SAFETY DATA SHEET

1. Identification

Product identifier CIRCLESAFE® 820A
Other means of identification Not available.
Recommended use Non-destructive testing.
Recommended restrictions None known.
Manufacturer / Importer / Supplier / Distributor information
Company name Circle Systems, Inc.
Address 1210 Osborne Road
Saint Marys, GA 31558
Telephone 912-729-2735
E-mail customerservice@circlesafe.com
Emergency phone number Chem-tel 800-255-3924 (US & Canada); +1-813-248-0585 (International)

2. Hazard(s) identification

Physical hazards Gases under pressure Compressed gas
Health hazards Reproductive toxicity Category 1B
OSHA defined hazards Not classified.
Label elements

Signal word Danger
Hazard statement Contains gas under pressure; may explode if heated. May damage fertility or the unborn child.
Precautionary statement
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. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Storage Store locked up. Protect from sunlight. Store in a well-ventilated place.
Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC) Not classified.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boric Acid</td>
<td>10043-35-3</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td>124-38-9</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Iron Oxide</td>
<td>1317-61-9</td>
<td>&lt;5</td>
</tr>
</tbody>
</table>

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion

Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn’t get into the lungs. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

High concentrations: Inhalation of propellant may cause respiratory irritation, dizziness, nausea, or drowsiness.

Indication of immediate medical attention and special treatment needed

Treat symptomatically. Symptoms may be delayed.

General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If exposed or concerned: Get medical advice/attention.

5. Fire-fighting measures

Suitable extinguishing media

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

Pressurized container may explode when exposed to heat or flame. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions

Containers should be cooled with water to prevent vapor pressure build up.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. The product is immiscible with water and will spread on the water surface. Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Use water spray to reduce vapors or divert vapor cloud drift. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.

Environmental precautions

Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling

Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Ground and bond containers when transferring material. Avoid inhalation of aerosols. Use only in well-ventilated areas. Do not re-use empty containers.

Conditions for safe storage, including any incompatibilities

Level 1 Aerosol.

Contents under pressure. Do not handle or store near an open flame, heat or other sources of ignition. Do not expose to heat or store at temperatures above 120°F/49°C as can may burst. Protect from direct sunlight. Do not puncture, incinerate or crush. Store away from incompatible materials (see Section 10 of the SDS).
8. Exposure controls/personal protection

### Occupational exposure limits

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

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide (CAS 124-38-9)</td>
<td>PEL</td>
<td>5000 ppm</td>
</tr>
</tbody>
</table>

**US ACGIH Threshold Limit Values**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boric acid (CAS 10043-35-3)</td>
<td>STEL</td>
<td>6 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>2 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Carbon dioxide (CAS 124-38-9)</td>
<td>STEL</td>
<td>30000 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>5000 ppm</td>
<td></td>
</tr>
</tbody>
</table>

US NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide (CAS 124-38-9)</td>
<td>STEL</td>
<td>54000 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30000 ppm</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>9000 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5000 ppm</td>
</tr>
</tbody>
</table>

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Wear safety glasses with side shields (or goggles).

**Skin protection**

**Hand protection**

Wear protective gloves.

**Other**

Wear suitable protective clothing.

**Respiratory protection**

If permissible levels are exceeded use NIOSH mechanical filter / organic vapor cartridge or an air-supplied respirator.

**Thermal hazards**

Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**

When using, do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

**Appearance**

**Physical state**

Liquid.

**Form**

Aerosol.

**Color**

Black.

**Odor**

Detergent like.

**Odor threshold**

Not available.

**pH**

8-10

**Melting point/freezing point**

Not available.

**Initial boiling point and boiling range**

Not available.

**Flash point**

Not available.

**Evaporation rate**

Not available.

**Flammability (solid, gas)**

Not relevant.
Upper/lower flammability or explosive limits

Flammability limit – lower (%) Not available.
Flammability limit – upper (%) Not available.
Explosive limit – lower (%) Not relevant.
Explosive limit – upper (%) Not relevant.

Vapor pressure Not available.
Vapor density Not available.
Specific gravity 1
Specific gravity temperature 68°F (20°C)

Solubility(ies)
Solubility (water) Soluble.
Partition coefficient (n-octanol/water) Not available.
Auto-ignition temperature Not relevant.
Decomposition temperature Not relevant.
Viscosity Not available.

Other information
VOC (Weight %) Not applicable.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability Stable under normal temperature conditions.
Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.
Conditions to avoid Heat, flames and sparks. Contact with incompatible materials.
Incompatible materials Strong oxidizing agents.
Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion Expected to be a low ingestion hazard.
Inhalation May cause irritation to the respiratory system.
Skin contact May cause skin irritation.
Eye contact May cause eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics
High concentrations: Inhalation of propellant may cause respiratory irritation, dizziness, nausea, or drowsiness.

