

# Clotrimazole

Clotrimazole is a pharmaceutical which has many ecotoxicological properties in common with a range of fungicides used in agriculture. It is mainly used for treatment of dermatological and gynaecological fungal infections in humans.

## ***What is the problem?***

Clotrimazole is a persistent substance with toxic and bioaccumulative properties which are considered a borderline case under OSPAR PBT criteria. Clotrimazole is used as active ingredient in creams, tablets, solutions, spray and powder and is washed into waste water through normal body hygiene procedures. The main entry route of clotrimazole to the environment is via waste water treatment effluents as a result of waste water from households and hospitals. Releases to different environmental compartments from production and formulation processes are considered negligible.

## ***What has been done?***

OSPAR actions and subsequent EU measures require consumer information through package leaflets of clotrimazole products to enhance controlled disposal of the products and environmental protection. EU measures regulate releases from production and formulation processes and the use of clotrimazole as pharmaceutical.

## ***Did it work?***

Monitoring data on emissions, discharges and losses of clotrimazole and its transport to the sea is poor and not conclusive. There is indication that clotrimazole may be detected in waste water treatment effluents (<100 ng/l) and transported by rivers to the sea. Available information suggests that further efforts are needed to move towards the cessation target by 2020, but conclusions need to be reviewed in light of additional monitoring data.

## ***How does this affect the quality status?***

Marine environmental information is scarce. In the Greater North Sea, few studies of water samples from contaminated sites in Elbe (Germany) and Tyne (UK) rivers and estuaries are available with contradictory results for the Tyne. One set of studies suggests that clotrimazole can hardly be detected due to the high adsorption potential to particulate matter, another set shows that clotrimazole can be detected in rivers and estuaries and may reach the marine environment even after passage through a tertiary waste water treatment plant. OSPAR has not given priority to marine environmental monitoring, but focused on keep discharges at source under review. Recent research results along the Swedish West coast suggest that the low observed concentrations of clotrimazole were sufficient to give rise to concern for risks of disturbance of growth and reproduction of single cell algae, the basis of the ocean's food chain.

*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 clotrimazole (199/2005) (as updated)