Web alert

Polylactic acid (PLA)

An annotated selection of World Wide Web sites relevant to the topics in *Environmental Microbiology*

Polylactic acid: Wikipedia

http://en.wikipedia.org/wiki/Polylactic_acid

This website provides an excellent overview of PLA as a polymer, its properties, and manufacture.

Biotech route to PLA

http://hexant.ecnext.com/coms2/gi_0255-130/Biotech-Route-to-Lactic-Acid.html

This web article describes the production of lactic acid from biomass by microbial fermentation coupled to a polymerization process to make PLA. The article is a bit dated and its industrial projections are now seen to be a bit over-optimistic.

NatureWorks LLC

<http://www.natureworkslc.com/>

NatureWorks is the company that started large-scale production of PLA via microbial biomass conversion several years ago. They are currently seeking to expand the market for uses of PLA.

Lamentations on chemistry: PLA

<http://gaussling.wordpress.com/2006/12/20/polylactic-acid-pla-a-polydisperse-trail-of-tears/>

This web blog contains an interesting commentary on the chemistry of PLA production and the business side; including the pitfalls of involvement by a young chemist.

PLA products list

http://www.ides.com/generics/PLA/PLA_products.htm

This webpage highlights commercial products made out of PLA.

Polylactic acid: Plastic Wiki

http://plastics.inwiki.org/Polylactic_acid

This webpage focuses on the polymerization of lactic acid and the resultant properties of the polymeric products.

Composting PLA

<http://agproducts.unl.edu/compost.htm>

This web article describes a research study on composting PLA. PLA has been touted for its much greater biodegradability than comparable petroleum-based polymers such as polyethylene.

Extracellular PLA depolymerase

<http://jb.asm.org/cgi/content/abstract/187/21/7333>

This article describes a PLA-degrading bacterium. It focuses on an extracellular enzyme from the bacterium that hydrolytically cleaves linkages in PLA.

UniProt: PLA depolymerase from metagenome

<http://www.uniprot.org/uniprot/A4UZ13>

This webpage provides the protein sequence of a putative PLA depolymerase that is encoded by DNA from a metagenome sample.

Lactic acid: Wikipedia

http://en.wikipedia.org/wiki/Lactic_acid

Lactic acid is the precursor to PLA. It is widely used in foods and, increasingly, in polymer manufacture. It derives largely from industrial-scale microbial fermentations.

Hycail

<http://www.hycail.com/>

Hycail is a company making and marketing PLA and PLA products.

Chemistry to make PLA

[http://www.chem.mtu.edu/~whanbing/
NewBubbleWrap.htm](http://www.chem.mtu.edu/~whanbing/NewBubbleWrap.htm)

This website provides an excellent primer on the PLA polymerization process.

Large-scale fermentation for PLA

[http://findarticles.com/p/articles/mi_qa5350/is_200301/
ai_n21325258/pg_4?tag=artBody;col1](http://findarticles.com/p/articles/mi_qa5350/is_200301/ai_n21325258/pg_4?tag=artBody;col1)

This web article uses the PLA process as an example of large industrial fermentations.

Faerch Plast: PLA

<http://www.faerchplast.com/pla.asp>

This website contains some nice illustrations on how PLA is extruded or made into foils for use in consumer products.

EPA Green Chemistry: PLA

[http://epa.gov/greenchemistry/pubs/pgcc/winners/
grca02.html](http://epa.gov/greenchemistry/pubs/pgcc/winners/grca02.html)

The development of PLA production from biomass won several awards including the EPA's Greener Reaction Conditions Award. This webpage discussed the importance of the PLA process.

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