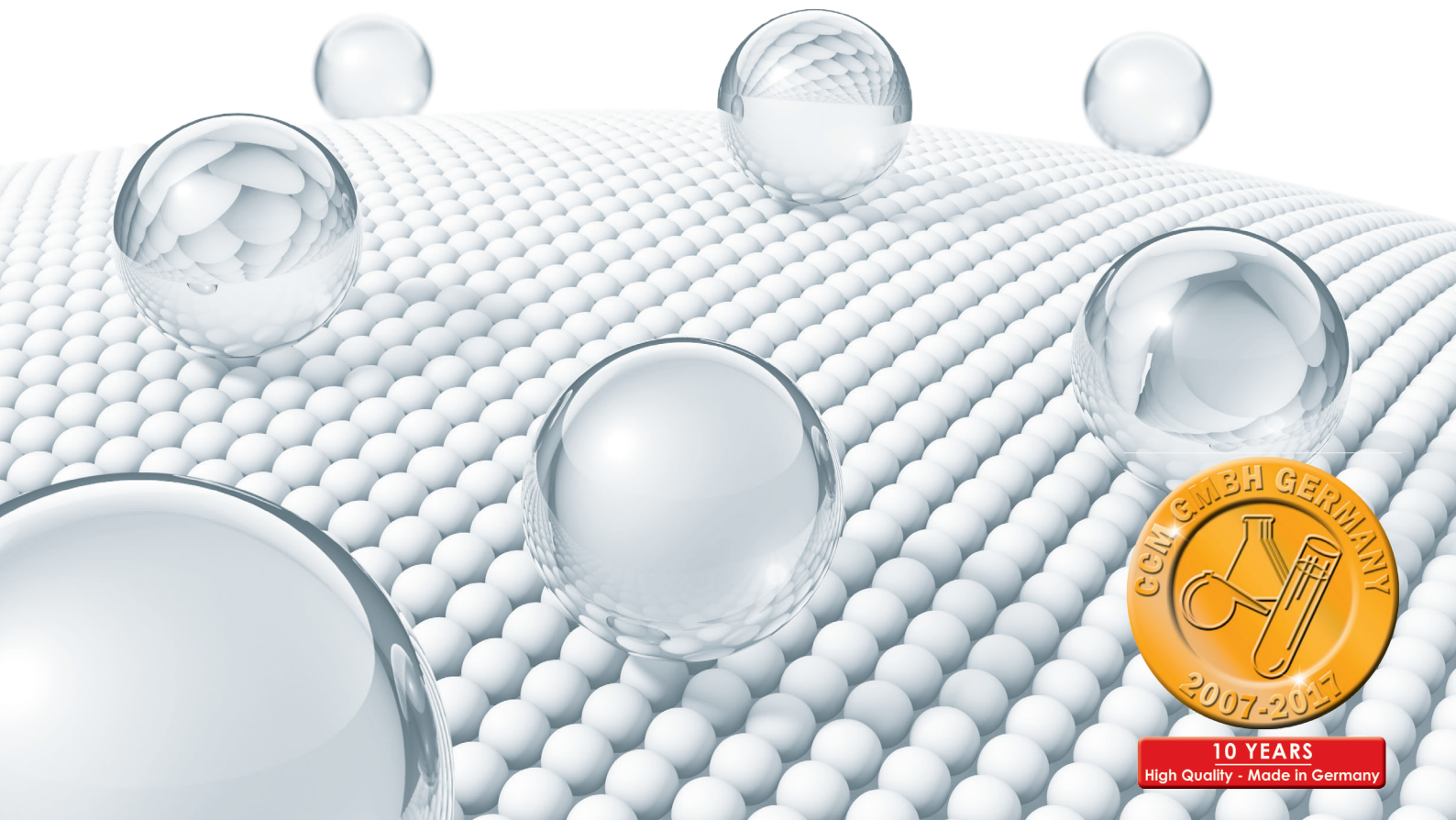




Hybrid Nano Silica Fusion Technology (HNSFT) with self-healing characteristics



www.ccm-international.eu

Hybrid Nano Silica Fusion Technology (HNSFT) with self-healing characteristics

The Fabric Industry has been searching for a coating which offers the same performance as C8 (PFOA) technology, yet without the obvious negative attributes. It became apparent that a technology based on SiO_2 could prove to offer the solution, and this has indeed proven to be the case.

The new Hybrid coating, which also utilises an environmentally optimised, slightly cationic, C6-carbonfluoro-polymer, is PFOA-free, stunningly Hydrophobic and Oleophobic, Self Healing and most importantly Machine Washable.

**We are offering
Outstanding Performance**

**CCM HNSFT technology provides an
oleophobicity rating of up to 8 (ISO
14419)**

This chart shows the performance of standard commercially applied fabric coatings. The maximum oleophobic rating after 10 washes is only 5.



