

Laboratory MADEP SA



An innovative microbiology company dedicated to the development and application of environmental and industrial biotechnologies

MADEP SA, Z.i. Maladières 22, 2022-BEVAIX (Switzerland) - info@madep-sa.com, tel +41 (0)32 846 45 51

\triangleright **BIOTREATMENT of WASTEWATER (for urban and industrial WWTP)**

WWTP CONCERNED : Activated sludge – Biofiltration – Lagoons - Trickling filter - SBR (Sequencing Batch Reactor) - MBR (Membrane Bioreactor) - MBBR (Moving Bed Biofilm Reactor)

IMPROVEMENTS ACHIEVED :

- More effective bacterial populations.
- Removal of SS (suspended solid) and VSS (volatile suspended solid), COD (chemical √ oxygen demand), BOD (biological oxygen demand), TOC (total organic carbon), Phosphorus, Ammonia, Nitrite, Nitrate), Organic nitrogen.
- Better flocculation and settling with less energy and chemicals consumption.
- Removal of filamentous bacteria with removal bulking and foaming. 1

ANAEROBIC DIGESTION and BOOSTING the BIOGAS PRODUCTION \triangleright

DIGESTERS CONCERNED : Wastewater sludge – Agriculture (slurry and manure with cosubstrates) - Landfill leachates - Organic waste under thermophilic conditions

IMPROVEMENTS ACHIEVED :

- ~ More effective bacterial populations to improve the hydrolysis and the fermentation of lignocellulosic compounds and other complex and simple organic substrates.
- Improves the production yields of biogas (18% to 65% improvement per ton of waste treated).

\triangleright **BIOREMEDIATION of CONTAMINATED SITES (soil and water)**

POLLUTANTS TREATED : Crude oils (Petroleum) - HC or Haliphatic hydrocarbons (C10-C40 or more) - PAHs or polycyclic aromatic hydrocarbons - Tar - Paraffin - Heavy oil -Dielectric oil - PCB or polychlorinated-biphenyls - MTBE - BTEX - MTBE - Chlorinated compounds (PCE, TCE, DCE, VC, chlorobenzene, dichloromethane, chloroform, ...) - Other solvents (acetone, phenol, cyclohexane, isopropanol, triazole, pyrazole, ethyl acetate, ethylene glycol, formaldehyde,...) - pesticides (atrazine, imidaclopride, glyphosate, ...) -Micropollutants - Explosives - Heavy metals (chromium VI) etc.

COLLECTION of AVAILABLE MICROORGANISMS and VARIOUS APPLICATIONS

- ✓ The MADEP's collection of micro-organisms (5'700 different strains) contains mostly bacteria and some fungi that are available for all kinds of environmental, industrial, green energy production and various others innovative applications.
- ✓ Types/metabolisms of microorganisms available :

Aerobic, and strict and facultative anaerobic.

Psychrophilic, mesophilic and thermophilic (between 2°C-82°C).

- Bioprocess and know-how developed by MADEP are innovative and meet the current and \checkmark future objectives in terms of ecology and green energy worldwide.
- Madep wishes to establish with third partnership to sell some micro-organisms and 1 bioprocesses developed since 2002, and to develop new bioprocesses with high added value.











