

BOWDOIN COLLEGE
Office of Environmental Health and Safety
DISCHARGED FIRE EXTINGUISHER PROCEDURES

The purpose of this procedure is to provide information to employees and students of Bowdoin College regarding the safe response to a discharged fire extinguisher in campus buildings. Fire extinguishers must only be used to fight a fire, and only if the person doing so is trained and/or is comfortable doing so. Proper use of fire extinguishers is safe; however, employees and students should be aware of these procedures to prevent the risk of injury. The office of Environmental Health and Safety (EHS) provides periodic fire extinguisher training.

Intentional discharge of a fire extinguisher for reasons other than fighting a fire may result in disciplinary action, fines, and reimbursement to the College for clean-up costs.

Hazard Assessment. The following types of fire extinguishers are found at Bowdoin College, and are used for specific fire classes as outlined below. A safety data sheet (SDS) is attached for each.

Class ABC Dry Chemical multipurpose (paper, combustible liquids, and electrical fires) fire extinguishers contains ammonium phosphate, a caustic powder that can cause physical injury by contact or inhalation, and potentially damage sensitive materials such as electronics. These are the most commonly found fire extinguishers found throughout campus buildings.

Class K Wet Chemical fire extinguishers and hood suppression systems (kitchen grease and oil fires) contain potassium acetate and potassium citrate, a respiratory system, eye, and skin irritant that may cause coughing, sore throat, difficulty breathing, eye pain, and skin redness.

Clean Agent suppression and fire extinguishers are highly effective in extinguishing fires without the production of residues that could damage valuable assets such as computer/server equipment, valuable library or museum artifacts. There are several types of clean agent extinguishers in use on campus including:

- FM-200- Containing 1,1,1,2,3,3,3-heptafluoropropane, a liquefied, compressed gas pressurized with nitrogen that stops the spread of fire by chemically disrupting combustion. Heptafluoropropane is reported to have low toxicity to human health once dissipated. A copy of the SDS is attached for reference.
- Halotron I- Containing a blend of HCFC-123 and two gases. It is discharged as a rapidly evaporating liquid that interrupts the chemical chain reaction and fools fuel to extinguish a fire. This leaves no residue after application.
- Carbon Dioxide- Contains carbon dioxide gas that displaces the oxygen and cools the fuel to extinguish the fire.

Class D Dry Powder extinguisher used for metal fires. These are located in science labs where reactive metals are used. This extinguisher contains granular sodium chloride that is used to smother the fuel metal and eliminate oxygen to extinguish the fire.

Notifications. Notify the Security Communications Center immediately following the discharge of fire extinguishing agent. Upon notification of a discharge, the Communications Center will contact the following personnel:

- In all cases: Director of Environmental Health and Safety
Associate VP for Facilities & Capital Projects
Work Order Controller
- If in a student residence: Director of Residential Life, or the Dean on-call if after hours
- If in the science center: Manager of the Bowdoin Science Center and Laboratory Safety
- If in a server room: Director of IT Services
- If in a commercial kitchen: Director of Dining Services

Response Actions. Following the discharge of a fire extinguisher:

- Leave the immediate area, close doors on the way out, and notify the Security Communications Center at 207-725-3500/x3500.
- If the distribution of the discharge is significant and particularly if it is airborne, personnel at the scene or the arriving Security Officer should pull the fire alarm, evacuate the building, and contact the Brunswick Fire Department.
- If the discharge is limited in extent and not significantly airborne, secure the immediate area to prevent further spread until professional cleaning has been completed.
- Persons who may have been impacted by the discharge shall be assessed for injuries, particularly to the eyes or respiratory system. EMS shall be contacted for persons that require medical attention.
- The College’s environmental cleaning contractors ServPro or Environmental Projects, Incorporated (EPI) shall be contacted to initiate clean-up. Emergency clean up contact information is provided in the Distribution and Contact Information section below. *College personnel (i.e., housekeeping) are not trained or equipped to handle clean-up of discharged fire extinguisher chemical agents.*
- Personal affects, particularly electronics, may be collected for individual cleaning once the area of the discharge has been addressed. Damages should be reported to the College.

Precautions. No one shall enter areas where fire extinguishers have been discharged. If necessary, the appropriate PPE must be worn, including but not limited to nitrile gloves, safety glasses, and shoe covers. Efforts must be made to limit tracking fire extinguishing agents to locations outside of the discharged area. If the area must be traversed in an emergency, without PPE, best efforts should be made not to inhale or disturb the agents. PPE is available at the Bowdoin warehouse during standard business hours, or from the Safety Station in Rhodes Hall, adjacent to the Office of EHS, if after hours.

Incident Follow-up Actions.

- In instances involving a cooking fire the appliance will need to be inspected to determine if it is still safe for use. Work Order Controller will issue a work order to the Electric Shop to complete the inspection and report back to EHS whether replacement will occur or clean-up is necessary.
- EHS will coordinate clean-up if necessary and communicate to the affected parties when an impacted appliance is safe to use.
- Work Order Controller will issue a work order to the Mechanical Services Shop to replace discharged fire extinguisher.

Distribution and Contact Information

Workorder Controller		207-725-3333
Charly Wojtysiak	Director of Environmental Health and Safety	207-725-3763
Emil Cuevas	Associate VP for Facilities & Capital Projects	207-725-3413
Lisa Rendall	Director of Housing Operations	207-725-3589
Rene Bernier	Manager of the Bowdoin Science Center and Laboratory Safety	207-725-3162
Steve Blanc	VP & Assoc. Chief Information Officer	207-725-3471
Ryan Miller	Executive Director of Dining	207-725-3208
Randy Nichols	Director of Safety and Security	207-725-3474
Brian Rapoza	ServPro	207-721-8500
EPI-Emergency	Environmental Contractors (24 hr response)	877-846-0447

Attachment

- SDS, Amerex Class ABC Dry Chemical Extinguisher Agent
- SDS, Amerex Class K Wet Chemical Extinguisher Agent
- SDS, Amerex FM-200 Pressurized Fire Extinguisher Agent
- SDS, Amerex Super D Dry Powder Extinguisher Agent
- SDS, Amerex Halotron I Clean Chemical Extinguisher Agent
- SDS, Amerex Carbon Dioxide Clean Agent Extinguisher Agent

Revisions: 7/7/2021



SAFETY DATA SHEET

Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: ABC Dry Chemical Fire Extinguishant-
(Pressurized and Non-pressurized)
Other Identifiers: Multi-purpose Dry Chemical
Product Code(s): CH550, F15, F18
Model Code(s) for Extinguishers: 411, 417, 419, 423, 424, 425, 441, 443, 450, 456,
461, 464, 467, 470, 473, 476, 481, 487, 488, 491,
495, 500, 564, 567, 573, 581, 589, 592, 594, 668,
692, 713, 714, 715, 720, 756, 760, 763, 781, 790,
791, 792.
Recommended Use: Fire suppression, not for human
or animal drug use.
Manufacturer: AMEREX CORPORATION
Internet Address: www.amerex-fire.com
Address: 7595 Gadsden Highway, P.O. Box 81
Trussville, AL 35173-0081
Company Telephone: (205) 655-3271
E-mail Address: info@amerex-fire.com
Emergency Contacts: Chemtrec 1(800) 424-9300 or
(703) 527-3887
Revised: July 8, 2020; Revision B

Section 2. HAZARDS IDENTIFICATION

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: Category 5	None	None
Skin Corrosion/Irritation: Category 3	None	None
Skin Sensitization: NO	None	None
Eye: Category 2A	None	Warning
STOT –Category 3	None	Warning
Carcinogen: Category None	None	None

GHS – Label Symbol(s):



If Pressurized: Gas Under Pressure



GHS – Signal Word(s):

Warning

Other Hazards Not Resulting in Classification: Mica may contain small quantities of quartz (crystalline silica). Prolonged exposure to respirable crystalline silica dust at concentrations exceeding the occupational exposure limits may increase the risk of developing a disabling lung disease known as silicosis. IARC found limited evidence for pulmonary carcinogenicity of crystalline silica in humans. In the case of normal use of this product, exposure to silica should be nil.

The attapulgite clay used in this product has a fiber length of less than 5µm; therefore, the clay is not considered to be carcinogenic to animals or humans.

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	H229	*- Contents under pressure; may explode if heated.
Health	303	May be harmful if swallowed.
	315	Causes skin irritation.
	319	Causes serious eye irritation.
	335	May cause respiratory irritation.
Environmental	411	Toxic to aquatic life with long-lasting effects.
Precautionary:		
General	P101	If medical advice is needed, have product container or label at hand.
Prevention	P251	Do not pierce or burn, even after use. [As modified by IV ATP]
	261	Avoid breathing dust/fumes/gas/mist/vapours/spray. [As modified by IV ATP]
	264	Wash ... thoroughly after handling.
	270	Do not eat, drink or smoke when using this product.
	273	Avoid release to the environment.
	280	Wear protective gloves/protective clothing/eye protection/face protection.
Response	P312	Call a POISON CENTER/doctor/.../if you feel unwell [As modified by IV ATP]
	321	Specific treatment (see... on this label)
	362	Take off contaminated clothing. [As modified by IV ATP]
	391	Collect spillage.
	301+312	IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell
	302+352	IF ON SKIN: Wash with plenty of water/...[As modified by IV ATP]
	304+340	IF INHALED, remove person to fresh air and keep comfortable for breathing.
	305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
	332+313	If skin irritation occurs: Get medical advice/attention.
342+313	If experiencing respiratory symptoms, call a doctor.	
337+313	If eye irritation persists, get medical advice/attention.	
Storage	P410+403	*- Protect from sunlight. Store in well-ventilated place.
Disposal	P501	Dispose of contents/container to ... [... in accordance with local/regional/national/international regulation (to be specified)].

*- If under pressure

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %
Mono-ammonium phosphate	231-764-5	01-2119488166-29	7722-76-1	55-77
Ammonium sulfate	231-984-1	01-2119455044-46	7783-20-2	15-45
Attapulgite clay	601-805-5	Not Available	12174-11-7	3-8
Mica-potassium aluminum silicate	310-1276	Not Available	12001-26-2	<1
Silicone oil methyl hydrogen polysiloxane	613-152-3	Not Available	63148-57-2	<1
Calcium carbonate	207-439-9	Not Available	1317-65-3	<1
Amorphous silica precipitated synthetic zeoliteghs	231-545-4	01-2119379499-16-0036	7631-86-9	<1
Yellow 14 pigment – diazo dye	226-789-3	Not Available	5468-75-7	<1

Adverse health effects and symptoms:

Irritant to the respiratory system; Irritating to eyes and skin. Symptoms may include coughing, shortness of breath, and irritation of the lungs, eyes, and skin. Ingestion, although unlikely, may cause cramps, nausea and diarrhea.

Section 4. FIRST AID MEASURES

Eye Exposure:

May cause irritation. Irrigate eyes with water and repeat until pain free. Seek medical attention if irritation develops, or if vision changes occur.

Skin Exposure:

May cause skin irritation. In case of contact, wash with plenty of soap and water. Seek medical attention if irritation persists.

Inhalation:

May cause irritation, along with coughing. If respiratory irritation or distress occurs, remove victim to fresh air. Give oxygen and artificial respiration if needed. Seek medical attention if irritation persists.

Ingestion:

Overdose symptoms may include numbness or tingling in hands or feet, uneven heart rate, paralysis, feeling faint, chest pain or heavy feeling, pain spreading to the arm or shoulder, nausea, diarrhea, sweating, general ill feeling, or seizure (convulsions). If victim is conscious and alert, give 2-3 glasses of water to drink. If conscious, do not induce vomiting. Seek immediate medical attention. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist.

Medical conditions possibly aggravated by exposure:

Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema, or bronchitis. Skin contact may aggravate existing skin disease. Chronic overexposure may cause pneumoconiosis ("dusty lung" disease).

Section 5. FIRE-FIGHTING MEASURES

Flammable Properties:

Not flammable

Flash Point:

Not determined

Suitable Extinguishing Media:

Non-combustible. Use extinguishing media suitable for surrounding conditions.

Hazardous Combustion Products:

Carbon and sulfur oxides

Explosion Data:

Sensitivity to Mechanical Impact:

Not sensitive

Sensitivity to Static Discharge:

Not sensitive

Unusual fire/explosion hazards:

In a fire this material may decompose, releasing toxic and irritating oxides of carbon, sulfur, potassium, ammonia and nitrogen (see Section 10).

