



**Laboratory wash test results of high-visibility warning clothing with  
3M™ Scotchlite™ Reflective Material 9920 Silver Industrial Wash Fabric  
3M™ Scotchlite™ Reflective Material 9720 Silver Industrial Wash Transfer Film  
3M™ Scotchlite™ Reflective Material 5530 Segmented Industrial Wash Trim  
When washed with Performance emulsion©  
in combination with Performance booster ©  
(February 2017)**

## Overview

Standard EN ISO 20471– High-visibility Warning Clothing defines requirements for fluorescent background materials and retroreflective materials – including minimum requirements for retroreflectivity after testing. These minimum values are often the reference in practice to demonstrate the performance according to this standard for high-visibility warning clothing in usage.

For adequate protection of the user, high-visibility warning clothing should be laundered and cleaned regularly when soiled. Unsuitable wash processes for retro-reflective material (washing/drying) may have a negative impact on the characteristics and can also extremely shorten the lifetime of the garment.

Therefore Ecolab, in collaboration with 3M Deutschland GmbH, performed internal laboratory washing trials at the Ecolab laboratory in Monheim to explore the potential for performance of high-visibility warning clothing with 3M™ Scotchlite™ Reflective Material 9920 Silver Industrial Wash Fabric, 3M™ Scotchlite™ Reflective Material 9720 Silver Industrial Wash Transfer Film and 3M™ Scotchlite™ Reflective Material 5530 Segmented Industrial Wash Trim when washed with a combination of Performance emulsion© and Performance booster ©.

Although the testing was conducted on a limited number of samples, the information may be helpful as a point of reference for laundry facilities. As always, it is important for laundry facilities to conduct qualification trials specific to their facilities and not rely solely on the information from this limited study.

## Important Testing Caveats and Limitations

**NOTE:** There are several important caveats that apply that could yield different results for actual users, including but not limited to differences in: (i) water hardness, (ii) type of laundering machine or process (note that EN ISO 20471 does not define appropriate washing processes); (iii) temperature of water; (iv) concentration of the Ecolab™ Performance emulsion© and/or Performance booster ©; (v) type of garment and/or trim being evaluated; (vi) drying times and methods between cycles; and/or (vii) storage, handling, use, and/or age of the Scotchlite material. In addition, this study makes no analysis as to the effect on the underlying, non-reflective materials that may be present in garments during actual use.

## Testing Results

With the above caveats and limitations in mind, the testing looked at the influence of Ecolab™ Performance emulsion® in combination with Performance booster ® under common practice conditions.

The minimum requirements for retro-reflection according to EN ISO 20471 were evaluated at 3M Deutschland GmbH and all the requirements were met.

**The observed effect of the washing process on the 3M products was minimal.** Therefore, this testing provides evidence that, at least under the materials and test conditions used, Ecolab™ Performance emulsion® in combination with Performance booster ® does not diminish retroreflective performance of 3M™ Scotchlite™ Reflective Material 9920 Silver Industrial Wash Fabric, 3M™ Scotchlite™ Reflective Material 9720 Silver Industrial Wash Transfer Film and 3M™ Scotchlite™ Reflective Material 5530 Segmented Industrial Wash Trim more than would be expected from other comment detergents.

Further information on the testing can be obtained from Ecolab Deutschland GmbH, Ecolab-Allee 1, 40789 Monheim am Rhein, Germany. As always, it is important for a laundry facility to conduct qualification trials specific to their facility and operations and not rely solely on the information provided from this limited study.

## Appendix

*Information, conclusions and dates have been determined and communicated with reasonable care and in all conscience. They imply a common practical appropriate usage and care of the products that have to be cleaned. Ecolab does under no circumstances assume with this recommendation any responsibility and warranty over the legal measurement, that the product and the recommended washing process for a certain purpose are adequate.*