Canada Colors and Chemicals Limited

152 Kennedy Road South
Brampton, Ontario
Canada
L6W 3G4

General Inquiry Number: (905) 459-1232

Material Safety Data Sheet Attached
1. IDENTIFICATION

Product Name: BELCLENE 400
Chemical Name: Phosphinocarboxylic acid
Product No.: 100185, 100186, 100187, 100188, 100759, 100766, 100769, 101259, 101296, 101443
Identification No.: 3265
Identified uses: Scale/deposit control additive
Supplier: BWA Water Additives US LLC
1979 Lakeside Parkway
Suite 925, Tucker, GA30084
USA
T: +1 800 600 4523
T: +1 678 802 3050
E: msds@wateradditives.com
CHEMTREC Phone: 1-800-424-9300

Emergency Telephone

2. HAZARD(S) IDENTIFICATION

Appearance: Liquid
Color: Pale Yellow
Odor: Slight odor.

GHS Pictogram

Signal Word: Warning

Hazard Statements
H290 May be corrosive to metals.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements
P234 Keep only in original container.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P313 Get medical advice/attention.
P390 Absorb spillage to prevent material damage.

GHS Classification
Physical and Chemical Hazards
Human health
Eye Irrit. 2 - H319
Environment
Aquatic Chronic 3 - H412

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM - WHMIS

WHMIS Label
Controlled Product Classification
Canadian WHMIS Classification D2B E

Inhalation
May cause irritation to the respiratory system.

Ingestion
May cause discomfort if swallowed. May cause stomach pain or vomiting.

Skin Contact
Non Irritant. Not a skin sensitizer.

Eye Contact
Irritating to eyes.

Health Warnings
No specific health warnings noted.

Route Of Entry
Skin and/or eye contact. Ingestion. Inhalation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>PHOSPHINOCARBOXYLIC ACID</th>
<th>30-60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS No.: 110224-99-2</td>
<td></td>
</tr>
<tr>
<td>EC No.:</td>
<td></td>
</tr>
</tbody>
</table>

GHS Classification
Met. Corr. 1 - H290; Eye Irrit. 2 - H319; Aquatic Chronic 3 - H412

Composition Comments
Aqueous solution of phosphinocarboxylic acid

4. FIRST-AID MEASURES

Description of first aid measures

Inhalation
Provide fresh air, warmth and rest, preferably in a comfortable upright sitting position. Get medical attention if any discomfort continues.

Ingestion
DO NOT INDUCE VOMITING! Rinse mouth thoroughly. Get medical attention.

Skin Contact
Immediately remove contaminated clothing. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes. Get medical attention if irritation persists after washing.

Eye Contact
Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids widely. If irritation persists: Seek medical attention and bring these instructions.

Most important symptoms and effects, both acute and delayed

Inhalation
No specific symptoms noted. Irritation of nose, throat and airway.

Ingestion
May cause stomach pain or vomiting.

Skin Contact
May cause skin irritation/eczema. Prolonged skin contact may cause redness and irritation.

Eye Contact
Irritation of eyes and mucous membranes. Profuse watering of the eyes.

Indication of any immediate medical attention and special treatment needed

Notes To The Physician
Treat Symptomatically.
5. FIRE-FIGHTING MEASURES

Auto Ignition Temperature (°C)
Not applicable.

Flammability Limit - Lower(%)  
Not applicable.

Flammability Limit - Upper(%)  
Not applicable.

Flash point (°C)  
Not applicable.

Extinguishing Media
The product is non-combustible. Use: Water spray, fog or mist. Foam, carbon dioxide or dry powder.

Unusual Fire & Explosion Hazards  
No unusual fire or explosion hazards noted.

Specific Hazards

Special Fire Fighting Procedures
Move container from fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Keep run-off water out of sewers and water sources. Dike for water control.

Protective Equipment For Fire-Fighters
Leave danger zone immediately. Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Follow precautions for safe handling described in this material safety data sheet. For personal protection, see section 8.

Environmental Precautions
Avoid release to the environment. To prevent release, place container with damaged side up.