Protective Equipment and

Precautions for Firefighters:

As in any fire, wear self-contained breathing apparatus in pressure-demand, NIOSH approved or equivalent and full protective gear.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Avoid inhalation, and contact with skin, eyes, and clothing.

Personal Protective Equipment:

Minimum - safety glasses, gloves, and a dust respirator.

Emergency Procedures:

NA

Methods for Containment:

Prevent further leakage or spillage if safe to do so.

Methods for Clean Up:

Avoid dust formation. Clean up released material using vacuum or wet sweep and shovel to minimize generation of dust. Bag and transfer to properly labeled containers. Ventilate area and wash spill site after material pickup is complete.

Environmental Precautions:

Prevent material from entering waterways.

Other:

If product is contaminated, use PPE and containment appropriate to the nature of the most toxic chemical/material in the mixture.

Section 7. HANDLING AND STORAGE

Personal Precautions:

Use appropriate PPE when handling or maintaining equipment and wash thoroughly after handling (see Section 8).

Conditions for Safe Storage/Handling:

Keep product in original container or extinguisher. Contents may be under pressure – inspect extinguisher consistent with product labeling to ensure container integrity.

Incompatible Products:

Do not mix with other extinguishing agents, particularly potassium bicarbonate and sodium bicarbonate. Incompatible with strong oxidizing agents and strong acids. Do not store in high humidity. Do not combine with chlorine compounds.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV	DFG MAK *	EU BLV
Mono-ammonium phosphate	PNOC** Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC** Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC** Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	NA
Ammonium Sulfate	PNOC** Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC** Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC** Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	NA
Mica	PNOC** Total dust, 15 mg/m ³ 50 ug/m ³ Silica	PNOC** Total dust, 15 mg/m ³ 25 ug/m ³ Silica	PNOC** Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	NA
Attapulgite Clay	PNOC** Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC** Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	
Silicone oil	NR**	NR**	NR**	NA
Calcium carbonate	PNOC** Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC** Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	-----	NA
Amorphous silica	80 mg/m ³ % silica	10 mg/m ³	4 mg/m ³	NA
Yellow 14 pigment	NR	NR	NR	NA

*German regulatory limits **PNOC = Particulates not otherwise classified (ACGIH) also known as Particulates not otherwise regulated (OSHA) *** NR = Not Regulated. All values are 8 hour time weighted average concentrations.

Engineering Controls:

Showers
Eyewash stations
Ventilation systems

Personal Protective Equipment – PPE Code E:

The need for respiratory protection is not probable during short-term exposure. PPE use during production process must be independently evaluated.



Eye/Face Protection:
Skin and Body Protection:
Respiratory Protection:

Tightly fitting safety goggles
Wear protective gloves/coveralls
If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn. Use P100 respirators for limited exposure, use air-purifying respirator (APR) with high efficiency particulate air (HEPA) filters for prolonged exposure. Positive pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current safety and health requirements. The need for respiratory protection is not likely for short-term use in well ventilated areas. Good personal hygiene practice is essential, such as avoiding food, tobacco products, or other hand-to-mouth contact when handling. Wash thoroughly after handling.

Hygiene Measures:

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light yellow powder, finely divided odorless solid
Molecular Weight:	NH ₄ H ₂ PO ₄ : 115.03; (NH ₄) ₂ SO ₄ : 132.14
Odor:	Odorless
Odor Threshold:	No information available
Decomposition Temperature °C:	100 - 120

Freezing Point °C:	No information available
Initial Boiling Point °C:	No information available
Physical State:	Crystalline Powder
pH:	Mixture approximately 4 to 5; NH ₄ H ₂ PO ₄ : 4.2 in 0.2 molar solution; (NH ₄) ₂ SO ₄ : 5.5 in 0.1 molar solution
Flash Point °C:	None
Auto-ignition Temperature °C:	None
Boiling Point/Range °C:	No information available
Melting Point/Range °C:	NH ₄ H ₂ PO ₄ : 190; (NH ₄) ₂ SO ₄ : 280
Flammability:	Not Flammable
Flammability/Explosive Limits in Air °C:	Upper – No; Lower-No
Explosive Properties:	None
Oxidizing Properties:	None
Volatile Component (%vol)	Not Applicable
Evaporation Rate:	No information available
Vapor Density:	No information available
Vapor Pressure at 25 °C:	NH ₄ H ₂ PO ₄ : 1.41 mm/Hg; (NH ₄) ₂ SO ₄ : 2.573 kPa
Specific gravity at 25 °C:	NH ₄ H ₂ PO ₄ : 1.80; (NH ₄) ₂ SO ₄ : 1.77
Solubility:	Coated-Not Immediately Soluble in Water
Partition Coefficient:	NH ₄ H ₂ PO ₄ Est: -4.11; (NH ₄) ₂ SO ₄ : Est: -0.48
Viscosity:	No information available

NOTE: NH₄H₂PO₄ – Monoammonium Phosphate; (NH₄)₂SO₄: – Ammonium Sulfate

Section 10. STABILITY AND REACTIVITY

Stability:	Stable under recommended storage and handling conditions.
Reactivity:	No reactivity for these chemicals is expected.
Incompatibles:	Strong alkalis (bases), magnesium, strong oxidizers, isocyanuric acids and chlorine compounds.
Conditions to Avoid:	Storage or handling near incompatibles.
Hazardous Decomposition Products:	Heat of fire may release carbon monoxide, carbon dioxide, and sulfur dioxide. Also, ammonia, oxides of phosphorous and nitrogen oxides may be released during decomposition.
Possibility of Hazardous Reactions:	Slight
Hazardous Polymerization	Does not occur

Section 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Inhalation, skin, and eye contact.
Symptoms:	
Immediate:	
Inhalation:	Irritation, coughing.
Eyes:	Irritation.
Skin:	Irritation.
Delayed:	Symptoms appear to be relatively immediate
Acute Toxicity:	Relatively non-toxic.
Chronic Toxicity:	
Short-term Exposure:	None known.
Long-term Exposure:	As with all dusts, pneumoconiosis, or "dusty lung" disease, may result from chronic exposure.

Acute Toxicity Values - Health

Chemical Name	LD50		LC50 (Inhalation)
	Oral	Dermal	
Mono-ammonium phosphate	5750 mg/kg (rat)	>7940 mg/kg (rabbit)	Not available
Ammonium Sulfate	2840 mg/kg (rat)	>2000 mg/kg (rat)	>1000 mg/m ³ (rat)
Mica	None	None	None
Attapulgate clay	None	None	None
Silicone oil	None	None	None
Calcium carbonate	6450 mg/kg (rat)	500 mg/24 hr (rabbit)	Not available
Amorphous silica	>5000 mg/kg (rat)	>2000 mg/kg (rabbit)	>2.2 mg/L (rat)
Yellow 14 pigment	>17000 mg/kg (rat)	>3000 mg/kg (rat)	>4448 mg/m ³ (rat)

Reproductive Toxicity:	This product's ingredients are not known to have reproductive or teratogenic effects.
Target Organs and Effects (TOST):	Respiratory system irritant). This product is a mild irritant to epithelial tissue, (eyes, mucous membranes, skin) and may aggravate dermatitis. No information was found indicating the product causes sensitization.

Other Toxicity Categories

Chemical Name	Germ Cell Mutagenicity	Carcinogenicity	Reproductive	TOST Single Exp	TOST Repeated Exp	Aspiration
Mono-ammonium phosphate	None	None	None	Cat 3	None	None
Ammonium Sulfate	None	None	None	Cat 3	None	None
Attapulgate clay	None	None	None	None	Kidney	None
Mica	None	None	None	None	None	None
Silicone oil	None	None	None	None	None	None
Calcium carbonate	None	None	None	None	None	None
Amorphous silica	None	None	None	None	None	None
Yellow 14 pigment	None	None	None	None	None	None

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity:	Harmful effects to aquatic organisms after long-term exposure. Provides nutrient nitrogen and phosphorus to plant life.
Persistence/Degradability:	Degrades rapidly in humid/wet environment.
Probability of rapid biodegradation:	NH ₄ H ₂ PO ₄ Est: 0.693 (Rapid); (NH ₄) ₂ SO ₄ : Est: 0.684 (Rapid)
Anaerobic biodegradation probability:	NH ₄ H ₂ PO ₄ Est: 0.398 (Slow); (NH ₄) ₂ SO ₄ : Est: 0.398 (Slow)
Bioaccumulation potential:	Low.
Bioconcentration factor:	NH ₄ H ₂ PO ₄ : 3.16 L/kg; (NH ₄) ₂ SO ₄ : 3.16 L/kg (wet weight) (Low BCF)
Bioaccumulation factor:	NH ₄ H ₂ PO ₄ : 63.04 L/kg; (NH ₄) ₂ SO ₄ : 1.03 L/kg (wet weight)
Mobility in soil:	Slow evaporation rate; water soluble, may leach to groundwater
Log Koc:	NH ₄ H ₂ PO ₄ Est: -1.25; (NH ₄) ₂ SO ₄ Est: 1.35
Log Koa:	NH ₄ H ₂ PO ₄ Est: 16.72; (NH ₄) ₂ SO ₄ Est: 20.10
Log Kaw:	NH ₄ H ₂ PO ₄ Est: -20.86; (NH ₄) ₂ SO ₄ Est: -19.62

NOTE: NH₄H₂PO₄ – Mono-ammonium Phosphate; (NH₄)₂SO₄: – Ammonium Sulfate

Other Adverse Ecological Effects: No other known effects at this time

Aquatic Toxicity Values – Environment – Research

Chemical Name	Acute (LC50)	Chronic (LC50)
Mono-ammonium phosphate	N/A	N/A
Ammonium Sulfate	N/A	N/A
Mica	N/A	N/A
Attapulgate clay	N/A	N/A
Silicone oil	N/A	N/A
Calcium carbonate	N/A	N/A
Amorphous silica	N/A	N/A
Yellow 14 pigment	N/A	N/A

Aquatic Toxicity Values – Environment – Estimates

Chemical Name	Acute (LC50)	EC50
Mono-ammonium phosphate	2,91e+07 mg/l Fish 96 hr; 9.4e+06 mg/l Daphnid 48 hr;	6.70e+05 mg/l Gr. Algae 96 hr
Ammonium Sulfate	2521 mg/l Fish 96 hr; 1244 mg/l Daphnid 48 hr;	518 mg/l Gr. Algae 96 hr
Mica	N/A	N/A
Attapulgate clay	N/A	N/A
Silicone oil	N/A	N/A
Calcium carbonate	N/A	N/A
Amorphous silica	N/A	N/A
Yellow 14 pigment	N/A	N/A

Section 13. DISPOSAL CONSIDERATIONS

Safe Handling	Use appropriate PPE when handling and wash thoroughly after handling (see Section 8).
Waste Disposal Considerations	Dispose in accordance with federal, state, and local regulations.
Contaminated Packaging	Dispose in accordance with federal, state, and local regulations.

NOTES:

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. TRANSPORT INFORMATION

UN Number:	NA
UN Proper Shipping Name:	NA
Transport Hazard Class:	NA
Packing Group:	NA
Marine Pollutant?:	NO
IATA	Not regulated
DOT	Not regulated

NOTES:

This product is not defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, or by Transport Canada "Transportation of Dangerous Goods" regulations.

Special Precautions for Shipping:

The transportation information above covers the ABC 550 dry chemical extinguisher agent as shipped in bulk containers and not when contained in fire extinguishers or fire extinguisher systems. If shipped in a stored pressure-type fire extinguisher, and pressurized with a non-flammable, non-toxic inert expellant gas, the fire extinguisher is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be FIRE EXTINGUISHER and the UN designation is UN 1044. The DOT hazard class/division is LIMITED QUANTITY when pressurized to less than 241 psig and when shipped via highway or rail. UN Class 2.2. Non-Flammable Gas, when shipping via air. Packing Group – N/A

Section 15. REGULATORY INFORMATION

International Inventory Status: All ingredients are on the following inventories

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	DSL	Yes
Europe	EINECS/ELINCS	Yes
Australia	AICS	Yes
Japan	MITI	Yes
South Korea	KECL	Yes

REACH Title XVII Restrictions: No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
Mono-ammonium Phosphate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonium Sulfate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	Toxic Release Inventory (TRI) – Group I	Toxic Release Inventory (TRI) – Group II
Mono-ammonium Phosphate 7722-76-1	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonium Sulphate 7783-20-2	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Attapulgite clay	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Mica-potassium aluminum silicate 120001-26-2 (>2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Calcium carbonate 471-34-1	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Amorphous silica 69012-64-2	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Yellow 14 pigment 5468-75-7	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification:	XN	Irritant
R Phrases:	20	Harmful by inhalation.
	22	Harmful if swallowed

S Phrases:	36/37/38	Irritating to eyes, respiratory system, and skin.
	22	Do not breath dust.
	24/25	Avoid contact with skin and eyes
	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	36	Wear suitable protective clothing.
	37/39	Wear suitable gloves and eye protection.

