



# ISTITUTO ITALIANO DELLA SALDATURA

## ENTE MORALE

### •Title

Seismic Risk Analysis of Industrial Structures

### •Target of the project

The goal of this research is to study and understand the complex behavior of industrial structures under seismic action and to analyze the possible effects induced by the collapse of these structures or by the collapse of their components. The research underlines also the possibility of adopting some new engineering techniques to prevent these effects.

### •Obtained results

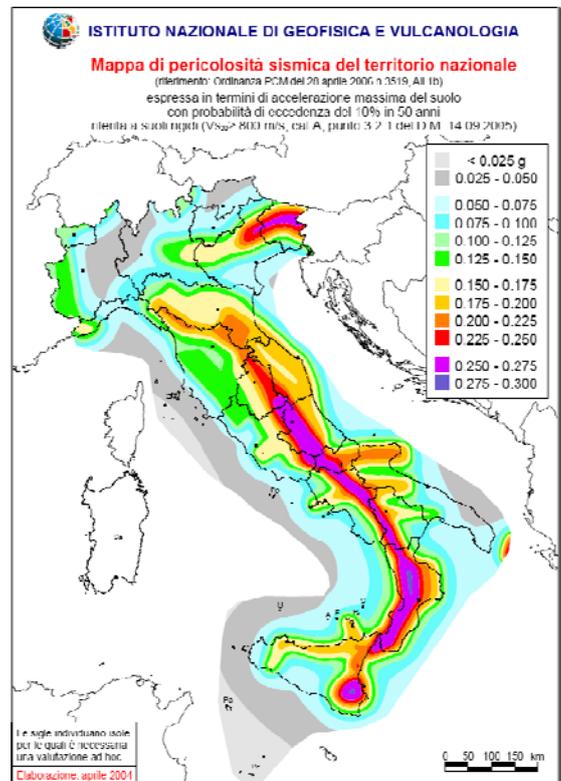
The attention to the protection of industrial facilities against natural phenomena has raised after the recent seismic catastrophic events that produced severe damages to people and environment.

Actually the interest on the study of existing industrial structures behavior under seismic loads and on the consequences of their collapse, especially in term of releasing toxic and flammable substances, keeps on increasing at all.

Taking into account this topic, this research focused on the behavior of some industrial structures, in terms also of damages produced by analyzing some industrial equipment.

The results showed that the dynamics of these constructions under seismic actions is strictly dependent on the presence of inner substances that modify the frequency response. Moreover it can be underlined that other important parameters are referred to numerous connections and to the state of maintenance of each component; for instance, in particular, the presence of large corrosion zones make the industrial structure sensible to dynamic horizontal loads and create weak points of possible instability.

Looking at the historical background connected to this topic and the possible damages due to the earthquake, the applicability of some new passive control technique are one of the possible approaches to prevent catastrophic damages. Base isolators system or damping system appear, in this case, one of the best choice in order to isolate the structure or modify its frequency. Moreover, for these existing equipments, non destructive controls can obviously be helpful to carry out the real state of maintenance and to better understand the risk of collapse.



### •Research Institute

ISTITUTO ITALIANO DELLA SALDATURA  
ENTE MORALE

Divisione Ricerca e Sviluppo

### •Authors

Ph.D. Stefano Sandon

Progetto grafico Roberto Grandicelli

