

# Ecotoxic substances involved in industrial accidents: national situation and operational experience

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## **Abstract**

The Legislative Decree 105/2015, Italian implementation of Directive 2012/18/EU (so-called “Seveso III”), regulates risk assessments associated with industrial establishments in which certain substances are present, including substances/preparations classified as dangerous for the environment. These assessments are aimed at adopting suitable measures to prevent risks and limit the consequences of accidents to protect human health and the environment, understood as the latter in its various matrices (soil, subsoil, surface and underground water components).

This article aims to explain the activities carried out by ISPRA to frame the problem, on a national basis, of the integrated assessment and management of environmental risks from major accidents in critical industrial areas.

In particular, the work reports the results of a reasoned survey of information and data relating to substances and preparations dangerous for the environment present in industrial sites located on the national territory and subject to the obligations of the Legislative Decree 105/2015. The analysis aims to provide a realistic picture of the national situation regarding the risks represented by dangerous substances for the environmental sector, through a series of technical-scientific evaluations.

Having identified, described and characterized the national situation, in terms of substances and preparations dangerous for the environment (considered of priority interest) present in the establishments, we proceeded with the analysis of the historical experience of accidental events with impact on environmental matrices occurred, connected with the presence of the aforementioned dangerous substances: for this activity, data and information taken from international accident databases were processed.

Starting from the consideration of the characteristic aspects of accidental events occurred in industrial sites, the work of reconnaissance and analysis of the historical experience has demonstrated the importance of considering the accidental effects on environmental matrices. The assessment of the damage caused to the environment by accidental events that have occurred, combined with the ability to predict the consequences of accidental events (risk analysis), provides useful indications for the purposes of planning the interventions to be implemented. ISPRA, as part of the production of technical information, criteria and methodologies, in support of the evaluators of the public authorities who are entrusted with the task of analysing and controlling the risks of major accidents, pursuant to Legislative Decree 105/2015, has prepared an operational tool on the basis of the analysis reported, namely the LLGG "Technical-operational criteria and guidelines for the evaluation of analyzes of major accidents with consequences for the environment".

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