

**EtO Gas Mixtures & Disposable Cartridges**  
**Automatic, Semi Automatic & Manual EtO Sterilizers**  
**EtO Scrubbers (Air Pollution Control Solutions)**



**The EtO Sterilization Specialist**





## COMPANY

At EBSC, we are proud of our quality and control systems as well as our excellent record in safety and environmental performance. We continually strive to ensure the best possible work practices are maintained at every stage of our business.

### Ethylene oxide (EtO):

EtO is a gas that sterilises via its action as a powerful alkylating agent. EtO prevents cell reproduction and as such can kill all known viruses, bacteria and fungi, including bacterial spores. EtO is compatible with a number of materials. It is commonly used in the medical field for the sterilization of medical equipment and medical disposable manufacturers and hospitals are among some of EBSC's major customers for this process.

The process of applying EtO is a carefully managed one involving multiple stages designed first to bring the product to the necessary temperature and moisture content, then the product is placed in a special chamber where all air is removed and controlled amounts of steam and EtO are introduced. Finally, the product exits the chamber and is conveyed into the high velocity aeration room, where gas residuals are lowered to required levels of a period of at least 48 hours.



# EtO Sterilization

### **Medical :**

The use of irradiation and ethylene oxide (EtO) gas for the sterilisation of medical products has been successfully used for more than 40 years. Both techniques are highly effective at removing bacteria, viruses and other pathogens. Today, more than 90% of all single use medical devices worldwide are sterilised by irradiation or EtO.



The main advantages of using gamma irradiation and EtO are they are reliable, are effective against a broad spectrum of pathogens, can penetrate packaging, are suitable for most medical equipment and are safe for health practitioner and the patient.

We treat medical disposables and equipments at EBSC's services unit in Vadodara, Gujarat. As the leading supplier of sterilisation EtO Gas Mixtures to the health sector, EBSC is proud to be playing a key role in improving health standards in hospitals and clinics, and protecting patient safety.

### **Quarantine & Other :**

EBSC's EtO helps businesses and individuals meet quarantine standards for imported and exported goods. These treatments eliminate microbiological contamination of traded goods and prevent the introduction of exotic pests and diseases into the country.

EBSC helps a variety of industries make their products safer, manage pests and diseases, and meet regulatory requirements.



Our treatments are especially beneficial to schools, museums, councils, libraries, storage companies, art galleries, loss adjusters, insurance companies, companies with a need to store documents, antique dealers and anyone who has active borers in furniture. Basically, if you have a need to eliminate mould, bacteria or pests, contact EBSC first.



### **Pharma & Cosmetics :**

Given their success in the medical products Ethylene oxide fumigation (EtO) is increasingly used to sterilise pharmaceutical raw materials as well as every day cosmetics and sanitary preparations.

EtO helps assure product integrity by minimising any risks relating to microbiological contamination. This is of great importance to pharmaceutical and cosmetic manufacturers and importers, given no company can afford the risk of contamination and the subsequent customer backlash and costly returns resulting from contaminated products. The main advantages of using EtO is that it is reliable, effective against a broad spectrum of pathogens, can penetrate packaging, is suitable for a variety of products and safe for consumers.

### **Quality Systems:**

At EBSC, we are proud of our quality systems and control. Our objective is to ensure that each product of every batch is processed to the highest quality.

We have constant processes in place that monitor dose levels and track the movement of all goods through EtO process. This ensures that the product is not compromised and meets all state and national quality systems.

By adopting the highest quality assurance standards, we can satisfactorily serve the interests of our customers, our organisation and the general public. At EBSC, we work continually to ensure that the best possible work practices are maintained at every stage of our business.



### EtO Sterilizers :

EtO Sterilizers are used by Medical Device manufacturers for their own products (in-house sterilization), or by service providers (contract sterilization).

