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### **Naturally Clean or Chemically Clean?**

Distinguishing between 'Natural' v 'Chemical' products is a distraction, says Industry body

Most responsible organisations across the UK are currently looking at how they can better protect the environment and contribute to sustainable development. As a result there is a growing concern about using chemicals to achieve a clean environment. There is a feeling that chemicals come at the expense of safety – safety both for people and for the planet.

Given the current climate these are understandable concerns. Unfortunately they are concerns based on ignorance about how cleaning products are developed, tested for quality and performance, risk assessed and regulated

The current debate about “natural” versus “chemical” cleaning products is a distraction. It is based on the belief that “natural” products are in some way safer than “chemical” products. It is a view first adopted by green consumers who developed an enthusiasm for all things “natural”, something that has become the defining consumer trend of our time.

Because the green procurement policies of companies are tending to uncritically support the notion that natural is good companies are turning more and more to products marketed as eco friendly. But for many organisations trying to adopt sustainable practices such a simplistic view can be counter-productive leading to decisions that are counter productive.

All substances – including the ingredients in cleaning products – are arrangements of atoms of the same 90-odd chemical elements of which the planet is made. It is therefore meaningless in terms of safety or sustainability to differentiate between ingredients with the simplistic labels of “natural” or “unnatural”.

Defra has endorsed recent guidance on *Sustainable Cleaning* following a review by the UK Chemicals Stakeholder Forum and the Advisory Committee on Hazardous Substance.

The guidance echoes this view when it states: "It is a common misconception that an ingredient from a plant or other naturally-derived source will necessarily be superior in terms of human safety, biodegradability, aquatic toxicity and sustainability than one from a petrochemical source".

The idea that "natural" products are in some way better than man-made products is simply not founded in science. What matters is the correct usage of a product. With an often transient workforce who may not have English as a first language the industry is working hard to ensure that instructions for correct use are clearly understood. Only with such understanding can environments be made as clean as possible, as safely and cost-effectively as possible.

It is important to clear up some common myths about chemicals used in cleaning products. Substances such as acetone, which is highly flammable, benzene, a known carcinogen, and aluminium oxide are not used in domestic or commonly available industrial cleaners.

Another ingredient which is misunderstood is Chlorine (usually incorporated as sodium hypochlorite). This is used in cleaning as a biocide and is an effective cleaning agent. But it does not bio-accumulate as it is rendered harmless when it comes into contact with organic substances.

All biocides, chemicals capable of killing harmful bacteria, must be registered under the Biocide Products Directive and so undergo severe scrutiny as to their safety. In addition, safety assurances are also provided for all substances sold for use in cleaning products within the EU, in the form of the General Product Safety Directive.

A natural label does not mean a safe cleaning product. What does assure safety is a risk assessment, a process being further underpinned by the REACH Regulation. Biodegradability is not a new "green" feature of cleaning products: it has been a legal requirement for the main ingredients – the surfactants - for 30 years. Under the Detergent Regulations the main cleaning agent in a product must biodegrade within 28 days, by which time it is reduced to carbon dioxide, inorganic mineral salts and the growth in bacterial mass that is doing the digestion.

Of course some substances considered a hazard are employed in highly specialised areas such as the metals industry and in cleaning electronic circuitry. In these cases the use of specialist cleaning agents is highly controlled with risk assessments governing safe usage and disposal. General industrial and institutional cleaning products intended for use in schools, hospitals, catering premises, public places and for general commercial premises are by law safe for their intended use.

All cleaning products sold in this way are therefore comparable and the distinction between “natural” and “chemical” is in reality a marketing rather than a scientific distinction. Products marketed as “green” or “eco-friendly” are simply picking this aspect as their selling proposition. Other products may promote cost-efficiency or performance efficacy – but the truth is that, by law, all products sold for general domestic, industrial and institutional cleaning use are safe both for people and for the environment when used correctly and for their intended purpose according to manufacturers’ instructions.

There is, however, a trend towards using “eco products” which claim to be natural. Yet, a glimpse behind the scenes of the manufacturing process reveals that as with all products, these ingredients are manipulated to make them valuable in use. Typically “green” products would mention that their ingredients are natural in origin - for example surfactants based on vegetable oil such as palm or coconut oil. However, professionals should bear in mind that, in order to render these types of raw materials useful they must undergo chemical manipulation for example ethoxylation, sulphonation or saponification\* before they become effective cleaning agents. The resulting product is no more or less “natural” than other products on the market.

\*These are chemical processes that convert water in soluble fats and oils into water-soluble chemicals such as surfactants.

Sustainability has more recently become a crucial part of the debate. Specialist industrial and institutional products are often more powerful than the equivalent domestic ones. Professional products are more concentrated and as a consequence of hazard-based labelling criteria are classified as more dangerous. However, automatic dosing helps control the risk as well as reducing manual handling, controlling overdosing and reducing waste. Sustainability criteria often fail to take account of this. In addition to how much of a product people use, how much energy is employed and how much water is used are all factors that come into play

Product performance affects sustainability as it influences how people use products. The central key to sustainability of the whole cleaning life-cycle is performance. Using too much of a product drains resources, including energy, causes needless rework and adds to waste. A poorly performing product, even if it is described as ‘natural’, may lead to premature wear and tear or overdosing. In this way, poor performance undermines sustainability and may have the knock-on effect of raising costs and damaging business performance. This is crucial for those engaged in professional cleaning.

Once safety is assured, green procurement is more about getting the best out of the product by correct use and minimizing waste than it is about the choice of ingredients. Wherever raw materials are sourced, they have to be chemically processed or interfered with by man to make them work and ensure they are safe and sustainable.

Delivering efficient, safe and sustainable cleaning is more complex than the “natural” versus “chemical” argument. Confusion about these two fairly meaningless distinctions should not cloud opinion or divert those engaged in overseeing cleaning processes. Often the people best placed to advise on professional cleaning are those engaged in producing the products whose research and development resources are hugely impressive. We would urge those engaged either in procuring services or involved in overseeing the end result, Environmental Health Practitioners – to consult the Industry and take advantage of the wealth of expertise that is available there.

The UK *Cleaning Products Industry Association* has published a discussion paper on the subject of chemical versus natural substances used for cleaning. For a copy of *Meeting Natural Expectations* contact: UK Cleaning Products Industry Association on 01829 770055 or email [ukcpi@ukcpi.org](mailto:ukcpi@ukcpi.org). Alternatively this and *Sustainable Cleaning* can be downloaded from [www.ukcpi.org](http://www.ukcpi.org)

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