

3M Science.
Applied to Life.™



Sustainable is obtainable.

Eliminates 99.9% or more of ethylene oxide (EO) emissions, for more operational flexibility and peace of mind.

3M™ EO Abator Model 50 System

The sustainable, responsible solution for users of ethylene oxide (EO) sterilizers.

The 3M™ EO Abator includes an enclosed catalyst bed, air heater, fan and all controls necessary for complete operation. The estimated life of the catalyst is three years, based on average use of 250 cycles per year. The unit comes complete, ready for installation and connection to the building utility service lines and sterilizer exhaust.



Engineered for Safety and Efficiency

For more than 50 years, ethylene oxide (EO) has represented the “gold standard” for low temperature sterilization. EO is known to be gentle on instruments and highly penetrating, making it ideal for complex devices such as long lumen endoscopes — all while saving you money.

Now you can continue to use this proven technology with confidence — and comply with both current and potential future regulatory requirements on EO emissions — with the 3M™ EO Abator System.

The 3M EO Abator is a highly effective device used to convert EO exhausted from a sterilizer airstream. It is designed exclusively for use with 3M™ Steri-Vac™ Sterilizer Models GS5, GS5X, GS8 and GS8X.

The 3M EO abator uses an exothermic (heat producing) reaction to convert EO exhaust into CO₂ and water vapor. At normal operating temperatures and concentrations, conversion efficiency is 99.9%* or more of ethylene oxide — virtually eliminating emissions of EO to the environment!

Ethylene Oxide: High Performance at Low Cost

Ethylene oxide (EO) is the low temperature sterilant of choice for today’s most challenging sterilization applications. EO is effective in killing vegetative bacteria, bacterial spores and viruses.¹ EO can penetrate narrow lumens and complex instrument configurations. Unlike hydrogen peroxide, EO is noncorrosive and compatible with many polymers including plastics. EO is also used on instruments with metal, electronics, adhesives, paper packaging, reusable fabric wraps other device materials.¹

In addition to providing a high-performance solution, EO sterilization can also save you money. 3M™ Steri-Vac™ EO Sterilizers provide an overall lower cost compared to leading vaporized hydrogen peroxide systems. 3M™ Steri-Vac™ EO Sterilizers have a lower initial cost of capital, lower cost per cycle, and lower annual cost to maintain compared to vaporized hydrogen peroxide systems.



Meets Applicable Requirements Including:

- ✓ UL Certified
- ✓ c-UL Certified
- ✓ CE marked to EMC Directive
- ✓ CE marked to Low Voltage Directive
- ✓ Seismic stress calculation**

*When EO concentrations are greater than 100 ppm. When EO concentrations are less than 100 ppm, conversion efficiency is 99.9% or greater.

**Title 24 of the California Administrative Code.

Abators Meet Requirements and Grant Flexibility

Installing an abator as part of the EO sterilization solution gives you peace of mind and flexibility to address your facility's needs. The 3M™ EO Abator meets regulatory requirements for EO usage and addresses trends toward a higher level of environmental stewardship.

Evolving Regulatory Environment

Although EO is a highly effective sterilant, regulatory agencies around the world are developing comprehensive standards for the handling of chemicals including EO. The US and Canada are among the countries with stricter requirements. These regulations can impact how facilities use their sterilizers. For example, the United States EPA issued a Final Rule² requiring hospital EO sterilization facilities that do not have an air pollution control device (such as the 3M™ EO Abator) to process “full loads of items having a common aeration time” and keep detailed records demonstrating compliance. Canada enacted new guidelines that require treating EO emissions to reduce them by 99.0%.³ Additional requirements exist in some other countries, states, and localities.

Having an abator means you can operate your sterilizer as-needed, rather than being required to wait until you have enough material for a full load.

Environmental Stewardship

Hospitals and other organizations are becoming more mindful and adopting practices that demonstrate community responsibility. 3M likewise prioritizes sustainable solutions and reducing emissions. While current regulations may not yet be as strict in some countries, there is a global trend toward increased regulations and tighter use restrictions that is likely to continue as public sentiment toward environmental stewardship increases.

The 3M™ EO Abator is the Answer

By adding a 3M™ EO Abator system, you can continue to enjoy all the advantages of EO sterilization without restrictions on frequency of sterilizer use, all while being mindful of environmental stewardship.

At normal operating temperatures and concentrations, the 3M Abator removes 99.9% or greater of EO emissions. This allows hospitals to meet emission requirements and eliminates the mandate in some areas to only run full loads in the EO sterilizer.

