

3M Canada Company  
 1840 Oxford Street East, Post Office Box 5757  
 London, Ontario N6A 4T1  
 Medical Emergency Telephone: (519) 451-2500, Ext. 2222  
 Transportation Emergency Telephone (CANUTEC): (613) 996-6666

=====  
 Material Safety Data Sheet  
 =====

Document id : 10-3495-8 Issue date : 19/09/2005  
 Version : 22.00 Supersedes date : 17/10/2002

Copyright, 1997, 3M Canada Company. All rights reserved. Copying and/or downloading of this information for the purpose of properly utilizing 3M products is allowed provided that: (1) the information is copied in full with no changes unless prior written agreement is obtained from 3M, and (2) neither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon.

Prepared by: Environmental Health and Safety Services Department, 3M Canada Company  
 Telephone: (519) 452-2161, Fax: (519) 452-6015, Web Site: www.3M.ca

-----  
 1 Product Identification  
 -----

Tradename:

STERI-GAS BRAND CARTRIDGES 4-60, 4-100 4-134 AND 8-170

Product ID:

70-2007-4136-4	70-2007-4137-2	70-2007-4138-0	70-2007-4140-6
70-2007-4141-4	70-2007-4142-2	70-2007-4134-9	70-2007-1102-9
70-2007-1103-7	70-2007-1104-5	70-2007-1213-4	70-2007-1214-2
70-2007-1215-9	70-2004-5709-4	70-2004-6706-9	70-2004-7521-1
70-2005-6119-2	70-2005-6120-0	70-2005-6121-8	70-2006-1010-6
70-2006-1011-4	70-2006-1012-2	70-2006-1013-0	70-2006-1014-8
70-2006-1015-5	78-8069-7391-9	70-2007-2768-6	70-2007-3685-1
70-2007-4128-1	70-2007-4129-9	70-2007-4130-7	70-2007-4132-3
70-2007-4133-1	70-2006-6045-7	70-2006-6107-5	70-2006-6108-3
70-2006-6109-1	70-2006-6110-9	70-2006-6111-7	70-2006-6112-5
70-2006-6113-3	70-2006-6114-1	70-2006-6115-8	70-2006-6116-6
70-2006-6117-4	70-2006-6118-2	70-2006-6807-0	70-2006-7192-6
70-2006-7193-4			

Intended Use of Product:

Medical Product

Division:

MEDICAL DIVISION

□

STERI-GAS BRAND CARTRIDGES 4-60, 4-100 4-134 AND  
 8-170

Page 2 of 10

-----  
 2 Composition/Information on Ingredients  
 -----

Ingredient Name	CAS Number	Percentage
ETHYLENE OXIDE	75-21-8	100

## NOTE:

Each percentage is expressed as the ratio of the weight of the ingredient to the weight of the controlled product.

---

### 3 Hazards Identification

---

## Critical Hazards:

Flammable liquified gas.

Aerosol container contains flammable gas under pressure.

Lacrimation: Signs/symptoms can include severe stinging of the eyes, redness and profuse tear discharge.

Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Frostbite: Signs/symptoms can include intense pain, clouding of the cornea, redness, swelling, and blindness.

May be absorbed through skin and cause target organ effects.

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Severe Skin Irritation: signs/symptoms can include localized redness, swelling, itching, dryness, cracking, blistering, and pain.

Frostbite: Signs/symptoms can include intense pain, discoloration of skin, and tissue destruction.

Can be harmful or fatal if inhaled

May be absorbed following inhalation and cause target organ effects.

May be absorbed following ingestion and cause target organ effects.

WARNING: Contains a chemical which can cause cancer. (75-21-8) (NTP anticipated human carcinogen, IARC human carcinogen 1, ACGIH suspected human carcinogen A2)

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

See Sections 7 and 11 for further information.

□

STERI-GAS BRAND CARTRIDGES 4-60, 4-100 4-134 AND  
8-170

Page 3 of 10

---

### 4 First Aid Measures

---

## Instructions for Eye Contact:

Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

## Instructions for Skin Contact:

Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Get medical attention. Wash contaminated clothing and clean shoes before reuse.

