



# CHEMICAL SUBSTANCES AROUND US



GOBIERNO  
DE ESPAÑA

VICEPRESIDENCIA  
TERCERA DEL GOBIERNO

MINISTERIO  
PARA LA TRANSICIÓN ECOLÓGICA  
Y EL RETO DEMOGRÁFICO



**OSPAR**  
COMMISSION

## **CHEMICAL SUBSTANCES AROUND US**

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Committee of Hazardous Substances and Eutrophication  
Working Group of Monitoring & on Trends and Effects of  
Substances in the Marine Environment

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Did you know that your sports clothes may be treated with biocides to repel body odour, that your frying pans contain a chemical that makes them non-stick, or that some of your favourite cosmetics contain microplastics?

We don't see them, but they are there, chemicals are part of our lives. They have undoubtedly brought about many of the improvements in wellbeing we enjoy today, but some of these chemicals are considered hazardous and lead to serious consequences for our health and the environment.

From birth to old age, exposure to chemical pollution is invisibly present in our lives, our homes and our environment. We know that smoking causes cancer, but we do not know that some of these chemicals are also carcinogenic, can affect the respiratory, endocrine or reproductive systems, or weaken our ability to respond to vaccines.

Hazardous chemicals also act on our environment, affecting water and soil quality, and threatening to disrupt ecosystems and wildlife. Particularly vulnerable to these substances are pollinators, which have declining populations, and yet play a vital role in agricultural production and food security.

We invite you to learn more about these chemicals and how different regulations pursue their safe use. See also how you can reduce your exposure by choosing more sustainable products.

## OSPAR and the Northeast Atlantic Environmental Strategy 2030

OSPAR is the mechanism by which 16 Contracting Parties\* co-operate to protect the marine environment of the North-East Atlantic Ocean.

The OSPAR Convention contains a number of annexes dealing with the following specific areas:

- Annex I: Prevention and elimination of pollution from land-based sources;
- Annex II: Prevention and elimination of pollution by dumping or incineration;
- Annex III: Prevention and elimination of pollution from maritime sources;
- Annex IV: Assessment of the quality of the marine environment;
- Annex V: On the protection and conservation of the ecosystems and biological diversity of the maritime area.

The Hazardous Substances and Eutrophication Committee (HASEC) is a subsidiary body of OSPAR composed of representatives of all Contracting Parties and OSPAR observer organisations. HASEC's role is to coordinate the work under the OSPAR Convention on Hazardous Substances and Eutrophication and to contribute to the realisation of the North-East Atlantic Environmental Strategy (NEAES 2030).

The scope of HASEC's work is to develop programmes and measures including those relating to all activities that put pressure on the OSPAR maritime area through discharges, emissions and losses of hazardous substances and nutrients; to monitor the status of hazardous substances and eutrophication in the marine environment and assess any associated impacts; and to keep under review OSPAR measures and actions relating to hazardous substances and eutrophication.

(\*) The sixteen Contracting Parties are Belgium, Denmark, the European Union, Finland, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

To achieve clean seas from the Arctic to the Strait of Gibraltar and the Azores, OSPAR will continue to prevent pollution by hazardous substances, by eliminating their emissions, discharges and losses. The aim is to achieve levels that do not give rise to adverse effects on human health or the marine environment. The ultimate goal is achieving and maintaining concentrations in the marine environment at near background values for naturally occurring hazardous substances and close to zero for man-made hazardous substances.

Among the operational objectives of the NEAES, HASEC's work contributes to the achievement of clean seas under the North East Atlantic Environmental Strategy 2030.

By 2022 OSPAR will introduce a revised approach to the management of the OSPAR Lists of Chemicals for Priority Action and Possible Concern (LCPA and LSPC). By 2022, and periodically thereafter, OSPAR will identify pollutants of emerging concern for the marine environment and prioritise them for action, including promoting and, where necessary, complementing measures under EU legislation and relevant international organisations.

OSPAR will develop and identify marine relevant assessment criteria for hazardous substances for its use in the Quality Status Report (QSR) 2023 and will further develop them (including emerging pollutants) working closely with relevant experts, in particular in the Chemicals Working Group under the Common Implementation Strategy of the Water Framework Directive.

