




## SAFETY DATA SHEET

### 1. Identification

**Product identifier** CIRCLESAFE® 850A  
**Other means of identification** None.  
**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

Chemical name	CAS number	%
Boric Acid	10043-35-3	<2
Carbon Dioxide	124-38-9	<5
Iron Oxide	1317-61-9	<5

### 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.

<b>Eye contact</b>	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.
<b>Ingestion</b>	Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention if symptoms occur.
<b>Most important symptoms/effects, acute and delayed</b>	High concentrations: Inhalation of propellant may cause respiratory irritation, dizziness, nausea, or drowsiness.
<b>Indication of immediate medical attention and special treatment needed</b>	Treat symptomatically. Symptoms may be delayed.
<b>General information</b>	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

<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	Pressurized container may explode when exposed to heat or flame. During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire-fighting equipment/instructions</b>	Containers should be cooled with water to prevent vapor pressure build up.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	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.
<b>Methods and materials for containment and cleaning up</b>	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.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so.

## 7. Handling and storage

<b>Precautions for safe handling</b>	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.
<b>Conditions for safe storage, including any incompatibilities</b>	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)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	PEL	5000 ppm

#### US ACGIH Threshold Limit Values

Components	Type	Value	Form
Boric acid (CAS 10043-35-3)	STEL	6 mg/m3	Inhalable fraction.
	TWA	2 mg/m3	Inhalable fraction.
Carbon dioxide (CAS 124-38-9)	STEL	30000 ppm	
	TWA	5000 ppm	

#### US NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	54000 mg/m3 30000 ppm
	TWA	9000 mg/m3 5000 ppm

#### 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	Red.
Odor	Slight. Detergent like.
Odor threshold	Not available.
pH	8-9
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not relevant.
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 (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)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Oral</i>		
LD50	Rat	2660 mg/kg
Butendioic acid, sulfo-1,4-bis(2-ethylhexyl) ester sodium salt (CAS 577-11-7)		
<b>Acute</b>		
<i>Oral</i>		
LD50	Mouse	2.64 g/kg
<b>Skin corrosion/irritation</b>	Prolonged skin contact may cause temporary irritation.	

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

## 12. Ecological information

<b>Ecotoxicity</b>	Not expected to be harmful to aquatic organisms.
<b>Persistence and degradability</b>	No data is available on the degradability of this product.
<b>Bioaccumulative potential</b>	No data available for this product.
<b>Mobility in soil</b>	Not available.
<b>Other adverse effects</b>	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

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Waste from residues / unused products</b>	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

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

### IATA

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

**IMDG**

**UN number** UN1950  
**UN proper shipping name** Aerosols Non-Flammable  
**Transport hazard class(es)** 2.2  
**Subsidiary class(es)** -  
**Label(s)** Limited Quantity, Class 2.2  
**Packing group** Y203  
**Environmental hazards**  
**Marine pollutant** No.  
**EmS** Not available.  
**Special precautions for user** 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**

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
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Formaldehyde	50-00-0	100	500 lbs		
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**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**

WARNING: This product does contain a chemical known to the State of California to cause cancer.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Formaldehyde (CAS 50-00-0)

**International Inventories**

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

\*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**

<b>Issue date</b>	24-October-2013
<b>Revision date</b>	31-January-2019
<b>Version #</b>	03
<b>HMIS® ratings</b>	Health: 1 Flammability: 0 Physical hazard: 0

**NFPA Ratings**

<b>List of abbreviations</b>	LD50: Lethal Dose, 50%. PEL: Permissible exposure limit. STEL: Short term exposure limit. TWA: Time weighted average.
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<b>References</b>	HSDB® - Hazardous Substances Data Bank
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