SAFETY DATA SHEET

Kidde Aerospace & Defense

1. Identification

Product identifier **Kiddex® (Pressurized with Nitrogen)**

Other means of identification None.

Recommended use Fire Extinguishing Agent.

Recommended restrictions Consult applicable fire protection codes.

Manufacturer/Importer/Supplier/Distributor information

Company name Collins Aerospace

Address 4200 Airport Drive NW
Wilson, NC 27896 - USA

Customer Information +1 252 237-7004

Emergency Tel Number 1-800-451-8386 Site Code: 33067

2. Hazard(s) identification

Physical hazards Gases under pressure Compressed gas

Health hazards Not classified.

OSHA defined hazards Simple asphyxiant

Label elements

Signal word Warning

Hazard statement Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.

Precautionary statement

Prevention Avoid breathing gas. Use only with adequate ventilation. Do not enter storage areas or confined spaces unless adequately ventilated. Wear protective gloves. In case of inadequate ventilation wear respiratory protection.

Response If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

Storage Protect from sunlight. Store in a well-ventilated place.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information Direct contact with the cold gas or liquid can cause freezing of exposed tissues.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Sodium bicarbonate	144-55-8	90 - 100
Silicon dioxide, crystalline silica-free	7631-86-9	1 - 5

Composition comments Note: This product uses nitrogen as the expellant and also contains a small amount of helium.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation
Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory tract irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation. Move to fresh air. Get medical attention immediately.

Skin contact
In case of contact with liquefied gas, thaw frosted parts with lukewarm water. Obtain medical attention if frostbite or blistering occurs or redness persists.

Eye contact
Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling. Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. If burning, redness, itching, pain, or other symptoms develop or persist get medical attention.

Ingestion
Ingestion is not a typical route of exposure for gases or liquefied gases.

Most important symptoms/effects, acute and delayed
Convulsions. Headache. Dizziness. Fatigue. Nausea, vomiting. Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themself. Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. In case of frostbite, place the frostbitten part in warm water. If warm water is not available or impractical to use, wrap the affected parts gently in blankets. DO NOT USE HOT WATER.

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media
This preparation is used as an extinguishing agent and therefore is not a problem when trying to control a fire. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media
No restrictions known.

Specific hazards arising from the chemical
Pressurized container may explode when exposed to heat or flame. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
In case of fire and/or explosion do not breathe fumes. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards
Contents under pressure.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Remove leaking cylinder to a safe place. In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. In confined spaces, make sure the area is well-ventilated and sufficient oxygen (19.5%) exists before entry. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate protective equipment and clothing during clean-up. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up
Allow gas to evaporate. Isolate area until gas has dispersed.

For waste disposal, see section 13 of the SDS.

Environmental precautions
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases.

7. Handling and storage

Precautions for safe handling

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Never apply flame or localized heat directly to any part of the containers. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Purge air from system before introducing gas. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Avoid breathing gas. Avoid prolonged exposure. Do not enter storage areas or confined spaces unless adequately ventilated. Use only outdoors or in a well-ventilated area. Oxygen concentration should not fall below 19.5 % at sea level (pO2 = 135 mmHg). Mechanical ventilation or local exhaust ventilation may be required. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Stored containers should be periodically checked for general condition and leakage. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

U.S. - OSHA

Components	Type	Value
Silicon dioxide, crystalline silica-free (CAS 7631-86-9)	TWA	80 mg/m3

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Silicon dioxide, crystalline silica-free (CAS 7631-86-9)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		20 mppcf	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Silicon dioxide, crystalline silica-free (CAS 7631-86-9)	TWA	6 mg/m3

Biological limit values

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

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. Rubber gloves are recommended.

Skin protection

Other

Wear suitable protective clothing.

Respiratory protection

In oxygen deficient atmospheres, use a self contained breathing apparatus, as an air purifying respirator will not provide protection. Check with respiratory protective equipment suppliers.

Thermal hazards

If contact with liquid gas is possible, consider use of cold-impervious chemical-resistant insulating gloves.

General hygiene considerations

No specific hygiene procedures noted, but good personal hygiene practices are always advisable.

9. Physical and chemical properties

Appearance

Physical state

Gas under pressure – Compressed gas.

