Bacta-Pur®

The Natural Solution
when only the best will do

Technical Support Document

tsd07.11

Physical /Chemical Requirements for Biological Activity © 2011

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.

Optimal physical-chemical conditions for bacterial growth of the Bacta-Pur® products are listed followed by the acceptable ones in parentheses. The efficiency of biological systems decreases gradually near viable limits, furthermore not all activities or functions stop at the same temperature. Contact IET-Aquaresearch Ltd for borderline conditions.

PARAMETERS	Bacta-Pur® N3000	Bacta-Pur® XLSW	Bacta-Pur® XLG	Bacta-Pur® H2000
Temperature (°C) (°F)	30 (2-35) 86 (33-95)	30 (2-38) 86 (33-100)	30 (2-40) 86 (33-104)	30 (4-40) 86 (39-104)
pH	7-8 (6-8.5)	7-8.5 (6-8.5)	7-8 (6-8.5)	6.5-8.5
Dissolved oxygen	> 3 mg/L	> 2 mg/L	> 2 mg/L	> 2 mg/L
Alkalinity	> 100 mg/L			
BOD_c	< 20 mg/L			
BOD_c:N:P ratio		100:6:1.3	100:6:1.6	100:5:1
BOD_c:N:o-PO_4[1] ratio		100:6:4	100:6:5	100:5:3
TOC:N:o-PO_4[1] ratio		50:6:4	50:6:5	50:5:3
CO_3: NH_4-N: o-PO_4[1] ratio	≥30:6:1			
Salinity (‰)	0-35	> 5	< 5	< 5
Trace elements2 Bacta-Pur® INP				1 L / 5 Kg BOD or 2.5 Kg TOC

[1)] Bacteria require soluble nutrients for rapid assimilation, growth and performance. Excess divalent cations such as Ca, Fe, Mg or cationic polymers, in the presence of oxygen, bind with phosphate reducing its' biological availability. "Soluble o-PO_4" is determined by prefiltering the sample through 0.45 µm filter; this eliminates particulate phosphate, which could be solubilized during the analytical test resulting in overestimation of what is easily biological available.

[2)] The presence of adequate trace elements such as potassium, calcium, magnesium, sulfur, sodium, chloride, zinc, iron, manganese, cobalt, molybdenum, nickel, copper, *etc.* is required for biological activity. These are usually not lacking in wastewater from municipalities and food transformation, but can be in treating wastes such as hydrocarbons *etc*., which are principally only a source of carbon. Measurable amounts of the trace elements, in the effluent, typically indicate an adequate supply. Bacta-Pur® INDUSTRIAL NUTRIENT PACK. (INP) supplies essential trace elements.

Bacta-Pur / IET-Aquaresearch Ltd.
P.O. Box 689, Derby Line, VT 05830 USA

IET-Aquaresearch Ltd.
P.O. Box 2680, North Hatley, QC, J0B 2C0 Canada

Phone: (877) bactapur [222-8278], (819) 842-2494, Fax: (819) 842-2414
Email: info@bactapur.com website: www.bactapur.com