Increasingly, sterile processing professionals are choosing to approach their sterilization practice with sustainability in mind by installing a 3M™ EO Abator, even in locales where such equipment is not a requirement. Reducing emissions is a responsible choice.

1. Wallace CA. Ethylene Oxide Sterilization. In: McDonnell GE, Hansen JM, ed. Blocks disinfection, sterilization, and preservation. Philadelphia: Wolters Kluwer; 2021: 660–670.

2. “National Emission Standards for Hospital Ethylene Oxide Sterilizers.” Federal Register; Dec. 28, 2007, Vol. 72, No. 248.

3. Government of Canada <https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/guidelines-objectives-codes-practice/reduction-ethylene-oxide-releases-sterilization.html>

3M™ EO Abator System Design Features

Programmable logic controller monitors system functions throughout the process. EO flow to the unit is prohibited until the catalyst bed reaches operating temperature. The oxidation process is then continuously monitored to ensure that the oxidation stays within pre-determined temperature ranges.

Airflow is confirmed before electrical heaters turn on. This ensures long heater element life as well as proper cooling/dilution for EO processing. Also, a built-in shut down delay allows the blower to cool internal components for extended service life.

Electric heater is programmable logic controlled to allow quick warm-up time.

Each EO Abator can be used with a maximum of two 3M™ Steri-Vac™ Sterilizer Models GS5, GS5X, GS8 and GS8X



Model GS5

3M™ EO Abator Model 50 System

Operating Components

Catalytic Bed	Filled with a proprietary catalyst which converts EO into CO ₂ and water vapor. The bed is replaceable.
EO Shut-Off	Valve has emergency venting to atmosphere upon system malfunction.
Exhaust	If over temperature is reached, the sterilizer can be programmed so that EO will be prevented from entering the unit until the unit is repaired.
Indicator Panel	Includes large, easy-to-see lights which inform the operator of the condition of the system. The panel is a Nema-12 box.

Mounting

Electricity	All internal wiring has been completed at the factory. Customer is responsible for providing appropriate electrical service to the main disconnect located in the system cabinet, and between the sterilizer and the remote panel. Details are in 3M™ EO Abator Operation and Installation Manual.
Piping	A 3/4" (19mm) NPT fitting has been provided for EO feed connection. All internal piping has been tested at the factory. The EO Abator exhaust must be connected to a dedicated exhaust system supplied by the customer.
Installation	The EO Abator can be moved into place with a forklift. The system is a freestanding unit and meets seismic requirements when properly bolted to the building floor or roof. The installation should be inspected by a qualified 3M service representative before start-up. Refer to the 3M™ EO Abator Operation and Installation Manual for detailed information.

3M™ EO Abator Systems are compact, and can be located almost anywhere that access to outside air can be achieved by run of pipe. 3M offers installation and engineering assistance through a dedicated field service team. Contact your 3M representative or local service provider for more information.

Note: This data sheet contains only a general description of 3M™ EO Abator systems. While uses and performance capabilities are described, under no circumstances should the products herein be used except by qualified, trained personnel and not until the instructions, labels and other literature accompanying them have been carefully read and understood and the precautions therein set forth followed. Only they contain the complete and detailed information.

Engineering Data

	Size	Weight	Model	Electrical Requirements			EO Feed Rate Maximum
				Volts	Phase	Amps	
Abator	42 in. x 36 in. x 32 in. (1067mm x 915mm x 813mm)	360 lbs. (163kg)	50AN	220–230	1	40	0.017 lbs. / min. (7.75g / min.)
			50AE	400	3	20	
			50AJ	200	3	40	
Indicator Box	12 in. x 10 in. x 4 in. (305mm x 254mm x 102mm)	15 lbs. approx.	—	—	—	—	—

Airflow Nominal	Exhaust Temperature			Heat Radiation/BTUHR (KW) at 70°F (21°C)
	Normal Operating (No EO)	Typical Operations (Processing EO)	Upset Shutdown	
55–80 SCFM (1.6–2.3 SCMM)	280°F (138°C)	460°F (238°C)	500°F (260°C)	21,500 (6.3)

The 3M™ EO Abator is approved for use only with 3M™ Steri-Vac™ Sterilizers.

For general product information: 3M Health Care Customer Helpline 1-800-228-3957

Outside of the U.S. contact your local 3M office. Global office locations are available on our website. Visit 3M.com and select the specific country for access to your local 3M contacts.

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