## Instructions for Inhalation:

Remove person to fresh air. If signs/symptoms develop, get medical attention.

## Instructions for Ingestion:

Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

---

## 5 Fire Fighting Measures

Flash point: -20 C TCC  
 Lower Explosive Limit (%): 3 % by volume  
 Upper Explosive Limit (%): 100 % by volume  
 Autoignition temperature: 428.89 C Burns in the  
 absence of air;

## Suitable Extinguishing Media:

Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

## Exposure Hazards during Fire:

Closed containers exposed to heat from fire may build pressure and explode. Vapours of product will burn without the presence of air or other oxidizers.

## Combustion Products from Fire:

Carbon Monoxide; Carbon Dioxide;  
 Violent decomposition may occur at temperatures above 427 C

## Fire Fighting Procedures:

Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

NFPA: Health 3  
 NFPA: Fire 4  
 NFPA: Reactivity 3  
 NFPA: Unusual Reaction Hazard none

## Special Instructions:

Aerosol container contains flammable material under pressure.

□

STERI-GAS BRAND CARTRIDGES 4-60, 4-100 4-134 AND Page 4 of 10  
 8-170

## 6 Accidental Release Measures

## Personal Precautions:

Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Call 3M-HELPS line (1-800-364-3577) for more information on handling and managing the spill.

## Spill Response:

Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Remove all ignition sources such as flames, smoking materials, and electrical spark sources. Use only non-sparking tools. Ventilate the area with fresh air. Contain spill. If possible, seal leaking container. Place leaking containers in a well-ventilated area, preferably an operating exhaust hood, or if necessary outdoors on an impermeable surface until appropriate packaging for the leaking container or its contents is available. Close cylinder. If the cylinder can't be closed, place in a well-ventilated area, preferably an operating exhaust hood, or if necessary outdoors. Avoid contact with incompatible materials listed in the Reactivity Data Section. Cover spill area with a fire-extinguishing foam designed for use on solvents, such as alcohols and acetone, that can dissolve in water.

An AR - AFFF type foam is recommended. Clean up residue with an appropriate organic solvent. Read and follow safety precautions on the solvent label and MSDS. Place in a metal container approved for transportation by appropriate authorities. Seal the container. Dispose of collected material as soon as possible.

---

## 7 Handling and Storage

---

**Storage Requirements:**

No data available.

**Incompatible Materials:**

Heat;

Store out of direct sunlight. Store away from acids; WILL POLYMERIZE VIOLENTLY IF CONTAMINATED WITH Aqueous Alkalines; Amines; Mineral Acids; Metal Chlorides; and Metal Oxides;

**Ventilation:**

Keep container in well-ventilated area.

**Fire Prevention:**

Flammable liquified gas. Aerosol container contains flammable gas under pressure. No smoking while handling this material. Do not spray near flames or sources of ignition.

**Explosion Prevention:**

Keep away from heat, sparks, open flame, pilot lights and other

□

STERI-GAS BRAND CARTRIDGES 4-60, 4-100 4-134 AND  
8-170

Page 5 of 10

---

sources of ignition.

**Use Instructions:**

For industrial or professional use only. Recommendations for storing Steri-Gas cartridges (listed below) are more stringent than those in the NFPA codes. Check your local fire protection codes for additional requirements. Keep all sources of ignition such as matches, lighted cigarettes, sparks and static discharge away from the sterilizer and cartridges. Store cartridges at a temperature of 15-30 deg C (59-86 deg F) in an upright position. Keep only one day's requirement or a maximum of twelve (12) cartridges (one box) in the immediate sterilizer area. This area needs to have at least ten air changes per hour. Additional Steri-Gas cartridges should be stored in an approved flammable liquid storage cabinet vented to the outside atmosphere, or in an area suitable for storage of flammable liquids appropriately vented to the outside atmosphere, or into a non-recirculating, continuously operating, dedicated exhaust system.