U.S. Federal Regulatory Information:

SARA 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) - This product does not contain and chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

None of the chemicals in this product are under SARA reporting requirements or have SARA threshold planning quantities (TPQs) or CERCLA reportable quantities (RQs), or are regulated under TSCA 8(d).

SARA 311/312 Hazard Categories:

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
*-Sudden Release of Pressure Hazard	Yes
Reactive Hazard	No

* - Only applicable if material is in a pressurized extinguisher.

Clean Water/Clean Air Acts:

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42) or Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61) and Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulatory Information:

Chemicals in this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: None

California – Permissible Exposure Limits for Chemical Contaminants: None

Florida – Substance List: Mica Dust

Illinois – Toxic Substance List: None

Kansas – Section 302/303 List: None

Massachusetts – Substance List: Mica Dust

Minnesota – List of Hazardous Substances: None

Missouri – Employer Information/Toxic Substance List: None

New Jersey – Right to Know Hazardous Substance List: None

North Dakota – List of Hazardous Chemicals, Reportable Quantities: None

Pennsylvania – Hazardous Substance List: None

Rhode Island – Hazardous Substance List: Mica Dust

Texas – Hazardous Substance List: None

West Virginia – Hazardous Substance List: None

Wisconsin – Toxic and Hazardous Substances: None

California Proposition 65: No component is listed on the California Proposition 65 list.

Other:

Mexico – Grade

No component listed

Canada – WHMIS Hazard Class

Ammonium Sulfate listed as not a dangerous product according to HPR classification criteria

Section 16. OTHER INFORMATION

This Information Sheet complies with the requirements of US, UK, Canadian, Australian and European regulations or standards, and conforms to the proposed format, ANSI Z400.1, 2003. No modification of this safety data sheet is permitted by AMEREX Corporation. Questions or comments should be directed to AMEREX Corporation (see section 1).

Issuing Date

20-June-2012

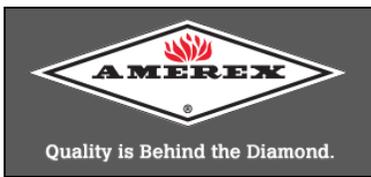
Revision Date

8-July-2020; Revision B

Revision Notes

None

The information herein is given in good faith but no warranty, expressed or implied, is made. Updated by William F. Garvin, CIH.



SAFETY DATA SHEET

Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: CH 530/660 KP Wet Agent
Other Identifiers: Class K liquid agent for extinguishers
Product Code(s): CH530/CH660
Model Code(s) for Fire Extinguishers: 260, 262
Recommended Uses: Class K Extinguishant
Manufacturer: AMEREX CORPORATION
Internet Address: www.amerex-fire.com
Address: 7595 Gadsden Highway, P.O. Box 81
Trussville, AL 35173-0081
Company Telephone: (205) 655-3271
E-mail Address: info@amerex-fire.com
Emergency Contacts: Chemtrec 1(800) 424-9300 or
(703) 527-3887
Revised: March 7, 2019

Section 2. HAZARDS IDENTIFICATION

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: Category 5	None	None
Skin Corrosion/Irritation: Cat. 3	None	None
Skin Sensitization: NO	None	None
Eye: Cat. 2B	None	None
Carcinogen: Category None	None	None

GHS – Label Symbol(s): If Pressurized: Gas Under Pressure



GHS – Signal Word(s): Warning

Other Hazards Not Resulting in Classification: None

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	H229	*- Contents under pressure; may explode if heated.
Health	H303 316 320 335	May be harmful if swallowed. Causes mild skin irritation. Causes eye irritation. May cause respiratory irritation.
Environmental	None	
Precautionary:		
General	P101	If medical advice is needed, have product container or label at hand
Prevention	P251 264 270 280	Do not pierce or burn, even after use. Wash exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
Response	P321 362 391 301+312 302+352 304+340 305+351+338 332+313 337+313 342+311	Specific treatment (see Section 4. First Aid Measures) Take off contaminated clothing. Collect spillage. IF SWALLOWED: Call a doctor if you feel unwell IF ON SKIN: Wash with plenty of water. IF INHALED, remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. If skin irritation occurs: Get medical advice/attention. If eye irritation persist get medical advice/attention. If experiencing respiratory symptoms: Call a doctor.
Storage	P410+403	*- Protect from sunlight. Store in well-ventilated place.
Disposal	P501	Dispose of contents through a licensed disposal company. Contaminated container should be disposed of as unused product.

*- If under pressure

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %
Water	NA	NA	7732-18-5	40-60
Potassium acetate	204-822-2	NA	127-08-2	40-60
Potassium citrate	212-755-5	NA	866-84-2	<8

Emergency overview:

Clear to opaque liquid solution.

Adverse health effects and symptoms:

This product is an irritant to the respiratory system, eyes, and skin. Symptoms may include coughing, sore throat, difficulty breathing, eye pain, and skin redness and irritation. Ingestion, although unlikely, may cause cramps, nausea and diarrhea.

Section 4. FIRST AID MEASURES

Eye Exposure:

May cause irritation. Irrigate eyes with water and repeat until pain free. Seek medical attention if irritation persists.

Skin Exposure:	May cause skin irritation. In case of contact, wash with plenty of soap and water. Seek medical attention if irritation persists.
Inhalation:	May cause irritation, along with coughing. May cause dizziness or drowsiness. If respiratory irritation or distress occurs, remove victim to fresh air. Seek medical attention if irritation persists.
Ingestion:	Overdose symptoms may include gastrointestinal complaints or change in urine output. If victim is conscious and alert, rinse out mouth and give 1-2 glasses of water or milk to drink. Do not induce vomiting. Consult medical service if feel unwell. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist.
Medical conditions possibly aggravated by exposure:	Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema, or bronchitis. Skin contact may aggravate existing skin disease.

Section 5. FIRE-FIGHTING MEASURES
--

Flammable Properties:	Not flammable
Flash Point:	Not determined
Suitable Extinguishing Media:	Non-combustible. Use extinguishing media suitable for surrounding conditions.
Hazardous Combustion Products:	Carbon, acetic acid fumes, and sulfur oxides
<u>Explosion Data:</u>	
Sensitivity to Mechanical Impact:	Not sensitive
Sensitivity to Static Discharge:	Not sensitive
Unusual fire/explosion hazards:	In a fire this material may decompose, releasing oxides of carbon and potassium. (see Section 10).
Protective Equipment and Precautions for Firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand. NIOSH (approved or equivalent) and full protective gear.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Avoid contact with skin, eyes, and clothing.
Personal Protective Equipment:	During minor spill clean-up: Minimum – chemical goggles, nitrile gloves, and an air purifying respirator.
Emergency Procedures:	Large spills (one container or more) should be addressed by hazardous materials technicians who follow a specific emergency response plan and who are trained in the appropriate use of PPE.
Methods for Containment:	Prevent further leakage or spillage if safe to do so. Use sorbent socks for containment
Methods for Clean Up:	Clean up released material using sorbent materials. Bag and drum for disposal; properly label containers; dispose as required by local, state, and federal regulations. Decontaminate with detergent and water.
Environmental Precautions:	Prevent material from entering waterways.
Other:	If product is contaminated, use PPE and containment appropriate to the nature of the most toxic chemical/material in the mixture.

Section 7. HANDLING AND STORAGE

Personal Precautions:	Use appropriate PPE when handling or maintaining equipment, and wash thoroughly after handling (see Section 8).
Conditions for Safe Storage/Handling:	Keep product in original container or extinguisher in a cool area. Use in well ventilated area. Prevent falling. Do not allow near heat sources. Contents may be under pressure – inspect extinguisher consistent with product labeling to ensure container integrity.
Incompatible Products:	Do not mix with other extinguishing agents, strong acids, strong oxidants.
Hazardous Decomposition Products:	Carbon dioxide, phosphorous oxide, acetic acid.
Hazardous Polymerization:	Will not occur

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV	DFG MAK *	EU BLV
Water	NR	NR	NR	NR
Potassium acetate	NR	NR	NR	NR
Potassium citrate	NR	NR	NR	NR

*German regulatory limits **PNOC = Particulates not otherwise classified (ACGIH) also known as Particulates not otherwise regulated (OSHA) *** NR = Not Regulated. All values are 8 hour time weighted average concentrations.

Engineering Controls:

Showers
Eyewash stations
Ventilation systems

Personal Protective Equipment – PPE Code E:

The need for respiratory protection is not probable during short-term exposure. PPE use during production process must be independently evaluated.



Eye/Face Protection:
Skin and Body Protection:

Respiratory Protection:

Tightly fitting safety goggles
Wear nitrile or similar gloves, and coveralls or long sleeve shirt.
If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn. Use N100 respirators for limited exposure, use air-purifying respirator (APR) with high efficiency particulate air (HEPA) filters for prolonged exposure. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current safety and health requirements. The need for respiratory protection is not likely for short-term use in well ventilated areas. Good personal hygiene practice is essential, such as avoiding food, tobacco products, or other hand-to-mouth contact when handling. Wash thoroughly after handling.

Hygiene Measures:

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear to opaque liquid, water based
Molecular Weight:	C2H3KO2: 98.14; C6H5O7K3: 306.39
Odor:	Odorless
Odor Threshold:	No information available
Decomposition Temperature °C:	100 - 120
Freezing Point °C:	No information available
Initial Boiling Point °C:	Approximately 149

Physical State:	Liquid
pH:	Approximately 8.5
Flash Point °C:	None
Auto-ignition Temperature °C:	None
Boiling Point/Range °C:	149/141-155
Melting Point/Range °C:	C2H3KO2: 292; K3C6H5O7: 180
Flammability:	Not flammable
Flammability/Explosive Limits in Air °C:	Upper – No; Lower - No
Explosive Properties:	None
Oxidizing Properties:	None
Volatile Component (%vol)	Not Applicable
Evaporation Rate:	No information available
Vapor Density:	No information available
Vapor Pressure:	No information available
Specific gravity:	Approximately 1.2 at 25 C
Solubility:	Soluble in water
Partition Coefficient:	No Information Available
Viscosity:	Not Applicable

Note: C2H3KO2 – Potassium Acetate; C6H5O7K3 – Potassium Citrate

Section 10. STABILITY AND REACTIVITY

Stability:	Stable under recommended storage and handling conditions.
Reactivity:	Not reactive
Possibility of Hazardous Reactions:	Under normal conditions of storage and handling, hazardous reactions will not occur.
Incompatibles:	Strong acids and oxidizers, lime, inorganic bases. Avoid contact with aluminum, lead, tin, zinc, or other alkali sensitive metals or alloys
Conditions to Avoid:	Storage or handling near incompatibles.
Hazardous Decomposition Products:	Heat of fire may release carbon dioxide, phosphorous oxide, and acetic acid.
Possibility of Hazardous Reactions:	None
Hazardous Polymerization	Does not occur

Section 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Inhalation, skin, and eye contact.
Symptoms:	

Immediate
 Inhalation: Irritation, coughing.
 Eyes: Mild irritation.
 Skin: Mild irritation.
 Delayed: Symptoms appear to be relatively immediate
 Acute Toxicity: Relatively non-toxic.
 Chronic Toxicity:
 Short-term Exposure: None known.
 Long-term Exposure: None known

Acute Toxicity Values - Health

Chemical Name	LD50		LC50 (Inhalation)
	Oral	Dermal	
Water	NA	NA	NA
Potassium acetate	3250 mg/kg (rat)	NA	NA
Potassium citrate	176 mg/kg (dog)	NA	NA

Reproductive Toxicity: This product's ingredients are not known to have reproductive or teratogenic effects.
 Target Organs and Effects (TOST): Respiratory system (mild irritant).
 This product is a mild irritant to epithelial tissue, (eyes, mucous membranes, skin) and may aggravate dermatitis. Ingestion may cause gastrointestinal injury. No information was found indicating the product causes sensitization.

