

## Bacta-Pur® System vs others for TREATMENT OF DRAINS AND SEWER SYSTEMS© 2012

Bacta-Pur®, BACTIVATOR®<sup>ⓓ</sup> & ECOPROBIOTICS® are trademarks of Aquaresearch Canada Ltd used under license.

*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. Bacta-Pur® microorganisms are not subject to TOSCA (USEPA) and are listed on the DSL of Environment Canada.

TREATMENT OF DRAINS & SEWER SYSTEMS		
Bacta-Pur® System: ECOPROBIOTICS®, ECOPREBIOTICS®, BACTIVATOR® <sup>ⓓ</sup>	most supposedly bacterial products	Enzymes
<b>PRODUCT COMPOSITION</b>		
<ul style="list-style-type: none"> <li>• Complex communities of natural beneficial bacteria — environmentally friendly                             <ul style="list-style-type: none"> <li>• No added chemicals, such as surfactants, emulsifiers, or enzymes</li> </ul> </li> <li>• Never contain genetically modified (GMO) or deliberately mutated organisms</li> <li>• No animal products used in production</li> </ul>	<ul style="list-style-type: none"> <li>• Contain surfactants, emulsifiers and/or enzymes, solvents, <i>etc.</i> with a few bacteria. Chemicals are added because the limited cultures cannot do the job; they are not active nor in the optimal physiological condition</li> <li>• Even when not listed in MSDS, chemicals may still be present (chemicals &lt;1% of volume do not have to be listed)</li> <li>• Bacilli used because of their ease of growth and preservation not for what they can do</li> </ul>	<ul style="list-style-type: none"> <li>• Enzymes</li> <li>• No bacteria</li> </ul>
<b>MODE OF ACTION</b>		
<ul style="list-style-type: none"> <li>• Purely biological biodegradation</li> <li>• Optimization of biological treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Moves grease downstream</li> </ul>	<ul style="list-style-type: none"> <li>• Moves grease down stream</li> </ul>
<b>EFFECTS OF USE</b>		
<ul style="list-style-type: none"> <li>• Truly digest grease; eliminate arteriosclerosis of drains &amp; sewers</li> <li>• Reduce sulfides and causes of other noxious and toxic odors</li> <li>• Protect sewer workers</li> <li>• Protect and extend life of infrastructure</li> <li>• Optimize biological processes to facilitate oxygenation and save energy</li> <li>• Reduce BOD in gravity sewers</li> <li>• Optimize downstream wastewater treatment and improve settling</li> <li>• Increase pollutant loading capacity of wastewater treatment plants</li> <li>• Help meet discharge permits</li> <li>• Reduce costs of wastewater treatment</li> <li>• Reduce causes of global warming</li> </ul>	<ul style="list-style-type: none"> <li>• Moves grease down stream to make it someone else's problem</li> <li>• Can decrease settling</li> </ul>	<ul style="list-style-type: none"> <li>• Moves grease down stream to make it someone else's problem</li> </ul>



<b>TREATMENT OF DRAINS &amp; SEWER SYSTEMS</b>	
<b>Bacta-Pur® System:</b> ECOPROBIOTICS®, ECOPREBIOTICS®, BACTIVATOR®D	<b>most supposedly bacterial products</b>
<b>SAFETY &amp; QA/QC</b>	
<ul style="list-style-type: none"> <li>Natural and safe for people, animals &amp; plants</li> <li>Same products even used in fish farms &amp; water body restoration</li> <li>QA/QC sets standards of quality even exceeds that of food industry</li> <li>QA/QC <u>Every batch</u> tested for performance and for absence of undesirable strains.</li> <li>QA/QC brochure provided on web site</li> <li>QA/QC Compare to any other supplier and decide for yourself with which products you feel confident and safe with.</li> </ul>	<ul style="list-style-type: none"> <li>Some companies even show on their website that their products are not safe for fishes because of presence of surfactants</li> <li>Partially degraded surfactants form nonyl-phenols, which are extremely toxic and are endocrine disruptors (sex change chemicals)</li> <li>QA/QC methods not available</li> <li>QA/QC some say products are tested “regularly”. What does this mean? Once per decade is regular.</li> </ul>
<b>CULTURE CONCENTRATION</b>	
<ul style="list-style-type: none"> <li>Minimal visual cell count at time of bottling: one hundred billion (100,000,000,000) of cells per milliliter. Furthermore, use of the BACTIVATOR®D even increases cell count by up to 10 times.</li> </ul>	<ul style="list-style-type: none"> <li>Highly variable between suppliers</li> <li>100 to 1,000,000 times less concentrated than Bacta-Pur®</li> </ul>
<b>ACTIVATION &amp; PHYSIOLOGICAL CONDITION WHEN ADDED</b>	
<ul style="list-style-type: none"> <li>BACTIVATOR®D automatically and continuously activates, grows (increases population by up to ten times) and optimizes the condition of the bacteria prior to their addition. Hundreds of millions of famished grease eating microbes continuously flow out of the BACTIVATOR®D 24 hours per day.</li> <li>BACTIVATOR®D provides environmental controls (pH, temperature control, aeration, food, required retention time), to assure optimal &amp; consistent results around the world.</li> <li>BACTIVATOR®D puts cultures in optimal physiological condition to get the job done even with virtually no hydraulic retention time, as in sewers.</li> <li>Biological treatment/digestion re starts as soon as conditions in grease trap are suitable</li> </ul>	<ul style="list-style-type: none"> <li>Dormant bacteria require many hours to wake up.</li> <li>Hydraulic retention time in drains &amp; sewer systems grease trap is very short.</li> <li>Dormant bacteria added to drains or sewers may not wake up until after they have passed through the wastewater treatment plant if at all.</li> <li>This is why most of bacterial products include enzymes, emulsifiers and/or surfactants, which simply send grease downstream.</li> </ul>
<b>EFFECTS OF TOXIC SHOCKS</b>	
<ul style="list-style-type: none"> <li>BACTIVATOR®D provides constant reinoculation to overcome toxic shocks such as due to disinfectants and hot water <i>etc.</i></li> </ul>	<ul style="list-style-type: none"> <li>As soon as the bacteria are exposed to disinfectants or hot water, any biological activity will stop, until next injection of bacteria (usually after 24 hours).</li> </ul>
<b>PRODUCT QUALITY PRESERVATION (DURING UTILISATION)</b>	
<ul style="list-style-type: none"> <li>Excellent shelf life and protected from contamination</li> <li>Contact with ambient air (oxygen) minimized due to bag-in-box (BiB) packaging; this extends shelf life of products within packages in use.</li> <li>Bacteria in contact with nutrients only upon entering the bioreactor</li> <li>Automatic shut-off valves minimize possibilities of contamination</li> </ul>	<ul style="list-style-type: none"> <li>Product quality changes with time</li> <li>Manually activated products change with time; the rate of change varies with temperature.</li> <li>Exposure to the ambient air, humidity reduces the product quality over time</li> <li>Bacteria in contact with air and are subject to contamination every time bottle is opened or mixed with tap water</li> <li>Contamination possible during manually pouring of product</li> </ul>