---

## 8 Exposure Controls/Personal Protection

---

**Personal Protection****Eye Protection:**

Avoid eye contact. Avoid eye contact with vapours, mists, or spray. The following should be worn alone or in combination, as appropriate, to prevent eye contact: Indirect vented goggles;

**Hand Protection:**

Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials. Wear insulated gloves to protect against frostbite. The following glove material(s) are recommended: butyl rubber;

**Skin Protection:**

Avoid skin contact.

**Respiratory Protection:**

Select one of the following approved respirators based on airborne

concentration of contaminants and in accordance with regulations:

Fullface supplied-air respirator;

Ingestion (Prevention):

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Not an expected route of exposure.

Recommended Ventilation:

Use with appropriate local exhaust ventilation. Provide appropriate local exhaust ventilation on open containers. Use in an enclosed

□

STERI-GAS BRAND CARTRIDGES 4-60, 4-100 4-134 AND Page 6 of 10  
8-170

process area is recommended. Do not use in a confined area or areas with little or no air movement. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits. If ventilation is not adequate, use respiratory protection equipment.

Special Instructions:

The OSHA EO standard (29 CFR 1910.1047) requires a written emergency plan for spills or leaks. The plan must include procedures for alerting, evacuating, rescuing, training, and medically treating personnel overcome by EO. Procedures for reporting an emergency to appropriate authorities and determining when it is safe to re-enter a spill area must be included. Do not confuse EO leakage with swelling of the gasket material under the cartridge cap or an oily residue that sometimes appears on the cartridge.

Ingredient Exposure Data

ETHYLENE OXIDE (75-21-8)

LD50 (rat, oral) 72 mg/kg

LC50 (rat, inhalation/4 hours) 800 ppm

Exposure Limits

3M: TWA 1 ppm

3M: STEL 5 ppm

ACGIH: TWA 1 ppm (Table A2)

9 Physical and Chemical Properties

Physical form, Color, Odour:	Gas; Compressed Gas; COLORLESS GAS IN NORMAL USE. SWEET ODOR AT 500-750 PPM
Odour Threshold:	No data available.
pH:	7
Boiling point/boiling range:	10.56 C
Melting point/melting range:	Not applicable
Vapour pressure:	1094 mmHg at 20 C
Water Solubility:	Complete
Specific gravity:	0.87 Water=1 at 20 C
Vapour density:	1.5 Air=1
Volatile organic compounds:	100 %
Evaporation rate:	Not applicable
Viscosity:	Not applicable
Percent Volatile:	100 %

□

STERI-GAS BRAND CARTRIDGES 4-60, 4-100 4-134 AND  
8-170

Page 7 of 10

---



---

## 10 Stability and Reactivity

---

### Conditions to Avoid:

Heat; Store out of direct sunlight.

### Materials to Avoid:

Store away from acids;

WILL POLYMERIZE VIOLENTLY IF CONTAMINATED WITH Aqueous Alkalines;

Amines; Mineral Acids; Metal Chlorides; and Metal Oxides;

### Hazardous Decomposition:

Carbon Monoxide; Carbon Dioxide;

Violent decomposition may occur at temperatures above 427 C

### Stability and Reactivity:

Stable. Hazardous polymerization will not occur.

---

## 11 Toxicological Information

---

### Effects from Eye Contact:

Lacrimation: Signs/symptoms can include severe stinging of the eyes, redness and profuse tear discharge.

Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Frostbite: Signs/symptoms can include intense pain, clouding of the cornea, redness, swelling, and blindness.

### Effects from Skin Contact:

May be absorbed through skin and cause target organ effects.

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Severe Skin Irritation: signs/symptoms can include localized redness, swelling, itching, dryness, cracking, blistering, and pain.

Frostbite: Signs/symptoms can include intense pain, discoloration of skin, and tissue destruction.

### Effects from Inhalation:

Can be harmful or fatal if inhaled

Upper Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Lung Effects: Signs/symptoms may include difficulty breathing, cough, wheezing, weakness, increased heart rate, bluish colored skin (cyanosis), sputum production and changes in lung function tests.