By 2026, OSPAR will further develop the Harmonised System of Mandatory Control for the use and discharge of chemicals at sea to improve consistency with other relevant international requirements, such as the EU REACH and the Biocidal Products Regulations.

By 2027, OSPAR will ensure the implementation of measures to eliminate discharges, emissions and losses of hazardous substances in order to achieve or maintain good environmental status for hazardous substances, including by regularly collaborating with other organisations.

# Do you know the REACH Regulation?

## Registration, Evaluation, Authorisation and Restriction of Chemical substances

Our daily lives would not exist as we know them today without the chemicals that surround us and are present in the products we consume, from soap to drinking water to the circuits in our mobile phones. However, the many benefits these substances bring to society can be called into question if they cause chemical pollution. To ensure environmentally and health-friendly chemicals, the European Union has the most ambitious chemicals legislation in the world. One of its pillars, the REACH Regulation, aims to ensure the safe use of chemicals and the substitution of the most hazardous ones.

### Are chemicals used by industry safe?



#### Register

Under the REACH Regulation, companies are responsible for providing information on the hazards, risks and safe use of chemicals. Companies register this information at the European Chemicals Agency (ECHA), which makes it available to all users on its website: <https://echa.europa.eu/es/home>.



#### Evaluation

The national authorities responsible for the ecological transition in each country are normally in charge of this regulation. They assess the environmental risks of chemical substances and analyses different proposals for action. In doing so, they considers information provided by industry and civil society.



#### Authorisation and Restriction

If risks cannot be managed, authorities can ban hazardous substances. They may also decide to restrict a specific use or make it subject to prior authorisation. In the long term, the most hazardous substances should be replaced by less hazardous ones.



#### Chemical substances

REACH applies to all chemical substances, not only those used in industrial processes, but also in everyday life, for example in cleaning products, paints and other articles such as clothing, furniture and electrical appliances. As a result, the Regulation affects most businesses in the EU. It is now easier for European consumers to make an informed purchasing decision, knowing whether or not the products they are buying contain hazardous substances.

# Microplastics in our products

## What are microplastics?

The wear and tear of large plastic parts, such as synthetic textiles or tyres, leads to the production of most of the microplastics we find in the environment. However, they can also be manufactured and deliberately added to products for a specific purpose.

## Where can we find those added by industry?

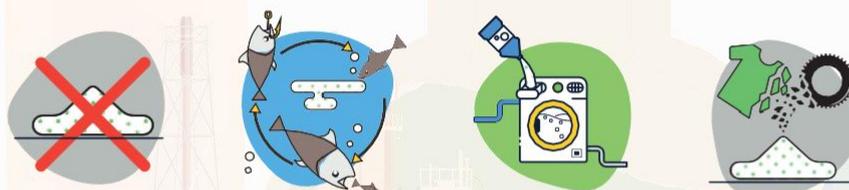
The detergent we use to wash our clothes, the fertilisers we use to grow the vegetables, we eat or even the artificial turf we use to train on, may contain these microplastics.

## What effects do they have on the environment?

It is estimated that approximately **42,000Tn of intentionally added microplastics** are released into the environment each year. They accumulate in animals, including fish and shellfish, which are consumed as food and can therefore reach humans.

## How can action be undertaken to eliminate their adverse effects?

This group of microplastics can be addressed by the EU and its Member States under the **REACH Regulation**. The Restriction on the use of intentionally added microplastics in products will lead to a ban on these microplastics used by industry.



Regulated at European level by Regulation (EC) 1907/2006.

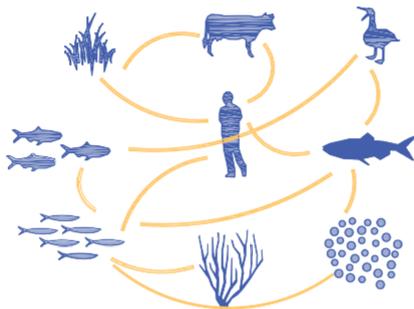
# What are Persistent Organic Pollutants, POPs?

