

Workers' safety in contaminated sites: the research of the department of technological innovations of INAIL

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Introduction

Hazardous substances or materials deriving from anthropic activities, in work and life environments, can pose risks for the health and safety of people. The adoption of correct policies and measures, to prevent and mitigate the risk of accidents or diseases for workers and population, necessarily derives from the estimation of exposure and from the risk analysis.

In contaminated sites it is essential to combine environmental needs with the health and safety of any worker present in the area. Therefore, in addition to the reduction of pollution, it is necessary to adopt appropriate prevention and control strategies for occupational risks of workers involved in remediation. The Department of "Technological Innovations and Safety of Plants, Products and Settlements" of Inail develops methods, procedures and models to quantify exposure and risk and to identify measures to prevent and protect workers.

Materials and approaches

The research activities carried out by Inail in contaminated sites follow an experimental and modeling approach, also through the definition of new analytical approaches, procedures and experimental investigations, innovative methods of monitoring and protection of workers. These activities are mainly focused on the following contexts:

- Areas, located near productive activities, with several chemicals;
- Contaminated sites and areas with widespread pollution;
- Sites with hazardous and non-hazardous waste;
- Sites with asbestos by human activities and/or of natural origin;
- Industrial plants not included in the "Seveso" legislation (eg. production of biofuels);
- Confined spaces with or without pollution;
- Contaminated sites of National interest;
- Sites with ionizing radiations risk;



The Innovation Department of Inail has specific researches dedicated to the aspects above mentioned. In particular, it deals with all aspects of workers protection and life-related aspects connected to exposures to contaminants in air, water and soil. Among the main topics are:

1. Detection, study and mapping of risk situations;
2. Development of tools to identify and manage risks;
3. Methods of personnel and areas sampling;
4. Use of remote sensing techniques and GIS;
5. Elaboration of specific Guidelines / Operating Instructions to be adopted in contaminated sites;
6. Elaboration of specific safety procedures for workers' safety;
7. Training and information activities;
8. Development of analytical methods for the determination of the contaminants;
9. Workers' personal protective equipment and improvement of their use, smart PPE;
10. Innovative bioprocesses for organic waste;
11. Phytoremediation vs green chemistry, relating safety aspects;
12. Industry 4.0.

Outcomes



Transferability

