

## CHEMICALS SUBSTITUTION

NEWSLETTER #23  
OCTOBER 2024

### FOCUS ON CHEMSEC'S TOOLS FOR THE SUBSTITUTION OF PMT SUBSTANCES

ChemSec (the International Chemical Secretariat) is an independent non-profit organisation working to promote the substitution of toxic chemicals with safer alternatives.

ChemSec is developing, particularly as part of the [ZeroPM](#)<sup>1</sup> project, substitution support tools to facilitate the market transition towards the abandonment of PMT (Persistent, Mobile and Toxic) substances. The tools in point are: the SIN List, the Marketplace platform and the "PFAS guide" (Per- and polyFluoroAlkyl Substances).

#### Sin List

Created in 2008, the purpose of the SIN List is to identify significantly used compounds which ChemSec believes are likely to be added to the SVHC<sup>2</sup> list (Substance of Very High Concern) of the REACH regulation. This tool could therefore help to avoid regrettable substitutions by substances that could subsequently be identified as SVHC.

Substances are added to the SIN List on the basis of expert opinions and information relating to:

- / the inclusion criterion in question (CMR, PBT, PMT, etc.), based on scientific publications, biomonitoring databases, etc.
- / the production and use of the substance.

#### Marketplace

Launched in 2017, the Marketplace business-to-business online platform is intended to bring together producers of alternative products and companies looking for alternative solutions.

To achieve this, the platform offers :

- / producers of alternative solutions to distribute information about their products,
- / companies looking for safer alternatives to publish requests for new solutions.

For an alternative solution to be listed on Marketplace, it must not contain substances that meet the selection criteria for Substances of Very High Concern (SVHC). In addition, ChemSec examines the

alternatives (in particular using safety data sheets, published hazard data and possibly QSAR modelling<sup>3</sup>) and reserves the right to deny publication of an alternative if it considers that it does not represent a safer alternative. However, ChemSec admits that it is not in a position "to conduct an in-depth evaluation of alternatives".

Marketplace will shortly be extending its scope to include alternatives to persistent and mobile substances.

<sup>1</sup> ZeroPM is a European Union research project aimed at protecting the environment and human health from persistent and mobile substances through three actions: prevention, prioritisation and elimination.

<sup>2</sup> Substance of Very High Concern, substances or groups of chemical substances that can cause harmful effects on humans and/or the environment:  
CMR: Carcinogenic, Mutagenic, toxic to Reproduction;  
PBT: Persistent in the environment or organisms (poorly degradable), Bioaccumulative and Toxic;  
vPvB: very Persistent and very Bioaccumulative;

Substances that present an equivalent level of concern to the above substances, such as endocrine disruptors.

<sup>3</sup> QSAR : Quantitative Structure-Activity Relationship / A set of methods for predicting the likely harmful or beneficial effects of a chemical compound, by comparing it with other substances with similar structures.

## PFAS Guide

Some PFAS are identified as PMT/vPvM substances or are likely to degrade into PMT/vPvM substances.

However, the wide range of uses and functions of PFASs can make their substitution problematic (it is sometimes difficult for companies to know whether their products contain PFASs and why).

To support companies that want to identify the PFAS likely to be present in their products and processes, Chemsec published the PFAS guide online in 2023.

To this end, the PFAS guide includes in particular:

- / a database enabling searches by sector, type of article and function,
- / resources and sectoral reports,
- / information on chemical analysis methods.

ChemSec publishes videos on its website to support the substitution of PFAS for various applications:

- / [technical textiles](#)
- / [fluorinated gases](#)
- / [fluoropolymers](#)
- / [solar panels](#)

For more information:  
Facilitating the market transition away from persistent and mobile substances: a report on tools developed by ChemSec in the ZeroPM project: SIN list, Marketplace and the PFAS guide | Environmental Sciences Europe (springer.com)

## STAHL LAUNCHES A NEW FLUORINE-FREE WATER-REPELLENT COATING FOR TECHNICAL TEXTILES

Stahl has developed protective coatings for technical textiles based on a modular polymer technology: specific properties (flame retardant, water repellent, stain repellent, etc.) can be added to the base polymer (a water-based polyurethane that cures at low temperature).

Based on this polymer system and its DWR (Durable Water-Repellent) technology, Stahl has launched a new fluorine-free waterproofing coating for technical textiles: Stahl Integral Dry 725.

According to Stahl, DWR technology repels water from the textile by modifying the surface tension of the fibres without the use of PFAS.

This PFAS-free solution is used in technical textile applications such as camping equipment and luggage.

For more information:  
<https://www.stahl.com/news/stahl-adds-staydry-waterproof-performance-coating-to-integra-r-portfolio>

<https://www.stahl.com/performance-coatings-brands/integra/stahl-integra-r-staydry-a-water-repellent-coating-to-weather-any-storm>

## CARTASEAL® OGB F10: A NEW PFAS-FREE BARRIER COATING FOR PAPER AND BOARD PACKAGING

Archroma has developed Cartaseal® OGB F10, a PFAS-free coating that makes paper and board resistant to oils and greases for use in food and non-food contact/packaging.

