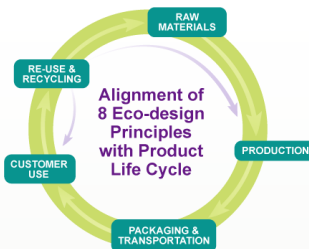


# Showcasing Eco-Innovation

## Improving the Paper Recycling Process



### PRODUCTION

1. Minimize waste and consumables
2. Use renewable and reclaimed external feed stocks
3. Increase energy efficiency and reduce greenhouse gas emissions
4. Design less toxic and environmentally safer products and processes

### PACKING AND TRANSPORTATION

5. Optimize packaging and transportation logistics to minimize energy and materials requirements and reduce potential for accidents

### CUSTOMER USE

6. Enable use of renewable energy and raw materials
7. Enable resource conservation by customers and end-use consumers

### RE-USE & RECYCLING

8. Create value from waste

Eco innovation blends Dow Corning's passion for innovation with one of our corporate values - sustainable development. It's an approach that brings together our focus on meeting our customers' needs for new environmentally compatible products and processes with our commitment to responsible management of resources.

We're using our eco-innovation model and principles to help conserve precious natural resources; rescue waste and increase use of renewable energy materials. This case study shows you how we are bringing our sustainability value to life.

### Brief Description

Paper recycling is an important practice in the protection of our environment – helping to preserve our forests. In fact, recycled fiber accounts for nearly half of the raw material used in the manufacture of paper products – reducing the number of trees harvested.



But, there are some challenges with paper recycling. Current de-inking technology (which removes ink from paper) uses caustic chemicals which degrade the fiber strength and require special waste water treatment methods for environmental safety.

In 2003, Dow Corning Paper and Process Industries launched a project to determine if silicones could benefit the paper recycling market by improving the recycling process. Tests showed that Dow Corning silicone offers significant improvements compared to traditional de-inking methods.

### Eco-Innovation – A Closer Look

The surface activity of silicones is able to remove ink from paper under neutral conditions, eliminating the need for caustic chemicals. This solution has additional benefits including:

- Improved yield
- A reduction in the number and amount of chemicals used in the recycling process
- Reduced waste – both in terms of waste water and solid waste at the landfill

## Alignment with Eco-Design Principles

**Principle 5** – Optimize packaging and transportation logistics to minimize energy and materials requirements and reduce potential for accidents

**Principle 6** – Enable use of renewable energy and raw materials

**Principle 7** – Enable resource conservation by customers and end-use consumers

## Health, Environmental & Social Benefits

- The neutral de-inking product improves fiber strength while reducing the chemical oxygen demand on the waste water system, leading to better water quality.
- Improved separation of fiber and ash reduces the amount of waste sent to the landfill.
- The Dow Corning product reduces the number of chemicals in the process from three to one. The amount of chemicals required is 1/5 to 1/10 compared to traditional methods.
- Fewer trees are needed for production of paper, preserving our forests..

## Value Relating to the Eco-Sustainable Attributes

Use of silicone in the paper recycling process results in stronger, higher-quality fiber. This in turn, reduces the need for virgin fiber, which is a more costly raw material that comes at the expense of our forests. The Dow Corning technology reduces chemical usage and minimizes the impact on waste streams.

## Learn More

To learn more about sustainability in action at Dow Corning, visit <http://www.dowcorning.com/content/about/sustainability.aspx>

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