

Comparison of Seismic-Resistant Energy Storage Containers for Chemical Plants

Can a liquid storage tank withstand a seismic load?

Therefore, liquid storage tanks should be properly designed to withstand different types of loadings. One of them is the investigation of structures subjected to a seismic excitation. A specific interaction between the tank and the liquid occurs during a seismic loading.

What is seismic analysis of a spherical liquid storage tank?

The article deals with the seismic analysis of a spherical liquid storage tank intended to compute the dynamic responses of the tank-liquid system to a seismic event using analytical methods (such as general principles for structural design, analytical studies) and numerical computations based on the finite element method in software ANSYS. 1.

How does tank seismic behavior affect a liquid storage tank?

It is worth noting that recent developments in the field have tackled various aspects of tank seismic behavior, including the soil-structure interaction effects, the influence of tank geometry and flexibility, the behavior of floating roof tanks, and the performance of liquid storage tanks with different filling levels.

Are spherical liquid storage tanks earthquake prone?

The spherical storage tanks are widely used for various types of liquids, including hazardous contents. Therefore, they must be adequately designed for seismic actions, especially in earthquake-prone regions. The aim of this article was to perform a seismic analysis on a model of the spherical liquid storage tank.

Abstract Seismic damage of chemical plant facilities (pressure vessels, piping, storage tanks, etc..) can cause human and economic losses as well as heavy environmental damages. ...

In response, the field of seismic-resistant structures is evolving, with innovative materials offering enhanced safety and durability. These ...

Abstract An adequate seismic protection of steel storage tanks of industrial, chemical and petrochemical plants is essential since potential consequences of failures, ...

Historical seismic events have repeatedly highlighted the susceptibility of above-ground liquid storage steel tanks, underscoring the critical need for their proper design to ...

Introduction To compare the design seismic loads specified by seismic design codes of three countries, calculation models of a tall tower (pressure vessel) and a steel ...

Advanced Earthquake Modelling with FEA study aims to provide refiners and chemicals operators to a reliable seismic vulnerability ...

Paolacci et al. [24] compared the efficiency of base isolation, energy dissipation devices, and traditional tuned-mass-damper device in seismic response reduction for chemical ...

It also gives guidance on a consistent application of methods and procedures for analysis, testing and qualification of structures and equipment so that they meet the safety ...

Historical seismic events have repeatedly highlighted the susceptibility of above-ground liquid storage steel tanks, underscoring the ...

ABSTRACT Elevated spherical and cylindrical tanks are commonly used to store liquids either under pressure or at atmospheric pressure in various industrial installations, e.g., ...

Our storage systems feature seismic-resistant, moment-resisting reinforcements, offering the strength and flexibility to evenly distribute seismic forces and absorb energy ...

That is, a theory to seismic try and design that have a set level of seismic performance seismic importance each and divided by seismic importance individual chemical ...

The aim of this article is to compare available analytical methods for seismic design (especially for evaluation of natural frequencies and basic seismic characteristics) of ...

Seismic resilience of the damped buildings is improved by introducing damping devices into the structure to dissipate seismic energy and thus reduce the energy dissipated ...

Liquid-containing tanks are used in water distribution systems and in industrial plants for the storage and/or processing of a variety of liquids and liquid-like materials, ...

Abstract Seismic analysis of storage containers is quite different from the analysis of general structures such as bridges or buildings. In the general structures, the interaction ...

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