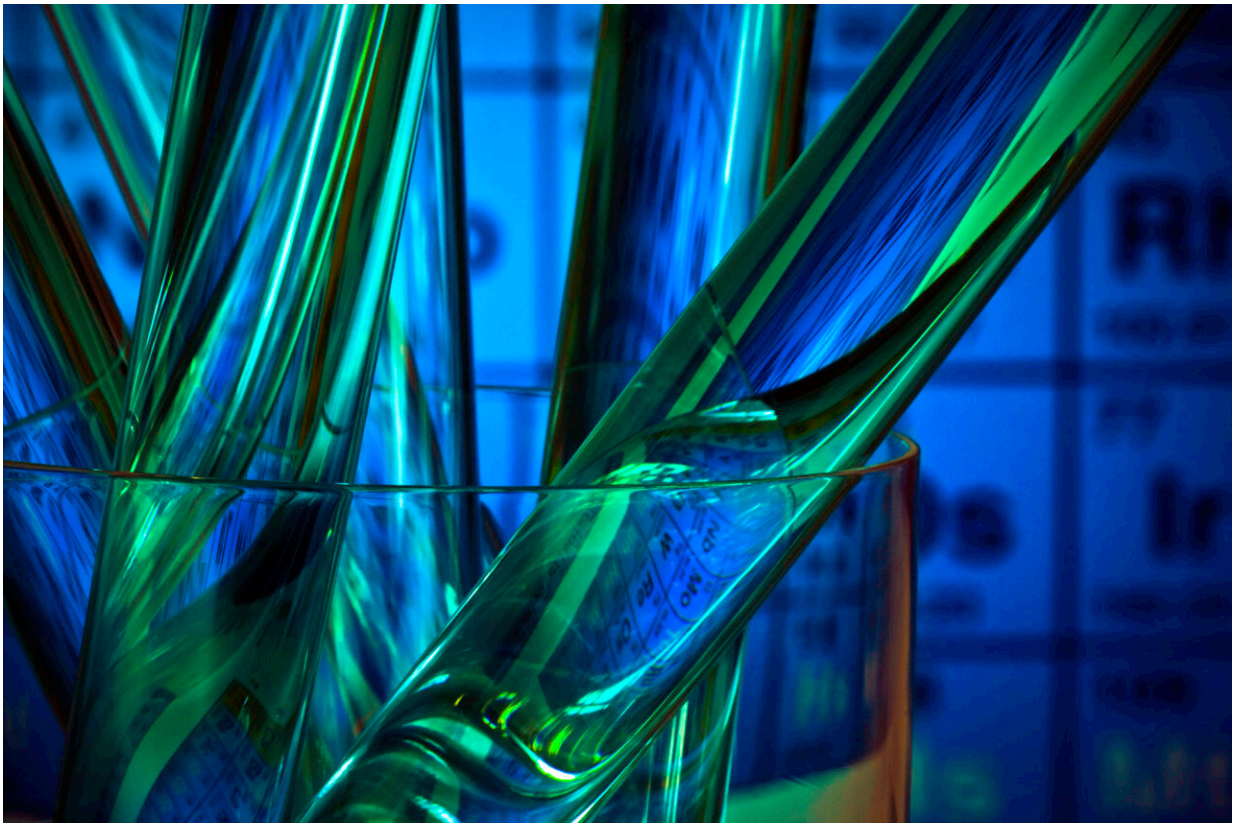


# Identification of endocrine disruptors hampered by data scarcity: Report

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Chemical laboratory test tubes. Credit: Stoyko Sabotnov, [CC BY 4.0](#), via Wikimedia Commons.

Lack of data from the chemical industry in the EU often prevents the assessment of whether substances, for example, used in consumer

products, are endocrine disrupting.

As a result, the researchers recommend updating the information requirements in the EU legislation, REACH. They also propose various approaches for evaluating chemical substances to ensure that all available information is fully utilized.

Researchers from DTU National Food Institute and the University of Southern Denmark have screened the [scientific literature](#) for the Danish Environmental Protection Agency to find substances showing signs of endocrine disrupting properties and thus being potentially harmful to humans and the environment.

