

POPFREE – Promotion of PFAS-free alternatives



VINNOVA
Sweden's Innovation Agency

**RI
SE**

Per-and polyFluoroAlkyl Substances



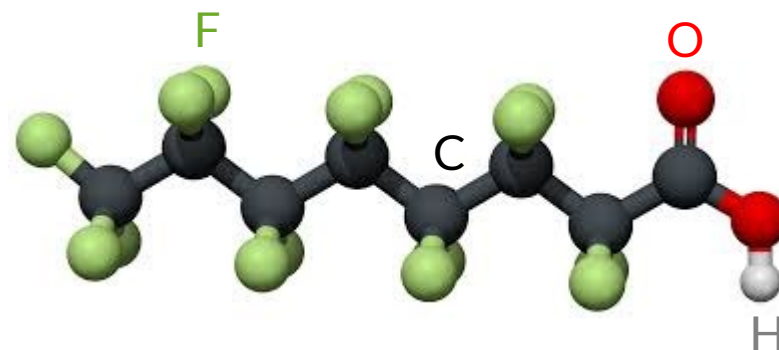
Syntetiska kemikalier



Över 4730 ämnen



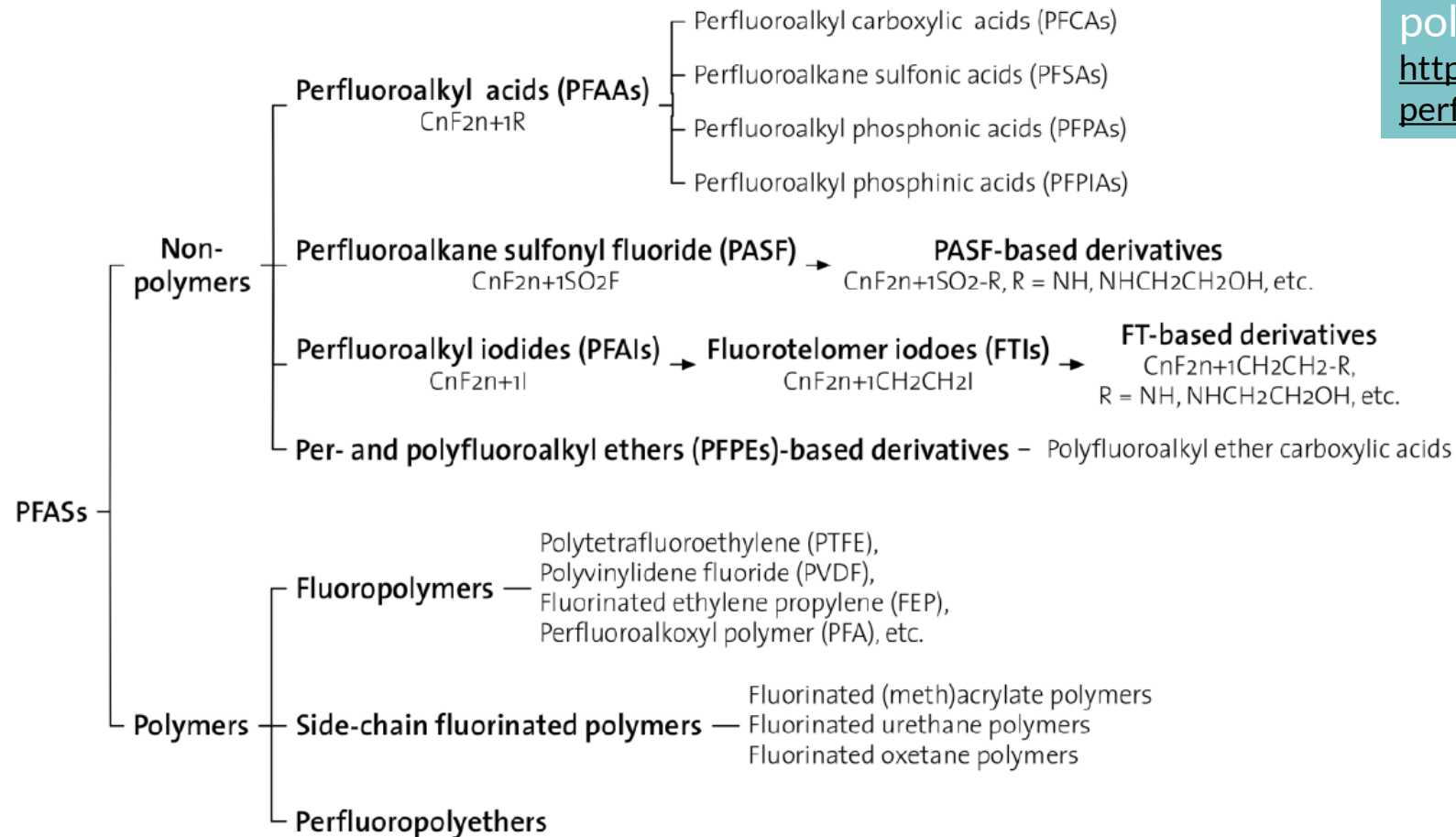
Minst en perfluorerad alkylgrupp($-C_nF_{2n+1}$)