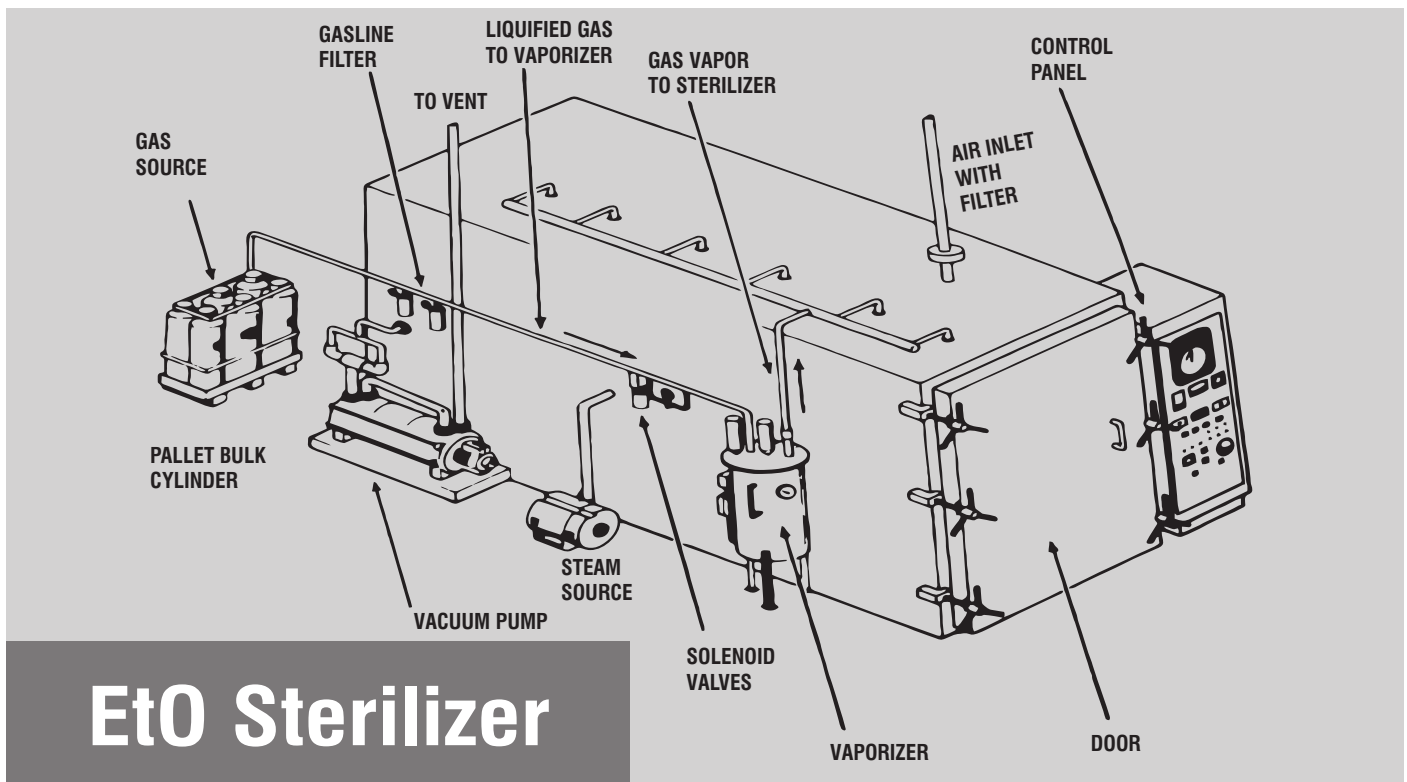
EBSC designs, manufactures, installs and validates industrial EtO sterilization solutions for these end users.

Our software-driven equipment uses reliable automation systems that guarantee:

- ❖ Data Integrity
- ❖ Flexible cycle design
- ❖ Accurate end-reporting
- ❖ Web based secured access to equipment data
- ❖ Product tracking

### Expert Services by EBSC :

- ❖ Consulting & training on EtO sterilization related topics
- ❖ Validation of EtO sterilization cycles
- ❖ Conventional maintenance of EtO sterilizers and EtO Gas disposal systems (Air pollution control systems)
- ❖ Technical e-support using advanced software solutions



# EXCEL

Excel Balaji Sterilization Concepts, EBSC Pioneered in India for an integrated approach to Ethylene oxide based sterilization. This has greatly influenced the quality of services provided by the medical, pharmaceuticals, cosmetics, electronics, food ingredients, herbal extracts, spices, seeds and packaging industries.



EBSC's involvement with your sterilization needs starts with the formulations and supply of specific gas mixture and includes facility design assistance, supply of sterilizers and accessories, complete installation, design of exhaust and aeration systems, equipments and process validation as per ISO or CE norms, training of personnel and supply of gas detection and scrubber systems.

For Spice, Herbal Product Processors and Export Oriented Units, EBSC offers large sterilization systems. Custom solutions are provided to meet diverse individual requirements.

We offer two types of systems; manual and automatic. In manually operated sterilizers, the door has a radial locking mechanism and is available in a single or double door combination. Low cost automation along with data-logging facility can also be incorporated to maintain process stability and hard copy evidence.