*Fabrics coated with HNSFT technology
after 15 wash cycles.*



DWR Chemistry	Water repellent PA after 10 washes	Water repellent PET after 10 washes	Oil repellent PA after 10 washes	Oil repellent PET after 10 washes
Fluoro C8 (telomer) (FC)	5	5	3,5	3,5
Fluoro C6 (telomer) (FC)	4	4,5	4,5	2,5
Fluoro C4 (EFC) (FC)	5	4	0	0

Note the significant drop in performance after washing. Due to the highly durable SiO_2 component the performance levels of HNSFT coated fabric remains high, even after repeated washes.

We offer a technology which surpasses the performance of C8.

CCM Hybrid Nano Silica Fusion Technology (HNSFT) with self-healing characteristics.

Our experience of working with SiO_2 based coatings informed us that this technology offered us the best foundation from which to create a new coating. The main obstacle to overcome was "enhancing the bonding characteristics of the coating". This obstacle was overcome by creating a hybrid matrix, which, when heat cured would provide a coating which would not only match but supersede the performance characteristics of standard C8 fabric coating technology.

Attributes:

- PFOS and PFOA free
- F-C Modified silica. The fluorinated component is very strongly bonded to the SiO_2 .
- Bonded structure massively reduces degradation of the coating.
- outstanding oleophobicity/oil repellency (depending upon fabric type, e. g. 8 on PES), based on ISO 14419

Technical Data:

- Washing stability 25-100 washing cycles
- (AATCC) Test Method 135, ECE formulation washing powder, non-phosphate reference
- Oil repellency: ISO 14419 / 8-6 (depending on the substrate)
- self-healing prompted by tumble drying
- Water repellency: AATCC 22 / 100, ISO 4920 / 5
- Temperature stability: 220°C
- Transparency: 100%
- outstanding UV-stability > 3.500 hours

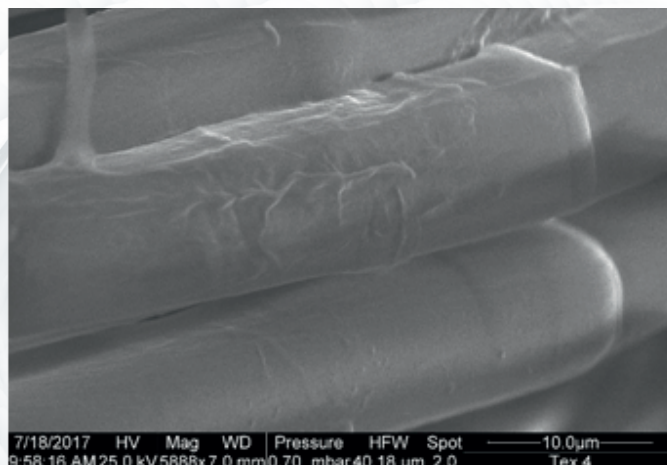
Oil Repellency on fabrics (ISO 14419)

Type of textile	Results
Polyamid ISO 105-F03	oil 6 / 7 / (8 B)
Polyester ISO 105-F04	oil 6 / 7
Wool ISO 105-F01	oil 6 (-) / 5
Cotton ISO 105-F09	oil 6 / 7
Multifiber ISO 105-F10	oil 6 / 7 / 8

From Quartz Sand to a revolutionary Liquid Glass Technology Coating



REM Analysis



coating thickness between 300-900nm

Industrial Application:

The constituents are supplied in four different concentrations. For creating 1.000 liters the amounts are:

Component 1 - 10 liters

Component 2 - 30 liters

Component 3 - 10 liters

Component 4 - 8 liters

Simply mix the constituents into water to create the HNSFT coating.

Pre-drying at 100°C is recommended as the fabric must be dry before "curing".

Curing: Approximately 60 to 120 seconds at 150-175°C. Curing times and heat settings can be adjusted to match fabric types and production methodology.

Foulard application is recommended.

Stability of mixed coating: 2 days

Shelf life of the components: 1 year

Target Groups for Textiles

coated with Hybrid Nano Silica Fusion Technology (HNSFT) with self-healing characteristics:

- Military
- Hospitals
- Working Safety
- Sports Wear
- Technical Textiles
- Adventure clothing
- Fashion clothing
- Upholstery
- Carpets
- Automotive

HOT STUFF®

for Commercial and DIY application.

This variant is supplied as a simple to use concentrate.

The coatings is applied to fabrics, finished garments, soft furnishings etc. by either spray, sponging or dipping. In order to cure the coating the item should be heat cured via either a tumble dryer, or hair dryer for smaller items such as sneakers or hats.

Performance characteristics

Coated fabrics offer excellent hydrophobicity and oleophobicity for up to 20 wash cycles. The durability of the coating depends on the structure of the fabric, eg. Cotton-polyester fabrics offer more prolonged performance than pure cotton fabrics.



The HOT STUFF® range is based on a „common core technology“.

It is possible to adapt this technology to meet specific needs such as enhanced resistance to Dry Cleaning. Please contact us if you have a specific requirement for fabric coatings.



CCM GmbH

Diepenbroich 8 | D-51491 Overath / Germany

Fon +49 (0) 2206 / 938590-0 | Fax +49 (0) 2206 / 938590-99

www.ccm-international.eu