

## 4.2 Releases of substances that are hazardous to health or the environment will be eliminated.

<b>Indicator:</b> Reduction in releases of priority substances	<b>Are we moving in the right direction?</b> + Substantial reductions in releases, but further efforts still needed <sup>1</sup>
<b>Indicator:</b> Quantities and types of radioactive waste declared	<b>Are we moving in the right direction?</b> ● Quantities and types of radioactive waste declared <sup>2</sup>
<b>Indicator:</b> Quantities and types of radioactive waste delivered for final disposal	<b>Are we moving in the right direction?</b>
<b>Indicator:</b> Estimated risk of releases from selected foreign sources that may affect Norway	<b>Are we moving in the right direction?</b> . Releases of technetium-99 from Sellafield <sup>3</sup> + Releases of caesium-137 from Sellafield <sup>4</sup>
<b>Indicator:</b> Quantity of hazardous waste for which no information is available on disposal	<b>Are we moving in the right direction?</b> . Most of the hazardous waste is handled properly <sup>5</sup>

## Miljøsmål 4.2 Releases of substances that are hazardous to health or the environment will be eliminated.

Indikator: Reduction in releases of priority substances

Substantial reductions in releases, but further efforts still needed

### + Are we moving in the right direction?

*Published 01.05.2008 by the Norwegian Environment Agency*

Norway has considerably reduced its use and releases of many of the hazardous substances on the priority list by means of strict emission limits, regulation of use, requirements relating to waste management and remediation measures.

The Norwegian Environment Agency welcomes this positive development, but our target has yet to be achieved. Further reductions in use and releases are needed, particularly for some of the newer substances on the list.

### Emissions of a number of priority substances substantially reduced

Releases of a number of priority substances have been reduced by more than 90 % since 1995:

- tributyl and triphenyl tin compounds (TBTs and TPTs)
- pentachlorophenol (PCP)
- tetrachloroethene (PERC)
- trichloroethene (TRI)
- certain surfactants (DTDMAC, DSDMAC, DHTDMAC)
- musk xylenes
- chlorinated alkyl benzenes (CABs)
- hexachlorobenzene (HCB)
- trichlorobenzene (TCB)
- 1,2-dichloroethane (EDC)
- nonyl-/octylphenol and their ethoxylates
- polychlorinated biphenyls (PCB)

In all, releases of these substances have been reduced by more than 1000 tonnes since 1995.

PFOS is no longer in use, but there is concern about releases of the substance from contaminated soil.

It is important to maintain an effective inspection and enforcement regime for these substances, and to ensure that no new areas of use emerge.

Releases of several other substances have been reduced by more than 50 % since 1995, including:

- lead
- short-chain chlorinated paraffins (SCCPs)
- cadmium
- dioxins
- mercury
- polyaromatic hydrocarbons (PAHs)

The use of SCCPs in products is now prohibited, but they are still found in municipal waste water and sewage sludge as a result of release from older products. Substantial quantities of PAHs are still being released despite the progress that has been made. The main source is fuelwood use by private households.

In recent years, a further significant drop in lead releases has been achieved through restrictions on its use in ammunition.

## Products were the largest source of releases in 2015

Several substances on the priority list are still used in large quantities, particularly in imported products. Many different kinds of products are involved, and it is particularly difficult to quantify the amounts of priority substances used in and released from finished articles.

Siloxanes, medium-chain chlorinated paraffins (MCCPs) and the phthalate DEHP are being used and released to the environment, and the use of these substances appears to be increasing.

Siloxanes are widely used in beauty products such as hair and skin care products. MCCP and DEHP is mainly used as a plasticiser. Regulatory measures for siloxanes and DEHP that have been or are about to be introduced by the EU, should reduce the quantities used and released.

Perfluorinated substances and brominated flame retardants are used in consumer goods such as textiles, electronic products and plastic products. Norway has prohibited the use of perfluorooctanoic acid (PFOA) in consumer products.

PFOA will be restricted in the EU from 2020, as a result of an initiative from Germany and Norway. Steps have been initiated to regulate more perfluorinated substances in the EU and globally.