One of the **greatest enemies of human health and the environment** are persistent organic pollutants. These pollutants are chemical compounds, mostly synthetic, that remain in the environment for long periods of time and, as they do not degrade easily, they accumulate and cause damage. This damage has an impact at global, regional and local scales. For this reason, **the OSPAR Contracting Parties signed the Stockholm Convention in view of the urgent need to protect biodiversity, whose environmental services are indispensable for human health.**



## Persistence in the environment

POPs resist photolytic, biological and chemical degradation, which allows them to remain in the environment and/or inside living organisms for long periods of time.



## Bioaccumulation

POPs bioaccumulate mainly in the adipose tissue of living organisms and are difficult to metabolise. Therefore, they biomagnify, i.e. their concentration in organisms increases as they move up the food chain.

## Toxicity

These pollutants can produce toxic effects at very low doses, making them the most dangerous chemicals. Some of the effects associated with exposure to POPs may include carcinogenesis, central nervous system, endocrine or reproductive damage, foetal malformations, behavioural disorders and diabetes.



## Long-range transport

POPs are semi-volatile, which allows them to spread easily over long distances through the air, water or accumulated in the body of migratory species.



Stockholm Convention and the European POPs Regulation (EU) 2019/1021 aim to protect human health and the environment from POPs.

Most POPs are synthetic chemicals which, because of their properties, have proved interesting for production and use in fields as diverse as agriculture, construction, household (household appliances, non-stick coatings, textiles, cleaning products, etc.) and industrial (fire-fighting foams, medical devices, electrical and electronic equipment, photographic and lithography applications, aviation hydraulic fluids, etc.).

## INTENTIONAL PRODUCTION



### Pesticides

Some POPs used as pesticides are DDT, lindane and dicofol, which stopped being used in OSPAR Contracting Parties decades ago.

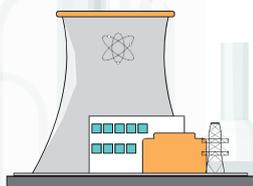
### Industrial Application



POPs have been used due to their effective properties, such as:

- Thermal stability and heat exchange efficiency (chlorinated, such as **PCBs** and **chlorinated paraffins**).
- Flame retardant properties (brominated, such as **PBDEs**)
- Water and oil repellency (fluorinated, e.g. **PFOS**)

## UNINTENTIONAL PRODUCTION



Unintentionally generated pollutants are unintentionally generated and emitted from anthropogenic sources. The best known unintentionally generated pollutants are PCBs, dioxins and furans. The Convention requires minimising these emissions through the use of best available techniques and environmental practices.

Due to their production and use, POPs are released into the environment and their presence is detected in air, water, soil, sediment and living organisms, even decades after they have been banned.

## Recommendations to avoid exposure to mercury

Mercury is a metal that can be found in our food due to its natural occurrence in the earth's crust and as a result of human activities. The form in which it is mainly present in fish is called methylmercury.

Mercury and some of its compounds are toxic and have the ability to accumulate in animals. As a result, their concentration increases in organisms as they move up the food chain. **At high doses, mercury can be fatal to humans, and even at relatively low doses it can cause serious neurodevelopmental problems.**



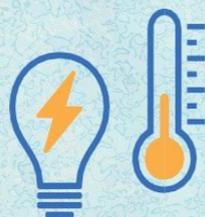
### Fish consumption

#### Vulnerable populations: Pregnant women and children

Limiting the consumption of species with a high methylmercury content is the most effective way to achieve health benefits regarding fish consumption, while minimizing the risk of excessive methylmercury exposure, especially in vulnerable populations (women of childbearing age, pregnant women, infants and children under 10 years of age).



### Products with added mercury



From 2020, the marketing of batteries, batteries containing more than 2% mercury, switches, and relays with a mercury content of more than 20 mg, certain types of fluorescent lamps and non-electronic measuring devices (barometers, thermometers, etc.) is banned.