Archroma indicates that the formulation of this product is based on styrene-acrylic copolymers and biobased polymers and that it contains 13 % biobased components.

According to its inventor, the coating's oil and grease resistant properties, even when folded, make it particularly suitable for folding board boxes and flexible paper packaging. According to Archroma, this coating is not heat sealable, but can be over-coated with a heat sealable coating.

Being FDA<sup>4</sup> and BFR<sup>5</sup> compliant for food contact, this treatment could be suitable for paper and board food packaging.

From a process point of view, Archroma recommends drying Cartaseal® OGB F10 with non-contact drying systems such as Infra-Red or hot air ovens systems and says the

coating can be applied using a variety of coating techniques such as blade, coating bar or curtain coater.

According to Archroma, packaging coated with Cartaseal® OGB F10 is recyclable and repulpable<sup>6</sup>, but this product is not considered biodegradable within the meaning of standard NF 13432.

For more information:  
<https://www.archroma.com/innovations/cartaseal-ogbf10>

<sup>4</sup> Food and Drug Administration

<sup>5</sup> Bundesinstitut für Risikobewertung (German Federal Institute for Risk Assessment)

<sup>6</sup> Repulpable means that the material can undergo the rewetting and fibre-forming operation (linked to fibre yield recovery of at least 80% on a total weight basis, or 85% on a bone dry fibre load basis in the pulper).

## FUCHS DEVELOPS AN ALTERNATIVE TO LUBRICANTS CONTAINING PTFE

PTFE<sup>7</sup> can be used as a thickener and/or additive in the production of lubricants. These are used for applications requiring high performance in vacuum and at high temperatures (e.g. semiconductor manufacturing and in the aerospace and automotive sectors).

In collaboration with customers, FUCHS has developed a range of PFAS-free lubricants: the RHEOLUBE 460P series.

These lubricants, based on polyalphaolefins (PAO)<sup>8</sup>, contain no fluorinated additives and are thickened with lithium soap.

Lithium soap is composed of a lithium salt and a fatty acid.

<sup>7</sup> Polytetrafluoroéthylène – n°CAS 9002-84-0

<sup>8</sup> Polyalphaolefins are obtained by polymerising olefins. In terms of chemical structure, PAOs do not contain fluorine, carbonyl/carbonyl double bonds, aromatic rings or cyclic structures, and are free of nitrogen and sulphur atoms.

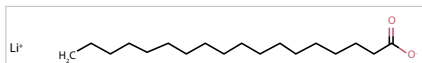


Figure 1/ Stéarate de lithium (n°CAS 4485-12-5)

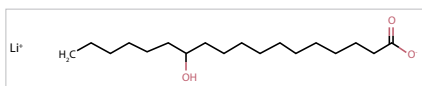


Figure 2/ 12-hydroxystéarate de lithium (n°CAS 7620-77-1)

The most commonly used lithium soaps are lithium stearate and lithium 12-hydroxystearate (see figures 1 and 2).

FUCHS indicates that the RHEOLUBE 460P series would offer similar or even improved performance compared to the PTFE-containing lubricants used by its customers (particularly in

terms of friction reduction and low-temperature resistance).

Fuchs plans to develop other PFAS-free lubricants in the near future.

For more information:  
<https://www.nyelubricants.com/fuchs-develops-non-pfas-based-alternative-to-ptfe-containing-lubricants>

## RECENTLY PUBLISHED ON THE CHEMICALS SUBSTITUTION WEBSITE...

- / Progress on the definition of "essential use"
- / PFASs and alternatives in cosmetics: report on commercial availability and current uses
- / PFAS and fluorine-free alternatives in lubricants and construction products

## COMING SOON

### 2024 Vinyl week

The Vinyl Compounders Conference and the Vinyl Sustainability Summit will be held jointly during the Vinyl Week in Louisville (USA) from December 9 to 12, 2024. During these four days, the latest innovations in materials and technologies for the vinyl industry will be presented (including potential alternatives to phthalates and bisphenols).

<https://vinylweek.org/>

### Understanding PFAS and Reformulating PFAS-free Coatings

Organized by European Coatings from November 18 to 19, 2024, the Understanding PFAS and Reformulating PFAS-free Coatings conference is aimed at players in the coatings industry wishing to learn about the latest alternatives to PFAS in their sector.

<https://www.european-coatings.com/events/conference/pfas-2024/>

### European coating show 2025

The European Coatings Show 2025 will bring together coatings formulators in Nuremberg (Germany) from 25th to 27th March 2025 and will be the opportunity to discuss the latest innovations that could replace bisphenols, alkylphenol ethoxylates and PFAS.

<https://www.european-coatings-show.com/>