Several flame retardants are strictly regulated both in the EU and globally. On Norway's initiative, global restrictions on the use of the flame retardants hexabromocyclododecane (HBCD) and deca-BDE have been adopted. In Norway there has been a national ban on deca-BDE for several years, and Norway has been instrumental in securing restrictions on the substance in the EU.

CCA-treated timber products are still in use, resulting in substantial releases of chromium and arsenic. The use of timber treated with wood preservatives containing chromium and arsenic is now strictly restricted. However, it is not considered to be cost-effective to replace CCA-treated timber in existing constructions, so that releases will continue until they are replaced.

## The way ahead

Pollution does not stop at national borders, and many hazardous substances are carried by winds and ocean currents far from their countries of origin. They are also spread through export and import of products.

The goal of eliminating releases of priority substances by 2020 is ambitious.

It is not enough to eliminate releases in Norway; we also need to take part in international efforts to phase out use of priority hazardous substances. The Norwegian Environment Agency takes part in work under global conventions and within the EU, for example under the chemicals regulation REACH, with the aim of ensuring stricter international regulation of substances on the Norwegian priority list.

Norway has put forward several proposals for stricter international regulations of priority substances, and these are now being considered.

---

Indikator: Quantities and types of radioactive waste declared

## Quantities and types of radioactive waste declared

### ⊖ Are we moving in the right direction?

*Published 01.05.2008 by the Norwegian Environment Agency*

In order to establish the origin and location of radioactive waste, Norway introduced a declaration requirement for radioactive waste in 2011. In Norway, radioactive waste originates from petroleum activities, hospitals, universities and research institutions. The largest amount of waste is radioactive soil and rock masses, most of which is alum shale.

With data from just a few years, it is difficult to provide conclusive assessments of trends.

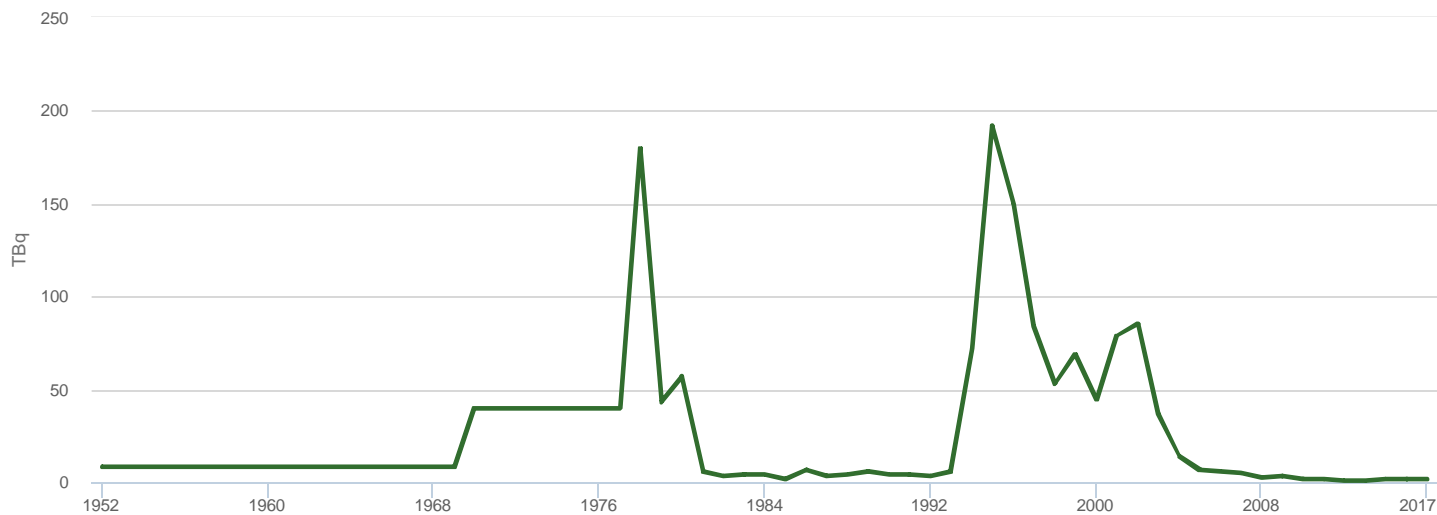
---

Indikator: Quantities and types of radioactive waste delivered for final disposal

