TECHNICAL TUESDAYS

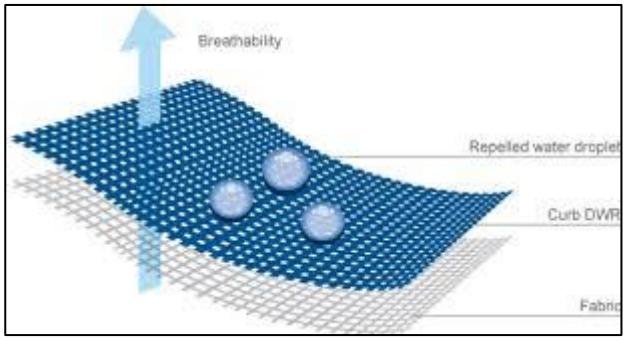
# WATER REPELLENT FINISH – PART II

REF: TT/ MAY 2018 / WK 3

## Chemistry of Water Repellent Finishes

The oldest water-repellent finishes for fabrics are the coatings of paraffin or wax but they are non- durable.

Presently, these finishes mainly involved fluorocarbon based chemistries. Perfluorocarbons are capable of repelling water, oil and other liquids that cause stains.




### C8 Chemistry:

The molecules, PFOA (Perfluorooctanoic acid) and PFOS (Perfluorooctanoic sulphate) is a backbone of a chain of 8 carbon atoms. These molecules have been found accumulated in the food chain of various organisms and have adverse effects, including carcinogenicity and toxicity.

### C6 Chemistry :

PFHA (Perfluorohexanoic acid) with a backbone of 6 carbon atoms is supposed to be 40 times less bio-accumulative than PFOA (the 8-carbon counterpart). But it is also less effective, hence more of the chemical has to be used to achieve the same result. It also involves small traces of C8 molecules.

At present C6 Chemistry is most prevalent in the textile industry.

However, their toxic effects and bioaccumulation have been a major ecological concern. Textile and garment industry is making progress to get the more eco-friendly technology to minimize the use of these compounds and eventually phasing them out.

**Fluorine-free Chemistries:** Products with no PFOA and PFOS are said to be fluorine-free products.

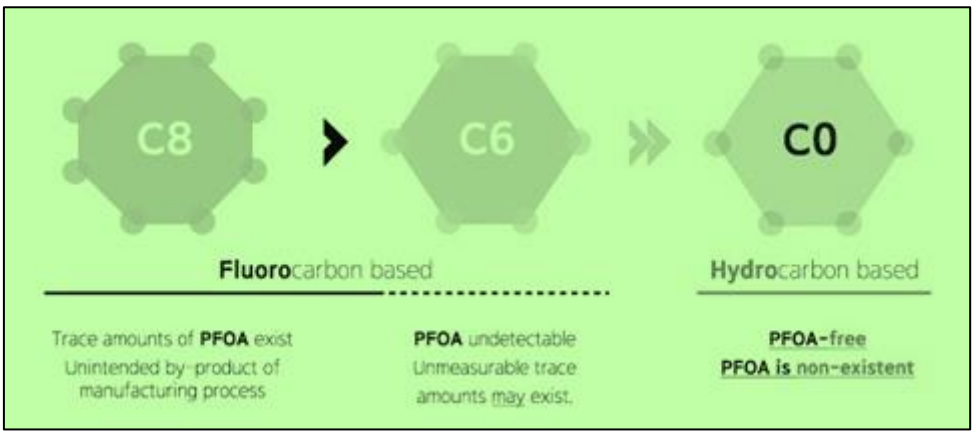



Fig 1.1 Chemistry of Water-repellent finishes

To be continued…

Wishing you a great week ahead!

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