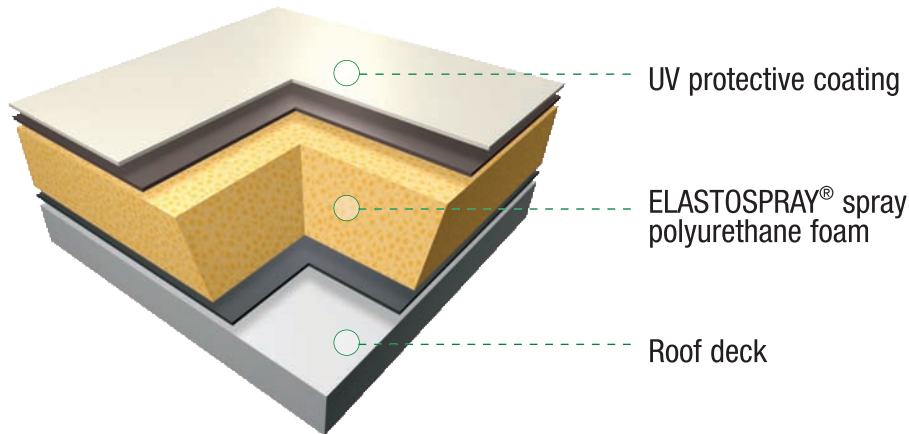


# ELASTOSPRAY® ROOFING SYSTEM

Scores High on Eco-Efficiency Analysis



The ELASTOSPRAY® spray-applied polyurethane foam (SPF) roofing system from BASF Polyurethane Foam Enterprises LLC boasts high eco-efficiency and return on investment according to an Eco-Efficiency Analysis. ELASTOSPRAY roofs include seamless polyurethane foam insulation with a fluid-applied ELASTOCOAT™ elastomeric membrane.

The BASF Eco-Efficiency Analysis uses an award-winning methodology to measure the life cycle performance<sup>1</sup>, cost, ecological footprint (including energy and raw material consumption) health effect potential, risk potential, emissions, and evaluation of land use and transportation fuel usage for a set customer benefit (CB)<sup>2</sup> for ELASTOSPRAY technology compared to alternative roof insulation systems, including extruded polystyrene (XPS), expanded polystyrene (EPS) and Polyisocyanurate.

The advent of ZONE3® zero-ozone depleting technology significantly increases the eco-efficiency of BASF SPF roofing systems, as does the use of VOC-free roof coating systems. Other advantages include:

- Low health effect potential
- Low emissions
- Low system cost to install
- Low landfill cost
- Low transportation fuel cost
- Low total lifecycle cost

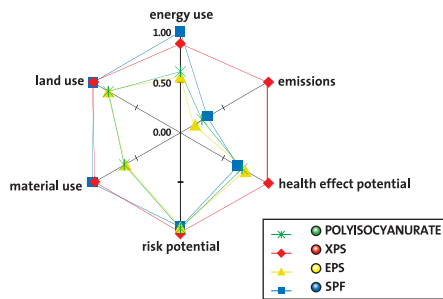
Test Category	ELASTOSPRAY®	XPS	EPS	Polyisocyanurate
Total System Cost Used (\$/CB)	\$29,062	\$42,430	\$31,096	\$28,577
Total Landfill Costs (\$/CB)	\$1,359	\$1,461	\$1,357	\$1,378
Transportation Fuel Cost (\$/CB)	\$845	\$1,047	\$963	\$912
Costs for System Repairs	\$14,531	\$13,175	\$13,175	\$13,175
Total Life Cycle Cost (\$/CB)	\$45,797	\$58,113	\$46,591	\$44,042