The results of the study have been published in a new [report](#) from the Center for Endocrine Disruptors (CeHoS). In the study, the researchers found a widespread lack of data, especially regarding [environmental effects](#). The researchers emphasize that this lack of data is deeply problematic.

"The study shows that there is a great need to update the information requirements in the EU regulation, REACH, to include information on endocrine disrupting properties," says Marie Louise Holmer, special consultant at DTU National Food Institute and co-author of the report.

## **Data should be optimally utilized**

In the EU, it is highly prioritized to minimize human and environmental exposure to endocrine disrupting substances. However, data reported by companies under EU legislation on industrial chemicals, REACH, rarely contain information that can be used to assess whether the substances are endocrine disrupting in the environment. For 70% of the more than 26,000 industrial chemicals used in various products, there is also no information available to assess whether the substances are endocrine

disrupting for humans.

Therefore, the researchers recommend that all available information should be utilized to the fullest extent using two approaches:

1. By assessing similar substances in groups
2. By using knowledge of harmful effects across species.

## **Nine substances with signs of endocrine disrupting properties**

The new study builds upon a report from CeHoS from 2018, which identified a basis list of 171 substances. In the new study, the basis list is expanded to 192 substances. The 192 substances are filtered down to 97 focus substances through a series of exclusion criteria. Ten focus substances are selected for a literature screening.

"The literature screening shows signs of endocrine disrupting properties for nine out of 10 substances. The question is how it looks for the remaining 87 focus substances," says Sofie Christiansen, senior researcher at DTU National Food Institute and co-author of the report.

The researchers behind the study emphasize that this is only an initial screening of the literature and that a more thorough assessment of the available data is needed before final conclusions can be made.

## **Cross-species knowledge and grouping of substances can increase our understanding.**

Since data scarcity is so widespread, the data available for individual chemicals should be utilized to the fullest extent. Therefore, researchers from DTU National Food Institute and the University of Southern

Denmark emphasize that we should use all existing knowledge about endocrine disrupting properties of substances, whether it's humans, fish, amphibians, or rodents that have been studied.

"The effects in animals and humans may be different, but they originate from the same impact on the endocrine system, so the effects we see, for example in fish studies, may also be concerning for humans," says Henrik Holbech, associate professor at the Department of Biology at the University of Southern Denmark and co-author of the report.

Using these new approaches, researchers examined a group of benzophenones used as UV filters in cosmetics and sunscreens. The researchers created a heatmap, providing information on the substances' potentially endocrine disrupting properties across the group and across species. The heatmap can be used to assess where more tests are needed and which substances are similar enough to be evaluated together.

"By looking across when chemical substances resemble each other and including knowledge across species, we utilize the available information to the fullest extent. This is important as our study also shows that there is a lack of knowledge about the endocrine disrupting properties of the majority of substances around us," says Marie Louise Holmer.

## **About endocrine disrupting substances**

Endocrine disrupting substances are causing increasing concern for both human health and environmental impact. In the population, endocrine disrupting substances are suspected to contribute to fertility problems, obesity, cancer, and the development of diabetes, as well as disruptions in brain development and function.

Suspected endocrine disrupting substances can be found in products such as cosmetics, clothing, toys, food, and medicines. Several of these

substances also end up in the environment, where they can affect fish, amphibians, and other animals and are suspected of contributing to species loss and reduced biodiversity.

The project was commissioned by the Danish Environmental Protection Agency and carried out under the auspices of the Center for Endocrine Disrupters.

DTU National Food Institute mainly contributes to the scientific part of the report, which deals with the possible effects of substances on humans. In parallel, the University of Southern Denmark primarily contributes to the scientific knowledge about the potential impact of substances on wildlife.

The study is based on literature reviews and reviews of the regulation and use of [chemical substances](#).

**More information:** Marie Louise Holmer et al, [Prioritisation of Endocrine Disruptors for Regulation](#) (2024)

Provided by Technical University of Denmark

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