

We are '*Professionals in Process/ Product Technologies*' with following expertise-

- **Conceptualization and Engineering of Projects**
- **Module and skid building**
- **Custom-built solutions**
- **Innovative hygiene Products for Pharma/ Dairy Industry**
- **Expertise in Pharma, Food, Natural resource based projects**
- **Business partners of world class products from Europe and USA**

**Our Offerings-**

- **Bio-Reactors And Fermenters**
- **Bio - Waste Decontamination Systems / Sterilization Systems / Inactivation Systems**
- **PWDS, WFIDS, CSDS Systems**
- **CIP Plants**
- **Pharmaceutical Machinery and Bio-pharma Custom Built Modules**
- **Mixing And Blending Vessels**
- **Dairy/Starch Projects**
- **Drying And Evaporation Projects**
- **Biorefineries**
- **Piping Engineering**
- **Plug-in Temperature / Brix / pH / Pressure/ Flow Control Modules**
- **Electrical And Automation Engineering**
- **Flow Control Equipment**
- **All Types Of Valves And Valve Automation**

### **BIO - WASTE DECONTAMINATION SYSTEMS / STERILIZATION SYSTEMS / INACTIVATION SYSTEMS**

Decontamination of bio-waste is required since pathogenic organisms can pose a risk to the environment. Decontamination can be done in either in batch or in continuous process.

Batch Process: Heat, hold and cool a finite amount of material on batch basis

Continuous: Constant process stream with heat recovery. SM Biosystems has designed unique system aimed at decontaminating effluents containing viruses, bacteria and other bio-hazards.

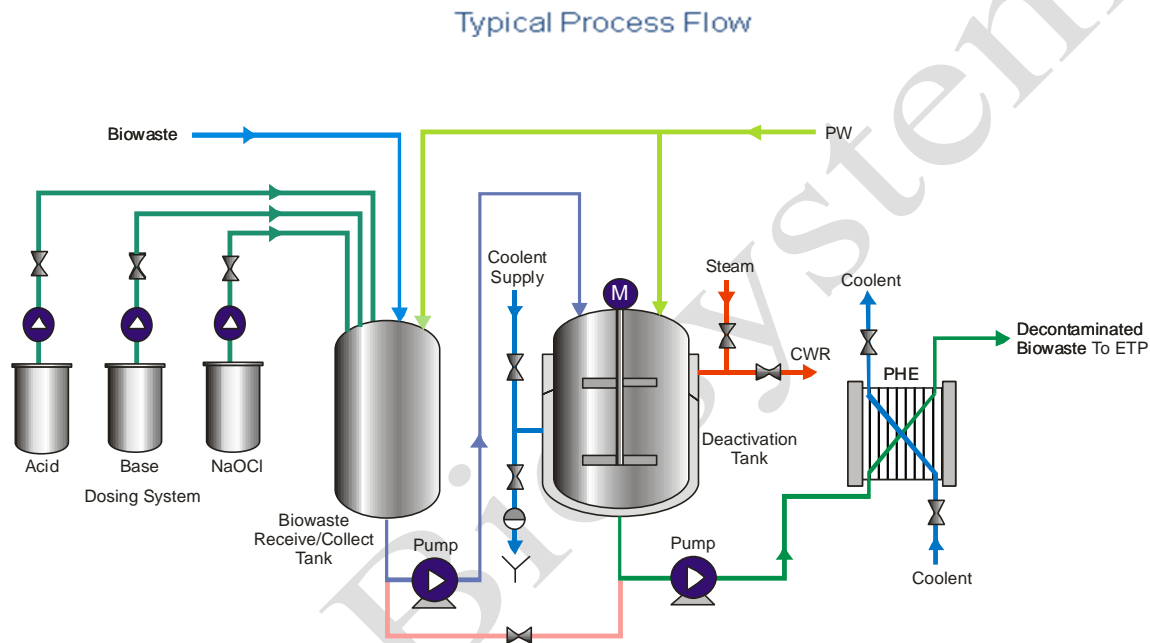
#### Special features

- Control of the inactivation parameters (temperature-time)
- Appropriate selection of materials of construction as per biowaste content
- All-welded tubular design avoids any risk of cross contamination
- PLC-controlled cycles and records
- Conformity with pharmaceutical guidelines
- Compact design, easy operations and low maintenance



CONSIDERATIONS- The typical considerations in the design of Bio-waste Decontamination Systems are as follows-

- Regulatory Issues
- Death Kinetics
- Heat & Time
- Chemical Exposure & Time
- Validation of the physical conditions causing death of organisms and the length of exposure to those conditions.



SM Biosystems also designs and manufactures continuous heat treatment systems especially dedicated to the **sterilization** of nutritional media before culture.

SM Biosystems also designs **inactivation systems** for inactivation of hazardous media.

FOR CAPACITIES AND OTHER DETAILS CONTACT

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