Other Toxicity Categories

Chemical Name	Germ Cell Mutagenicity	Carcinogenicity	Reproductive	TOST Single Exp	TOST Repeated Exp	Aspiration
Water	None	None	None	None	None	None
Potassium acetate	None	None	None	None	None	None
Potassium citrate	None	None	None	None	None	None

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity: A weak environmental toxin. Specific negative impacts are unknown.
 Persistence/Degradability: Soluble in water; moderate degradation in soil. Rapid photolytic degradation in air.
 Probability of rapid biodegradation: C2H3KO2 Est: 0.792 (Rapid); C6H5O7K3: 0.690 (Rapid)
 Anaerobic biodegradation probability: C2H3KO2 Est: 0.943 (Rapid); C6H5O7K3: 1.1142 (Rapid)
 Bioaccumulation potential: Low.
 Bioconcentration factor: C2H3KO2 Est: 3.16 L/kg (wet weight) (Low BCF)
 C6H5O7K3 Est: 3.16 L/kg (wet weight) (Low BCF)

Bioaccumulation factor: C2H3KO2 Est: 0.929; C6H5O7K3 Est: 0.893
 Mobility in soil: Slow evaporation rate; water soluble, may leach to groundwater
 Log Koc (Kow Method): C2H3KO2 Est: -1.902; C6H5O7K3 Est: -0.411
 Log Koa: Not available
 Log Kow: C2H3KO2 Est: -3.72; C6H5O7K3 Est -0.28

NOTE: C2H3KO2 – Potassium Acetate; C6H5O7K3 – Potassium Citrate

Other Adverse Ecological Effects: No other known effects at this time

Aquatic Toxicity Values – Environment – Research

Chemical Name	Acute (LC50)	Chronic (LC50)
Water	N/A	N/A
Potassium acetate	298 mg/L Fish 96 hr (Pimephales promelas); 313 mg/L Crustaceans 48 hr	N/A
Potassium citrate	Not acutely toxic	Not acutely toxic

Aquatic Toxicity Values – Environment – Calculated Estimates

Chemical Name	Acute (LC50)	EC50
Water	N/A	N/A
Potassium acetate	N/A	4403 mg/L Gr. Algae 96 hr
Potassium citrate	3.14e+06 mg/L Fish 96 hr; 1.27e+05 mg/l Daphnid 48 hr;	2.33e+05 mg/L Gr. Algae 96 hr

Section 13. DISPOSAL CONSIDERATIONS

Safe Handling	Use appropriate PPE when handling, and wash thoroughly after handling (see Section 8).
Waste Disposal Considerations	Dispose in accordance with federal, state, and local regulations.
Contaminated Packaging	Dispose in accordance with federal, state, and local regulations.

NOTES:

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. TRANSPORT INFORMATION

UN Number: NA
 UN Proper Shipping Name: NA

Transport Hazard Class: NA
 Packing Group: NA
 Marine Pollutant?: NO

IATA Not regulated
 DOT Not regulated

NOTES:

This product is not defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, or by Transport Canada "Transportation of Dangerous Goods" regulations. This transportation information covers the CH 530-660 Wet Agent fire extinguisher agent as shipped in bulk containers and not when contained in fire extinguishers or fire extinguisher systems.

Special Precautions for Shipping:

If shipped in a stored pressure-type fire extinguisher, and pressurized with a non-flammable, non-toxic inert expellant gas, the fire extinguisher is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be FIRE EXTINGUISHER and the UN designation is UN 1044. The DOT hazard class/division is LIMITED QUANTITY when pressurized to less than 241 psig and when shipped via highway or rail. UN Class 2.2. Non-Flammable Gas, when shipping via air. Packing Group – N/A

Section 15. REGULATORY INFORMATION

International Inventory Status: All ingredients are on the following inventories

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	DSL	Yes
Europe	EINECS/ELINCS	Yes
Australia	AICS	Yes
Japan	MITI	Yes
South Korea	KECL	Yes

REACH Title XVII Restrictions: No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
Water	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Potassium acetate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Potassium citrate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing,	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	Toxic Release Inventory (TRI) – Group I	Toxic Release Inventory (TRI) – Group II

	Importing, Transferring, or Supplying				
Water	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Potassium acetate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Potassium citrate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification:	XN	Irritant
R Phrases:	36/37/38	Irritating to eyes, respiratory system, and skin.
S Phrases:	22	Do not breath dust.
	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	28	After contact with skin, wash immediately with plenty of water.
	S36/37/39:	Wear suitable protective clothing, gloves and eye /face protection.
	S45:	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

U.S. Federal Regulatory Information:

SARA 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) - This product does not contain and chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372. None of the chemicals in this product are under SARA reporting requirements or have SARA threshold planning quantities (TPQs) or CERCLA reportable quantities (RQs), or are regulated under TSCA 8(d).

SARA 311/312 Hazard Categories:

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
-Sudden Release of Pressure Hazard-	Yes
Reactive Hazard	No

* - Only applicable if material is in a pressurized extinguisher.

Clean Water/ Clean Air Act:

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42) or Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61) and Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulatory Information:

Chemicals in this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: None
California – Permissible Exposure Limits for Chemical Contaminants: None
Florida – Substance List: None
Illinois – Toxic Substance List: None
Kansas – Section 302/303 List: None
Massachusetts – Substance List: None
Minnesota – List of Hazardous Substances: None
Missouri – Employer Information/Toxic Substance List: None
New Jersey – Right to Know Hazardous Substance List: None
North Dakota – List of Hazardous Chemicals, Reportable Quantities: None
Pennsylvania – Hazardous Substance List: None
Rhode Island – Hazardous Substance List: None
Texas – Hazardous Substance List: None
West Virginia – Hazardous Substance List: None
Wisconsin – Toxic and Hazardous Substances: None
 California Proposition 65: No component is listed on the California Proposition 65 list.

Other:

Mexico – Grade	No component listed
Canada – WHMIS Hazard Class	No component listed

Section 16. OTHER INFORMATION

This SDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulations or standards, and conforms to the proposed 2003 ANSI Z400.1 format. No modifications of this SDS are authorized by AMEREX Corporation. Questions or comments should be directed to AMEREX Corporation (See Section 1).

Issuing Date	17-June-2012
Revision Date	7-March-2019; Revision D
Revision Notes	None

The information herein is given in good faith but no warranty, expressed or implied, is made. Updated by William F. Garvin, CIH.



SAFETY DATA SHEET

Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: FM-200[®]
 Other Identifiers: FE-227, Pressurized Extinguisher, 2-Hydrofluoropane, 1,1,1,2,3,3,3- Heptafluoro-, HFC-227eaHP, R-227, HFC-227ea
 Product Use: Fire extinguisher agent
 Manufacturer: AMEREX CORPORATION
 Internet Address: www.amerex-fire.com
 Address: 7595 Gadsden Highway, P.O. Box 81
 Trussville, AL 35173-0081
 Company Telephone: (205) 655-3271
 E-mail Address: info@amerex-fire.com
 Emergency Contacts: Chemtrec 1(800) 424-9300 or (703) 527-3887
 Issued: March 7, 2019

Section 2. HAZARDS IDENTIFICATION

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: None	None	None
Skin Corrosion/Irritation: None	None	None
Skin Sensitization: None	None	None
Eye: None	None	None
Carcinogen: None	None	None

GHS – Label Symbol(s): Gas Under Pressure 
GHS – Signal Word(s): Gas Under Pressure: **Warning**

Other Hazards Not Resulting in Classification: Simple asphyxiant. May displace oxygen and cause rapid suffocation.
 May cause frostbite in contact with skin or eyes.

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	H280 281	*- Contents under pressure; may explode if heated. Contains refrigerated gas; may cause cryogenic burns or injury.
Health	H313	May be harmful in contact with skin.
Environmental	None	
Precautionary:		
General	P101	If medical advice is needed, have product container or label at hand.
Prevention	P251 261 271 280	Do not pierce or burn, even after use. Avoid breathing gas. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	P312 321 336 304+340 305+351+338 313+333	Call a POISON CENTER/doctor if you feel unwell. Specific treatment (see Section 4. First Aid Measures) Thaw frosted parts with lukewarm water. Do not rub affected areas. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. May be harmful in contact with skin or if inhaled.
Storage	P410+403	*- Protect from sunlight. Store in well-ventilated place.
Disposal	P501	Dispose of contents/container through a licensed disposal company in accordance with local/state/national regulations.

*- If under pressure

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %
1,1,1,2,3,3,3-Heptafluoropropane	207-079-2	NA	431-89-0	100

Adverse health effects and symptoms: None in normal quantities

Section 4. FIRST AID MEASURES

Eye Exposure: Liquid or cold gas can cause freezing injury to eyes. Flush eyes with cool water for 15 minutes. Seek medical attention immediately.

Skin Exposure: May cause cold burns or frostbite. Remove contaminated clothing and flush affected areas with lukewarm (NOT HOT) water. Seek medical attention immediately if blistering of the dermal surface or if deep tissue freezing occurs

Inhalation: May cause coughing. If respiratory irritation or distress occurs, remove victim to fresh air. Seek medical attention if problems persists.

Ingestion: None under normal conditions
Medical conditions possibly

aggravated by exposure: None

Section 5. FIRE-FIGHTING MEASURES

Flammable Properties:	Not flammable
Flash Point:	None
Suitable Extinguishing Media:	Non-combustible. Use extinguishing media suitable for surrounding conditions. Cool fire-exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.
Hazardous Combustion Products:	None
<u>Explosion Data:</u>	
Sensitivity to Mechanical Impact:	Not sensitive
Sensitivity to Static Discharge:	Not sensitive
Unusual fire/explosion hazards:	Cylinders could rupture under heat of fire.
Protective Equipment and Precautions for Firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Monitor oxygen level.
Personal Protective Equipment:	None unless there is a chance of direct contact with the chemical. Wear self-contained breathing apparatus when entering area unless atmosphere is proved safe. Wear appropriate PPE for the situation.
Emergency Procedures:	Handle in accordance with good health and safety practices.
Methods for Containment:	Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest supplier location.
Methods for Clean Up:	Return cylinder to authorized distributor.
Environmental Precautions:	Prevent spreading of vapors through sewers, ventilation systems and confined areas.
Other:	If product is contaminated, use PPE and containment appropriate to the nature of the most toxic chemical/material in the mixture.

Section 7. HANDLING AND STORAGE

Personal Precautions:	Put on appropriate personal protective equipment Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Close valve after each use and when empty.
Conditions for Safe Storage/Handling:	If pressurized – Protect from sunlight and store in a well-ventilated place. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement. ... Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.
Incompatible Products:	None

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV	DFG MAK *	EU BLV
1,1,1,2,3,3,3-Heptafluoropropane	NR	NR	NR	NA

NR = Not Regulated.

<u>Engineering Controls:</u>	None
<u>Personal Protective Equipment</u>	Safety glasses

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless gas
Molecular Weight:	170.03 g/mole
Odor:	Light, ethereal
Odor Threshold:	No information available
Decomposition Temperature °C:	No information available
Freezing Point °C:	129.5
Initial Boiling Point °C:	-17.3
Physical State:	Gas
pH:	No information available

Flash Point °C:	None
Auto-ignition Temperature °C:	None
Boiling Point/Range °C:	17.3
Melting Point/Range °C:	129.5
Flammability:	Not Flammable
Flammability Limits in Air °C:	Upper – Not Flammable; Lower-Not Flammable
Explosive Properties:	None
Oxidizing Properties:	None
Volatile Component (%vol)	Not Applicable
Evaporation Rate:	Not Applicable
Density:	7.59 g/cc (at 20°C)
Vapor Pressure:	400 kPa (at 20°C)
Specific gravity at 25 C:	Not Applicable
Solubility (in water):	0.1 g/L (at 20°C)
Partition Coefficient: octanol/water	2.29 (Log Pow)

Section 10. STABILITY AND REACTIVITY

Reactivity:	This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.
Chemical Stability:	Stable under recommended storage and handling conditions.
Incompatibles:	Light and/or alkaline metals, alkaline earth metals, powdered metals, oxidizing agents.
Conditions to Avoid:	Heat
Hazardous Decomposition Products:	Gaseous hydrogen fluoride (HF), fluorophosgene The release of other hazardous decomposition products is possible.
Possibility of Hazardous Reactions:	Strong oxidizers, alkali metals and alkaline earth metals may cause fires or explosions.
Hazardous Polymerization	Does not occur

Section 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Inhalation, skin, and eye contact.
Symptoms:	
Immediate:	
Inhalation:	Coughing.
Eyes:	None (unless freezing gas causes burns or frostbite)
Skin:	None (unless freezing gas causes burns or frostbite)

Delayed: Symptoms appear to be relatively immediate
 Acute Toxicity: Non-toxic.
 Chronic Toxicity:
 Short-term Exposure: None known.
 Long-term Exposure: None known.

