Laboratoy MADEP SA
Environmental and Industrial Applied
Microbiology and Biotechnologies
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MADEP SA
Z. i. des Maladières 22
CH-2022 BEVAIX
(Switzerland)

Phone : **+41 (0)32 846 45 51**
Mobile :+41 **(0)79 607 99 26**
E-MAIL : **trello.beffa@madep-sa.com**
WEB : **https://www.madep-sa.com/**

Areas of application of the different types of microorganisms (mainly bacteria) available from MADEP SA (collection of 6'000 different pure strains)

A=strict aerobic, AF=facultative anaerobic, ANA=strict anaerobic, TS=Type of strain, NSP=non-sporulating, SP=sporulating

Pos	Areas of application	TS	NSP	SP	Main compounds eliminated and / or treated
1	**WWTP** **Cold urban wastewater** 4°C-16°C Activated sludge, biofiltration, SBR, MBR etc..	A AF	440	110	SS (suspended solid). VSS (volatile suspended solid) COD (chemical oxygen demand), BOD (biological oxygen demand), TOC (total organic carbon), DOC (dissolved organic carbon), Fats and Oils, Phosphorus, Ammonia, Nitrite, Nitrate Organic nitrogen. • Better mineralisation, flocculation and settling with less energy and chemicals consumption. • Removal of filamentous bacteria with removal bulking and foaming.
2	**WWTP** **Temperate urban wastewater** 10°C-35°C	A AF	980	140	As position 1
3	**WWTP** **Industrial wastewater** 4°C-58°C Agri-food, Pharma, Chemistry, Semiconductors, Oil refineries, etc	A AF	800	220	As position 1 • And Removal of Volatile and non-Volatile Organic Chemical Pollutants / Solvents
4	**Methanisation of sludge** WWTP Mesophilic, 25-44°C	A AF ANA	700	400	• Boosting of biogas production • Better hydrolysis and fermentation of: lignocellulose, cellulose, hemi-cellulose, pectin, chitin, humic acids, fats and oils, and a large variety of others organic compounds
5	**Methanisation of agricultural waste with co-substrates** Mesophilic 30-44°C	A AF ANA	400	250	As Pos. 4
6	**Methanisation of organic wastes** Thermophic, > 44°C à < 60°C	A AF ANA	250	150	As Pos. 4
7	**Méthanisation and/or degradation of landfill leachates** (10°C-80°C)	A AF ANA	280	150	As Pos. 4
8	**Bioremediation** Soils Groundwater Landfill leachates Microelectronic/semiconductor effluents Other Industrial effluents	A AF ANA	1'500	150	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 (TMAH, acetone, phenol, cyclohexane, isopropanol, triazole, pyrazole, ethyl acetate, ethylene glycol, formaldehyde,…) - amides-based and other pesticides (atrazine, imidaclopride, glyphosate, ...) – Micropollutants
9	**Biosurfactants producers** (for better solubilisation and bioavailability of hydrophobic compounds/pollutants during treatment and remediation)	A AF	70	80	Crude oils (Petroleum) – creosote - PAHs or polycyclic aromatic hydrocarbons – Tar – Paraffin - Heavy and aliphatic oils - Dielectric oil - PCB or polychlorinated-biphenyls
10	**Biocontrol**	A AF	120	320	Phytophatogens elimination in soils and waters
11	**Aquaculture** (4°C à 42°C)	A AF	90	250	AS Pos.1 • And Reduction/elimination of pathogens
12	**Treatment of animal litters** (2°C-40°c)	A AF	40	240	• Elimination of Ammonia, Nitrite, hydrogen sulfide and volatile sulfur compounds and volatile fatty acids • Improvement of breeding conditions and reduction of pathogens
13	**Composting** (10-80°C)	A AF ANA	50	150	• Better degradation, hygienisation and maturation.