

# Seveso, Italy dioxin disaster

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## Introduction

The Seveso Disaster was an industrial accident that occurred on July 10, 1976, in the town of Seveso, Italy. The accident involved a chemical plant owned by the company ICMESA, which produced pesticides and herbicides. A reactor used to make 2,4,5-trichlorophenol(TCP), a chemical used in herbicides, overheated and released a cloud of toxic dioxin gas into the air. As a result, a significant portion of the land was contaminated with high levels of dioxin as gas spread throughout region.



Figure 1. Industry

## What causes the dioxin?

- The Seveso Disaster was caused by a chemical reactor overheating and releasing a toxic cloud into the atmosphere.
- The reactor contained a mixture of trichlorophenol and other chemicals that reacted together and produced an unexpected increase in temperature, leading to the release of the toxic cloud.
- The Dioxin cloud contaminated the area and caused significant negative effects on human health.



Figure 2. Seveso Disaster

## Health Impact on Community

- The Seveso disaster had a profound impact on health of the local community.
- Many residents were exposed to dioxin, causing immediate health effects such as skin lesions and respiratory issues.
- The long-term effects of the disaster on health continued to be felt, with higher rates of cancer and other illnesses reported in the years following the disaster.
- Pregnant women who were exposed to dioxin during the disaster were at a higher risk of giving birth to children with birth defects and development delays.
- Dioxin can accumulate in the food chain and passed to humans through the consumption of contaminated crops and animals.
- The contaminated soil and vegetation in the affected area posed ongoing health risks even years after the disaster

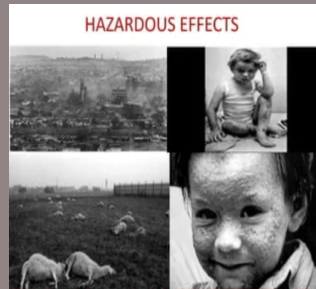


Figure 4. Hazardous Effects



Figure 5. Ecological impact

## Improvements in Chemical Plant Safety

- A few changes were made to prevent from the disaster in the future:
- **Changes to regulations:** Companies were required by the directive to create a plans for responding to emergency and to provide local communities with safety information.
- **Emergency Response Plans:** Plans for responding to chemical spills and other incidents were required, and employees were required to be trained on how to respond in an emergency.
- **Safety Management Systems(SMS):** To manage risk and improve safety performance, companies began to implement safety management systems(SMS). Identifying hazards, assessing risks and control implementation are all part of SMS which prevent from occurring.
- **Process Safety Management(PSM):** PSM systems, which focus preventing incidents during the production, handling and storage of hazardous chemicals, were also developed as a results of the Seveso Disaster. PSM involves identifying hazards, assessing risks and implementing controls prevent from occurring.

## Conclusion

The Seveso disaster was a shocking event that had a significant consequence for both the chemical industry and the people who lived in the surrounding region. The release of toxic dioxin gas had a devastating impact on the health of many people, and it brought attention to the need for more regulations and improved safety procedures in the industry.

## What areas were impacted

- Many communities around Seveso, Italy were impacted by the Disaster
- The dioxin cloud from the ICMESA chemical plant covered about 15 square kilometers(5.8 square miles).
- Seveso and Mede were the most impacted towns.
- The effects of the disaster were also felt in Cesano Maderno, Desio and Barlassina.

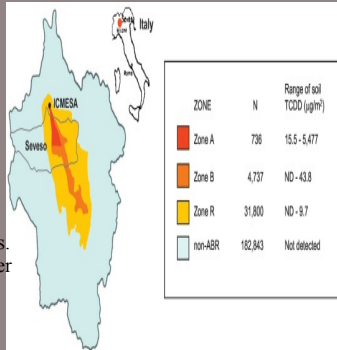


Figure 3. Seveso Disaster Map

## Tragic Event that changed Chemical Safety

The Seveso disaster was tragic event that had a profound impact on the chemical safety regulations and practices in the aftermath.

- The EU Seveso directive regulates the handling of hazardous materials in the European Union.
- The directive requires safety plans and emergency response procedures for industries.
- The disaster led to the development of advanced technologies and processes for managing hazardous materials.
- It raised public awareness of the importance of proper regulation and safety measures.
- The disaster influenced companies to approach risk assessment and management more proactively.

## Reference

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