Acute Toxicity Values - Health

Chemical Name	LD50		LC50 (Inhalation)
	Oral	Dermal	
1,1,1,2,3,3,3-Heptafluoropropane	800,000 ppm (Rat/4h)	Not available	Not available

Reproductive Toxicity: This product's ingredients are not known to have reproductive or teratogenic effects.
 Target Organs and Effects (TOST): None

Other Toxicity Categories

Chemical Name	Germ Cell Mutagenicity	Carcinogenicity	Reproductive	TOST Single Exp	TOST Repeated Exp	Aspiration
1,1,1,2,3,3,3-Heptafluoropropane	None	None	None	None	None	None

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity: Low risk.
 Persistence/Degradability: Degrades slowly
 Probability of rapid biodegradation: -0.3742 (Low)
 Anaerobic biodegradation probability: 0.6702 (Rapid)
 Bioaccumulation: 33.36
 Bioconcentration factor: 21.15 L/kg (Not bioaccumulative)
 Mobility in soil (Log Koc-MCI Method)
 Log Octanol-Water Partition Coefficient (KOWWIN)
 Log Kow (KOWWIN) 2.51
 Koc (Kow Method): 150.7 L/kg (Low mobility in soil)
 Log Koa: -0.306
 Log Kaw (HenryWin estimate): 2.816
 Fraction sorbed to airborne particulates (Mackay model): 5.28E-010
 Water Solubility: 79.5 at 25 °C
 Atmospheric oxidation half-life:
Level III Fugacity Model: 0.426% soil, 47.8% water, 1.73% sediment, 50% air

Other Adverse Ecological Effects: No other known effects at this time

Aquatic Toxicity Values – Environment – Research

Chemical Name	Acute (LC50)	Chronic (EC50)
1,1,1,2,3,3,3-Heptafluoropropane	>100 mg/L 96h Brachydanio rerio (zebra fish) >100 mg/L 48h Daphnia magna	>114 mg/L 72h Pseudokirchneriella subcapitata

Aquatic Toxicity Values – Environment – Estimates

Chemical Name	Acute (LC50)	EC50
1,1,1,2,3,3,3-Heptafluoropropane	N/A	N/A

Section 13. DISPOSAL CONSIDERATIONS

Safe Handling	None.
Waste Disposal Considerations	Dispose in accordance with federal, state, and local regulations.
Contaminated Packaging	Dispose in accordance with federal, state, and local regulations.

NOTES:

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. TRANSPORT INFORMATION

UN Number:	3296
UN Proper Shipping Name:	HEPTAFLUOROPROPANE
Transport Hazard Class:	2
Packing Group:	NA
Marine Pollutant?:	NO
IATA	Not regulated
DOT	Not regulated

NOTES:

This product is not defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, or by Transport Canada "Transportation of Dangerous Goods" regulations. This transportation information covers the FM 200 (CAS 431-89-0) fire extinguisher agent as shipped in bulk containers and not when contained in fire extinguishers or fire extinguisher systems.

Special Precautions for Shipping:

If shipped in a stored pressure-type fire extinguisher, and pressurized with a non-flammable, non-toxic inert expellant gas, the fire extinguisher is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be FIRE EXTINGUISHER and the UN designation is UN 1044. The DOT hazard class/division is LIMITED QUANTITY when pressurized to less than 241 psig and when shipped via highway or rail. UN Class 2.2. Non-Flammable Gas, when shipping via air. Packing Group – N/A

Section 15. REGULATORY INFORMATION

International Inventory Status: All ingredients are on the following inventories

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	WHIMS	Yes
Australia	AICS	Listed or Exempt
Europe	EINECS/ELINCS	Not Classified

REACH Title VII Restrictions: No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
1,1,1,2,3,3,3-Heptafluoropropane	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	Toxic Release Inventory (TRI) – Group I	Toxic Release Inventory (TRI) – Group II
1,1,1,2,3,3,3-Heptafluoropropane	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification:

R Phrases: 44

S Phrases: 9

24/25

26

36/37/39

38

45

Keep in a well-ventilated place.

Avoid contact with skin and eyes.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Wear suitable protective clothing, gloves and eye/face protection.

In case of insufficient ventilation wear suitable respiratory equipment.

In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).

U.S. Federal Regulatory Information:

SARA 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) - This product does not contain and chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372. None of the chemicals in this product are under SARA reporting requirements or have SARA threshold planning quantities (TPQs) or CERCLA reportable quantities (RQs), or are regulated under TSCA 8(d).

SARA 311/312 Hazard Categories:

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard-*	Yes
Reactive Hazard	No

* - Only applicable if material is in a pressurized extinguisher.

Clean Water/Clean Air Acts:

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42) or Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61) and Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulatory Information:

Chemicals in this product are covered under specific State regulations, as denoted below:

- Alaska** - Designated Toxic and Hazardous Substances: None
- California** – Permissible Exposure Limits for Chemical Contaminants: None
- Florida** – Substance List: None
- Illinois** – Toxic Substance List: None
- Kansas** – Section 302/303 List: None
- Massachusetts** – Substance List: None
- Minnesota** – List of Hazardous Substances: None
- Missouri** – Employer Information/Toxic Substance List: None
- New Jersey** – Right to Know Hazardous Substance List: None
- North Dakota** – List of Hazardous Chemicals, Reportable Quantities: None
- Pennsylvania** – Hazardous Substance List: None
- Rhode Island** – Hazardous Substance List: None
- Texas** – Hazardous Substance List: None
- West Virginia** – Hazardous Substance List: None
- Wisconsin** – Toxic and Hazardous Substances: None

California Proposition 65: No component is listed on the California Proposition 65 list.

Section 16. OTHER INFORMATION

This SDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulations or standards, and conforms to the proposed 2003 ANSI Z400.1 format. No modifications of this SDS are authorized by AMEREX Corporation. Questions or comments should be directed to AMEREX Corporation (See Section 1).

Issuing Date	30-January-2019
Revision Date	7-March-2019; Revision C
Revision Notes	None

The information herein is given in good faith but no warranty, expressed or implied, is made.
Updated by William F. Garvin, CIH.



SAFETY DATA SHEET

Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Super D Dry Powder Extinguisher
Other Identifiers: Class D Powder, Sodium Chloride
Product Code(s): CH 545, CH 557
Model Codes(s) on Extinguishers: 570, 680
Recommended Use: Fire extinguishant for metal fires
Not for human or animal drug use.
Manufacturer: AMEREX CORPORATION
Internet Address: www.amerex-fire.com
Address: 7595 Gadsden Highway, P.O. Box 81
Trussville, AL 35173-0081
Company Telephone: (205) 655-3271
E-mail Address: info@amerex-fire.com
Emergency Contacts: Chemtrec 1(800) 424-9300 or
(703) 527-3887
Revised: March 14, 2018

Section 2. HAZARDS IDENTIFICATION

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: Category 5	None	None
Skin Corrosion/Irritation: Category 3	None	None
Skin Sensitization: NO	None	None
Eye: Category 2A	None	Warning
STOT – Category 3	None	Warning
Carcinogen: Category None	None	None

GHS – Label Symbol(s):

If Pressurized: Gas Under Pressure

GHS – Signal Word(s): **Warning**

Other Hazards Not Resulting in Classification: Mica may contain small quantities of quartz (crystalline silica). Prolonged exposure to respirable crystalline silica dust at concentrations exceeding the occupational exposure limits may increase the risk of developing a disabling lung disease known as silicosis. IARC found limited evidence for pulmonary carcinogenicity of

crystalline silica in humans. In the case of normal use of this product, exposure to silica should be nil.

The attapulgite clay used in this product has a fiber length of less than 5µm; therefore, the clay is not considered to be carcinogenic to animals or humans.

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	H229	*- Contents under pressure; may explode if heated.
Health	H303 312 315 319 335	May be harmful if swallowed. Harmful in contact with skin. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation.
Environmental	None	
Precautionary:		
General	P101	If medical advice is needed, have product container or label at hand.
Prevention	P251 261 264 271 280	Do not pierce or burn, even after use. Avoid breathing dust/fumes/gas/mist/vapours/spray. Wash exposed skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	P312 321 302+352 304+340 305+351+338 332+313 342+311 337+313	Call a doctor if you feel unwell. Specific treatment (see Section 4. First Aid Measures) IF ON SKIN: Wash with plenty of water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If skin irritation occurs: Get medical advice/attention. If experiencing respiratory symptoms: Call a doctor. If eye irritation persists get medical advice/attention.
Storage	P410+403	*- Protect from sunlight. Store in well-ventilated place.
Disposal	P501	Dispose of contents through a licensed disposal company. Contaminated container should be disposed of as unused product.

*- If under pressure

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %
Sodium chloride evaporated flour grade	231-598-3	Not Available	7647-14-5	75-90
Attapulgite clay	601-805-5	Not Available	12174-11-7	3-6
Mica-potassium aluminum silicate	310-1276	Not Available	12001-26-2	3-5
Zeolite, synthetic amorphous precipitated silica	215-283-8	Not Available	1318-02-1	1.5-3
Silica, amorphous, fumed	NA	Not Available	112945-52-5	<2
Magnesium stearate octadecanoic acid, Mg salt	228-767-9	Not Available	557-04-0	<1

Emergency overview:

Light purple, fine solid powder, odorless.

Adverse health effects and symptoms:

May be an irritant to the respiratory system; irritant to the skin and eyes. Symptoms may include coughing, shortness of breath, and irritation of the lungs, eyes, and skin. Ingestion, although unlikely, may cause gastric distress.

Section 4. FIRST AID MEASURES

Eye Exposure:

Causes irritation. Irrigate eyes with water and repeat until pain free. Seek medical attention if irritation persists, or if vision changes occur.

Skin Exposure:

Causes skin irritation. In case of contact, rinse with plenty of water. Seek medical attention if irritation persists.

Inhalation:

May cause irritation, along with coughing. If respiratory irritation or distress occurs remove victim to fresh air. Seek medical attention if irritation persists.

Ingestion:

Overdose symptoms may include nausea, vomiting, diarrhea, and abdominal cramps may result from excessive salt consumption. Profuse water loss can cause unusually high blood sodium levels ('hypernatremia') with symptoms such as dizziness, low blood pressure, and reduced urine production. Serious cases may result in swelling (edema), heightened blood pressure, increased heart rate, breathing trouble, convulsions, coma, and death. If victim is conscious and alert, give plenty of water to drink and do not induce vomiting. Seek immediate medical attention if overdose symptoms appear. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist.

Medical conditions possibly aggravated by exposure:

Kidney conditions, hypertension.

Section 5. FIRE-FIGHTING MEASURES

Flammable Properties:

Not flammable

Flash Point:

Not determined

Suitable Extinguishing Media:

Extinguishing measures suitable to local circumstances and the surrounding environment

Hazardous Combustion Products:	Toxic fumes of hydrochloric acid, sodium oxide, silicone oxide.
<u>Explosion Data:</u>	
Sensitivity to Mechanical Impact:	Not sensitive
Sensitivity to Static Discharge:	Not sensitive
Unusual fire/explosion hazards:	None known
Protective Equipment and Precautions for Firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand. NIOSH (approved or equivalent) and full protective gear.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Avoid contact with skin, eyes, and clothing.
Personal Protective Equipment:	Minimum - safety glasses, gloves, and a dust respirator.
Emergency Procedures:	NA
Methods for Containment:	Prevent further leakage or spillage if safe to do so.
Methods for Clean Up:	Avoid dust formation. Clean up released material using vacuum or wet sweep and shovel to minimize generation of dust. Bag and transfer to properly labeled containers. Ventilate area and wash spill site after material pickup is complete.
Environmental Precautions:	Prevent material from entering waterways.
Other:	If product is contaminated, use PPE and containment appropriate to the nature of the most toxic chemical/material in the mixture.