**MAKE SURE TO  
DISPOSE IT AT  
AN AUTHORISED  
WASTE  
MANAGER!**

Minamata Convention and the European Regulation (EU) 2017/852 on mercury aim to protect human health and the environment from anthropogenic mercury

# Have you ever used biocides? I'm sure you have...

Biocidal compounds are made up of active chemical substances, or in some cases organisms, which are used to protect human health and the environment from the harmful effects of certain organisms such as pests, algae, fungi, and bacteria. Biocides have a multitude of applications in a wide range of industrial and domestic sectors, from disinfectants used at home, preservatives for inks or industrial liquids, to rodenticides used to control rats and other rodents.

## There are four main groups of biocides



## Environmental risk assessment

For the environmental risk assessment, two concentrations are compared:



Firstly, the concentration of the substance below which no negative effects on organisms inhabiting a given environmental compartment are expected, which is calculated from the results of laboratory tests.



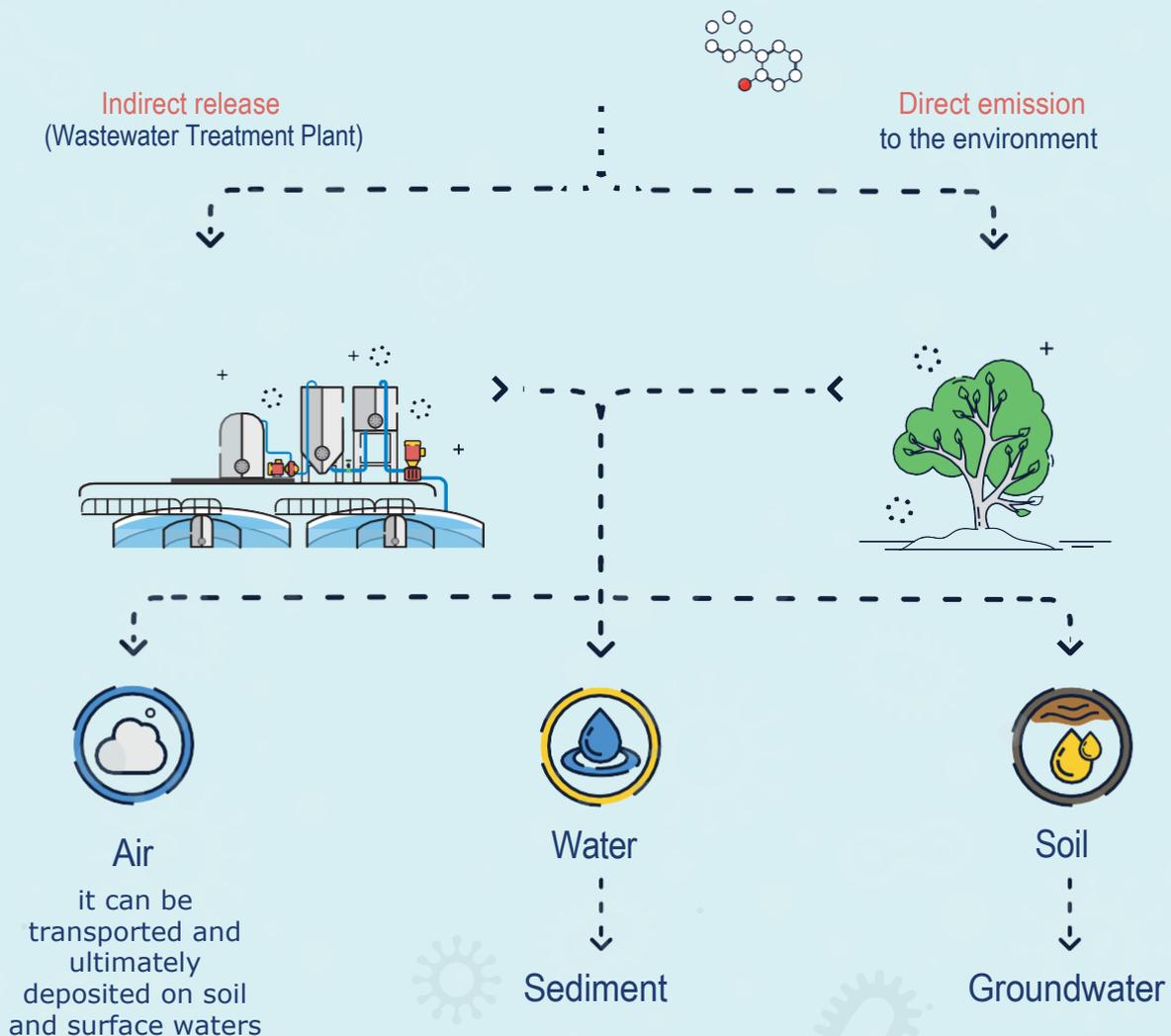
The concentration of substances expected to reach the receiving environment depending on the use of the type of product. This is calculated using scenarios that are constructed from published guidance for each product type (PT) and the Environmental Assessment guidance produced by ECHA (European Chemicals Agency).

