

6PPD

4-(dimethylbutylamino) diphenylamine (6PPD) is an aromatic amine and is used in high volumes as a protective agent (anti-ozonant and anti-oxidant) in the rubber industry, mainly for production of tyres.

What is the problem?

6PPD is acutely toxic to marine organisms but does not have adverse carcinogenic, mutagenic and reprotoxic (CMR) properties. It rapidly degrades in air and by biotic and abiotic processes and is unstable in water, but both 6PPD and its metabolites have potential to adsorb persistently to sediment. Its potential to bioaccumulate is below the OSPAR threshold. There are gaps in knowledge concerning the degradation of 6PPD in soil and the environmental fate and behaviour of the metabolites. 6PPD is not a PBT substance but its properties indicate a hazard for the environment. As a high volume production chemical it may be widely released to the environment, thus warranting continuous attention. 6PPD is released during the use of rubber products and mainly from abrasion and disposal of tyres. 6PPD can be leached by rainwater from the tyre debris deposited on roadsides.

What has been done?

There are no specific measures in place to regulate or reduce releases and uses of 6PPD. Discharges from production and manufacture via air and waste water are regulated by EU legislation. Production emissions are considered negligible. 6PPD is part of the OECD existing chemicals programme under which its exposure and possibly its risks are recommended for further investigation, including the identities and properties of degradation products.

Did it work?

In a worst case scenario, it was estimated that rubber particles containing up to 800 tonnes of 6PPD were released in Germany in 2000. There is no monitoring information on emissions, discharges and losses of 6PPD to confirm the magnitude or indicate trends of releases to the environment and the transport of the substance and its metabolites to the sea. Available information does not allow conclusions on progress towards the cessation target in 2020.

How does this affect the quality status?

There is no monitoring data available on concentrations of 6PPD in the marine environment. OSPAR has not given priority to environmental monitoring of 6PPD, but promotes exposure and risk assessments to clarify the potential risks arising from 6PPD for the marine environment.

Electronic navigator to OSPAR publication sources (publication number):

- ↪ Status and trend of marine chemical pollution (395/2009)
- ↪ Towards the cessation target (354/2008)
- ↪ Background Document for 6PPD (271/2005) (as updated)