



*Timothy Venverloh, Director, Sustainability  
Ettigounder (Samy) Ponnusamy, Principal Scientist*

## *How Environmental Sustainability Guides Sigma-Aldrich*

# **Presentation for the National Institutes of Health**—September 17, 2008

### **Introductions**

#### **Green Science and Environmental Stewardship at Sigma-Aldrich:**

Like you, we are on an ambitious course toward environmental sustainability. We want to --

- Share with you some of the notable changes we've made in our production processes.
- Tell you about how our Sustainable Development Committee tracks our worldwide energy use and emissions, and manages conservation and recycling programs.
- Show you some of the products we have available that may help you reach NEMS goals.

#### **Discussion topics:**

- Energy tracking and recycling
- Green process technology
- Green science product development and
- Green services and collaborations

#### **Our Energy tracking and recycling**

- Monitoring our energy use and CO2 emissions
- Conservation projects and emission reduction
- Recycling

#### **Our Green process technology**

Achievements and patented processes include --

- Eliminating HBr, acetone and benzyl-bromide in making poly-L-glutamic acid polymers
- Eliminating HF gas in peptide synthesis
- Eliminating acetone in the production of catalase and tyrosinase
- Eliminating pyridine in production of nicotinamide adenine dinucleotides

#### **Our Green science product development**

*Purchase chemicals in smallest quantities needed with DiscoveryCPR ([sigma-aldrich.com/discoverycpr](http://sigma-aldrich.com/discoverycpr))*

#### *Use less toxic alternatives*

Novozymes - winner of the Presidential Green Chemistry Challenge Award for eco-friendly products.

Alternative solvents for increased safety, low peroxides formation, reduced environmental footprint

*([sigma-aldrich.com/greensolvents](http://sigma-aldrich.com/greensolvents))*

*Order chemicals in reusable / returnable containers ([sigma-aldrich.com/lrc](http://sigma-aldrich.com/lrc))*

*Micreactor technology ([sigma-aldrich.com/micreactor](http://sigma-aldrich.com/micreactor))*

*Replace your mercury-containing equipment with non-mercury substitutes ([sigma-aldrich.com/envirosafe](http://sigma-aldrich.com/envirosafe))*

*ChemDose®, convenient dosing of catalysts, ligands and reagents ([sigma-aldrich.com/chemdose](http://sigma-aldrich.com/chemdose))*

#### **Sigma-Aldrich / NIH Green services and collaborations**

Green chemistry partnerships

Recycling – e.g. spent solvent container recycling, brown glass, clear glass

Waste reduction – e.g. styrofoam cooler return/reuse program

Thank you,

John Boussios  
Sigma-Aldrich  
Account Manager  
301.916.8944