

What happens if a storage tank explodes?

As the distance from the burst center increased, the damage probability of each target storage tank decreased with the shock wave overpressure, and the domino effect probability value for the T2, T4, and T5 storage tanks reached 100%. The first explosion would cause catastrophic damage to the target equipment in the near field area.

How do explosion sources affect the failure of a storage tank?

The failure of the target storage tank in the middle and far field is greatly affected by two or more explosion sources. The maximum superimposed shock wave propagates along the line direction of the source of the explosion. With the increase of explosion sources, the overpressure of storage tank increases and explosion interval time decreases.

Why did a gas tank explode?

There was a minor explosion, then a strong hiss, and then a major explosion, suggesting that an initial crack had formed by thermal stress at a very hot location on the LNG tank wall which was arrested in a cooler and stronger zone, followed by a discharge (probably two-phase flow which created the hiss).

What is boiling liquid expanding vapour explosion?

Definition of BLEVE The Centre for Chemical Process Safety has defined boiling liquid expanding vapour explosion (BLEVE) as 'a sudden release of a large mass of pressurized superheated liquid to the atmosphere'.

What is the law of initial explosion impact in LPG tank area?

The law of initial explosion impact in the LPG tank area was analyzed. The ANSYS numerical model of the LPG tank explosion was established based on the calculation of the tank shock wave overpressure and the target tank failure.

What happens if a container explodes?

The increase in volume caused by the instantaneously vaporizing mass of liquid is enormous, which, added to the expansion of the pre-existing compressed vapour, generates a strong pressure wave. The resulting massive explosion can often shatter the container into several pieces, and propel the pieces to considerable distances.

to manage explosion hazards but is also covered in detail elsewhere [9]. Several points in the process represent places where fire and explosion risks exist, particularly in the storage areas ...

This article reviews the mechanisms for catastrophic failure of low pressure tanks, both implosion and explosion, and serves as a reminder for experienced process safety practitioners and as a tutorial for new process ...

OverviewNameMechanismEffect of impinging firesHazardsSafety measuresNotable accidentsSee alsoA boiling liquid expanding vapor explosion is an explosion caused by the rupture of a vessel containing a pressurized liquid that is or has reached a temperature sufficiently higher than its boiling point at atmospheric pressure. Because the boiling point of a liquid rises with pressure, the contents of the pressurized vessel can remain a liquid as long as the vessel is intact. If the vessel's integri...

highlighting best practices for preventing catastrophic events like storage tank explosions and ensuring optimal process safety. Understanding the Steam Reforming Process and its inherent ...

on internal tank surfaces. When water is present (e.g., via steam leaks), corrosion of carbon steel occurs yielding iron sulphide on the tank surface 14 (see ref 14 for chem - istry discussion). ...

At approximately 7:20 a.m. on April 3, 2017, the bottom of a steam condensate (hot water) storage tank catastrophically failed at the Loy-Lange Box Company (LLBC), located at 222 Russell Boulevard in St. Louis, Missouri. The 1952 ...

On April 3, 2017, the bottom head of a pressure vessel called a Semi-Closed Receiver (SCR), which was used in Loy-Lange's steam system, catastrophically failed causing a boiling liquid expanding vapor explosion that ...

steam cloud in the fire source after the storage tank leaks. When the explosion breaks through the top of the space, the contents of the storage tank are burnt by pool fire, or BLEVE directly ...

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