# Is the use of biocides sustainable?

The result of this evaluation is a value (ratio between both concentrations) that will determine whether or not the use of this biocide is authorised. The permitted uses, doses, application methods and users will be restricted to those established in the Resolution of Authorisation and Registration in the Register of Biocides issued by the health authorities of each country organising a SAFE USE OF BIOCIDES. For each use, risk mitigation measures may be required.

## How do they reach the environment?

### RISK TO THE ENVIRONMENT AND HEALTH BIOCIDE



## What are plant protection products and what are they used for?

Plant protection products (insecticides, fungicides, herbicides, etc.) are chemical mixtures intended to protect plants from harmful organisms. They help to increase yields in agriculture, but at the same time, their incorrect use can pose risks to human health and the environment.

## How do they reach the environment?

The presence of harmful chemicals in different environmental compartments is a growing concern. Many of these substances come from the application of plant protection products.



### Official Register of Plant Protection Products and Materials



In order to be marketed, these products must be authorised and registered in the Official Register of Plant Protection Products of the competent national authorities for agriculture, fisheries and food. The authorisation is obtained after a thorough evaluation of their risks. It is necessary that the plant protection products, for the use for which they are authorised, are safe for human health, have no negative effects on the environment and that the residues remaining on the edible parts of the plants are within acceptable thresholds.

# What has to be taken into account when applying plant protection products?

1. If you are not a professional user, you should only use those products intended for the general public.
2. Before using any product, read the label carefully. Use it according to the conditions of use: crop and target pest, dosage, time of application, etc. Use personal protective measures.
3. Look at the Environmental Risk Mitigation section. The fewer "SPe" type phrases, the lower the environmental risk.
4. Packaging is considered hazardous waste. Dispose of them at the designated disposal points according to the instructions on the labelling.

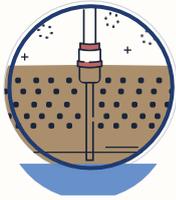
## Prioritise alternative non-chemical methods, whenever possible.

- Application of Integrated Pest Management Guidelines.
- Periodic cleaning of machinery of harmful propagules.
- Use of balanced fertilisation, irrigation and drainage practices.
- Increase diversity in crop rotation.
- Use of certified seed and seedlings and of resistant or tolerant varieties.
- Maintenance of permanent natural vegetation strips.
- If appropriate, weeding prior to herbicide application to increase efficacy and reduce the amount needed.



Use low-risk products in sensitive areas (water abstraction for human consumption and habitat and species protection areas).

# How to avoid water pollution?



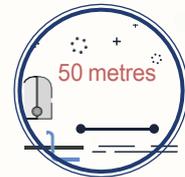
Take the necessary measures to prevent pollution and reduce applications on highly permeable surfaces



Respect a safety band of at least 5 metres with respect to surface water bodies, or as indicated on the label



Cover water points, such as wells, on the plots to be treated, to avoid point source contamination during treatment



Leave a distance of at least 50 metres from untreated water abstraction points for human consumption



Prioritise products that are less hazardous to aquatic organisms. If they carry the pictogram and the warning word "Caution", they are toxic.

