

BASF Product Stewardship

Improves Performance Through Sustainability



The Chemical Company

Sustainability for BASF means combining economic success with environmental protection and social responsibility.

The BASF Product Stewardship team partners with our business units to define, understand, measure & manage sustainability.

Since 2004 BASF North American sustainability studies have touched over \$130 million worth of business and have created over \$5 million worth of improved earnings.

Sustainability Metrics Improve Your Business Value Chain



- Reduce risks
- Strengthen license to operate
- Increase brand value and corporate reputation
- Reduce costs
- Optimize customer processes
- Optimize pricing structure (purchase price vs. system costs)
- Influence regulatory policy

Sustainability Metrics Support Decision Making

STRATEGIC DECISIONS

- Investment decisions
- Technology decisions
- Site decisions
- Evaluate product portfolio

MARKETING, CUSTOMERS

- Demonstration of product advantages
- Improved customer relations
- Product differentiation
- Better understand competitive advantage
- Provides needed benchmarks

RESEARCH AND DEVELOPMENT

- Quantification of the most important factors
- Drive sustainable products and processes
- Drive production and process improvements

STAKEHOLDER AND GOVERNMENT DIALOGUE

- Communication with authorities
- Demonstration of sustainability
- Government “approvals”
- Provides needed benchmarks



BASF Product Stewardship Sustainability Services

- **Sustainability screening analysis** – integrates consideration of key environmental metrics in product and application development (Phase Gate Process)
- **Environmental impact analysis** – measures life cycle environmental burden of products
- **Total cost of ownership** – compares the life cycle costs of two or more products or processes
- **Eco-efficiency analysis** – assesses the costs and environmental impact of products or processes over the complete life cycle
- **SEEBalance®** – assesses the social, environmental and economic impact of products over complete life cycle

Eco-Efficiency Analysis

- **Strategic** tool based on the ISO 14040 standard for life cycle analysis that quantifies the sustainability of products or processes
- **Comprehensive** comparison of two or more products analyzed from the end use perspective
- **Quantifies** environmental impact in 6 key areas:
 - Resource consumption
 - Energy consumption
 - Emissions (air, water, solid waste)
 - Health effect potential
 - Risk potential
 - Land use

Eco-Efficiency Analysis Case Study: Automotive Refinish Primers

2005 Presidential Green Chemistry Award Winner

An eco-efficiency analysis was done for automotive refinish primers comparing thermally cured with infrared (IR) and ultraviolet (UV) cured coatings. The eco-efficiency portfolio (Fig. 1) shows that in addition to environmental advantages, the non-aerosol UV-Cure coating results in greater cost efficiencies due to shorter cycle times and resultant higher productivity.

Figure 2 shows the relative impact of the primer alternatives in each of the six environmental impact categories. Values closest to the center have lower environmental impact than those further away.

Strategic decisions made as a result of this study included aggressive marketing of the results with customers and trade associations. Results were presented to regulators demonstrating the economic viability of low VOC formulations and a direct with customer sales tool was developed which showed lower total cost of ownership for the 1K UV-Cure.

Fig. 1 Eco-efficiency of automotive refinish primers

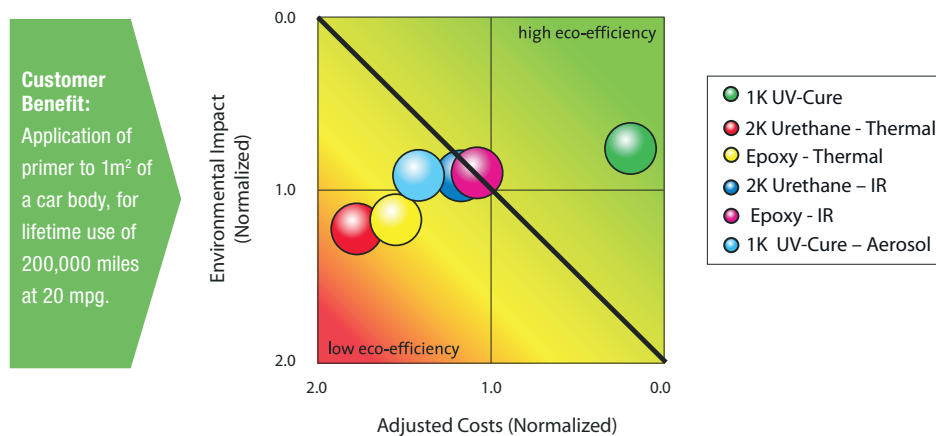
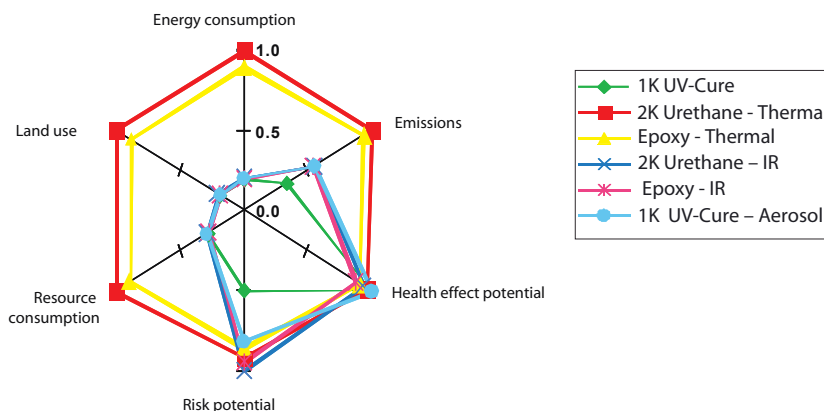


Fig. 2 Ecological Fingerprint



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