\* study conducted using 2003 data

Helping Make  
Buildings Better™

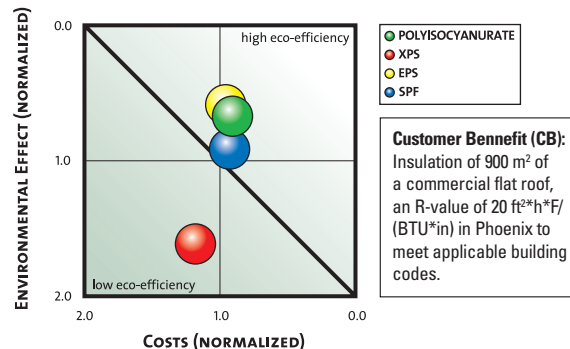
**BASF**  
The Chemical Company

BASF Polyurethane  
Foam Enterprises LLC



1.0 = Worst position, better results ordered relatively <1

**GRAPH A** shows the Ecological Fingerprint of the systems studied for the Customer Benefit. 1.0 = worst position, better results ordered <1.



**Customer Benefit (CB):**  
Insulation of 900 m<sup>2</sup> of a commercial flat roof, an R-value of 20 ft<sup>2</sup>\*h\*/F (BTU\*in) in Phoenix to meet applicable building codes.

**GRAPH B** shows the economical / environmental impact of the materials studied, including replacement of 1% of insulation material every 15 years over a 45-year lifetime for all alternatives.

In 2005, the BASF Eco-Efficiency Analysis process won three major awards of interest to the building and construction industry: the Design for Sustainability Award (Society of Plastics Engineers), the Presidential Green Chemistry Challenge Award (U.S. Environmental Protection Agency) and the Best Sustainable Practice Award in the Sustainable Research, Development, Construction Process and Demonstration (Sustainable Buildings Industry Council).

The aim of the Eco-Efficiency Analysis is to compare similar products or processes. This involves carrying out an overall study of alternative solutions to include a total cost determination and the calculation of ecological impact over the entire lifecycle. Holding sustainability to be part of its global mission, BASF Corporation is committed to constant improvements in safety, protection of health and environmental conservation.

In addition to its eco-efficiency performance, BASF Polyurethane Foam Enterprises SPF roofing contributes to building durability. Two separate third party studies of installed SPF roofing systems report that physical properties of SPF did not diminish over time. In one study of 1,600 roofs, of which the oldest were nearly 30 years old, 97.6 percent did not leak, 93 percent had less than 1 percent deterioration and 55 percent had never required maintenance<sup>3</sup>.

SPF also combines high R-value closed-cell insulation with superior air leakage control performance to deliver maximum efficiency. According to Texas A&M University studies of more than 8 million square feet of SPF roofing, energy savings paid for the cost of the SPF roofing installations in three to four years.

The National Roofing Contractors Association describes SPF as one of the best roofing systems for flat, unusually shaped or low-slope roofs. BASF Polyurethane Foam Enterprises ELASTOSPRAY SPF roofing systems have received a variety of fire, wind uplift and hail resistance approvals. For more information, visit [www.basf.com/spray](http://www.basf.com/spray).

BASF Polyurethane Foam Enterprises is the only manufacturer to offer a complete Engineered Building Envelope system, including spray-applied polyurethane foam, a full system warranty and a single source supply of silicone, urethane, polyurea and acrylic coating solutions for the commercial roofing market.

As demand for sustainable construction materials and applications continues to grow, BASF Polyurethane Foam Enterprises offers new cost-effective solutions, developed at extensive R&D facilities around the world.

1 Life cycle analysis calculations set up according to rules and principles of the ISO 14040 ff.

2 Customer Benefit - 900m<sup>2</sup> of roof with no penetrations, R-value 20, fire barrier board, all systems mechanically fastened with cover board except SPF which uses coatings and granules instead. Meets National Roofing Contractors Association and Factory Mutual 4450 guidelines.

3 1996 Roofing Contractors/Systems Performance Information, Dean Kashiwagi Ph.D. P.E. A Field and Laboratory Assessment of Sprayed Polyurethane Foam-Based Roof Systems, conducted for the National Roofing Foundation by Rene M. Dupuis, Ph.D., P.E., Structural Research Inc.

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