



# THE FUTURE STEP SYSTEM

NEW TECHNOLOGY, NON DETERGENT ALL SYSTEM SAFE  
CARPET CLEANER FOR SYNTHETIC, FLOCKED AND NEEDLE  
PUNCHED FLOOR COVERINGS

## **Prior and Current History:**

The carpet cleaning industry is aware that certain carpet fibres are more difficult to clean than others, that they are not all created equal in terms of clean-ability. Those fibres that have strong affinity to oily and fatty soils (oleophilic) are olefin (polypropylene), polyester and acrylic fibres. There is a somewhat mixed opinion as to whether nylon six and nylon 6.6 are as hydrophobic as the previously described fibres, but consensus is that nylon is just as difficult to rinse free of detergents, particularly non ionic rich cleaning products.

Synthetic fibres have a natural repellency for water based cleaning solutions and they have difficulty in wetting the fibre surface and emulsifying the oily and strongly adhesive soils. Chemical manufacturers have increased the alkalinity of the solutions and combined the use of the low HLB non-ionic surfactants that increase the wetting power of the cleaning solutions that assist in releasing the soil from the surface. Medium HLB emulsifiers and water based solvents are also added to further increase the oily soils ease of removability.

In general the combined effect of current formulations have shown poor cleaning effect (oily soil yellowing in traffic lanes not removed) with the compounding problem of poor rinse-ability ,thus leaving the carpet with a high proportion of surfactants (detergents) still locked within the fibres.

The move towards carpet cleaning machinery having ultra high temperature in most cases has a further negative effect on the detergent solutions generally found in the market. The high temperature decreases the rinse-ability of the low HLB non-ionic surfactants. They reach their cloud-point at anywhere between 30 to 90° and form insoluble microgels within the fibre twists. In the worst case scenario, total inhibition of oily soil removal is achieved and the sticky surfactant part of the formula is left behind to further attract dry soil.

**New direction of thinking may solve the problem of resoiling:**

The question is...can a material or materials be found that reduce the bonding or affinity of oily soils on synthetic fibres that is woven into carpet .The answer to that is “yes”. Fluorocarbon based resins can be applied to fibres in the manufacturing stage and in situ .These are expensive, but strongly adhere to the fibre .In the past it was difficult to obtain adhesion on polyester and olefin .This has partially been solved by the introduction of **FIBRELOC**, water based protector that has a multipolymer crosslink that does not differentiate between absorbent and non absorbent fibres .So this is the first step in achieving stain resistant and oily soil repellent carpets.

**What about untreated carpet –THE FUTURE STEP SYSTEM**

Here is where the new technology concepts can be trialed using far cheaper ingredients than fluorocarbons and these can be added into cleaning products that are low cost enough to be used by carpet cleaners and compete within the market.

**Modifying the Fibre Surface:**

Our research has shown that combining a soil release polymer made from actual carpet fibre in its molecular state can be applied to the carpet. When applied the soil release polymer attaches itself to the fibres as a film. If oily soil is deposited on the fibre it attaches to the protective film. In the next clean, this oily soil is removed. Non detergent and soil suspending polymer ingredients in the System assist in the removal of normal day to day soil and food and drink spills. The product cleans better than any other system because of its oily soil removal advantage.

The total system will not leave sticky residues and therefore is perfect for tightly woven, needle punched or electrostatically flocked carpet and can be said to have remarkable anti soiling, rinsing and anti stain qualities at a fraction of the cost of Fluorocarbon based products.

The FUTURE STEP cleaning system is non toxic, contains no enzymes, colour brighteners, no alkalis nor does it contain anything that may act as a skin or nasal irritant.

FUTURE STEP has no surfactants, wetting agents or emulsifiers, does not foam, and therefore can be used as a dry cleaning chemical or an extraction rinse and prespray. It can be used or applied by any cleaning method with hot or cold water and resists re-soiling.

Hot water increases the cleaning performance.

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*High Technology Chemistry and Cleaning Systems for the Carpet Maintenance and Sanitation Industries*

Wedina Holdings Pty. Ltd. A.B.N 65 002 373 319  
 48 Wentworth Street, Granville NSW 2142. Ph: (02) 8868 6888 Fax: (02) 9682 6855  
 PO BOX 142 Artarmon NSW 1570  
 Web: [www.research-products.com.au](http://www.research-products.com.au)

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