

Certificate of Quality — ECOPROBIOTICS®© 2011

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

Bacterial Cultures – grown in Canada

ECOPROBIOTICS® include mixed cultures of naturally occurring microorganisms (from soil and/or water), which are purely beneficial. Bacta-Pur® mixed cultures are liquid concentrates of beneficial communities in a dormant state. Each community of ECOPROBIOTICS® contains various proportions of:

Pseudomonadacea
Chemolithotrophic bacteria
Nitrifying bacteria
Denitrifying bacteria
Bacillus sp.

The microorganisms have been selected for their synergistic ability to work together under the targeted aerobic or facultative conditions to improve water quality. All ECOPROBIOTICS® are liquid suspensions. No carriers are used. Furthermore, no organisms are ever used, which have been deliberately mutated or undergone genetic engineering (GMOs).

ECOPROBIOTICS® contain and shall always contain **ONLY Biosafety Level 1 microorganisms**, which are classified as non-pathogenic. Furthermore, **none of the Bacta-Pur® cultures are listed as pathogens to humans, animals or plants** by the American Biological Safety Association, which compiled lists of pathogens for humans, animals and plants from lists of Australia/ New Zealand, Belgium, Switzerland, United Kingdom, Germany, US Center for Disease Control / National Institutes of Health, European Community, Singapore & Japan.

Nutrient Broth

The nutrient broth of the different products includes water and selected nutrients: organic and/or inorganic carbon salts, protein, vegetable oil, phosphorus and minor trace mineral salts, the presence of which may no longer be detectable due to bacterial growth. No animal products are used in the nutrient broth.

References

- APHA, AWWA, WEF, 2005. Standard Methods for the Examination of Water & Wastewater, 21st Ed. A.D. Eaton, L.S. Clesceri, E.W. Rice, A.E. Greenberg, Ed. Centennial ed. Washington, DC.
 Atlas, R.M. 1997. Handbook of Microbiological Media, 2nd Ed. L.C. Parks, Ed., CRC Press. Boca Raton. 1079 p.
 Cantin, M.-C., 2007. Bacta-Pur® QA-QC Microbiological Methods. IET-Aquaresearch Ltd. 125 p. (internal doc.)
 MacFadden, J.F., 2000. Biochemical Tests for Identification of Medical Bacteria, 3rd Ed. Lippincott Williams & Wilkins Ed. Philadel., PA. 912 p.
¹Laboratory Biosafety Guidelines 2nd ed., Laboratory Centre for Disease Control, Ottawa, Canada, 1996, 84 p.

Quality Assurance Lot Release Criteria

Each final culture has been sampled, tested and released by Quality Assurance to the following specifications:

Bacterial Count

Minimal visual count at time of bottling: >1 x 10¹¹ cells/ml

Performance

Tests with selected nutrient broth such as BART™ and standard microbiological media are used to verify bacterial viability and specific activities, to assure reliability and performance of final cultures.

Pathogen screening

ECOPROBIOTICS® contain only natural beneficial microorganisms, which are produced under a policy of continuous improvement and optimization. Every batch of bacterial culture is inspected to meet regulations for absence of *Salmonella* sp. All other tests are not regulated but have been part of our quality program for years. Tests include *Listeria monocytogenes* and selected common pathogens to humans and fishes, including *Pseudomonas* sp., *Aeromonas hydrophyla*, *B. anthracis*, *B. cereus*, *E. coli*, *Klebsiella* sp., hemolytic *Streptococci* sp., *Staphylococcus aureus*, *Shigella* sp., *Vibrio* sp., fecal coliforms, yeast, moulds and fungi. Techniques used in detection include immunoassays testing, selective/differential media/broth and BART™.

Traceability

Each bottle is identified with the lot number and a “Best Before” which is the guaranty of viability and performance for up to five years after bottling.

Registrations

Bacta-Pur® cultures are registered for use in Canada in Registered Establishments by the Canadian Food Inspection Agency, in the USA, in sewage & drains of Federally inspected facilities (NSF International, USA) & septic & drains in Mass. (Dept. Env. Protection, MA). CEPA (Canada): All bacterial cultures in the Bacta-Pur® product are listed on the Canadian DSL.



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