

BACTIVATOR®[®] H Series (low flow models) Automatic Preconditioning of ECOPROBIOTICS® for Enhanced Biodegradation of Hydrocarbons and other refractory chemicals © 2009

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ECOPROBIOTICS®, of the Bacta-Pur® System, are beneficial communities of natural bacteria, which have been on earth for millions of years and have been selected for their synergistic ability to biodegrade pollutants and to improve water quality. ECOPROBIOTICS® increase biodiversity. Just as people take probiotic yogurt for its ability to assure the presence of the optimal community for digestion and immunity, ECOPROBIOTICS® improve ecosystem health. EVERY PRODUCTION of Bacta-Pur® products is analyzed and cleared for shipment ONLY after passing all performance tests and being CERTIFIED PATHOGEN FREE using techniques from the food industry. ECOPROBIOTICS® are purely natural and beneficial; they NEVER contain added chemicals such as surfactants, emulsifiers or enzymes..., nor do they contain genetically modified (GMO) or deliberately mutated organisms. ECOPROBIOTICS® are safe and beneficial. Disease causing organisms are never used, as others do or permit.

The Bacta-Pur® System of ECOPROBIOTICS® products combined with the BACTIVATOR®[®], has developed a worldwide reputation as state-of-the-art. The BACTIVATOR®[®] H Series automatically and continuously preconditions and optimizes the physiological condition of ECOPROBIOTICS®, to optimize biodegradation of hydrocarbons and other refractory chemicals. The BACTIVATOR®[®] operates continuously, on a flow through basis, to feed the optimized cultures into the waste water stream. It is in this manner that the Bacta-Pur® System succeeds, where others fail.

The BACTIVATOR®[®] automatically performs the following operations:

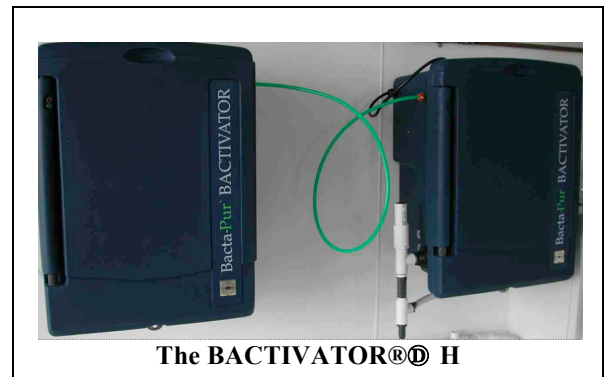
1. awakens & grows the ECOPROBIOTICS® to increase their numbers;
2. optimizes the physiological condition of the ECOPROBIOTICS® to synthesize the internal enzymes to biodegrade refractory organic compounds such as hydrocarbons. The cultures are continuously adapted to the site-specific and often fluctuating compounds in the waste water.

The BACTIVATOR®[®] is designed to be simple to use, to save operator time and money as well as to help optimize treatment efficiency. The BACTIVATOR®[®] is designed and built to operate for extended periods of time with a minimum of maintenance.

The BACTIVATOR®[®] H Series is designed to biodegrade refractory organic pollutants and sulfur compounds. The BACTIVATOR®[®] H Series requires disinfected water and small supply of the waste water containing site-specific compounds to biodegrade. The modular design of the BACTIVATOR®[®] H Series allows multiple units to be used, in series, to accommodate any flow rate.

Process and equipment

The BACTIVATOR®[®] H series contains five principal components, which are mounted inside two cabinets of blue rotomolded polyethylene: (1) reservoir for the ECOPROBIOTICS® and the ECOPREBIOTICS™ (nutrients), (2) multi-step bioreactor, (3) water conditioning and distribution system, (4) waste water conditioning and distribution system (in second cabinet on left) and (5) electrical controls.



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1. The reservoir — contains a supply of Bacta-Pur® products. A dosing pump transfers the bacterial/nutrient mixture to the bioreactor. A low level float switch, within the reservoir, sends a signal to light a red indicator light, when the reservoir needs to be refilled. The **BACTIVATOR® H500** model has a reservoir located inside the cabinet with bioreactor. The **BACTIVATOR® H1000** model has an external reservoir located on the floor, beneath the cabinet with bioreactor to which it has to be connected.

2. The bioreactor — has two internal compartments or growth chambers, each with aeration. The first contains an immersion heater and receives the incoming ECOPROBIOTICS®, nutrients, dilution water and waste water. This compartment serves to bring the ECOPROBIOTICS® out of dormancy, to begin their growth and to place them in contact with site-specific organic compounds. The culture then flows through the next growth compartment before leaving the system and being fed into the waste water. Air is supplied to the bioreactor by an internal air pump.