Indikator: Estimated risk of releases from selected foreign sources that may affect Norway

## Releases of technetium-99 from Sellafield

### Releases of technetium-99 from Sellafield to the Irish Sea



Source: Statens strålevern Lisens: Norsk Lisens for Offentlige Data (NLOD)

## Are we moving in the right direction?

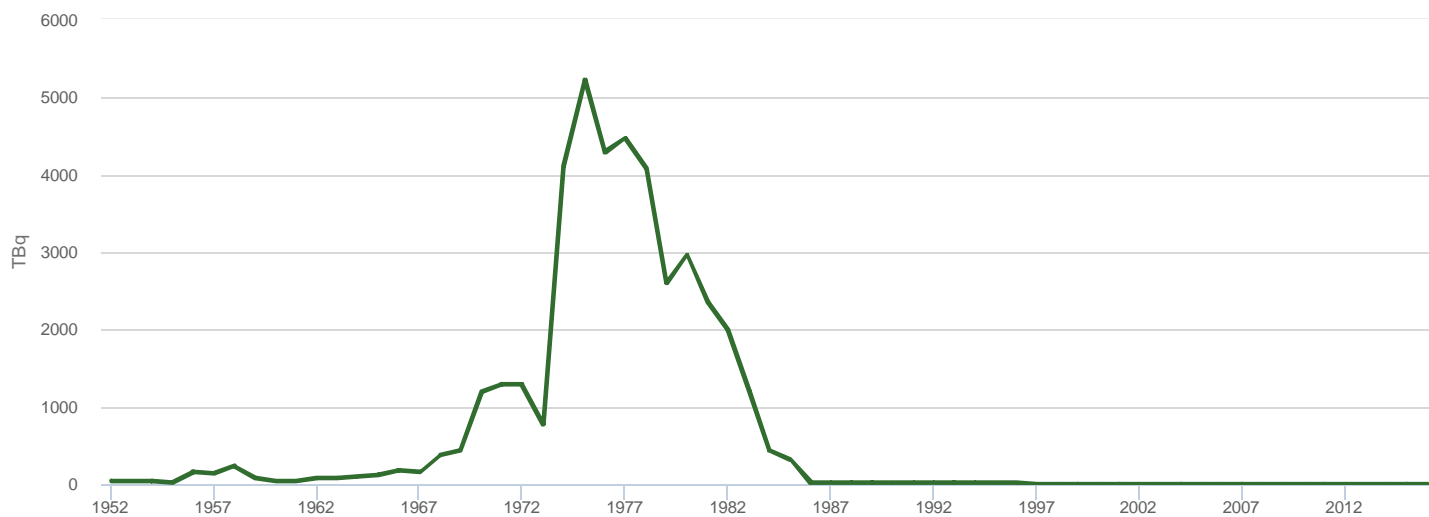
Published 01.05.2008 by the Norwegian Environment Agency

In the mid-1990s, the technetium-99 discharges from Sellafield to the Irish Sea increased, growing from a few TBq per year to a peak of 190 TBq in 1995. The technetium-99 discharges remained relatively high until 2003-2004, when Sellafield implemented new technology to remove technetium-99.

During the last few years, the discharges have been below 10 TBq per year, and the discharge in 2016 was 1.9 TBq.

## Releases of caesium-137 from Sellafield

### Releases of caesium-137 to the Irish Sea from Sellafield



Source: Statens strålevern Lisens: Norsk Lisens for Offentlige Data (NLOD).

