

Short chain chlorinated paraffins

SCCPs are the most hazardous of chlorinated paraffins. In 1998, their main use was still as metal working fluids with volumes more than 4000 tonnes being used annually in Europe. This was down from 13 000 tonnes in 1994. Today, the total consumption of SCCPs in Europe is less than 1000 tonnes a year. Remaining uses are as rubber flame retardant (more than 50%) and as plasticiser or additive in sealants, adhesives, and in paints and textile waterproofing.

What is the problem?

SCCPs are a concern for the marine environment and human health on account of high toxicity to aquatic organisms, high persistence and non biodegradability. Up to 2006, the main sources of SCCPs were releases from metal and leather working facilities. The main remaining sources of SCCP releases are emissions to air, water and soil from rubber working plants, emissions from surfaces treated with SCCP-containing paints and releases from products in waste streams. The main releases occur to sediments and surface waters in rivers, emissions to air and through soil spread with sewage sludge. SCCPs are effectively transported by air over long distances.

What has been done?

OSPAR Decision 95/1 and subsequent EU measures regulate the main uses of SCCPs and sources. Total consumption volumes have dropped by more than 75% since 1998. The phase-out of SCCPs in metal and leather working fluids has been broadly achieved by 2006. Efforts to phase out the remaining main uses of SCCPs under OSPAR Decision 95/1, envisaged by end of 1999, still continue. This is supported by a voluntary phase-out agreement of the SCCPs producers in the OSPAR area and proposals for global actions under the UNEP Stockholm POP Convention and the POP Protocol of the UNECE Convention on Long-range Transboundary of Air Pollution (LRTAP). SCCPs have been substituted with medium and long chained chlorinated paraffins (MCCPs and LCCPs). Recent environmental risk assessments suggest that restrictions of those and other uses of MCCPs may be required.

Did it work?

Information reported by Contracting Parties in the EU and UNECE LRTAP regulatory frameworks indicate that measures have resulted in a decrease of discharges and emissions of SCCPs from production in metal and leather working fluids and that only a few point sources with low discharge and emission levels remain. Based on quantities of SCCPs still used in 2001, total releases from waste to the environment were estimated to amount to 9.8 – 19.4 tonnes per year to surface water and 0.0039 – 0.078 tonnes to air. It is expected that currently existing and planned efforts are likely to lead to a cessation of SCCP releases to the environment by 2020. Measurements to indicate the loads of SCCPs reaching the sea via rivers and atmospheric deposition are not available.

How does this affect the quality status?

Data from the period 2000 – 2005 show widespread contamination of the marine environment with SCCPs. Around the North Sea, SCCPs have been found in sediments, fish and mussels at reference sites. Highest concentrations measured on the Southern coast of Norway were in cod liver (750 ng/g w.w.) and in sediments (1800 ng/g d.w.). Concentrations of the sum of SCCPs and MCCPs in mixed fish livers reached levels up to 3900 ng/g l.w. Two water measurements were below detection limits (EQS for water: 0.4 µg/l). SCCPs have also been found in Arctic biota (fish, seabirds and marine mammals, including polar bears). Some measurements in remote areas (Arctic char from Bear Island, Norway) reached levels comparable to concentrations in cod reported for the North Sea and the Baltic Sea. SCCPs have also been detected in human milk fat in the UK (49 – 820 ng/g fat) and in cow's milk in Denmark, France, Ireland and the UK. The ubiquitous presence of SCCPs and observed levels in mammals confirm concerns that SCCPs are of be of significance at a regional and potentially global scale. Available data do not allow conclusions on trends of SCCP pollution since 1998.

Electronic navigator to OSPAR publication sources (publication number):

- Status and trend of marine chemical pollution (395/2009) – Annex 2 for monitoring data
- Towards the cessation target (354/2008)
- Background Document for SCCPs (141/2001) (as updated)