Look at the hazard marking. Toxicity decreases in the following order:

H400 y H 410

H411

H412

H413

No hazard statement

## It is up to you to contribute to their reduction!



# Do you know the Ecolabel?

## It's a label you can trust

There are around 40,000 products and services that carry the EU Ecolabel, from baby clothes to paints to tissue paper. It is a reliable label that identifies products and services with the lowest environmental impact:

- Independently verified by experts.
- With strict criteria in more than 28 different categories of products and services regularly updated.
- Taking into consideration the entire life cycle of the product, from manufacturing to recycling or disposal.
- Ensuring consumer health and responsible manufacturing.

It's easy to consume in an environmentally friendly way!

Thanks to the transparent criteria of this label, consumers can make responsible choices while supporting innovation and the creation of environmentally friendly jobs.

### GREEN VALUES IN ACTION

Find out more about the European Commission's circular economy package, a blueprint for moving towards a more competitive and sustainable economy.

[ec.europa.eu/environment/circular-economy](https://ec.europa.eu/environment/circular-economy)



# Your shopping can be green. Do you know how much?

Making the most responsible choices for your home, work or leisure is easier than you think. There are some examples of products with the EU Ecolabel to encourage you adopt a sustainable lifestyle.

## Do you want an ECO HOLIDAY?

The label also applies to hotels and campsites. They offer the same level of comfort as conventional accommodation, but use less energy and water, and generate less waste, including food waste.

[ec.europa.eu/ecat/hotels-campsites](http://ec.europa.eu/ecat/hotels-campsites)



### CLEANING...

The detergent has to be effective at 30°C, saving energy and money on every wash



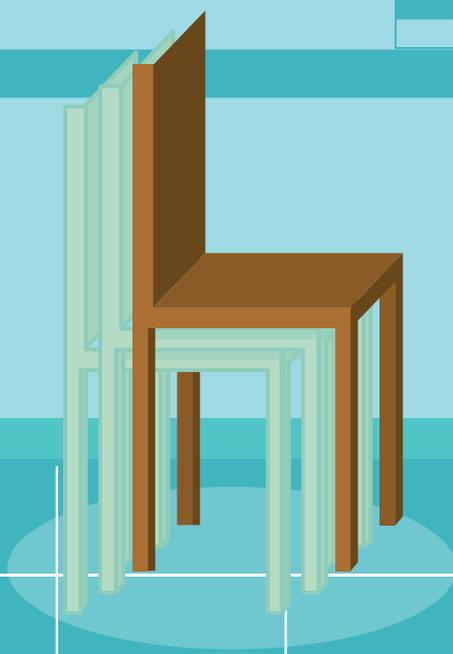
### BRICOLAGE

Keep the indoor air clean. Paint should have less than half the solvent emissions of conventional products



### FURNITURE

Items should be practical and durable. At the end of their useful life, they should be easily recyclable.



Look for the  
**EU Ecolabel**

on products and services that are  
better for the environment and  
better for you.

**ELECTRONIC DEVICES**

Products should be **easy to repair and upgrade** to last longer.

**PERSONAL HYGIENE PRODUCTS**

Eight million tonnes of plastic end up in the oceans every year. **The criteria ban microplastics and limit waste from packaging.**



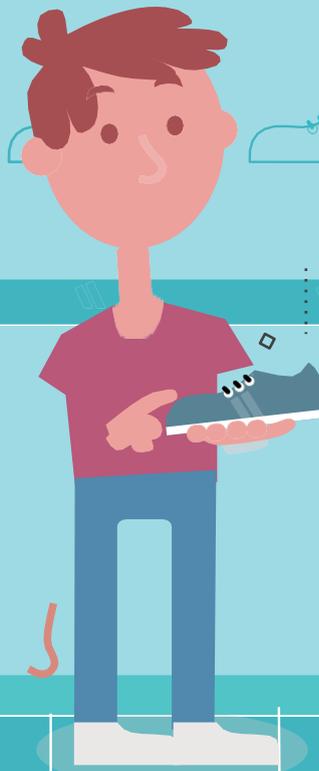
**PAPER PRODUCTS**

Nearly half of the trees cut down in the world are turned into paper. **Choose recycled or sustainable sources instead**