### + Are we moving in the right direction?

*Published 01.05.2008 by the Norwegian Environment Agency*

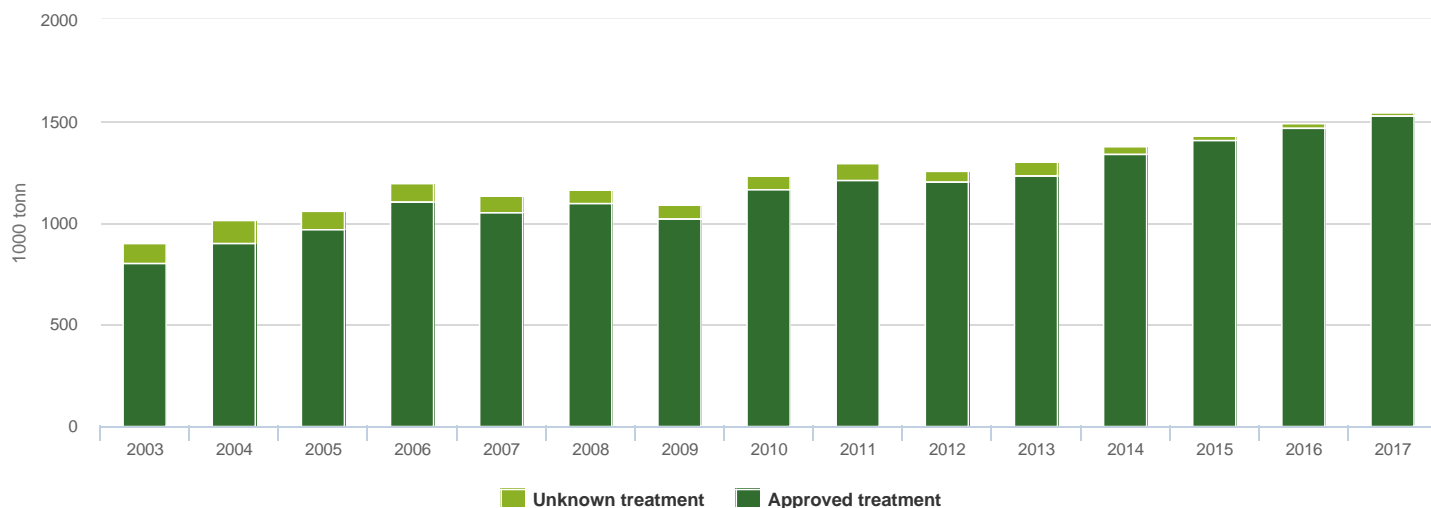
The caesium-137 discharges from Sellafield were very high during 1975-1980. The highest discharge was registered in 1975 (5200 TBq). This is equivalent to the total fallout of caesium-137 to the Baltic Sea after the Chernobyl accident in 1986.

The discharges are now at a much lower level. Two new treatment plants at Sellafield in 1986 resulted in a considerable reduction in discharges. In recent years the yearly discharges to the Irish Sea have been less than 10 TBq caesium-137. In 2016, the discharges were 3.72 TBq.

Indikator: Quantity of hazardous waste for which no information is available on disposal

## Most of the hazardous waste is handled properly

### Hazardous waste according to treatment



Source: Statistics Norway (SSB) Licence: NLOD

## Are we moving in the right direction?

Published 01.05.2008 by the Norwegian Environment Agency

In Norway, about 98% of the hazardous waste is collected and taken proper care of. According to figures from Statistics Norway almost 1.5 million tonnes were handled according to approved treatment procedures in 2016.

Approximately 21 000 tonnes were handled by unknown methods. Some of the hazardous waste that is handled in unknown ways may have been mixed with ordinary waste, discharged into the sewers or dumped in the environment.

Hazardous waste that is delivered for approved treatment is not always recorded correctly. We therefore assume that parts of the 21 000 tonnes may have been treated as approved.

### Instruments to reduce the amount of hazardous waste

Sooner or later hazardous chemicals in products end up as waste. To reduce the amount of hazardous waste the content of hazardous substances in products is regulated through the Product Control Act.

In Norway, we have introduced a substitution obligation. This means that manufacturers have an obligation to replace hazardous substances with less hazardous ones, when this can be done without unreasonable cost or inconvenience.

The Environmental Information Act gives everyone the right to information about the content of hazardous chemicals in products. Thus, consumers, businesses and government agencies may more easily choose products that are not harmful to health and the environment. Ecolabelling is a simple form of environmental information and a means to make products more environmentally friendly.