IMPACTS OF A POTENTIAL STOCKHOLM CONVENTION LISTING OF D4, D5 AND D6

The European Commission Directorate General for the Environment has expressed an intention to put forward a nomination for D4, D5 and D6 for inclusion under Annex B of the Stockholm Convention.

The aim is to globalise the existing REACH restrictions to ensure a high level of protection of the global environment whilst mitigating trade and competition distortions that could result in a competitive disadvantage for the EU.

To fully understand the potential impact of such a nomination, Silicones Europe has commissioned an independent study.

What is the scope of the study?

Chemicals

- Octamethylcyclotetrasiloxane **(D4)** (CAS # 556-67-2)
- Decamethylcyclopentasiloxane **(D5)** (CAS # 541-02-6)
- Dodecamethylcyclohexasiloxane **(D6)** (CAS # 540-97-6)

Sectors

- **Transport** (incl. car batteries)
- **Aerospace and defence**
- **Low carbon energy** (incl. power generation, transmission and storage but not oil, gas or coal sectors)
- **Healthcare & pharma** (incl. medical devices, pharma production)
- **Construction** (Polyurethane, coatings, others)
- **Electronics** (incl. semi-conductors)
- **Pulp and paper**

Geography | **EU-27**

BASELINE

REACH restricts the placing on the market of D4 and D5 in wash-off cosmetic products, and D4, D5, D6 in leave-on cosmetic products. Derogations are in place for several industrial, professional cleaning, printing, medical and pharmaceutical uses inter alia. No further restrictions are in place.[1]

Methodology
The independent Impact Assessment (IA) developed by Ricardo has:

Collected

evidence from manufacturers, importers of monomers, polymers and formulations as well as downstream users.

Assessed

economic, social and environmental impact according to 3 policy scenarios.[2]

Analysed

impacts both qualitatively and quantitatively with a scoring Multi-Criteria Analysis (MCA) method.

OVERALL IMPACT [3]

All policy scenarios are likely to have an overall negative balance of economic, social and environmental impacts, with losses of billions of production activities, thousands of jobs and with little to no benefits for the environment:

Further, the cost:benefit ratio is lower than 1 for all scenarios no benefits for the environment.

Economic

€ 240 billion

Estimated loss of gross value added per year by 2040.

Social

2.5 million

Estimated jobs lost throughout Europe per year by 2040.

Environmental

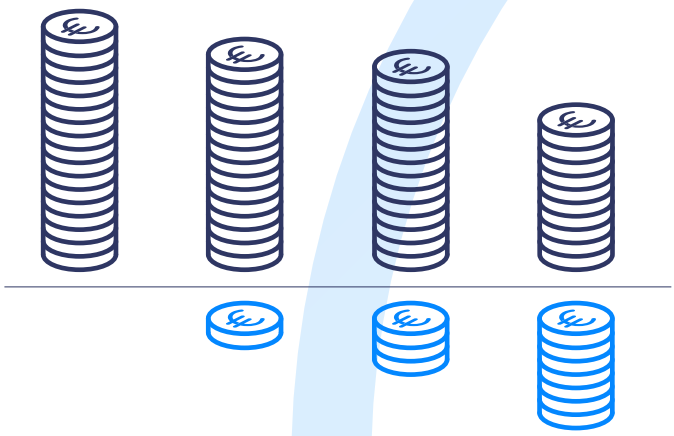
€ 1 million

abatement cost of achieving 1kg emissions reduction.

[1] Please consult the dedicated section of Silicones Europe's website for all information about the EU regulatory framework for silicones.
[2] Where the baseline assumption is no listing, Policy Scenario 1 (PS1) is a broad exemption, Policy Scenario 2 (PS2) has very limited derogations, and Policy Scenario 3 (PS3) is a full ban.
[3] These numbers are calculated based on Policy Scenario 3.

HOW WOULD A POP NOMINATION IMPACT YOUR SECTOR? LUBRICANTS

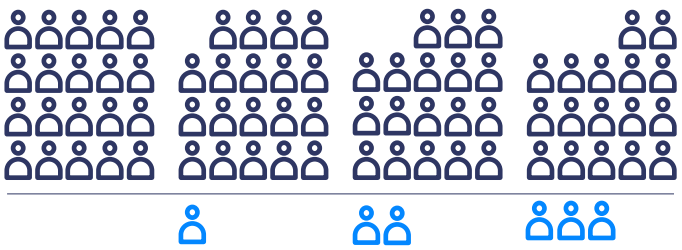
ECONOMIC



2040 Projection	PS1	PS2	PS3
€ 32 billion	- 2% (i.e. -€150 M per year)	- 10% (i.e. -€850 M per year)	- 25% (i.e. -€2 bn per year)

Impact on sales value in the sector between 2023-2040 based on the 2022 baseline figure (i.e. €13 billion).

SOCIAL



2040 Projection	PS1	PS2	PS3
40,000 Jobs	-200 (per year)	-1,000 (per year)	-2,000 (per year)

Impact on annual employment in the sector between 2023-2040 based on the 2022 baseline figure (i.e. 20,000 jobs).

PROPERTIES OF SILICONES IN LUBRICANTS

THERMAL STABILITY

LUBRICITY

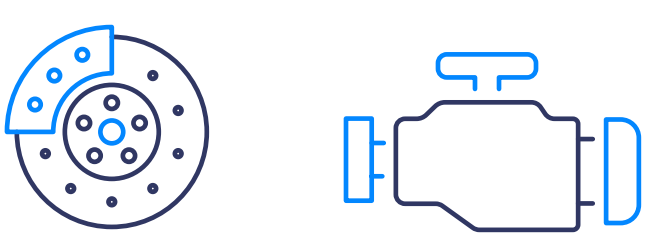
NON-FLAMMABILITY

DURABILITY

CHEMICAL STABILITY

EXAMPLES OF IMPACTED APPLICATIONS

(Mainstream examples - not all uses covered)



Car braking systems

Car engines

Transmission systems

Pumps and compressors

CONTACT
Saskia Jürgens | Public Affairs Manager
sju@cefic.be | +32 491 35 44 85

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A sector group of Cefic