TRANSCEND® ADDITIVE BY ARKEMA

Improve Your Next-Generation Foam Technology

Transcend® additive technology offers an excellent approach to improve next-generation foam technologies. As an additive for foam formulations, it goes beyond a single performance enhancement. Originally identified to reduce smoke generation and flame spread in hydrocarbon blown PIR foams, Transcend® technology also delivers improved solubility of blowing agents in polyols and reduced viscosity, thus improving the flow characteristics of many foam formulations. Transcend® also provides a level of blowing efficiency that allows a reduction in other blowing agent levels.

Transcend® additive technology is a smart choice from a company that delivers customized, proactive customer solutions and is a proven leader in the foam industry.

With sales of €7.7 billion and 19,000 employees in 50 countries, Arkema is positioned as a leader in the world of chemicals. With a clear strategy, recognized know-how, and a solid financial base, Arkema will continue to establish long-term relationships with customers worldwide.

Arkema's commitment to you starts with quality products and continues with ISO-9001-certified customer service, technical support groups located on two continents, and a sales staff located around the globe.

The Transcend® technology, based on trans-1, 2-dichloroethylene (Trans-1, 2-DCE), can be added to Hydrocarbon (HC) and HFC foam formulations to create unique foam products. With this new technology in the blend, the resulting foams have demonstrated improved fire performance characteristics – reduced smoke generation and lowered flame spread. Transcend® technology can help the formulator achieve better fire performance. Transcend® technology also has been proven to contribute to improved foam processing and blowing agent performance. It can lower the viscosity of polyol premixes and has been demonstrated to reduce the vapor pressure of low boiling point blowing agents.

The fire and smoke benefits of Arkema's new technology will be most important to end-use customers. The improved processability, solubility, and lowered viscosity characteristics bring additional value to producers as well.

Advantages of Using Transcend® Technology

Blends with HFC Foam Formulations

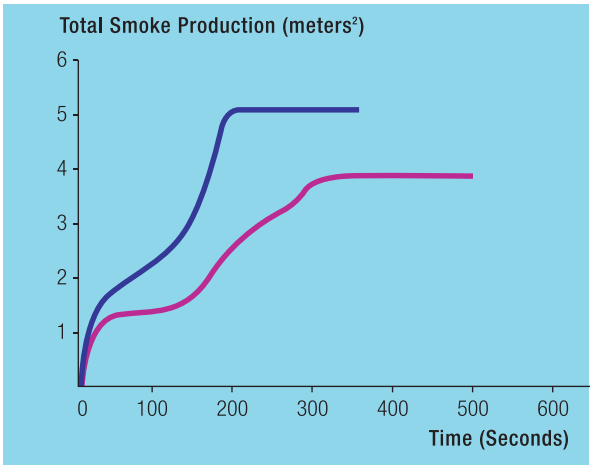
- Improves fire performance of HFC-based foams
  - Reduces initial weight loss of foam
  - Reduces smoke generation
- Reduces vapor pressure of HFC-based systems, in particular, with HFC-134a and HFC-245fa
- Reduces the viscosity of "B" side premixes
  - Improves processability
- Improves solubility

Blends with HC Foam Formulations

- Improves fire performance of HC-based foams (based on small scale test results)
  - Reduces initial weight loss of foam
  - Reduces smoke generation
- Reduces viscosity of "B" side premixes

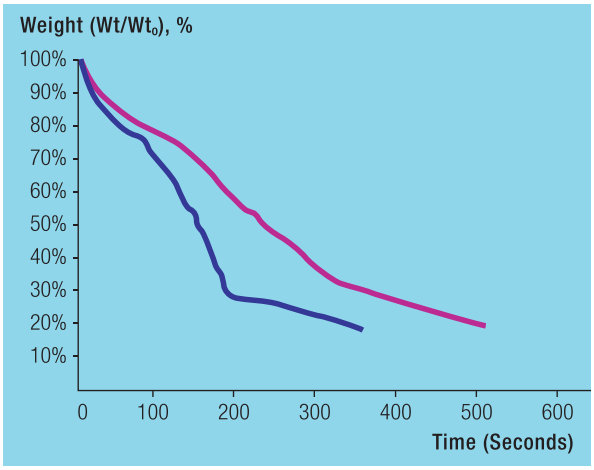
Transcend® Technology Improves the Fire Properties of n-Pentane

TOTAL SMOKE PRODUCTION



Transcend® technology significantly reduces smoke production for foams blown with n-Pentane.