Section 7. HANDLING AND STORAGE

Personal Precautions:	Use appropriate PPE when handling or maintaining equipment, and wash thoroughly after handling (see Section 8).
Conditions for Safe Storage:	Keep product in original container or extinguisher. Contents may be under pressure – inspect extinguisher consistent with product labeling to ensure container integrity.
Incompatible Products:	Strong oxidizers. Reactive with metals, acids.
Hazardous Decomposition Products:	Toxic fumes of hydrochloric acid, sodium oxide, silicone oxide.
Hazardous Polymerization:	Will not occur

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV	DFG MAK *	EU BLV
Sodium chloride	PNOC** Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	NA
Attapulgite Clay	PNOC** Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	NA
Mica	PNOC Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	NA
Zeolite	80 mg/m ³ % SiO ₂	10 mg/m ³	4 mg/m ³	NA
Silica	PNOC Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	NA
Magnesium stearate octadecanoic acid, Mg salt	PNOC** Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	NA

*German regulatory limits **PNOC = Particulates not otherwise classified (ACGIH) also known as Particulates not otherwise regulated (OSHA) *** NR = Not Regulated. All values are 8 hour time weighted average concentrations.

Engineering Controls:

Showers
Eyewash stations
Ventilation systems

Personal Protective Equipment – PPE Code E:

The need for respiratory protection is not probable during short-term exposure. PPE use during production process must be independently evaluated.



Eye/Face Protection:

Tightly fitting safety goggles. Contact lens may absorb and concentrate irritants; if this problem occurs, a workplace policy should be determined.

Skin and Body Protection:

Wear protective coveralls, rubber boots, PVC gloves. Use barrier cream and skin cleaning cream if concentrations are high enough to cause mild irritation.

Respiratory Protection:

If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn. Use P100 respirators for limited exposure, use air-purifying respirator (APR) with high efficiency particulate air (HEPA) filters for prolonged exposure. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current safety and health requirements. The need for respiratory protection is not likely for short-term use in well ventilated areas.

Hygiene Measures:

Good personal hygiene practice is essential, such as avoiding food, tobacco products, or other hand-to-mouth contact when handling. Wash thoroughly after handling.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Fine crystals, off-white
Molecular Weight:	NaCl: 58.44 g/mol; Zeolite: 162 g/mol
Odor:	None
Odor Threshold:	No information available (NIA)
Decomposition Temperature °C:	NIA
Freezing Point °C:	NIA
Initial Boiling Point °C:	NaCl: 100 at 750mm Hg; Zeolite: NIA
Physical State:	Crystalline Powder
pH:	NaCl: Approximately 6.7 – 7.3 for a 10% solution; Zeolite: 1.2 – 1.3
Flash Point °C:	NaCl: 1413; Zeolite: NIA
Autoignition Temperature °C:	NIA
Boiling Point/Range °C:	NaCl: 100 at 750mm Hg; Zeolite: NIA
Melting Point/Range °C:	NaCl: 801; Zeolite: > 500
Flammable:	Not Flammable
Flammability Limits in Air °C:	Upper: None; Lower: None
Explosive Properties:	None
Oxidizing Properties:	None
Volatile Component (%vol)	NIA
Evaporation Rate:	NIA
Vapor Density:	Not Applicable
Vapor Pressure:	NaCl: 1 mm Hg at 865 °C; Zeolite: NIA
Specific gravity:	NaCl: Approximately 2.17 at 25 °C; Zeolite: 2.3 – 2.7
Solubility:	Miscible
Partition Coefficient:	NIA
Viscosity:	Not Applicable

NOTE: NACL-Sodium Chloride; NIA – No Information available

Section 10. STABILITY AND REACTIVITY

Stability: Stable under recommended storage and handling conditions.

Reactivity: Generally unreactive.

Incompatibles: Strong oxidizers.

Conditions to Avoid: Storage or handling near incompatibles.

Hazardous Decomposition Products: Heat of fire may release toxic fumes of hydrochloric acid, sodium oxide, silicone oxide.

Possibility of Hazardous Reactions: None

Hazardous Polymerization: Does not occur

Section 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin and eye contact. Ingestion

Symptoms:

 Immediate:

 Inhalation: Irritation, coughing.

 Eyes: Irritation.

 Skin: Irritation.

 Ingestion: May cause irritation of gastrointestinal tract.

 Delayed: Symptoms may be delayed

Acute Toxicity: Slightly toxic.

Chronic Toxicity:

 Short-term Exposure: None known.

 Long-term Exposure: As with all dusts, pneumoconiosis, or “dusty lung” disease, may result from chronic exposure.

Acute Toxicity Values - Health

Chemical Name	LD50		LC50 (Inhalation)
	Oral	Dermal	
Sodium chloride	3000 mg/kg (rat); (TDL human 12357 mg/kg/23d)	10000 mg/kg (rabbit)	None
Attapulgate clay	None	None	None
Mica	None	None	None
Zeolite	None	None	None
Silica	None	None	None
Magnesium stearate octadecanoic acid, Mg salt	None	None	None

Reproductive Toxicity: This product’s ingredients are not known to have reproductive or teratogenic effects.

Target Organs and Effects (TOST): Respiratory system (mild irritant).

This product is an irritant to epithelial tissue, (eyes, mucous membranes, skin) and may aggravate dermatitis. No information was found indicating the product causes sensitization. May be a kidney toxicant at high doses. May cause pulmonary edema and respiratory arrest at very high doses.

Other Toxicity Categories

Chemical Name	Germ Cell Mutagenicity	Carcinogenicity	Reproductive	TOST Single Exp	TOST Repeated Exp	Aspiration
Sodium chloride	None	None	None	None	None	None
Attapulgite clay	None	None	None	None	Kidney	None
Mica						
Zeolite	None	None	None	None	None	None
Silica	None	None	None	None	None	None
Magnesium stearate octadecanoic acid, Mg salt	None	None	None	None	None	None

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity:	Can be toxic in high concentrations.
Persistence/Degradability:	Degrades rapidly to chloride ion in wet environments, but the chloride ion is very persistent.
Probability of rapid biodegradation:	Est: 0.731 (Rapid)
Anaerobic biodegradation probability:	Est: 0.836 (Rapid)
Bioaccumulation potential:	Low.
Bioconcentration factor:	3.16 L/kg
Bioaccumulation Potential:	Low. CT50 (days): LogP<3
Mobility in soil:	Log Koc: Est: 0.400
Log Koa:	Not applicable
Log Kaw:	Not applicable
Atmospheric oxidation half-life:	20.6 days
Level III Fugacity Model:	No information
<u>Other Adverse Ecological Effects:</u>	No other known effects at this time

Aquatic Toxicity Values - Environment

Chemical Name	Acute (LC50)	Chronic (LC50)
Sodium chloride	9,498 (96h)-Rainbow Trout	Cat IV; 1300 mg/l (rainbow trout), 670 mg/l (water flea)
Attapulgite clay	N/A	N/A
Mica	N/A	N/A
Zeolite		
Silica	N/A	N/A
Magnesium stearate octadecanoic acid, Mg salt	N/A	N/A

Aquatic Toxicity Values – Calculated Estimates

Chemical Name	Acute (LC50)	EC50
Sodium chloride	597 mg/l Fish 96hr 296 mg/l Daphnia 48 hr	597 mg/l Gr Algae 96hr
Attapulgate clay	N/A	N/A
Mica	N/A	N/A
Zeolite		
Silica	N/A	N/A
Magnesium stearate octadecanoic acid, Mg salt	N/A	N/A

Section 13. DISPOSAL CONSIDERATIONS

Safe Handling

Keep formation of airborne dust to a minimum. Avoid breathing dust. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Use appropriate PPE when handling, and wash thoroughly after handling (see Section 8).

Waste Disposal Considerations

Dispose in accordance with federal, state, and local regulations.

Contaminated Packaging

Dispose in accordance with federal, state, and local regulations.

NOTES:

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. TRANSPORT INFORMATION

UN Number: NA
 UN Proper Shipping Name: NA
 Transport Hazard Class: NA
 Packing Group: NA
 Marine Pollutant?: NA

IATA Not regulated

DOT Not regulated

NOTES:

Special Precautions for Shipping:

The transportation information above covers the Super D Dry Powder extinguisher agent as shipped in bulk containers and not when contained in fire extinguishers or fire extinguisher systems. If

shipped in a stored pressure-type fire extinguisher, and pressurized with a non-flammable, non-toxic inert expellant gas, the fire extinguisher is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be FIRE EXTINGUISHER and the UN designation is UN 1044. The DOT hazard class/division is LIMITED QUANTITY when pressurized to less than 241 psig and when shipped via highway or rail. UN Class 2.2. Non-Flammable Gas, when shipping via air. Packing Group – N/A

Section 15. REGULATORY INFORMATION

International Inventory Status: Sodium chloride is on the following inventories

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	DSL	Yes
Europe	EINECS/ELINCS	Yes
Australia	AICS	Yes
Japan	MITI	Yes
South Korea	KECL	Yes

REACH Title VII Restrictions: No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
Sodium Chloride	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	Toxic Release Inventory (TRI) – Group I	Toxic Release Inventory (TRI) – Group II
Sodium chloride	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Attapulgite clay	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Mica	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Zeolite	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Silica	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Magnesium stearate octadecanoic acid, Mg salt	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification: XN Irritant
 R Phrases: 20 Harmful by inhalation.
 36/37 Irritating to eyes, respiratory system.

S Phrases:	22	Do not breath dust.
	24/25	Avoid contact with skin and eyes
	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	36	Wear suitable protective clothing.

U.S. Federal Regulatory Information:

SARA 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) - This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

None of the chemicals in this product are under SARA reporting requirements or have SARA threshold planning quantities (TPQs) or CERCLA reportable quantities (RQs), or are regulated under TSCA 8(d).

SARA 311/312 Hazard Categories:

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard-*	Yes
Reactive Hazard	No

* - Only applicable if material is in a pressurized extinguisher.

Clean Water/Clean Air Acts:

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42) or Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61) and Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulatory Information:

Chemicals in this product are covered under specific State regulations, as denoted below:

- Alaska** - Designated Toxic and Hazardous Substances: None
- California** – Permissible Exposure Limits for Chemical Contaminants: None
- Florida** – Substance List: Mica Dust
- Illinois** – Toxic Substance List: None
- Kansas** – Section 302/303 List: None
- Massachusetts** – Substance List: Mica Dust
- Minnesota** – List of Hazardous Substances: None
- Missouri** – Employer Information/Toxic Substance List: None
- New Jersey** – Right to Know Hazardous Substance List: None
- North Dakota** – List of Hazardous Chemicals, Reportable Quantities: None



SAFETY DATA SHEET

Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Halotron® I
Other Identifiers: HCFC Blend B, Halotron® I Pre-Sat Base
Product Code(s): CH891/892
Model Code(s) for Extinguishers: V10, 384, 385, 386, 394, 397, 398, 673, 674, 675
Recommended Use: Fire suppression agent, liquid concentrate.
Manufacturer: AMEREX CORPORATION
Internet Address: www.amerex-fire.com
Address: 7595 Gadsden Highway, P.O. Box 81
Trussville, AL 35173-0081
Company Telephone: (205) 655-3271
E-mail Address: info@amerex-fire.com
Emergency Contacts: Chemtrec 1(800) 424-9300 or
(703) 527-3887
Revised: October 6, 2021; Revision G

Section 2. HAZARDS IDENTIFICATION

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: None	None	None
Skin Corrosion/Irritation: None	None	None
Skin Sensitization: None	None	None
Eye: Category 2B	None	Warning
STOT (Single Exposure) – Category 1 (CNS, Liver); Category 2 (Heart)	None	Danger Warning
STOT (Repeated Exposure) – Category 1 (Liver)	None	Danger
Carcinogen: None	None	None

GHS – Label Symbol(s):



If Pressurized: Gas Under Pressure



GHS – Signal Word(s):

Warning
Danger (STOT-Single Exposure; CNS, Liver)
(STOT-Repeated Exposure; Liver)

Other Hazards Not Resulting in Classification: Hazardous to the aquatic environment (Acute);
Hazardous to the aquatic environment (Chronic)

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	H229	*- Contents under pressure; may explode if heated.
Health	H320 336 370 372	Causes eye irritation. May cause drowsiness and dizziness. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.
Environmental	H402 412	Harmful to aquatic life. Harmful to aquatic life with long-lasting effects.
Precautionary:		
General	P101	If medical advice is needed, have product container or label at hand.
Prevention	P260 264 270 273	Do not breathe dust/fumes/gas/mist/vapors/spray. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment.
Response	P312 321 304+340 308+311 305+351+338 337+313	Call a doctor if you feel unwell. Specific treatment (see Section 4. First Aid Measures). IF INHALED: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Call a POISON CENTER/ doctor. 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	P402 412 410+403	Store in dry place. Do not expose to temperatures exceeding 50 °C/122 °F. *- Protect from sunlight. Store in well-ventilated place.
Disposal	P501	Dispose of contents through a licensed disposal company. Contaminated container should be disposed of as unused product.