Automatic Sterilizers are provided with single or two door arrangements. The automation offered can either be economical-especially for Spice or Herbal products-with PLC based controls provided to log the data, or can be totally computerized supervisory-control-based systems.

EBSC offers an uninterrupted supply of ethylene oxide (pure) and various mixtures formulated at its own state-of-the art gas formulation facility at Ahmedabad, Gujarat.

Ethylene oxide	Diluent Gas (Co2)	Flammability
10%	90% carbon dioxide	Non Flammable
20%	80% carbon dioxide	Non Flammable
30%	70% carbon dioxide	Non Flammable
90%	10% carbon dioxide	Flammable
100%	NIL	Flammable



## Indicative List of Products treated at EBSC :

### AGRO PRODUCE :

Spices, such as Black pepper, Chillies, Cinnamon, Coriander, Cumin, Celery, Ginger, Turmeric, etc.. Starches like Arrowroot, Corn, Wheat & Potato, Gums such Karaya, Guar & Arabic, Misc. products like Cocoa, Dehydrated onions & Vegetables, Flours, Niger Seeds, Seasoning blends, etc.

### RAW MATERIAL FOR PHARMA INDUSTRY :

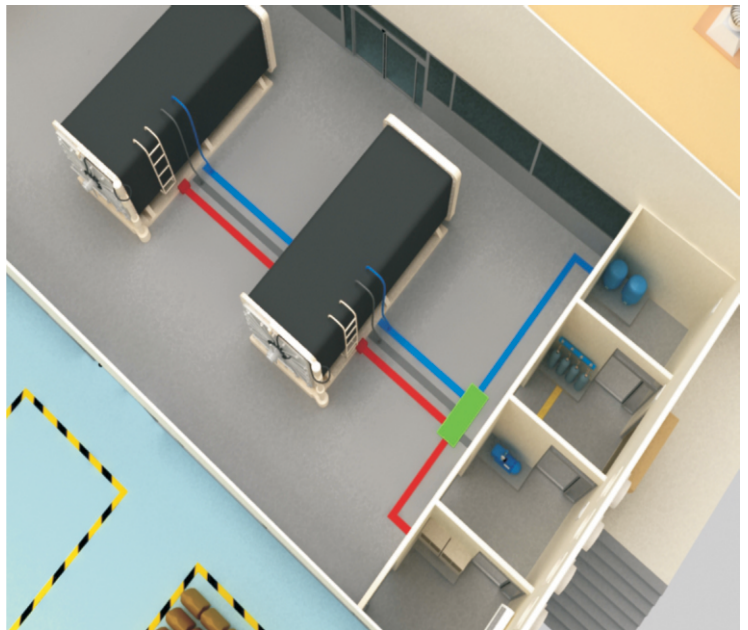
Antibiotics & other Drugs, Natural gums, Maize starch, Garcinia cambogia, Gymnema sylvestre & other herbs, Hard gelatin capsules, Kaolin, Wheat bran, Psyllium husk & Powder, Senna, etc.

### RAW MATERIAL FOR COSMETICS :

Aerosol Valves, Colouring powders & pigments, Cosmetic brushes, Disposable razors, Face powders, Iron oxides, Kaolin, Mica, Powder blends, Powder puffs, starches, Talc, Titanium dioxide, etc.

### DISPOSABLE MEDICAL DEVICES & LAB EQUIPMENT :

Airways & tubes, Blood test plates, Bandages, Catheters, Cotton balls & pads, Cotton bandages & gauze, Culture tubes, Drainage pumps, Eye droppers, Eye surgery pads, Forceps, Heat exchanger lines, Intravenous administration sets, Kidney dialysers, Maternity pads, Medical & surgical procedure sets, Medicated bandages, Oxygenators, Pacemakers, Petri dishes, Pipettes, Plastic & rubber gloves, Prostheses (arterial, vascular & orthopedic), Sample collection bags, Sutures, Surgical drapes, gowns, caps, gloves & masks, Syringes & needles, Towels, Urinary drainage tubes & bags etc.



## EBSC designs and manufactures EtO Gas disposal systems

### (Air Pollution Control Solution Equipment:)

#### Scrubbers:

Simple and cost effective solution with good efficiency. Scrubbers are very safe and have low operating costs. They however have limited performances when treating low EO concentrations in high air flows (e.g. exhaust degassing chambers).

EO is highly reactive with water, it first solubilises when it is in contact with an acid media, then transforms into Ethylene Glycol (EtG).



# Excel Balaji

## Sterilization Concepts

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