**CLOTHING AND TEXTILES**

Shoes should be manufactured under fair and safe conditions; as well as beautiful, **they should be fair!**



**READY TO START SHOPPING?**

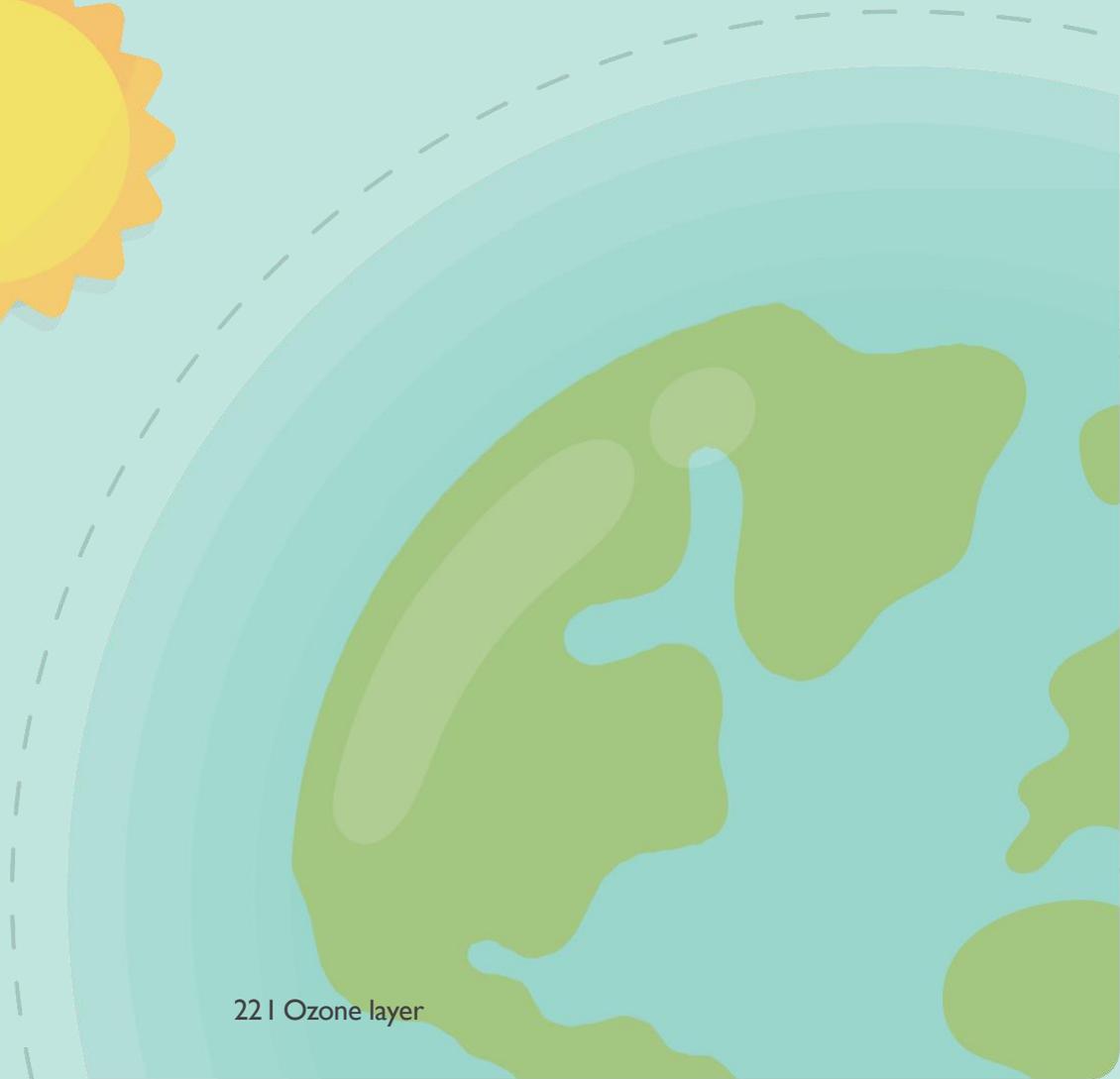
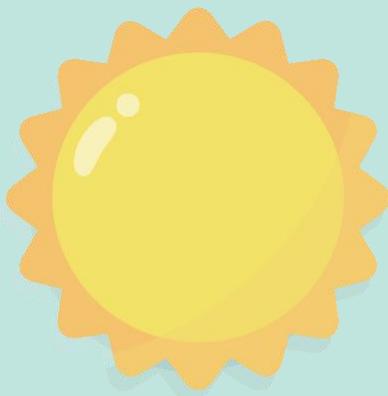
Check out the full catalogue of products here: [ec.europa.eu/ecat](http://ec.europa.eu/ecat)

