

ClearShield™

*UV Absorber  
for PET*



*Personal Care  
and Cosmetics*

Protecting your products from harmful UV light

Milliken™



ClearShield™

*UV Absorber  
for PET*

# The Milliken story



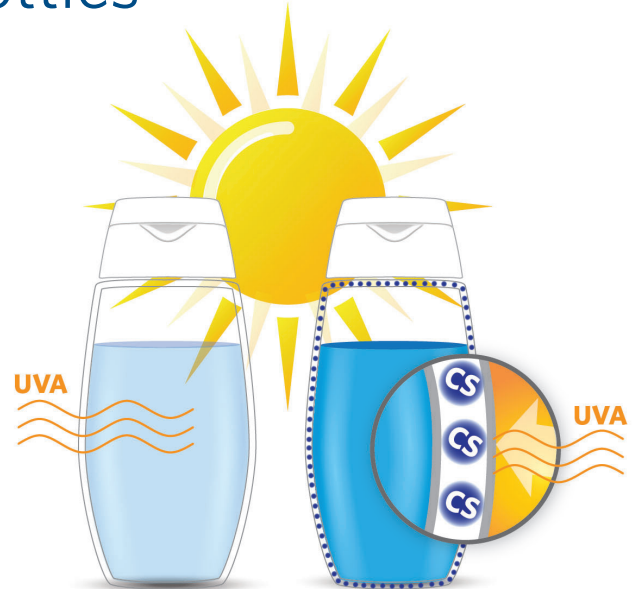
With the introduction of ClearShield™ UV Absorber, Milliken brings real value to PET packaging of shampoo, liquid soap, shower gel and cosmetics. This technology effectively protects UV-sensitive packed contents from degradation while maintaining the clarity and transparency of PET.

“Our promise is to deliver packaging applications with superior clarity that results in beautiful, versatile, sustainable packaging – and we think that’s a story worth sharing.”

# UV protection in PET bottles

ClearShield offers an efficient way to protect against UV exposure by incorporating the UV absorber into the PET package itself. Our UV absorber filters 95% of UV light at up to 390 nanometers and is effective at very low loadings, enabling the use of more highly UV-sensitive natural essences, fragrances and colorants in the packaged products.

“Protecting your products from harmful UV light”



*Standard PET*

*ClearShield  
protected PET  
bottle*

# Protecting UV-sensitive colors

To ensure product consistency, and hence brand integrity, the contents of PET packaged goods must be protected from exposure both to sunlight and to indoor lighting during storage, distribution, retail display and post-purchase storage. Exposure to UV light can degrade ingredients, and negatively impact the appearance and color of the content. This is where Milliken is making a difference with ClearShield UV Absorber, protecting UV-sensitive colors from degradation while maintaining the material's clarity and transparency.

“We protect PET packaged goods from harmful UV light degradation.”



**without  
UV Protection**  
*The color fades*



**with  
UV Protection**  
*The color stays*



*Bottles exposed to 45 accelerated UV hours*

# Protecting UV-sensitive fragrances

To ensure product consistency, and hence brand integrity, the contents of PET packaged goods must be protected from exposure both to sunlight and to indoor lighting during storage, distribution, retail display and post-purchase storage. Exposure to UV light can degrade ingredients, and negatively impact the appearance, and fragrance of the content. This is where Milliken is making a difference with ClearShield UV Absorber, protecting UV-sensitive perfumes from degradation while maintaining the material's clarity and transparency.



“We protect PET packaged goods from harmful UV light degradation.”

# Your brand integrity is important

Packaging is a key differentiator for consumer goods and can make your products stand out on store shelves. But the value of appealing packaging vanishes quickly if the package fails to properly protect the contents. Product consistency – in appearance, fragrance, color, flavor and nutrient value – is vital to brand integrity. To ensure such quality consistency, the contents of PET packaged goods must be protected from exposure both to sunlight and indoor lighting. Consumers also like to see what they're buying. So having the ability to deliver excellent UV protection in a clear, transparent package offers additional marketing and branding opportunities.



“Don’t let UV light damage your packaged goods or your brand’s reputation. Protect your products with confidence by using clear PET packaging that provides an effective shield from UV rays.”

# Recycling clear, uncolored PET

By enabling greater use of more natural and uncolored PET, ClearShield helps to reduce or eliminate the need to use dark or colored containers to protect the contents. Such opaque and colored PET materials tend to make the recycle stream dark, which can make recycling more difficult and lessen the value of the reclaimed product. All this only further strengthens the argument for using clear, uncolored PET, and ClearShield UV Absorber allows this to happen, with no compromise in product quality.