PFOA

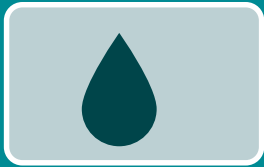
Klassificering

Per- and polyfluoroalkyl substances (PFASs)



OECD Synthesis paper on per and polyfluorinated chemicals (PFCs)
<https://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals/>

Egenskaper



Vattenavstötande



Oljeavstötande



Filmbildande



Hög termiskt stabilitet

Användning

- Papper i kontakt med livsmedel
- Impregnering
- Brandsläckningsskum
- Skidvalla
- Elektronik
- Kosmetiska produkter
- Bromsvätska
- ...

Varför bryr vi oss?

- Persistenta, bryts inte ned
- Mobila - Finns överallt i miljön
- Hög termiskt stabilitet
- Förorenar mark och vatten
- Bioackumulerande och biomagnifierande
- Vissa binder till proteiner (PFOS)

Hälsoeffekter

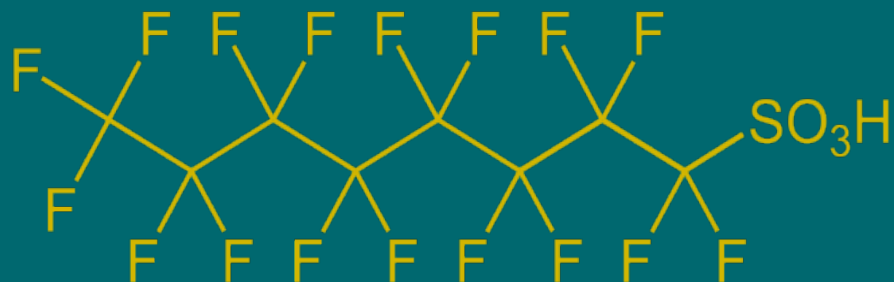
När det gäller PFOA:

- Diagnosticerad hög kolesterol
- Ulcerös kolit
- Sköldkörtelsjukdom
- Testikelcancer
- Njurcancer
- Graviditetsinducerad högt blodtryck

<http://www.c8sciencepanel.org/>

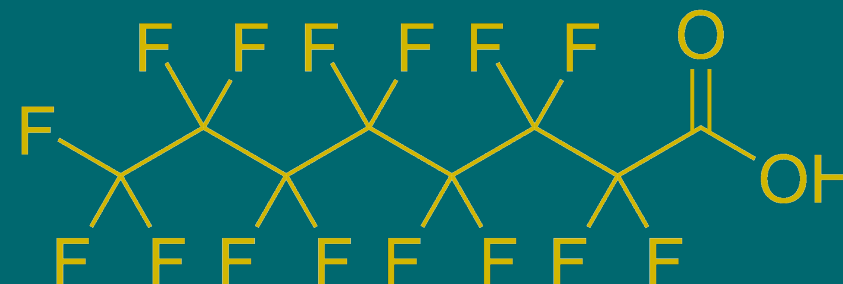
PFOS

Annex B i
Stockholm
Convention
(Restriction)