*- If under pressure

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %
2,2-Dichloro-1,1,1-trifluoroethane	206-190-3	NA	306-83-2	>93%
Gas Mixture (Proprietary)	NA	NA	NA	<7%

Adverse Health Effects and Symptoms:

Causes eye irritation. Causes eye pain, dizziness, CNS depression. Both ingredients can act as simple asphyxiants.

Section 4. FIRST AID MEASURES

Eye Exposure:

Causes irritation. Rinse victim's eyes with water or normal saline solution for 10 to 15 minutes. If symptoms persist, consult a physician.

Skin Exposure:

Wash all affected skin areas thoroughly with soap and water. If symptoms persist, contact a physician.

Inhalation:

Symptoms include asphyxia, restlessness, dizziness, drowsiness; may cause cardiac arrhythmia. Remove

Ingestion:

to fresh air. If symptoms persist, contact a physician. Give oxygen or artificial respiration as necessary. Overdose symptoms may include nausea and general weakness. Rinse mouth and throat. Do not induce vomiting. If symptoms persist, contact a physician. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. Immediately transport the victim to a hospital

Medical Conditions Possibly Aggravated by Exposure:

None

Section 5. FIRE-FIGHTING MEASURES

Flammable Properties:

Not flammable

Flash Point:

Not determined

Suitable Extinguishing Media:

Use extinguishing media suitable for surrounding conditions.

Hazardous Combustion Products:

There may be a release of toxic by-products, including hydrogen halides that can cause damage.

Explosion Data:

Sensitivity to Mechanical Impact:

Not sensitive

Sensitivity to Static Discharge:

Not sensitive

Unusual Fire/Explosion Hazards:

See above – Hazardous Combustion Products

Protective Equipment and

Precautions for Firefighters:

As in any fire, wear self-contained breathing apparatus (pressure-demand, NIOSH approved or equivalent), and full protective gear.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Monitor oxygen level.

Personal Protective Equipment:

Wear self-contained breathing apparatus when entering area unless atmosphere is proved safe. Wear full-face air purifying respirator with an organic vapor, multi-purpose cartridge if monitoring shows that the oxygen level is adequate (>19.5%).

Emergency Procedures:

Handle in accordance with good health and safety practices.

Methods for Containment: Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest supplier location.

Methods for Clean Up: Dam up and soak up with inert absorbent material. Place in suitable containers for disposal. Return cylinder to authorized distributor. See Section 8.

Environmental Precautions: Prevent material from entering into waterways, soil or drains.

Waste Disposal: Observe all federal, state, and local regulations for products of this type when accomplishing disposal.

Other: None

Section 7. HANDLING AND STORAGE

Personal Precautions: Use appropriate PPE when handling or maintaining equipment. Handle only in well-ventilated areas. Wash thoroughly after handling (see Section 8).

Conditions for Safe Storage/Handling: Keep product in original container or extinguisher. Prevent falling. Do not allow near heat sources. Contents may be under pressure – inspect extinguisher consistent with product labeling to ensure container integrity.

Incompatible Products: None

Hazardous Decomposition Products: During fire, there may be a release of toxic by-products, including hydrogen halides that can cause damage.

Hazardous Polymerization: Will not occur.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	AIHA WEEL	DFG MAK *	EU BLV
2,2-Dichloro-1,1,1-trifluoroethane	NA	50 ppm	NA	NA

All values are 8 hour time weighted average concentrations. AIHA WEEL – American Industrial Hygiene Association, Workplace Environmental Exposure Level.

NOTE: Decomposition products during fire may include hydrogen fluoride (ACGIH TLV = 0.5ppm, 2ppm Ceiling)

Engineering Controls: Showers
Eyewash stations
Ventilation systems

Personal Protective Equipment – PPE Code E:

The need for respiratory protection is not probable during short-term exposure. PPE use during production process must be independently evaluated.



Eye/Face Protection:

Skin and Body Protection:

Respiratory Protection:

Hygiene Measures:

Tightly fitting safety goggles

Wear protective gloves, and coveralls or long sleeve shirts.

Not normally necessary. If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn. Use air-purifying respirator (APR) with organic vapor canisters if exposure may exceed WEEL (50 ppm TWA). Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current safety and health requirements. The need for respiratory protection is not likely for short-term use in well ventilated areas. Good personal hygiene practice is essential, such as avoiding food, tobacco products, or other hand-to-mouth contact when handling. Wash thoroughly after handling.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless liquid
Molecular Weight:	150.7
Odor:	Mild, sweet
Odor Threshold:	No information available
Decomposition Temperature °C:	No information available
Freezing Point °C:	No information available
Initial Boiling Point °C:	27
Physical State:	Liquid
pH:	Not Applicable

Flash Point °C:	None
Autoignition Temperature °C:	None
Boiling Point/Range °C:	27
Melting Point/Range °C:	-107
Flammability:	Not Flammable
Flammability Limits in Air °C:	Upper – Not Flammable; Lower-Not Flammable
Explosive Properties:	None
Oxidizing Properties:	None
Volatile Component (%vol)	Not Applicable
Evaporation Rate:	Not Applicable
Vapor Density:	6.08 kg/m ³ at 25 °C
Vapor Pressure:	655 kPa at 20 °C
Specific gravity:	Approximately 1.47 at 25 °C
Solubility in water:	2100-4600 mg/L; 0.39% at 25 °C
Partition Coefficient:	2.17 at 20 °C
Viscosity:	No Information Available

Section 10. STABILITY AND REACTIVITY

Stability:	Stable under recommended storage and handling conditions. Vapors are heavier than air and can spread along floors displacing oxygen.
Reactivity:	No hazardous reactions under normal handling and storage.
Incompatibles:	Alkali or alkaline earth metals, powdered metals such as Al, Zn, Be, etc, and strong bases.
Conditions to Avoid:	Heat, flames, sparks.
Hazardous Decomposition Products:	Gaseous hydrogen fluoride (HF), gaseous hydrogen chloride (HCl), phosgene, fluorophosgene.
Possibility of Hazardous Reactions:	Hazardous decomposition products are formed under fire conditions.
Hazardous. Polymerization:	Does not occur.

Section 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Inhalation, skin and eye contact.
Symptoms:	
Immediate:	
Inhalation:	Oxygen levels in the air can be reduced to 12-14%, causing loss of coordination, dizziness, increased heart rate, headache, confusion. Cardiac arrhythmia may occur.

Eyes: Irritation, may cause conjunctivitis.
 Skin: Irritation.
 Delayed: Symptoms appear to be relatively immediate.
 Acute Toxicity: Relatively non-toxic.
 Chronic Toxicity:
 Short-term Exposure: STOT (Single Exposure) – Narcotic effect, CNS.
 Long-term Exposure: STOT (Repeated Exposure) – Skin (defatting), liver.

Acute Toxicity Values - Health

Chemical Name	LD50		LC50 (Inhalation)
	Oral	Dermal	
2,2-Dichloro-1,1,1-trifluoroethane	32000 mg/kg (rat) 4h	>2000 mg/kg (rabbit) >2000 mg/kg (rat)	200 g/cm ³ (rat) 4h

Reproductive Toxicity: None observed.
 Target Organs and Effects (TOST): Single Exposure: Category 1 - CNS, liver. Category 2 – heart.
 Repeated Exposure: Category 1 - Liver

Other Toxicity Categories

Chemical Name	Germ Cell Mutagenicity	Carcinogenicity	Reproductive	TOST Single Exp	TOST Repeated Exp	Aspiration
2,2-Dichloro-1,1,1-trifluoroethane	None	None	None	1 CNS, liver 2 Heart	1 Liver	None

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity: Moderate risk.
 Persistence/Degradability: Persistent
 Probability of rapid biodegradation: -0.0685 (Slow)
 Anaerobic biodegradation probability: 0.6409 (Rapid)
 Water solubility: 638.49 mg/L
 Bioaccumulation factor: 15.71
 Bioconcentration factor: 12.63 L/kg (Low)
 Mobility in soil (Log Koc-MCI Method) 2.134
 Log Octanol-Water Partition Coefficient, Log Kow (KOWWIN): 2.17
 Log Koc (Kow Method): 76.37 L/kg
 Log Koa (Koawin): 2.150
 Log Kaw (HenryWin estimate): 0.020
 Fraction sorbed to airborne particulates (Mackay model): 1.82E-009
Level III Fugacity Model: 6.53% soil, 46% water, 0.0638% sediment, 0.411% air

Other Adverse Ecological Effects: Long lasting effects to the aquatic environment (Category 3)

Aquatic Toxicity Values - Research

Chemical Name	Acute (LC50)	Chronic (LC50)
2,2-Dichloro-1,1,1-trifluoroethane	55.5 mg/L 96h Oncorhynchus mykiss (Rainbow trout) EC50: 17.3 mg/L 48h Daphnia magna (Water flea)	No information found

Aquatic Toxicity Values – Calculated Estimates

Chemical Name	Acute (LC50)	Chronic (LC50)
2,2-Dichloro-1,1,1-trifluoroethane	N/A	N/A

Section 13. DISPOSAL CONSIDERATIONS

Safe Handling

Use appropriate PPE when handling, and wash thoroughly after handling (see Section 8).

Waste Disposal Considerations

Dispose in accordance with federal, state, and local regulations.

Contaminated Packaging

Dispose in accordance with federal, state, and local regulations.

NOTES:

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. TRANSPORT INFORMATION

UN Number:	1956
UN Proper Shipping Name:	Compressed Gas
Transport Hazard Class:	2.2
Packing Group:	NA
Marine Pollutant?:	NO

See current applicable transport regulations (DOT - Ground, IATA – Air, IMDG – Maritime) prior to shipping.

NOTES:

This product is not defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, or by Transport Canada “Transportation of Dangerous Goods” regulations. This transportation information covers the Halotron® I (CAS 306-83-2) fire extinguisher agent as shipped in bulk containers and not when contained in fire extinguishers or fire extinguisher systems.

Special Precautions for Shipping:

If shipped in a stored pressure-type fire extinguisher, and pressurized with a non-flammable, non-toxic inert expellant gas, the fire extinguisher is considered a hazardous material by the US

Department of Transportation and Transport Canada. The proper shipping name shall be FIRE EXTINGUISHER and the UN designation is UN 1044. The DOT hazard class/division is LIMITED QUANTITY when pressurized to less than 241 psig and when shipped via highway or rail. UN Class 2.2. Non-Flammable Gas, when shipping via air. Packing Group – N/A

Section 15. REGULATORY INFORMATION

International Inventory Status: All ingredients are on the following inventories

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	DSL	Yes
Europe	EINECS/ELINCS	Yes
Australia	AICS	Yes
Japan	MITI	Yes
South Korea	KECL	Yes

REACH Title VII Restrictions: No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
2,2-Dichloro-1,1,1-trifluoroethane	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	Toxic Release Inventory (TRI) – Group I	Toxic Release Inventory (TRI) – Group II
2,2-Dichloro-1,1,1-trifluoroethane	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification:	N	Dangerous to the environment
	Xn	Harmful
R Phrases:	39	Danger of very serious irreversible effects.
	48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
	59	Dangerous for the ozone layer.
	68/20	Harmful: possible risk of irreversible effects through inhalation.
S Phrases:	9	Keep container in a well-ventilated place.
	45	In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

U.S. Federal Regulatory Information:**SARA 313:**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) - This product is subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372. This product is regulated under TSCA 8(a).

SARA 311/312 Hazard Categories:

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard-*	Yes
Reactive Hazard	No

* - Only applicable if material is in a pressurized extinguisher.

Clean Water/Clean Air Acts:

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42). This product is regulated as a pollutant and is listed in the Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61) and Section 112 of the Clean Air Act Amendments of 1990 (Destroys ozone in the upper atmosphere).

