

BENEFITS THAT COVER YOUR NEEDS. . .

Forane® FBA 1233zd Blowing Agent

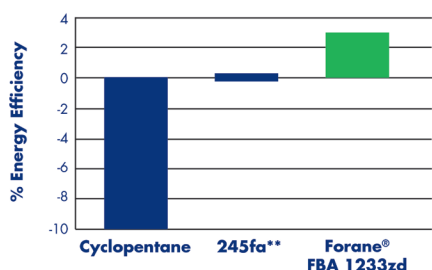


ENERGY EFFICIENCY
LOW ENVIRONMENTAL IMPACT
SAFETY
EASE OF USE



A Comprehensive Approach to Safely Meet Stricter Global Energy Standards With Low Environmental Impact

% Energy Efficiency Improvement in Household Refrigerators



*Cyclopentane vs 245fa from AHAM trials

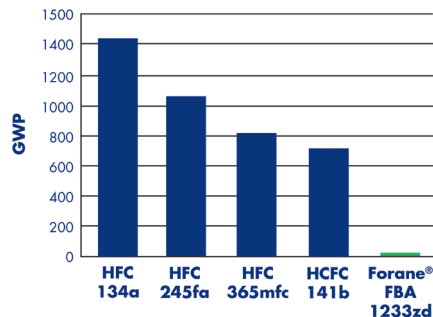
**Commercial trials, unoptimized foam system with Forane® FBA 1233zd vs. HFC 245fa

Thermal Performance

- Improved energy efficiency in household refrigerators and freezers
- Low lambda (λ) value for critical cold chain and PU spray foam applications

Low Environmental Impact

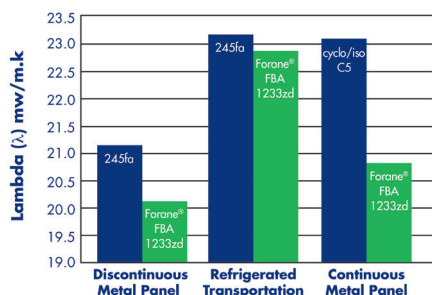
Forane® FBA 1233zd blowing agent has a GWP of 1*



*IPCC 5th Assessment Report WG1, Jan. 2014

Lambda (λ) for Cold Chain Applications*

Forane® FBA 1233zd blowing agent provided excellent insulation values at low temperatures critical to all cold chain applications.



*Tested @ 75°F Mean Test Temperature

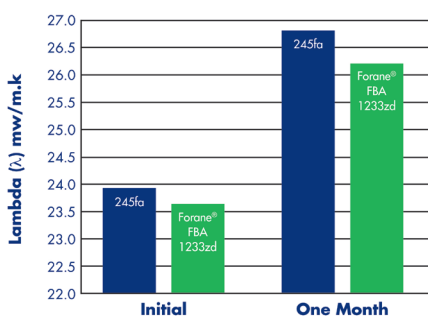
Low Environmental Impact

- Low global warming potential (GWP of 1)*, a 99.9% reduction vs. HFC's
- Non-ozone depleting
- VOC exempt. 1233zd is not a volatile organic compound

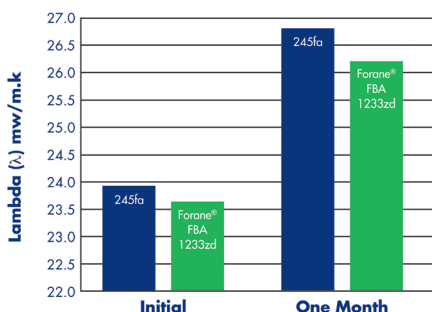
Safety Performance

- Non-flammable
- Low vapor pressure

Lambda (λ) for Spray PUR Foam



Lambda (λ) for Spray PUR Foam



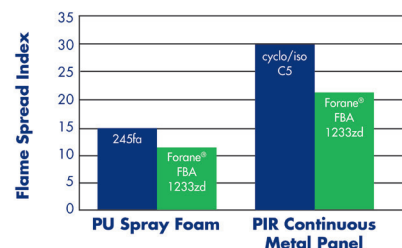
Cost and Ease of Use

- Utilizes existing processing equipment and raw materials
- Easy to use liquid form

Arkema has granted patents on 1233zd use in Foam and Heat Transfer applications throughout the world.

Fire Performance*

Forane® FBA 1233zd may allow for lower levels of flame retardants.



*Spray Foam tested under ASTM E84 guidelines. Continuous Metal Panel burn tested under controlled lab conditions. These tests should not be used to predict burn behavior under actual fire conditions.

Benefits That Cover Your Needs... Forane® FBA 1233zd Blowing Agent

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