PFOA

REACH
och Annex A i
Stockholm
Convention
(Elimination)



The concept of essential use for determining when uses of PFASs can be phased out

Ian T. Cousins,¹ Gretta Goldenman,² Dorte Herzke,³ Rainer Lohmann,⁴ Mark Miller,⁵ Carla A. Ng,⁶ Sharyle Patton,⁷ Martin Scheringer,⁸ Xenia Trier,⁹ Lena Vierke,¹⁰ Zhanyun Wang,⁸ Jamie C. DeWitt¹¹

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Abstract

Because of the extreme persistence of per- and polyfluoroalkyl substances (PFASs) and their associated risks, the Madrid Statement argues for stopping their use where they are deemed not essential or when safer alternatives exist. To determine when uses of PFASs have an essential function in modern society, and when they do not, is not an easy task. Here, we: 1) develop the concept of "essential use" based on an existing approach described in the Montreal Protocol, 2) apply the concept to various uses of PFASs to determine the feasibility of elimination or substitution of PFASs in each use category, and 3) outline the challenges for phasing out uses of PFASs in society. In brief, we developed three distinct categories to describe the different levels of essentiality of individual uses. A phase-out of many uses of PFASs can be implemented because they are not necessary for the betterment of society in terms of health and safety, or because functional alternatives are currently available that can be substituted into these products or applications. Some specific uses of PFASs would be considered essential because they provide for vital functions and are currently without established alternatives. However, this essentiality should not be considered as permanent; rather, constant efforts are needed to search for alternatives. We provide a detailed description of several ongoing uses of PFASs and discuss whether these uses are essential or non-essential according to the three essentiality categories. We suggest applying this concept of essential uses to all uses of PFASs, and considering its use also for other chemicals of concern.

1

Essential & non-essential use

- Baserad på Montreal Protokollet för utfasning av chlorofluorocarboner (CFCs) (in Decision IV/2519)
- Nödvändig användning om:
 - Användning är avgörande för samhällets fungerande
 - Inga alternativ finns

POPFREE – Promotion of PFAS-free alternatives

Minska användning av PFAS-innehållande produkter genom att:

- Ta fram gångbara alternativ för flera applikationer
- Öka medvetenhet längst värdekedjan och bland konsumenter
- Påverka regelverk

Forskningspartners



Peak Innovation
TOURISM SPORTS OUTDOOR



swerea | IVF



Leverantörer av kemiska och tekniska alternativ
(4)



Papper
(3)



Brandsläcknings-
skum
(1)



Textil och läder(11)



Kosmetika
(2)



