

HiViSAFE

an objective method to determine the performance of high-visibility clothing

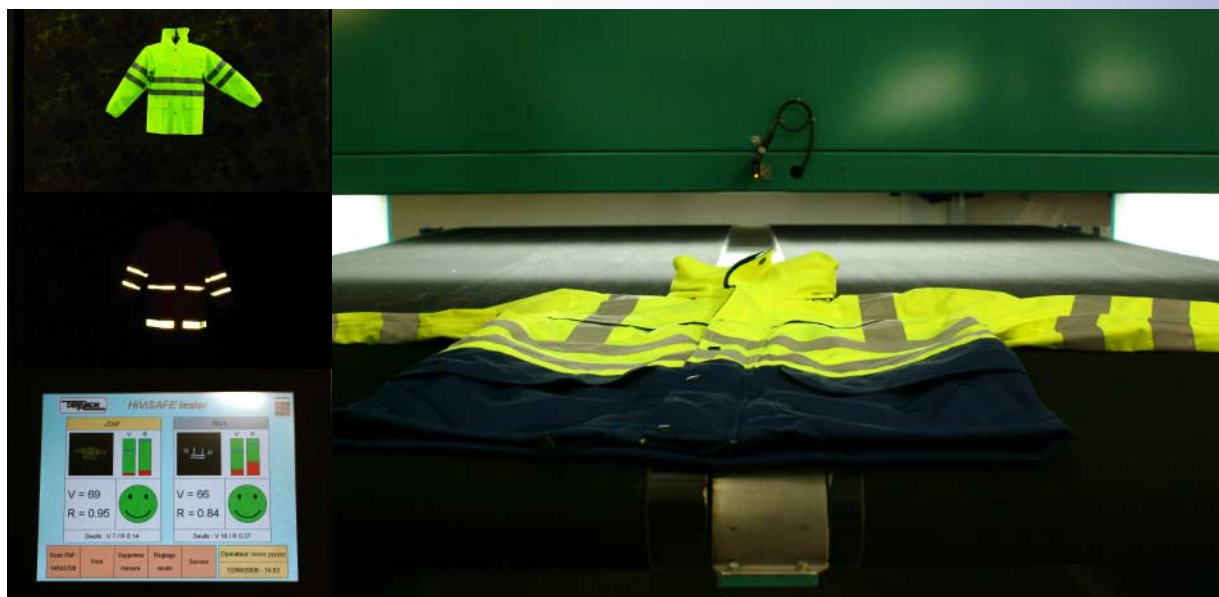
Legislation and European standards have boosted the development and use of high-visibility clothing all over Europe.

The European standards **EN 471** and **EN 1150** specify the minimum requirements for high-visibility clothing for professional and private use.

These requirements pertain e.g. to the colour and surface areas of fluorescent materials or to optical properties, as well as to the size and placement of retro-reflective trimmings.

However..

- ◇ these standards do not provide any tool for the optimization of the garment design
- ◇ the standard requirements do not address the evolution of garments in-use (influence of laundering cycles, soiling...)



HiViSAFE is a unique method to assess the **visibility** (conspicuity) of the entire garment in its present condition (new or in-use) and to express it as a **visibility index**, linked to the probability of perception.

CENTEXBEL has developed the **HiViSAFE** method in an extensive research programme, in co-operation with the University of Louvain (KUL).

The **HiViSAFE** method is underpinned by a vast series (> 200.000) of visual perception tests performed by a group of observers on a large collection of high-visibility garments. This allowed to develop a visibility scale, which can serve as a stable and reliable reference, based on the understanding of human visual perception mechanisms.

The **HiViSAFE** technique uses digital image capture and processing, obtained in precisely defined, reproducible conditions and allows to assess visibility under both night and day conditions.

The HiViSAFE method allows

- ◇ to assess day-time visibility (index V_d) and night-time visibility (index V_n) separately
- ◇ to determine absolute visibility indices (V_d , V_n) as a measure of the protection level offered by the garment
- ◇ to determine relative visibility indices (VR_d , VR_n) that can be used for monitoring the evolution of protective properties in-use or after cleaning or to provide a comparison between garments of different sizes, styles and designs

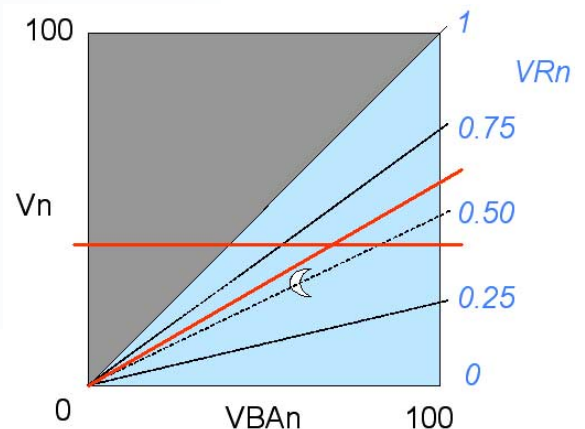
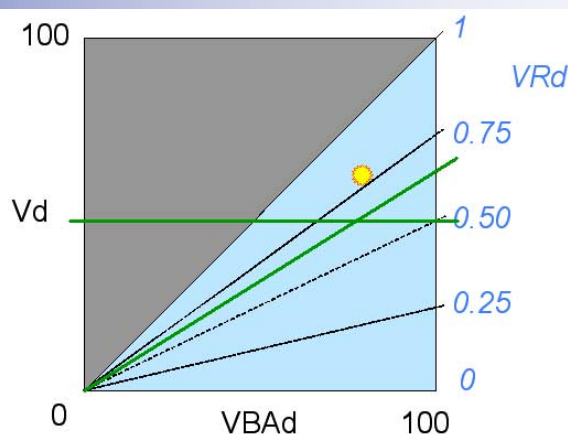
The HiViSAFE method has been developed for

- ◇ manufacturers of high-visibility clothing and clothing materials as a tool to assess and optimize their products and to assist them in product development
- ◇ laundries of professional workwear to assist them in sorting out which garments should be re-used or discarded
- ◇ users of high-visibility clothing as a tool to monitor the deterioration of garments in-use and to evaluate the protection level offered by the garment



The HiViSAFE technique can be used

- ◇ as a laboratory method for the testing of garments
- ◇ as an industrial quality control method in laundries and factories



How to interpret the results ?

- ◇ The results are displayed as visibility index values as well as graphically for easy and immediate interpretation.
- ◇ Visibility indices are determined in day-time and night-time conditions and displayed separately.
- ◇ Absolute indices (V_d , V_n) are expressed on a scale of 0 to 100 and represent the readiness with which the garment is perceived. Absolute indices are a measure of the protection level.
- ◇ Relative indices (VR_d , VR_n) are expressed on a scale of 0 to 1 and compare the present visibility performance of a garment to its optimal possible performance (VBA), considering size, design etc.
- ◇ Relative indices are a measure of the evolution of protective properties.

Contact

Michel Longrée
Centexbel Verviers
Avenue du Parc 38
4650 Chaineux (Herve) - Belgium

phone +32 87 32 24 35
mobile +32 474 68 10 94
fax +32 87 34 05 18
e-mail michel.longree@centexbel.be