Spill Clean Up Methods
Should be prevented from entering drains. Absorb in vermiculite, dry sand or earth and place into containers. Collect and reclaim or dispose in sealed containers in licensed waste. Containers with collected spillage must be properly labelled with correct contents and hazard symbol.

Reference to other sections
For waste disposal, see section 13.

7. HANDLING AND STORAGE

Handling
Avoid spilling, skin and eye contact. Observe good chemical hygiene practices.

Storage
Store in tightly closed original container in a dry and cool place. Store at temperature below 50°C. Do not store for extended periods below freezing point or in direct sunlight. IF FROZEN: once fully thawed, agitate container vigorously to ensure the product is homogeneous. Store separated from: Alkalis. Reducing Agents. Oxidizing material. Do NOT use container made of: Carbon steel.

Storage Class
Corrosive storage.

Specific end use(s)
The identified uses for this product are detailed in Section 1.2.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective Equipment

Process Conditions
Provide eyewash station.
BELCLENE 400

Engineering Measures
Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors.

Respiratory Equipment
No specific recommendation made, but respiratory protection must be used if the general level exceeds the Recommended Occupational Exposure Limit.

Hand Protection
Selection of a suitable glove depends on work conditions and whether the product is present on its own or in combination with other substances. Use protective gloves made of: Neoprene, nitrile, polyethylene or PVC. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Eye Protection
Wear approved safety goggles.

Other Protection
Wear appropriate clothing to prevent repeated or prolonged skin contact.

Hygiene Measures
No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals.

Skin Protection
Wear apron or protective clothing in case of splashes.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Pale Yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight odor.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Miscible with water</td>
</tr>
<tr>
<td>Initial boiling point and boiling range (°C)</td>
<td>103 - 105 @ 760 mm Hg</td>
</tr>
<tr>
<td>Melting point (°C)</td>
<td>-6 to -10</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.22 - 1.26 @ 20 °C</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH-Value, Conc. Solution</td>
<td>2-3</td>
</tr>
<tr>
<td>Viscosity</td>
<td>100 - 330 cSt @ 25 ºC</td>
</tr>
<tr>
<td>Decomposition temperature (°C)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odour Threshold, Lower</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odour Threshold, Upper</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flash point (°C)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Auto Ignition Temperature (°C)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Flammability Limit - Lower(%)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Flammability Limit - Upper(%)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Partition Coefficient (N-Octanol/Water)</td>
<td>log Pow &lt; 0</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Does not meet the criteria for oxidising.</td>
</tr>
<tr>
<td></td>
<td>Not available.</td>
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10. STABILITY AND REACTIVITY

Reactivity
Reacts with alkalis and generates heat.

Stability
Stable under normal temperature conditions and recommended use.
BELCLENE 400

Hazardous Polymerisation
Will not polymerise.

Conditions To Avoid
Avoid excessive heat for prolonged periods of time.

Materials To Avoid

Hazardous Decomposition Products

11. TOXICOLOGICAL INFORMATION

Acute toxicity:
Acute Toxicity (Oral LD50)
> 10000 mg/kg Rat

12. ECOLOGICAL INFORMATION

Ecotoxicity
The product contains a substance which is harmful to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

Acute Toxicity - Fish
LC50 96 hours > 100 mg/l

Acute Toxicity - Aquatic Invertebrates
EC50 48 hours > 1000 mg/l Daphnia magna

Acute Toxicity - Aquatic Plants
IC50 72 hours < 100 mg/l Marinelwater algae

Degradability
The product is not readily biodegradable.

Bioaccumulative potential
The product does not contain any substances expected to be bio-accumulating.

Partition coefficient
log Pow < 0

Mobility:
The product is miscible with water. May spread in water systems.

Results of PBT and vPvB assessment
Not Classified as PBT/vPvB by current EU criteria.

Chemical Oxygen Demand, Cod
328 g O2/l

13. DISPOSAL CONSIDERATIONS

Waste Management
When handling waste, consideration should be made to the safety precautions applying to handling of the product.