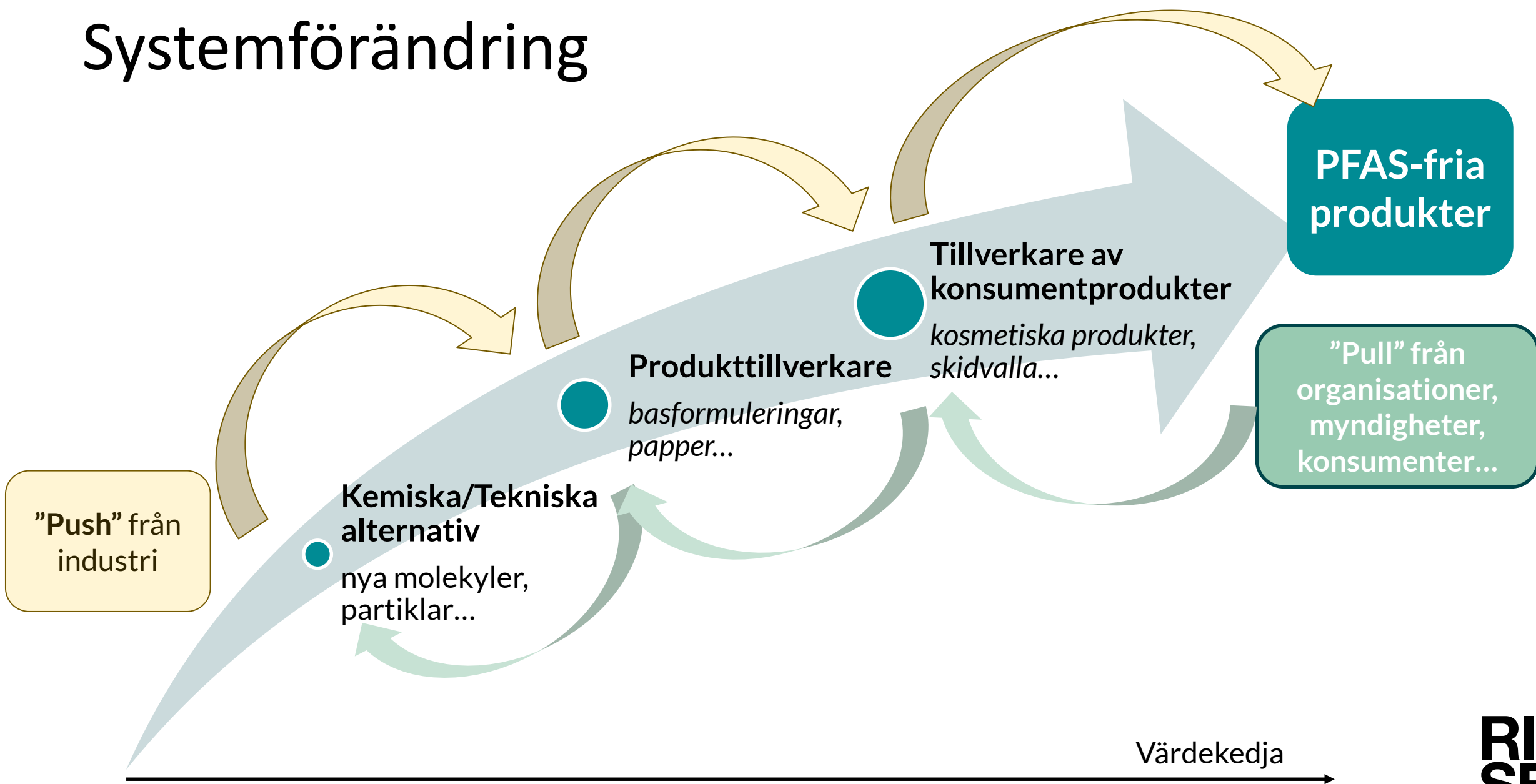
Skidvalla (3)

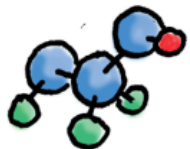


Film-bildande
produkter (1)