3. The water treatment and distribution system — contains an activated carbon filter, a flow control drip emitter and water well, all found in the cabinet having the bioreactor. An activated carbon filter is used to remove chlorine from the city water before its use in bioreactor. The water drip emitter continuously supplies the water to the water well. A dosing pump, which is pre-adjusted to defined specifications, transfers precise quantities of treated water from the water well to the bioreactor. The surplus system water is used to facilitate transfer of the active cultures leaving the bioreactor.

4. The waste water treatment and distribution system — is supplied within a second cabinet and is comprised of a screen filter, a pressure regulator (adjusted to 25 psi), an ultraviolet sterilizer, a well and a peristaltic pump, all provided within one cabinet. A 100-micron screen filter eliminates large particulate matter, which may clog the unit and reduce the efficiency of UV sterilizer. The UV sterilizer removes microbial predators prior to waste water entering the bioreactor. A dosing pump transfers precise quantities of treated waste water to the bioreactor in second cabinet.

5. Electrical control system — is available for 115v, 60Hz or 220-240v, 50/60Hz service. UL/CSA approved components are used. The main power switch (green light) and levels indicator (red light) are found on the door of the cabinet with bioreactor.

Products required

The **BACTIVATOR® H series** requires the Bacta-Pur® H-KIT for operation. Each KIT contains the correct ratios of Bacta-Pur® H2000 and Bacta-Pur® PRECONDITIONER. Starting after twelve months of operation, the units require one annual replacement parts kit per year.



**The BACTIVATOR® H
cabinet with bioreactor**



**BACTIVATOR® H1000
cabinet with bioreactor and
connected external reservoir.**

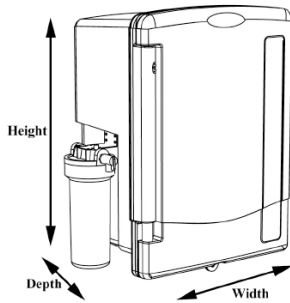


*The Natural Solution
when only the best will do*

System & Product Description

Sizing (based on average daily flow) :

BACTIVATOR® H Model	H500	H1000
Flow rate (m ³ /day) up to	175	350
Product use rate (mL/day)	500	1000
# Bacta-Pur® H KITS required for one year operation	8	15



NOTE: To evaluate the size and model of the **BACTIVATOR®** required for your treatment system, please contact IET-Aquaresearch Ltd or one of our authorized representatives.

Some models are special order items, call for availability. The external configuration may vary with the model. The installation dimensions remain the same for all models, unless otherwise specified.

Technical Specifications:

BACTIVATOR® H	SPECIFICATIONS
INSTALLATION DIMENSIONS	Two BACTIVATOR® cabinets, each: 22" Wide x 14.5" Deep x 30" High (56cm x 37cm x 76cm). <u>H1000 only</u> : an external reservoir 18"D x 24"H (45cm x 61 cm) will be located directly beneath the cabinets of the BACTIVATOR® .
WET WEIGHT	Cabinet with bioreactors: 90 lbs (41 Kg). Cabinet with waste water treatment & distribution components: 33 lbs (15 kg)
OPERATING CONDITIONS	Minimum Temperature: 63°F (17°C) Maximum Temperature: 86°F (30°C)
ELECTRICAL REQUIREMENTS	Cabinet with bioreactors: 115v, 60Hz (0.5 Amp) or 220-240v, 50/60 Hz. (0.25 Amp). Cabinet for waste water conditioning and distribution: 115v, 60Hz (0.95 Amp) or 220-240v, 50/60Hz (0.5 Amp) GFI always required. Step-down transformer provided for operation at 220-240v electrical source.
WATER REQUIREMENTS	Municipal or City water. Inlet water supply options: 1/4" OD Copper line.
WATER CONSUMPTION	26 US gal (96 L) per day
WASTE WATER REQUIREMENTS	Influent system waste water to be supplied with pump, with minimum pressure 25 psi. Inlet : 1/4" OD copper or plastic line.
WASTEWATER CONSUMPTION	Minimal: 120 US gal (460 L) per day
PRODUCT OUTPUT	Output is by gravity feed. If the product must flow uphill, an auxiliary pump (not supplied) must be installed. Outfall water connections: 3/4" ID tubing.



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