*Colored PET  
recycle stream*



*Uncolored PET  
recycle stream*

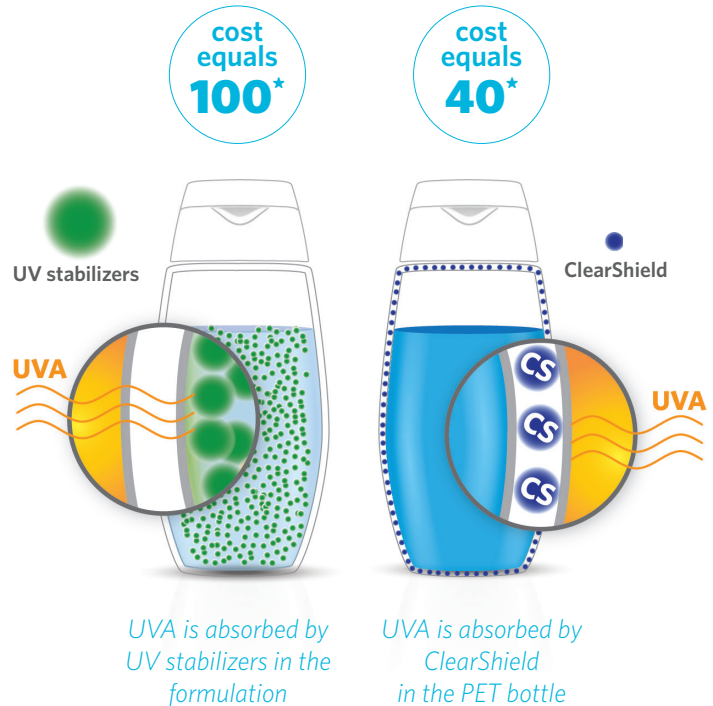
“Plastics Recyclers Europe trade group warns : “These ‘colorful’ future trends will weaken the image of PET as a recycled product” ”



# The efficient way

By incorporating the UV absorber into the PET package itself, this technology allows brand owners to remove the often high loadings of traditional UV additives that they previously had to include in the formulations of the packaged contents themselves. Formulators can obtain the same protection using up to 10 times less UV ClearShield Absorber than traditional absorbers, which helps to save costs.

“By integrating UV protection into the package rather than the contents, ClearShield can help brand owners to simplify formulations and reduce costs while enabling the use of more UV-sensitive natural ingredients.”

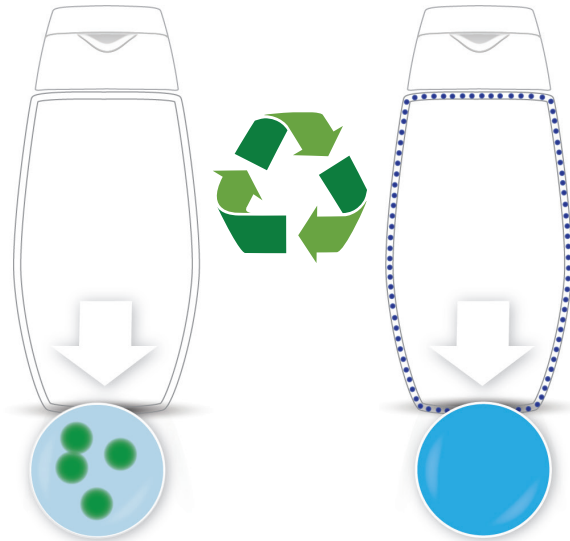


\* Basis traditional UV absorber = 100

# Reducing waste water contamination

Adding ClearShield to the PET packaging also eliminates concerns about toxicity or waste water contamination by some of the chemicals traditionally used in other UV stabilizers. Both Standard PET bottles and PET bottles with ClearShield can be recycled. The PET bottle with ClearShield provides rPET with UV protection.

“Protecting the environment, reducing the amount of UV absorber in the waste water”



*After using the product,  
**all traditional UV absorber**  
ends in waste water*

*After using the product,  
**no UV absorber**  
ends in waste water*



ClearShield™

*UV Absorber  
for PET*

# Interested in UV protection in PET?

## NORTH AMERICA

Spartanburg, SC, USA

Tel: 800-910-5592

Fax: 864-503-2430

milllichem@milliken.com

## EUROPE

Gent, Belgium

Tel: 32-9-265-1100

Fax: 32-9-265-1195

eurochem@milliken.com

## LATIN AMERICA

Sao Paulo, Brazil

Tel: 55-11-3043-7942

Fax: 55-11-3043-7096

lachim@milliken.com

Mexico City, Mexico

Tel: 52-55-3088 3600

Fax: 52-55-9000 2643

lachim@milliken.com

## ASIA

Singapore

Tel: 65-6377-0770

Fax: 65-6377-0990

asiachem@milliken.com

Shanghai

Tel: 86-21 6145-5555

Fax: 86-21 6145-5558

asiachem@milliken.com

Pune, India

Tel: (20) 4011-0601

Fax: (20) 4011-0602

asiachem@milliken.com

*Milliken*

chemical.milliken.com

© Copyright 2019 Milliken & Company. All rights reserved. ClearShield™ is a registered trademark of Milliken & Company. Milliken™ is a trademark of Milliken & Company.  
2.5.2019



PLEASE NOTE: As each customer's use of our product may be different, information we provide, including without limitation, recommendations, test results, samples, care/labeling/processing instructions or marketing advice, is provided in good faith but without warranty and without accepting any responsibility/liability. Each customer must test and be responsible for its own specific use, further processing, labeling, marketing, etc. All sales are exclusively subject to our standard terms of sale posted at [www.milliken.com/terms](http://www.milliken.com/terms) (all additional/different terms are rejected) unless explicitly agreed otherwise in a signed writing.