

Environmental Quality Objectives for Hazardous Substances in the Aquatic Environment

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Abstract

Environmental quality criteria are established and used in many industrial countries to determine whether organisms, human health or materials are jeopardized. According to legal context and the national specialties these criteria are determined by different methods. This report analyses the methods used for the derivation of environmental quality criteria in the aquatic sector. The protected assets aquatic life, wild life, fishery, suspended matter / sediments and drinking water supply are described. The report focuses on the comparison of methods for the derivation of quality criteria for the protection of aquatic life. The use of compensation factors and statistical extrapolation methods for the estimation of safe environmental concentrations are analysed. The report gives an overview of the derivation and use of quality criteria in Germany, The Netherlands, Canada, USA, European Union and other countries. For selected substances a comparison of the values established by different countries and institutions was made. In many cases a good accordance can be recorded, however, for several substances the values vary more than one order of magnitude. Those differences are caused by the use of different methods, data sets and the date of derivation. Proposals for a harmonization of methods are made. The report encloses a comprehensive summary of existing quality criteria, quality objectives and quality standards for water.

