



HOW CLEAN IS YOUR HOUSE??



Just how does chemistry clean your house? What would the home be like without chemistry?

Washing – the machines themselves are made from durable steel alloys which require many chemicals in their processes and refining, rubber hoses carry the water to the machine and paints often made white by titanium dioxide protect the metal housing from corrosion to increase the durability of the machine.

So there is all of that chemistry before any detergents or softeners are added to the wash. The washing process as we know it today would not be possible without chemistry.

Cleaning components – many cleaning components contain sodium and calcium carbonate as these chemicals have mild abrasive properties. Chlorine is the major component in household bleach and ammonia in window cleaners – we could go on forever... Chemistry contributes 75% of the value of material inputs in cleaning compounds.

Toiletries – What makes us smell nice? What keeps us clean? That's Chemistry! Sodium bicarbonate is used in toothpaste to clean and brighten teeth, fragrances are added to shampoos and other toiletries, chemicals are added to hand and face lotion to help soften skin, deodorants and antiperspirants contain chemicals such as sodium bicarbonate and aluminium sulphate to reduce odour. These are just a few examples of how chemistry enhances our lives through toiletries.

Electric Bulbs - Light bulbs are made from glass (sodium carbonate and calcium carbonate combined with silicon dioxide) which are heated and moulded in the presence of boric acid. They surround a filament of tungsten wire which glows with the help of argon or nitrogen gas and bulbs made of neon or halogen give off a brighter light. The electrical switches and wiring which bring electricity to the light bulb are coated in insulating plastic, once again synthesised using chemistry.

Soft furnishings – polyurethane foam is used in sofas and cushions, made safer by the addition of fire retardants. Synthetic dyes are used to colour curtains, carpets, sofas giving us the ability to design a room to our own unique tastes. Surface coatings are used on items such as tables, tablecloths, carpets making them moisture resistant and easier to clean.

Wall/floor tiles – surface coatings of aluminium oxide nanoparticles are applied to wall and floor tiles meaning that oil, dirt and lime scale cannot stick to the surface anymore, an example of how new technologies such as nanotechnology are already having a positive influence on our lives.

Useful Web sites -

- http://www.channel4.com/life/microsites/H/how_clean_is_your_house/grime-files/rances/
- http://www.chemistryandyou.org/base_eng.htm
- <http://www.abiquim.org.br/english/youandthechemistry/>
- <http://www.chemforlife.org/>



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Useful RSC resources

Contemporary Chemistry for Schools and College

An excellent resource comprising of a book and a CD-ROM which contain useful information about the chemistry of fashion. For this topic there is an extremely relevant chapter:

Cleaning Chemistry – an overview of soaps and detergents and how they are used everyday for cleaning purposes. Activities described include testing shower gels and soaps for pH and grease busting ability and actually making soap!

For information about ordering this resource please visit the web site:

<http://www.rsc.org/publishing/books/0854043829.asp>