

MZYMES®
Enzyme Technology developed for industrial use

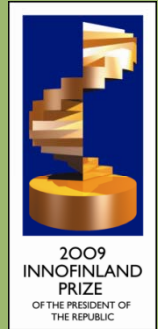


MZYMES Oy

22.3.2010

VISION » MZYMES 2015

WE ARE A GLOBALLY SIGNIFICANT COMPANY IN THE DEVELOPMENT OF SUSTAINABLE PROCESSES BY REFINING THE NEW INNOVATIONS IN BIOTECHNOLOGY FOR INDUSTRY



Main businesses

- ✓ Biopulping (eTMP method: National Innosuomi award in 2009)
- ✓ Bioremediation
- ✓ Biophasetechnology
- ✓ MLAB (R&D Unit and Service Provider)

Added value for our customers

- ✓ New innovative products for markets
- ✓ Novel processes for industrial partners
- ✓ Increased material- and energy efficiency

Opportunities

- ✓ Increased environmental awareness and regulation
- ✓ Global financial situation favouring new technologies
- ✓ New possibilities offered by modern biotechnology



Biopulping

- ✓ MZYMES has developed a procedure for enzymatic pre-treatment procedure for thermomechanical pulp process (eTMP)
 - Even 15-20% energy savings in TMP process
 - Improved fiber quality, Decreased chemical consumption
- ✓ Similar development projects for the chemical pulping and recycled fibers



In 2009 the President of Finland granted
MZYMES the National INNOSUOMI
award from the innovative eTMP method!



Bioremediation

- ✓ MZYMES has developed and patented a MSOIL method for the fungal bioremediation of contaminated soils by “fungitubes”
- ✓ Technology is based on the ability of fungi to degrade large molecules like lignin and tolerate high concentrations of organic molecules in nature
- ✓ Can be utilized to speed up the degradation of organic pollutants such as dioxins, oil hydrocarbons, PAH compounds and many other groups of compounds (TBT, PCB, TNT)
- ✓ MSOIL method can be applied for excavated soils (*on-site/off-site*) and *in-situ* treatment



Biophasetechnology

✓ Added value for industrial side streams by biological treatment

- ✓ Driven by new laws and requirements
- ✓ Competitive edge for production plants from utilization of the “waste” material



✓ Technology is based on the ability of enzymes and microbes to modify material



✓ Materials of interest

- ✓ Fiber containing sludges from pulp & paper industry
- ✓ Biomasses (Forest, Agricultural, Water)
- ✓ Ashes and slags from combustion processes

MLAB - R&D laboratory developing new technologies for MZYMES and partners

R&D for biological treatments

- ✓ Enzyme treatment for wood
- ✓ Fungal treatment for soils
- ✓ Tailored biotechnical treatments for biomasses and industrial side streams



Monitoring services

- ✓ Enzyme activity measurements
 - Lignine degrading enzymes, cellulases and hemicellulases etc.
- ✓ Monitoring of microbial (e.g. fungal) growth
- ✓ Biomass characterisation
 - Lignine analysis, sugar analyses



MLAB Services are available for our partners as well!

➤ Contact person: Jaakko Soini (jaakko.soini@mzymes.fi, +358 44 5347120)