WEIGHT LOSS RATE



Transcend® technology blended with n-Pentane reduces the initial weight loss of the foam when exposed to the flame.

n-C5 Only

n-C5 with 25 mole% Transcend®

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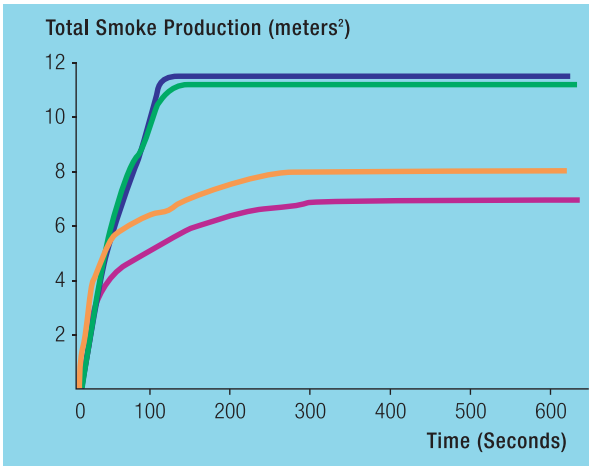
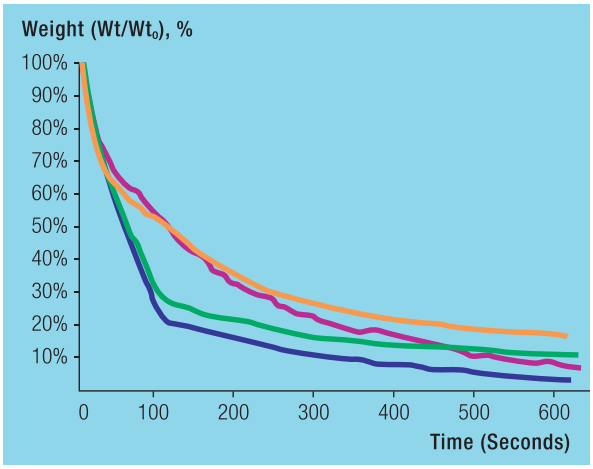
TRANSCEND® TECHNOLOGY IMPROVES THE FIRE PROPERTIES HFC-245FA

TOTAL SMOKE PRODUCTION*



Transcend® technology significantly reduces smoke production.

WEIGHT LOSS RATE*



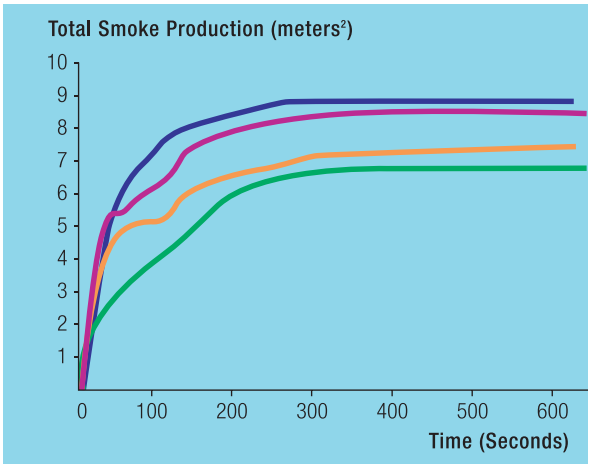
Transcend® technology greatly reduces the initial weight loss of the foam when exposed to flame.

- 245fa Only
- 245fa with 10 mole% Transcend®
- 245fa with 30 mole% Transcend®
- 245fa with 50 mole% Transcend®

*Data source: Arkema–Europe

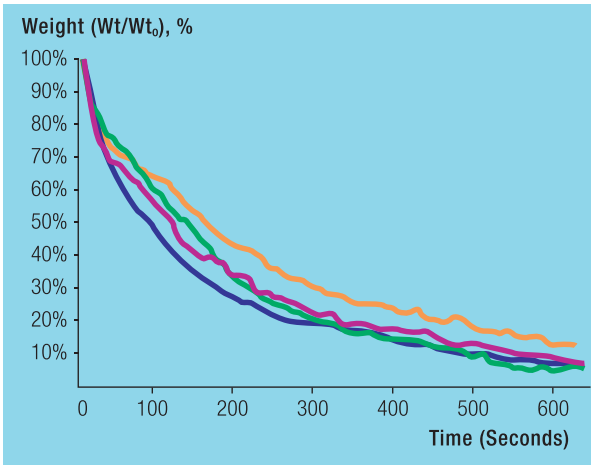
TRANSCEND® TECHNOLOGY IMPROVES THE FIRE PROPERTIES HFC-365MFC

TOTAL SMOKE PRODUCTION*



Transcend® technology significantly reduces smoke production.

WEIGHT LOSS RATE*



Observations at various concentrations show reduction in the initial weight loss of the foam when exposed to flame.

- 365mfc Only
- 365mfc with 10 mole% Transcend®
- 365mfc with 30 mole% Transcend®
- 365mfc with 50 mole% Transcend®

*Data source: Arkema–Europe

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