

PLA Recycling Enabled by Depolymerization

Industry Problem Solved:

PLA based plastics are currently not recycled. Composting in specific systems are needed to eliminate the impact of PLA breakdown on commonly used composting organisms. The ability to efficiently depolymerize and reuse the monomer will add to the product's value.



About The Technology

- **Efficient** - De-polymerization at high rates. Lab trials accomplished complete de-polymerization in under 10 minutes at temperatures below 75°C at a 5% catalyst loading.
- **Economical** - Reduced process/cycle time for monomer recovery
- **Simple** - Uses moderate energy and chemical inputs
- **Renewable** – The catalyst system can be recycled

Application Areas

- *Recycling of PLA based plastic for monomer recovery*
- *Separation of PLA from other waste stream*
- *Separation of PLA for targeted recycling*



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Summary

- **Application Areas:**
 - Recycling and reclamation of polylactic acid
- **Intellectual Property Status:**
 - Patent pending
 - ISURF #3950
- **Contact Information:**

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De-colorization of Polyester Material

Industry Problem Solved:

Dyes used for polyester material cannot be removed by oxidative methods. This technology allows complete removal of disperse dyes from the material to either allow recycling or depolymerization of the polyester material.



About The Technology

- Recyclable, water based chemistry
- Complete color removal
- Use of standard dyeing conditions with simple chemistry



Application Areas

- Textile Processing
 - Provides opportunity to rework unacceptable PE dye batch
- Textile Recycling
 - Complete removal of dye chemistry provides opportunity for efficient depolymerization



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Summary

Application Areas

- Polyester processing
- Polyester recycling

Intellectual Property Statuses:

- Patent Pending
- ISURF 3529/3806

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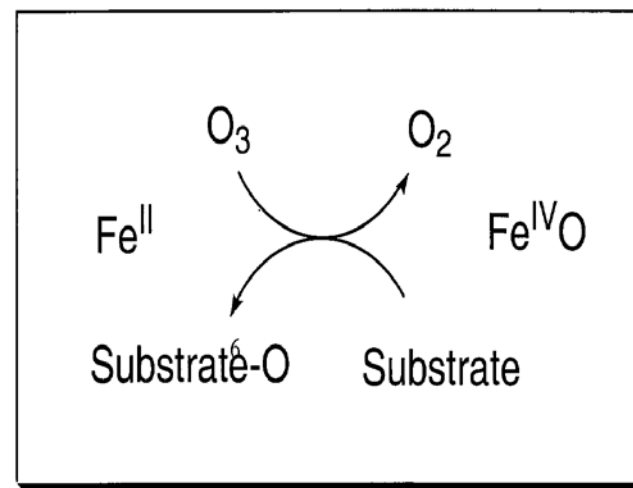
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Enhanced Ozone Oxidation

Industry Problem Solved:

In order to improve the rate of ozone oxidation for water treatment and purification, this technology significantly improves the speed and effectiveness of the process which allows conversion of hazardous materials to nonhazardous/less toxic compounds



About The Technology

- **Rapid** - oxidation occurs nearly instantaneously.
- **Environmental** – ozone naturally decomposes to oxygen without toxic halogenated compounds being produced
- **Versatile** - may be used for any applications and/or substrates for which ozone is used as an oxidant
- **Simple** – catalyst is formed in situ using commercially available materials at the point of ozone generation



Application Areas

- *Waste water treatment*
- *Water purification*
- *Container sterilization*
- *Pulp and paper bleaching*



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Summary

- **Application Areas:**
 - Oxidation of ozone in aqueous media
- **Intellectual Property Status:**
 - US 7,618,546
 - ISURF #3338
- **Contact Information:**

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