Information on toxicological effects

Acute toxicity Expected to be a low hazard for usual industrial or commercial handling by trained personnel.

Components Species Test Results

Boric acid (CAS 10043-35-3)

Acute Dermal
LD50 Rabbit > 2000 mg/kg
Oral
LD50 Rat 2660 mg/kg

Butendioic acid, sulfo-1,4-bis(2-ethylhexyl) ester sodium salt (CAS 577-11-7)

Acute Oral
LD50 Mouse 2.64 g/kg
<table>
<thead>
<tr>
<th><strong>Skin corrosion/irritation</strong></th>
<th>Prolonged skin contact may cause temporary irritation.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Serious eye damage/eye irritation</strong></td>
<td>Direct contact with eyes may cause temporary irritation.</td>
</tr>
<tr>
<td><strong>Respiratory sensitization</strong></td>
<td>Not a respiratory sensitizer.</td>
</tr>
<tr>
<td><strong>Skin sensitization</strong></td>
<td>This product is not expected to cause skin sensitization.</td>
</tr>
<tr>
<td><strong>Germ cell mutagenicity</strong></td>
<td>No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.</td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td>This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.</td>
</tr>
<tr>
<td><strong>Reproductive toxicity</strong></td>
<td>May damage fertility or the unborn child.</td>
</tr>
<tr>
<td><strong>Specific target organ toxicity – single exposure</strong></td>
<td>No data available.</td>
</tr>
<tr>
<td><strong>Specific target organ toxicity – repeated exposure</strong></td>
<td>No data available.</td>
</tr>
<tr>
<td><strong>Aspiration hazard</strong></td>
<td>No data available.</td>
</tr>
<tr>
<td><strong>Chronic effects</strong></td>
<td>Prolonged inhalation may be harmful.</td>
</tr>
</tbody>
</table>

12. **Ecological information**

| **Ecotoxicity** | Not expected to be harmful to aquatic organisms. |
| **Persistence and degradability** | No data is available on the degradability of this product. |
| **Bioaccumulative potential** | No data available for this product. |
| **Mobility in soil** | Not available. |
| **Other adverse effects** | No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component. |

13. **Disposal considerations**

| Disposal instructions | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Waste from residues / unused products | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). |

14. **Transport information**

**DOT**

| UN number | UN1950 |
| UN proper shipping name | Aerosols |
| Transport hazard class(es) | 2.2 |
| Subsidiary classes | - |
| Label(s) | Limited Quantity, Class 2.2 |
| Packing group | Y203 |
| Special precautions for user | Read safety instructions, SDS and emergency procedures before handling. |
| Packaging exceptions | 306 |
| Packaging non bulk | None. |
| Packaging bulk | None. |

**IATA**

| UN number | UN1950 |
| UN proper shipping name | Aerosols |
| Transport hazard class(es) | 2.2 |
| Subsidiary class(es) | - |
| Label(s) | Limited Quantity, Class 2.2 |
| Packing group | Y203 |
| Environmental hazards | No. |
| ERG Code | 10L |
| Special precautions for user | Read safety instructions, SDS and emergency procedures before handling. |
IMDG

UN number UN1950
UN proper shipping name Aerosols
Transport hazard class(es) 2.2
Subsidiary class(es) -
Label(s) Limited Quantily, Class 2.2
Packing group Y203
Environmental hazards
Marine pollutant No.
EmS Not available.
Special precautions for use Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
This substance/mixture is not intended to be transported in bulk.

15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt D)
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

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

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard Categories Immediate Hazard – No
Delayed Hazard – Yes
Fire Hazard – No
Pressure Hazard – Yes
Reactivity Hazard – No

SARA 302 Extremely hazardous substance No
SARA 311/312 Hazardous chemical Yes
SARA 313 (TRI reporting) Not regulated.

Other federal regulations
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 (SDWA) Not regulated.

US state regulations
US Massachusetts RTK - Substance List
Carbon dioxide (CAS 124-38-9)

US New Jersey Worker and Community Right-to-Know Act
Carbon dioxide (CAS 124-38-9)
Boric Acid (CAS 10043-35-3)

US Pennsylvania RTK - Hazardous Substances
Carbon dioxide (CAS 124-38-9)

US Rhode Island RTK
Not regulated.
US California Proposition 65
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not listed.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date: 29-October-2013
Revision date: 27-July-2017
Version #: 03
HMIS® ratings:
- Health: 1
- Flammability: 0
- Physical hazard: 0

NFPA Ratings

List of abbreviations
LD50: Lethal Dose, 50%.
PEL: Permissible exposure limit.
STEL: Short term exposure limit.
TWA: Time weighted average.

References
HSDB® - Hazardous Substances Data Bank

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