Form

Solid (powder). [Agent]
Compressed gas. [Expellant]

Color	Off white. [Agent] Colorless. [Expellant]
Odor	Slight soda characteristic odor. [Agent] Odorless. [Expellant]
Odor threshold	Not applicable.
pH	7 (5% solution in water) [Agent]
Melting point/freezing point	-346 °F (-210 °C) [Expellant (Nitrogen)] -457.96 °F (-272.2 °C) [Expellant (Helium)]
Initial boiling point and boiling range	-320.8 °F (-196 °C) [Expellant (Nitrogen)] -452.02 °F (-268.9 °C) [Expellant (Helium)]
Flash point	Not flammable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Non flammable.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not explosive.
Explosive limit - upper (%)	Not explosive.
Vapor pressure	Property has not been measured.
Vapor density	Property has not been measured.
Relative density	2.2 [Agent] (68 °F (20 °C))
Solubility(ies)	
Solubility (water)	Property has not been measured.
Partition coefficient (n-octanol/water)	Not applicable for mixtures.
Auto-ignition temperature	Property has not been measured.
Decomposition temperature	Not applicable.
Viscosity	Not applicable.

10. Stability and reactivity

Reactivity	Containers may rupture or explode if exposed to heat.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization will not occur.
Conditions to avoid	Exposure to sunlight. Contact with incompatible materials.
Incompatible materials	Strong acids.
Hazardous decomposition products	Carbon oxides.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Prolonged inhalation may be harmful.
Skin contact	Contact with liquefied gas may cause frostbite.
Eye contact	Contact with liquefied gas may cause frostbite.
Ingestion	Ingestion is not a typical route of exposure for gases.
Symptoms related to the physical, chemical and toxicological characteristics	Convulsions. Headache. Dizziness. Fatigue. Nausea, vomiting. Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themself. Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

Information on toxicological effects

Acute toxicity	Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

Components	Species	Test Results
Silicon dioxide, crystalline silica-free (CAS 7631-86-9)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, 24 Hours
Inhalation		
Dust		
LC50	Rat	> 0.14 mg/l, 4 Hours
Oral		
LD50	Rat	> 3300 mg/kg
Sodium bicarbonate (CAS 144-55-8)		
Acute		
Inhalation		
LC50	Rat	> 4.74 mg/l
Oral		
LD50	Rat	> 4000 mg/kg

Skin corrosion/irritation Contact with liquefied gas may cause frostbite.

Serious eye damage/eye irritation Contact with liquefied gas may cause frostbite.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Silicon dioxide, crystalline silica-free (CAS 7631-86-9) 3 Not classifiable as to carcinogenicity to humans.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Sodium bicarbonate (CAS 144-55-8)			
Aquatic			
Crustacea	EC50	Daphnia	2350 mg/l, 48 hours
Acute			
Fish	LC50	Bluegill (Lepomis macrochirus)	8600 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential Not expected to bioconcentrate or bioaccumulate.

Mobility in soil The gas will disperse in the air.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. Do not cut, puncture or weld on or near to the pressurized container. If spilled, expellant will vaporize to the atmosphere.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1956
UN proper shipping name	Compressed gas, n.o.s. (Nitrogen)
Transport hazard class(es)	
Class	2.2
Subsidiary risk	-
Label(s)	2.2
Packing group	-
Environmental hazards	
Marine pollutant	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Packaging exceptions	306, 307
Packaging non bulk	302, 305
Packaging bulk	314, 315

IATA

UN number	UN1956
UN proper shipping name	Compressed gas, n.o.s. (Nitrogen)
Transport hazard class(es)	
Class	2.2
Subsidiary risk	-
Packing group	-
Environmental hazards	No.
ERG Code	2L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1956
UN proper shipping name	COMPRESSED GAS, N.O.S. (Nitrogen)
Transport hazard class(es)	
Class	2.2
Subsidiary risk	-
Packing group	-
Environmental hazards	
Marine pollutant	No.
EmS	F-C, S-V
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.
General information	Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: Ensure that containers are firmly secured. Ensure cylinder valve is closed and not leaking. Ensure valve outlet cap nut or plug (where provided) is correctly fitted. Ensure valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA) All components of the mixture on the TSCA 8(b) inventory are designated “active”.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Gas under pressure
Simple asphyxiant

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Silicon dioxide, crystalline silica-free (CAS 7631-86-9)

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Silicon dioxide, crystalline silica-free (CAS 7631-86-9)

US. Rhode Island RTK

Silicon dioxide, crystalline silica-free (CAS 7631-86-9)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

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

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

Issue date 10-May-2022

Revision date -

Version # 01

HMIS® ratings Health: 2
Flammability: 0
Physical hazard: 3

Disclaimer Collins Aerospace cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.