral	LD50	>3,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)

· Primary irritant effect:

· **on the skin:** No irritant effect.

· **on the eye:** Mild irritation

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:** Harmful

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

· NTP (National Toxicology Program)

None of the ingredients are listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

12 Ecological information

· Toxicity

This pesticide is toxic to fish and aquatic invertebrates and may contaminate water through runoff. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability** No further relevant information available.

· Other information:

Data referred to technical Copper Oxychloride CAS: 1332-40-7

Fish (*Onchorhynchus mykiss*): LC50 (96h): 0.217 mg Cu/L

Freshwater invertebrate (*Daphnia magna*): LC50 (48h): 0.29 mg Cu/L

Algae (*Scenedesmus Subspicatus*): EC50 (72h): 56.3 mg Cu/L

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Data referred to technical Copper Hydroxide CAS: 20427-59-2

Fish (*Onchorhynchus mykiss*): LC50 (96h): 0.0165 mg Cu/L

Freshwater invertebrate (*Daphnia magna*): LC50 (48h): 0.0422 mg Cu/L

Algae (*Scenedesmus Subspicatus*): EC50 (72h): 22.5 mg Cu/L

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- *Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.*
- **Behavior in environmental systems:**
 - **Bioaccumulative potential** *No further relevant information available.*
 - **Mobility in soil** *No further relevant information available.*
- **Additional ecological information:**
 - **General notes:**
 - Do not allow product to reach ground water, water course or sewage system, even in small quantities.*
 - Danger to drinking water if even extremely small quantities leak into the ground.*
- **Results of PBT and vPvB assessment**
 - **PBT:** *Not applicable.*
 - **vPvB:** *Not applicable.*
- **Other adverse effects** *No further relevant information available.*

13 Disposal considerations

- **Waste treatment methods**
 - **Recommendation:**
 - Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.*
- **Uncleaned packagings:**
 - **Recommendation:**
 - Container Handling**
 - Nonrefillable Paper and Plastic Bags**
 - Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment, then offer for recycling if available or dispose of empty bag in a sanitary landfill or by incineration.*
 - Nonrefillable Fiber Drums with Liners**
 - Nonrefillable container. Do not reuse or refill this container. Completely empty the liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment, then offer for recycling if available or return to the Seller, or dispose of in a sanitary landfill or by incineration or if allowed by state and local authorities, by burning. If burned, stay out of smoke. Fiber drum is to be disposed of in the same manner required for its liner.*
 - For rigid, non-refillable containers (2.5 to 5 gallons):**
 - Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container one-fourth full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of resulting smoke.*
 - For rigid, non-refillable containers that are too large to shake (with capacities greater than 5 gallons):**
 - Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container one-fourth full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of resulting smoke.*

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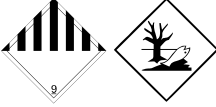
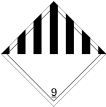
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Pressure Rinse Procedures (all sizes)

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT · ADR, IMDG, IATA 	<p style="margin: 0;">Void</p> <p style="margin: 0;">UN3077</p>
<ul style="list-style-type: none"> · UN proper shipping name · DOT · ADR · IMDG, IATA 	<p style="margin: 0;">Void</p> <p style="margin: 0;">3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.</p> <p style="margin: 0;">ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.</p>
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT · Class 	<p style="margin: 0;">Void</p>
<ul style="list-style-type: none"> · ADR, IATA <div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> · Class · Label 	<p style="margin: 0;">9 Miscellaneous dangerous substances and articles</p> <p style="margin: 0;">9</p>
<ul style="list-style-type: none"> · IMDG <div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> · Class · Label 	<p style="margin: 0;">9 Miscellaneous dangerous substances and articles</p> <p style="margin: 0;">9</p>
<ul style="list-style-type: none"> · Packing group · DOT · ADR, IMDG, IATA 	<p style="margin: 0;">Void</p> <p style="margin: 0;">III</p>
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: · Special marking (ADR): · Special marking (IATA): 	<p style="margin: 0;">No</p> <p style="margin: 0;">Symbol (fish and tree)</p> <p style="margin: 0;">Symbol (fish and tree)</p>
<ul style="list-style-type: none"> · Special precautions for user · EMS Number: · Stowage Category · Stowage Code 	<p style="margin: 0;">Warning: Miscellaneous dangerous substances and articles</p> <p style="margin: 0;">F-A,S-F</p> <p style="margin: 0;">A</p> <p style="margin: 0;">SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.</p>

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· **TLV (Threshold Limit Value)**

None of the ingredients are listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

Not applicable

· **Signal word**

(USA EPA) WARNING

· **Hazard-determining components of labeling:**

Copper hydroxide

· **Hazard statements**

Not applicable

H332 Harmful if inhaled.

· **Precautionary statements**

May be fatal if swallowed. Causes substantial but temporary eye injury. Harmful if absorbed through skin. Harmful if inhaled. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Remove and wash contaminated clothing before reuse. Avoid contact with skin, eyes or clothing. Wear long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves (such as Natural Rubber, Selection Category A). Avoid breathing dust.

P261 Avoid breathing dust.

P264 Wash thoroughly after handling.

P280 Wear protective gloves / eye protection / face protection.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

Notice: The information and recommendations contained herein are provided in good faith and are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information herein.

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Systems Design and Control

· **Contact:** sds@gowanco.com

· **Date of preparation / last revision** 11/02/2022

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

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*NFPA: National Fire Protection Association (USA)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**NIOSH: National Institute for Occupational Safety**OSHA: Occupational Safety & Health**TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**Acute Toxicity - Oral 3: Acute toxicity – Category 3**Acute Toxicity - Oral 4: Acute toxicity – Category 4**Acute Toxicity - Inhalation 2: Acute toxicity – Category 2**Eye Damage 1: Serious eye damage/eye irritation – Category 1**· Sources Badge® is a registered trademark of Gowan Company, L.L.C.*

US