May be absorbed following inhalation and cause target organ effects.

Pulmonary Edema: Signs/symptoms may include chest discomfort, shortness of breath, significant cough with frothy sputum production, bluish colored skin (cyanosis), increased heart rate

---

□

STERI-GAS BRAND CARTRIDGES 4-60, 4-100 4-134 AND  
8-170

Page 8 of 10

---

and possible respiratory failure, and may be fatal.  
Effects from Ingestion:

Gastrointestinal Effects: Signs/symptoms may include stomach upset, nausea, vomiting and diarrhea.

May be absorbed following ingestion and cause target organ effects.

Sensitization Information:

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Carcinogenicity:

WARNING: Contains a chemical which can cause cancer. (75-21-8) (NTP anticipated human carcinogen, IARC human carcinogen 1, ACGIH suspected human carcinogen A2)

Mutagenicity:

No data available.

Reproductive Effects:

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Component Based Information:

No data available.

Product Based Information:

No data available.

Other Effects & Information:

Endocrine Tissue Effects: Signs/symptoms may include disruption of gonadal, thyroid, adrenal or pancreatic function.

Gastrointestinal Effects: Signs/symptoms may include stomach upset; nausea, vomiting and diarrhea.

Liver Effects: Signs/symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness and jaundice.

Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Peripheral Neuropathy: Signs/symptoms may include tingling or numbness of the extremities, incoordination, weakness of the hands and feet, tremors and muscle atrophy.

Olfactory Effects: Signs/symptoms may include decreased ability to detect odors and/or complete loss of smell.

Kidney Effects: Signs/symptoms may include reduced or absent urine production, increased serum creatinine, lower back pain, increased protein in urine, and increased blood urea nitrogen (BUN).

Pulmonary Edema: Signs/symptoms may include chest discomfort, shortness of breath, significant cough with frothy sputum production, bluish colored skin (cyanosis), increased heart rate, respiratory failure and may be fatal.

□

STERI-GAS BRAND CARTRIDGES 4-60, 4-100 4-134 AND  
8-170

Page 9 of 10

-----  
-----  
12 Ecological Information  
-----

Environmental Data:

Ecotoxicity Data:

No data available.

Ecofate Data:

Other Effects and Information:

Handling of this substance according to recommendations is important because its properties present a moderate environmental hazard.

Harmful to aquatic organisms.

This substance is expected to be rapidly removed from the aquatic and terrestrial compartments by vaporization.

Degradation in the atmosphere will primarily occur through

reactions with photochemically produced hydroxy radicals.

---

### 13 Disposal Considerations

---

Product as Sold:

Incinerate in a permitted hazardous waste incinerator. The facility should be equipped to handle gaseous waste.

Product Packaging:

No data available.

Special Instructions:

Since regulations vary, consult applicable regulations or authorities before disposal.

---

### 14 Transportation Information

---

Transportation of Dangerous Goods

---

TDG Classification:	Regulated Material.
Proper Shipping Name:	Ethylene Oxide
Class/Division:	2.3 (2.1)
UN Number:	UN1040
Special Information:	Contact 3M for more information.

International Dangerous Goods Classification

---

□

STERI-GAS BRAND CARTRIDGES 4-60, 4-100 4-134 AND  
8-170

Page 10 of 10

---

### 15 Regulatory Information

---

WHMIS Classification: Exempt

NOTE:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

---

### 16 Other Information

---

Reason for Reissue:

The following Sections and topics have been updated or revised:

- Section 1 - Intended Use of Product;
- Section 2 - Composition/Information on Ingredients;
- Section 3 - Hazards Identification - Critical Hazards;
- Section 5 - Fire Fighting Measures
- Section 6 - Accidental Release Measures;
- Section 7 - Handling and Storage;
- Section 8 - Exposure Controls/Personal Protection;
- Section 9 - Physical and Chemical Properties;
- Section 10 - Stability and Reactivity;
- Section 11 - Toxicological Information;
- Section 13 - Disposal Considerations;

The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

---End---

□