U.S. State Regulatory Information:

Chemicals in this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: None
California – Permissible Exposure Limits for Chemical Contaminants: None
Florida – Substance List: None
Illinois – Toxic Substance List: None
Kansas – Section 302/303 List: None
Massachusetts – Substance List: None
Minnesota – List of Hazardous Substances: Yes
Missouri – Employer Information/Toxic Substance List: None
New Jersey – Right to Know Hazardous Substance List: Yes
North Dakota – List of Hazardous Chemicals, Reportable Quantities: None
Pennsylvania – Hazardous Substance List: None
Rhode Island – Hazardous Substance List: None
Texas – Hazardous Substance List: None
West Virginia – Hazardous Substance List: None
Wisconsin – Toxic and Hazardous Substances: None

California Proposition 65: No

Other:

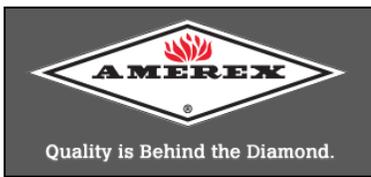
Mexico – INSQ	Listed
Canada – WHMIS Hazard Class	Listed

Section 16. OTHER INFORMATION

This SDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulations or standards, and conforms to the proposed 2003 ANSI Z400.1 format. No modifications of this SDS are authorized by AMEREX Corporation. Questions or comments should be directed to AMEREX Corporation (See Section 1).

Issuing Date	13-February-2019
Revision Date	6-October-2021; Revision G
Revision Notes	None

The information herein is given in good faith but no warranty, expressed or implied, is made.



SAFETY DATA SHEET

Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Carbon Dioxide
Other Identifiers: CO2
Product Code(s):
Manufacturer: AMEREX CORPORATION
Internet Address: www.amerex-fire.com
Address: 7595 Gadsden Highway, P.O. Box 81
Trussville, AL 35173-0081
Company Telephone: (205) 655-3271
E-mail Address: info@amerex-fire.com
Emergency Contacts: Chemtrec 1(800) 424-9300 or
(703) 527-3887
Issued: January 5, 2021

Section 2. HAZARDS IDENTIFICATION

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: 4	None	Warning
Skin Corrosion/Irritation: None	None	None
Skin Sensitization: None	None	None
Eye: None	None	None
Carcinogen: None	None	None

GHS – Label Symbol(s):



If Pressurized: Gas Under Pressure



GHS – Signal Word(s): **Warning**

Other Hazards Not Resulting in Classification:

Carbon dioxide is a simple asphyxiate. May displace oxygen and cause rapid suffocation.

May cause frostbite in contact with skin or eyes.

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	H280 281	*- Contains gas under pressure; may explode if heated. Contains refrigerated gas; may cause cryogenic burns or injury.
Health	H313 332	May be harmful in contact with skin. Harmful if inhaled.
Environmental	None	
Precautionary:		
General	P101	If medical advice is needed, have product container or label at hand.
Prevention	P251 261 271 280	Do not pierce or burn, even after use. Avoid breathing gas. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	P312 321 336 304+340 305+310 313+333	Call a POISON CENTER/doctor if you feel unwell. Specific treatment (see Section 4. First Aid Measures) Thaw frosted parts with lukewarm water. Do not rub affected areas. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Immediately call a doctor. May be harmful in contact with skin or if inhaled.
Storage	P405 403+233 410+403	Store locked up. Store in a well ventilated place. Keep container tightly closed. *- Protect from sunlight. Store in well-ventilated place.
Disposal	P501	Dispose of contents through a licensed disposal company. Contaminated container should be disposed of as unused product.

*- If under pressure

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %
Carbon Dioxide	204-696-9	NA	124-38-9	100

Adverse health effects and symptoms: None in normal quantities

Section 4. FIRST AID MEASURES

Eye Exposure: Liquid or cold gas can cause freezing injury to eyes. Flush eyes with cool water for 15 minutes. Seek medical attention immediately.

Skin Exposure: May cause cold burns or frostbite. Remove contaminated clothing and flush affected areas with lukewarm (NOT HOT) water. Seek medical attention immediately if blistering of the dermal surface or if deep tissue freezing occurs

Inhalation: Carbon dioxide is a simple asphyxiate. May cause coughing, dizziness, headache, dyspnea, unconsciousness. and death. If symptoms appear or respiratory distress occurs, remove victim to fresh air. Seek medical attention immediately.

Ingestion: None under normal conditions
Medical conditions possibly aggravated by exposure: None

Section 5. FIRE-FIGHTING MEASURES

Flammable Properties: Not flammable
Flash Point: None
Suitable Extinguishing Media: Non-combustible. Use extinguishing media suitable for surrounding conditions. Cool fire-exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.
Hazardous Combustion Products: None
Explosion Data:
Sensitivity to Mechanical Impact: Not sensitive
Sensitivity to Static Discharge: Not sensitive
Unusual fire/explosion hazards: Cylinders could rupture under heat of fire.
Protective Equipment and Precautions for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Monitor oxygen level.
Personal Protective Equipment: Wear self-contained breathing apparatus when entering area unless atmosphere is proved safe.
Emergency Procedures: Handle in accordance with good health and safety practices.
Methods for Containment: Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest supplier location.
Methods for Clean Up: Return cylinder to authorized distributor.
Environmental Precautions: Prevent spreading of vapors through sewers, ventilation systems and confined areas.
Other: None

Section 7. HANDLING AND STORAGE

Personal Precautions:

Only experienced and properly instructed persons should handle gases under pressure.

Conditions for Safe Storage/Handling:

If pressurized – Protect from sunlight and store in a well-ventilated place. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, Safe Handling of Compressed Gases in Containers.

Incompatible Products:

Certain reactive metals, hydrides, moist cesium monoxide, or lithium acetylene carbide diammino may ignite. Passing carbon dioxide over a mixture of sodium peroxide and aluminum or magnesium may explode.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV	NIOSH IDLH	EU BLV
Carbon dioxide	TWA: 5000 ppm TWA: 9000 mg/m3	TWA: 5000 ppm STEL: 30000 ppm	40000 PPM	NA

NR = Not Regulated.

Engineering Controls:

Local exhaust ventilation to prevent accumulation of high concentrations and maintain air-oxygen levels at or above 19.5%. Oxygen detectors should be used when asphyxiating gases may be released. Systems under pressure should be regularly checked for leakages.

Personal Protective Equipment

Safety glasses



Eye/Face Protection:

Skin and Body Protection:

Respiratory Protection:

Tightly fitting safety goggles or face shield

Wear protective gloves, safety shoes.

If exposure limits are exceeded, use positive pressure respirator with escape cylinder or self-contained breathing apparatus for oxygen-deficient atmospheres

(<19.5%). If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures:

Good personal hygiene practice is essential, such as avoiding food, tobacco products, or other hand-to-mouth contact when handling. Do not get in eyes, on skin, or on clothing.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless liquid
Molecular Weight:	44 g/mole
Odor:	None
Odor Threshold:	No information available
Decomposition Temperature °C:	2000
Freezing Point °C:	-56.6
Initial Boiling Point °C:	-78.5
Physical State:	Compressed liquefied gas
pH:	Approximately 3.7 at 1 atm
Flash Point °C:	None
Auto-ignition Temperature °C:	No information available
Boiling Point/Range °C:	-78.5
Melting Point/Range °C:	-56.6
Flammability:	Not Flammable
Flammability Limits in Air °C:	Upper – Not Flammable; Lower-Not Flammable
Explosive Properties:	None
Oxidizing Properties:	Not Applicable
Volatile Component (%vol)	Not Applicable
Evaporation Rate:	Not Applicable
Vapor Density:	1.53 (at 78.2 °C)
Vapor Pressure:	4.83x10 ⁴ Hg (at 25°C)
Specific gravity at 25 C:	1.52
Solubility:	0.145 g/ml (at 25°C)
Partition Coefficient Octanol/Water as log Pow:	0.83

Section 10. STABILITY AND REACTIVITY

Reactivity:	Not Applicable
Chemical Stability:	Stable under recommended storage and handling conditions.
Incompatibles:	Certain reactive metals, hydrides, moist cesium monoxide, or lithium acetylene carbide diammino may ignite. Passing carbon dioxide over a mixture of sodium peroxide and aluminum or magnesium may explode.
Conditions to Avoid:	Due to the presence of carbon dioxide, carbonic acid is formed in the presence of moisture.
Hazardous Decomposition Products:	Oxygen, carbon monoxide
Possibility of Hazardous Reactions:	None
Hazardous Polymerization	Does not occur

Section 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Inhalation, skin, and eye contact.
Symptoms:	
Immediate:	
Inhalation:	Increased respiration, headache, mild narcotic effects, increased blood pressure and pulse rate, unconsciousness, death.
Eyes:	Contact with liquid/gas may cause burns/frostbite.
Skin:	Contact with liquid/gas may cause burns/frostbite.
Delayed:	Acidosis, adrenal cortical exhaustion, and other metabolic stresses may result from prolonged exposure to 1-2% carbon dioxide (10,000 – 20,000 ppm).
Acute Toxicity:	Asphyxiate.
Chronic Toxicity:	
Short-term Exposure:	May displace oxygen and cause rapid suffocation.
Long-term Exposure:	None known.

Acute Toxicity Values - Health

Chemical Name	LD50		LC50 (Inhalation)
	Oral	Dermal	
Carbon dioxide	No information available	No information available	470,000 ppm (rat)

Reproductive Toxicity:	This product's ingredients are not known to have reproductive or teratogenic effects.
Target Organs and Effects (TOST):	None

Other Toxicity Categories

Chemical Name	Germ Cell Mutagenicity	Carcinogenicity	Reproductive	TOST Single Exp	TOST Repeated Exp	Aspiration
Carbon dioxide	None	None	None	Central Nervous System, Respiratory System	None	None

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity: Not Applicable
 Persistence/Degradability: Possible hazardous degradation products not expected.
 Long-term degradation products not expected.
 Bioaccumulation: Not Applicable
 Mobility in soil: Mobile

Other Adverse Ecological Effects: No other known effects at this time

Aquatic Toxicity Values – Environment – Research

Chemical Name	Acute (LC50)	Chronic (EC50)
Water	N/A	N/A

Aquatic Toxicity Values – Environment – Estimates

Chemical Name	Acute (LC50)	EC50
Water	N/A	N/A

Section 13. DISPOSAL CONSIDERATIONS

Safe Handling: None.
 Waste Disposal Considerations: Dispose in accordance with federal, state, and local regulations.
 Contaminated Packaging: Dispose in accordance with federal, state, and local regulations.

NOTES:

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. TRANSPORT INFORMATION

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1013	UN1013	UN1013	UN1013	UN1013
UN proper shipping name	CARBON DIOXIDE	CARBON DIOXIDE	CARBON DIOXIDE	CARBON DIOXIDE	CARBON DIOXIDE
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment for the product”

Section 15. REGULATORY INFORMATION

International Inventory Status: All ingredients are on the following inventories

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	WHMIS	Not Controlled
Australia	AICS	Listed or Exempt
Europe	EINECS/ELINCS	Not Classified

REACH Title VII Restrictions: No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
Water	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	Toxic Release Inventory (TRI) – Group I	Toxic Release Inventory (TRI) – Group II
Water	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification:

R Phrases: None

S Phrases: None

U.S. Federal Regulatory Information:

SARA 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) - This product does not contain and chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372. None of the chemicals in this product are under SARA reporting requirements or have SARA threshold planning quantities (TPQs) or CERCLA reportable quantities (RQs), or are regulated under TSCA 8(d).

SARA 311/312 Hazard Categories:

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard-*	Yes
Reactive Hazard	No

* - Only applicable if material is in a pressurized extinguisher.

Clean Water/Clean Air Acts:

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42) or Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61) and Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulatory Information:

Chemicals in this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: None

California – Permissible Exposure Limits for Chemical Contaminants: None

Florida – Substance List: None

Illinois – Toxic Substance List: None

Kansas – Section 302/303 List: None

Massachusetts – Substance List: None
Minnesota – List of Hazardous Substances: None
Missouri – Employer Information/Toxic Substance List: None
New Jersey – Right to Know Hazardous Substance List: None
North Dakota – List of Hazardous Chemicals, Reportable Quantities: None
Pennsylvania – Hazardous Substance List: None
Rhode Island – Hazardous Substance List: None
Texas – Hazardous Substance List: None
West Virginia – Hazardous Substance List: None
Wisconsin – Toxic and Hazardous Substances: None

California Proposition 65: No component is listed on the California Proposition 65 list.

Section 16. OTHER INFORMATION

This SDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulations or standards, and conforms to the proposed 2003 ANSI Z400.1 format.

Issuing Date	March 20, 2018
Revision Date	05-January-2021
Revision Notes	Updated Section 14.