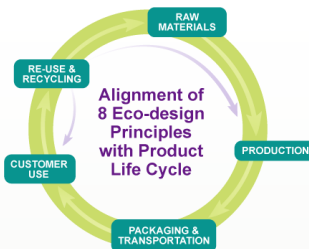


Showcasing Eco-Innovation

Silicone Encapsulants Improve LED Performance



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

Light Emitting Diodes (LEDs) are growing in use all around us. They provide keypad backlighting for communication devices... they are becoming increasingly popular in large panel displays... and they contribute to safety when used in automobile brake lights and turn signals. LEDs are "instant on" devices. When traveling 60 mph, you gain an extra 15 feet of stopping time if the car in front of you is equipped with LED brake lights!



The LED industry is seeking ways to increase light output, improve reliability, and extend the lifetime of LEDs and devices that use LED technology. Silicone encapsulants from Dow Corning provide these benefits, while minimizing the impact on the environment.

Eco-Innovation – A Closer Look

LED semiconductor "chips" are packaged in a variety of configurations that emit light of a defined color. The chips must be encapsulated to enhance and direct light output and to protect the chip from dust, moisture and mechanical damage.

Traditional encapsulating materials, such as epoxy, discolor and have soldering temperature restrictions that have limited LED technology applications in the past. Brighter LEDs, which are favored by consumers, can produce too much heat at the chip surface, adversely affecting the surrounding encapsulant even more.

Silicone, however, can take the heat. Brighter LEDs, encapsulated in silicone, are now being more widely used in cell phones, televisions, computer monitors, streetlamps, flashlights and in vehicle interior and exterior lighting.

Alignment with Eco-Design Principles

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

Health, Environmental & Social Benefits

- Silicone encapsulants have a longer life than organic encapsulants, reducing replacement and maintenance costs and solid waste.
- New “high power” LEDs expand the range of cost-effective uses in lighting, large displays and automotive applications.
- In regions where electrical power is not available, LED technology can replace use of fuel-based lighting (kerosene, propane and candles) via rechargeable batteries or solar energy.
- Silicone encapsulation permits lead-free solder manufacturing processes in compliance with the Restriction of Hazardous Substances directive (RoHS).
- LEDs do not contain mercury like fluorescent lights and minimize disposal hazards.

Value Relating to the Eco-Sustainable Attributes

Silicone encapsulants for LEDs are paving the way for energy savings, reduced greenhouse gas emissions and less solid waste. Dow Corning technology helps LEDs run brighter and last longer, providing new lighting possibilities in many applications impacting personal health and safety.

In the future, expanded use of LEDs in both developed nations and emerging geographies will improve the quality of life for people everywhere. Brighter output, longer life and resource conservation are all part of Dow Corning’s commitment to customers and the environment.

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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