## How do chemicals affect the ozone layer?

The ozone layer is a thin shield that protects us from the harmful sun's rays. It is made up of a gas, ozone, and is found in the stratosphere about 15 to 50 km above the surface of the earth.

Ozone molecules are responsible for **protecting humans, animals and the rest of the environment from harmful ultraviolet radiation.**

By releasing chemicals containing chlorine and bromine atoms, we damage the ozone layer and we also damage ourselves. **For every 1% decrease in stratospheric ozone, the ultraviolet radiation reaching us increases by 2%.**



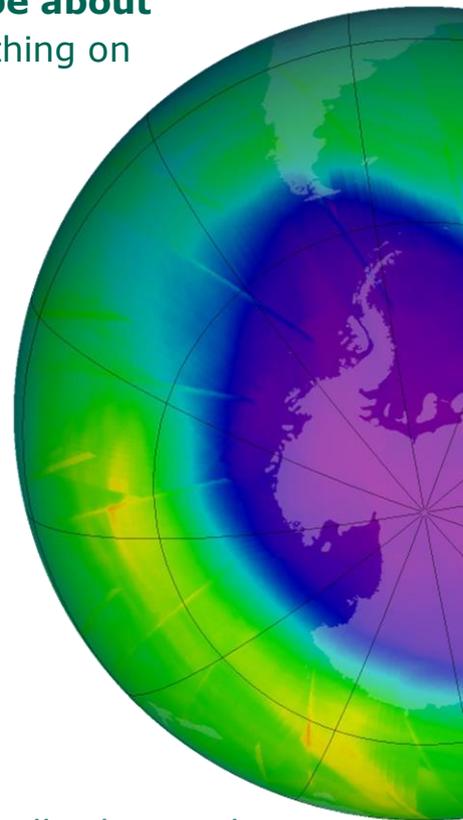
The international community signed the Vienna Convention in 1985, which in turn led to the Montreal Protocol, both of which establish measures for the elimination of the production and consumption of ozone-depleting substances once they reach the ozone layer. In addition, funding is provided for technical cooperation projects in developing countries.

Ozone is even more precious than we think. If the atmosphere were at sea level under the same conditions of pressure and temperature, it would be about 8,000 meters deep. Within this enormous expanse, **the ozone layer would only be about 3 mm wide**. However, ozone protects every living thing on Earth from harmful ultraviolet rays.

More than 30 years ago, scientific observations concluded that **there was a decrease in the ozone levels of the UV protective layer in the stratosphere**, which was more pronounced in the Antarctic area due to its low temperatures, a fact that came to be known as the **ozone hole**.

Again, this was caused by gases emitted into the atmosphere (that reached the stratosphere) from, among other things, **refrigeration and air conditioning equipment**.

The political decisions and actions taken internally by each signatory country to the convention and protocol have led to a cessation of the increase in the ozone hole in recent years. The measures adopted are under continuous evaluation of their effectiveness and effects, in accordance with the results of ongoing research and monitoring, which in turn lead to new scientific conclusions in search of the best solutions.



**As you have seen, there are a multitude of products in which chemicals play an important role. We must work together to ensure that these chemicals around us do not pose a risk to us and our environment.**

**It is up to us to choose alternatives to pollutants and to use the safest products. By doing so, together with government action, we will contribute to a green transition.**

