Leading scientists call for a stop to non-essential use of fluorochemicals

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A number of leading international researchers, amongst others from the National Food Institute, Technical University of Denmark, recommend that fluorochemicals are only used where they are absolutely essential, until better methods exist to measure the chemicals and more is known about their potentially harmful effects. The recommendation appears in the Helsingør Statement following an international conference.

Fluorochemicals are synthetically produced chemicals, which repel water and oil and are persistent towards aggressive physical and chemical conditions in industrial processing. These characteristics have made the

fluorochemicals useful in numerous processes and products, such as coatings for food paper and board.

The problem with fluorochemicals is that they are difficult to break down and accumulate in both humans and the environment. Some fluorochemicals have known correlations with harmful health effects, such as cancer, increased cholesterol and a weaker immune system in children. They can also decrease men's and women's ability to reproduce, and the chemicals can be transferred from mother to child during pregnancy and through breastmilk.

Research chemist, Dr. Xenia Trier from the National Food Institute, Technical University of Denmark and a number of international research colleagues therefore recommend that fluorochemicals are only used where they are absolutely essential, as long as measurement methods and knowledge about their potentially harmful effects are limited. The researchers drew up the statement after attending a scientific conference about fluorinated substances (5th International workshop on poly- and perfluorinated substances (PFAS)), held in Helsingør, Denmark in October 2013.

Fluorinated alternatives possibly not better

There is strict regulation around the use of some fluorochemicals in countries like Norway and Canada, and in the US the industry has voluntarily phased out the production of the fluorochemicals which accumulate most in humans. One of these substances is perfluorooctanoic sulfonate (PFOS) and chemicals made from it. These substances are also on the UN's list of known persistent organic pollutants (POPs), which may only be used for a few purposes. Instead industries use other types of fluorochemicals, which accumulate less. Unfortunately, since the fluorinated alternatives in some cases are less effective than those they replace, the alternatives are used in greater

quantities, which offsets the benefits of accumulating less. In addition, these alternatives are also persistent.

"Before alternatives are put on the market we recommend that they are tested better than is done today. Just as is required for pesticides and veterinary drugs, producers should be required to develop sufficiently sensitive methods to measure the alternative fluorochemicals for example in food and consumer products and determine the toxicity of the chemicals before they are put on the market. In addition, they should specifically check if the alternatives have similar harmful health effects as those fluorochemicals they replace. Otherwise we risk repeating the mistake of substituting one harmful substance for another similarly harmful chemical," Xenia Trier says.

"It is expensive and time-consuming to investigate the potential harmful effects of new fluorochemicals. This bill and the bill for treating people who become sick or have difficulties conceiving, often ends up getting paid for by society," Xenia Trier says.

The authors of the Helsingør Statement therefore urge that producers and suppliers not only investigate the alternatives properly, but also make existing data on the substances' chemical and toxicological properties publically available.

Lengthy cleanup

If, in future, it turns out that use of the new fluorochemicals creates environmental and health problems that are as big as the ones created by the substances they were meant to replace, the researchers warn it may take several decades to correct the global contamination problem.

"We recommend that known and safe chemicals are used, or that new alternatives are developed which are not toxic, persistent and do not

accumulate in humans or the environment. Fluorochemicals should only be used were they are truly essential, and not in common consumer products," Xenia Trier stresses.

On August 31, 2014 at a pre-meeting in Madrid to an international conference on dioxin in September 2014, researchers from around the world will discuss which scientific and political initiatives can be taken by scientists, government and industry to phase out the use of fluorochemicals.

More information: The statement on fluorchemicals is written by researchers from Denmark, Great Britain, The Netherlands, Switzerland and the US, and is published in the research journal *Chemosphere*: Helsingør Statement on poly- and perfluorinated alkyl substances (pdf).

Provided by Technical University of Denmark