Disposal Methods
Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point. Liquid material should be incinerated. Material absorbed onto sand or earth should be disposed of as solid waste in accordance with local regulations. Empty packaging may contain product residues and due consideration should be given prior to disposal.

14. TRANSPORT INFORMATION

UN No. (DOT/TDG) 3265
UN No. (IMDG) 3265
UN No. (ICAO) 3265

DOT Proper Shipping Name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Contains phosphinocarboxylic acid)

TDG Proper Shipping Name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Contains phosphinocarboxylic acid)

DOT Hazard Class 8
# BELCLENE 400

## DOT Hazard Label

Corrosive

<table>
<thead>
<tr>
<th>TDG Class</th>
<th>IMDG Class</th>
<th>ICAO Class</th>
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<tbody>
<tr>
<td>8</td>
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## Transport Labels

![Corrosive Label](image)

## DOT Pack Group

<table>
<thead>
<tr>
<th>IMDG Pack Group</th>
<th>Air Pack Group</th>
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<tbody>
<tr>
<td>III</td>
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</table>

## Environmentally Hazardous Substance/Marine Pollutant No.

## IMDG Code Segregation Group

1. Acids.

## EMS

F-A, S-B

## Classification Code (Adr)

C3

## 15. REGULATORY INFORMATION

### Regulatory Status (US)

SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372. PROPOSITION 65: This product does not contain chemicals considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity and for which warnings are now required. TSCA: The ingredients of this product are on the TSCA Inventory.

### Regulatory References


### US Federal Regulations

**SARA 313 Emission Reporting**

None of the ingredients are listed.

### US State Regulations

**California Proposition 65 Carcinogens and Reproductive Toxins**

None of the ingredients are listed.

**Massachusetts "Right To Know" List**

None of the ingredients are listed.

**Rhode Island "Right To Know" List**

None of the ingredients are listed.

**Minnesota "Right To Know" List**

None of the ingredients are listed.

**New Jersey "Right To Know" List**

None of the ingredients are listed.

**Pennsylvania "Right To Know" List**

None of the ingredients are listed.

### International Inventories

**EU - EINECS/ELINCS**

All ingredients are listed or exempt.

**Canada – DSL/NDSL**

All ingredients are listed or exempt.
BELCLENE 400

US - TSCA
All ingredients are listed or exempt.

Australia - AICS
All ingredients are listed or exempt.

Japan – MITI
All ingredients are listed or exempt.

Korea - KECI
All ingredients are listed or exempt.

China - IECSC
All ingredients are listed or exempt.

Philippines – PICCS
All ingredients are listed or exempt.

16. OTHER INFORMATION

HAZARDOUS MATERIAL INFORMATION SYSTEM (HMIS)

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>HEALTH</td>
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<tr>
<td>FLAMMABILITY</td>
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<tr>
<td>PHYSICAL</td>
<td>0</td>
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<tr>
<td>PERSONAL PROTECTION</td>
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</table>

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

General Information
Classified as corrosive class 8 for transportation on the basis of its effect on mild steel and/or aluminium.
For advice on chemical emergencies, spillages, fires or first aid in relation to this product please contact the relevant emergency number below:
EU/English Speakers - +44 (0) 1235 239 670 (NCEC)
Arabic Speakers - +44 (0) 1235 239 671
Asia/Pacific countries - +65 3158 1074
Within Mainland China: +86 532 8388 9090 (NRCC).
To/From China: +86 10 5100 3039 (NCEC)

Revision Comments
Conversion to GHS (HCS 2012 / WHMIS 2015)

Issued By        BWA Water Additives Regulatory Group, +44(0)1618646699
Revision Date    3rd March, 2015
Revision         5
Sds No.           10271

Disclaimer
For safety reasons it is IMPERATIVE that customers:-

1. Ensure that all those within their control who use the products are supplied with all relevant information contained within the Safety Data Sheet and Technical Bulletin concerning the applications for which the product is designed and any instructions and warnings contained therein.

2. Consult BWA Water Additives before using or supplying the product for any other applications. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.