Systemförändring





Alternativa
lösningar



Teknisk utveckling



Regelverk och
påverkan



Kommunikation och
medvetenhet



Problem
beskrivning



Testning and
utvärdering

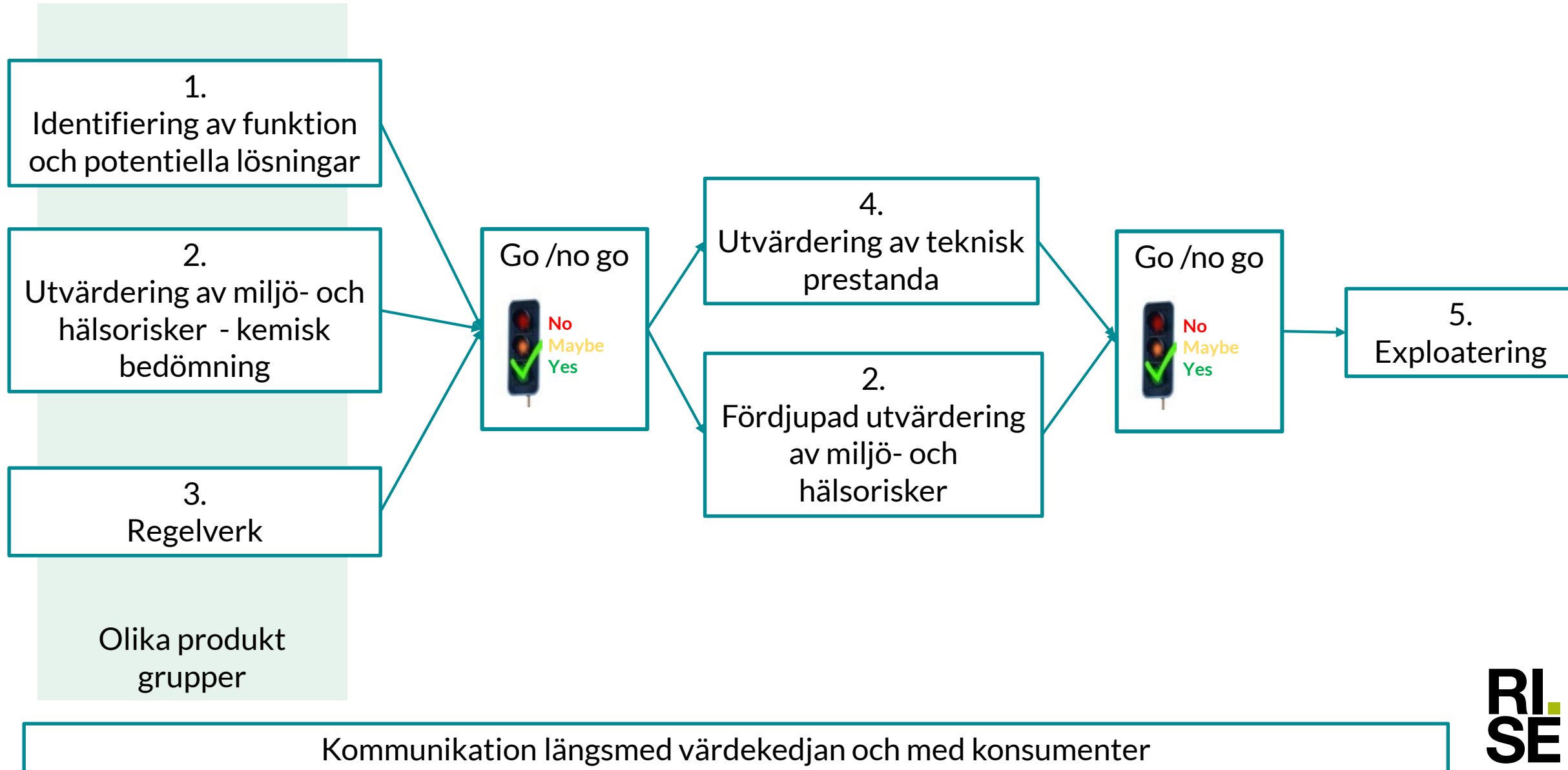


Toxikologi
och LCA

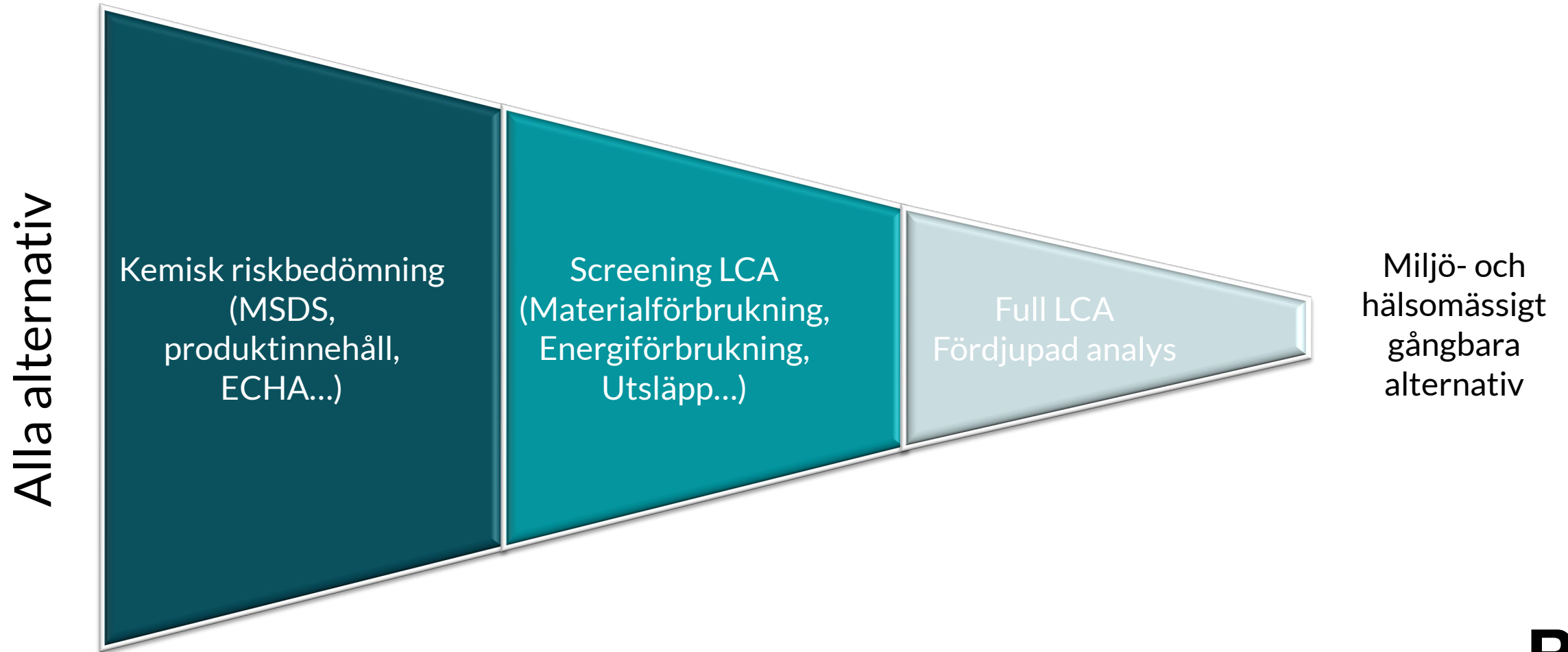


Dialog

POPFREE substitutionsmodell



Utvärdering av miljö- och hälsorisker



Papper

Vatten-, olje-, och
fett-avvisning
Spår av PFAS i
pappret

Kosmetiska produkter

A collection of cosmetic products is displayed on a dark surface. In the foreground, there are several makeup palettes with various shades of eyeshadow and blush. To the left, a small jar of cream or foundation is visible. In the center, a black compact powder case is open, showing the powder inside. To the right, a black container holds a variety of makeup brushes with different bristle types and colors. The background is a soft, out-of-focus white.

Kommunikation i
branschen

Film-bildande produkter



Film-bildning
Behov av test
metoder

Brandsläckningsskum



Låg viskositet, ingen
blandning med
brinnande vätska
Test metoder

Svårigheter



- I vissa fall, sämre prestanda
- Testmetoder saknas
- Komplexa värdekedjor
- Olika definitioner av PFAS
- Begränsad medvetenhet
- Svår mätning av PFAS-mängder



Drivkrafter

- Snabb utveckling av alternativ
- Stort intresse från konsumenter
- Stort internationellt engagemang
- Regelverk

Besök popfree.se
om du vill veta mer om projektet!



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