

## Kongres Container

# Niue energy storage explosion-proof container on-site installation



## Overview

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What are the safety measures for large-scale lithium battery energy storage systems?

Explore the critical safety measures for large-scale lithium battery energy storage systems (BESS), including fire suppression, toxic fume mitigation, and emergency response strategies, ensuring safe and reliable renewable energy storage.

What causes fire & explosion inside a Bess enclosure?

The leading cause of fire and explosion inside a BESS enclosures is the release and ignition of combustible vapors from an overheating battery.

Why are explosion hazards a concern for ESS batteries?

For grid-scale and residential applications of ESS, explosion hazards are a significant concern due to the propensity of lithium-ion batteries to undergo thermal runaway, which causes a release of flammable gases composed of hydrogen, hydrocarbons (e.g. methane, ethylene, etc.), carbon monoxide, and carbon dioxide.

How much vent gas does an ISO container deflagration system produce?

of 28.7 m<sup>2</sup>, or again, 99% of the available 28.8 m<sup>2</sup> roof area. To bring these figures into perspective, for the 130 Ah capacity cells which produce the average 154 L of vent gas each, 6.9 cells will produce the volume of vent gas that maxes out the capabilities of the 8-ft ISO container deflagration protection system, with th.

Why is deflagration venting important for ESS enclosures?

For ESS enclosures, as demonstrated by the above example, battery gas mixtures that have greater than 30% hydrogen are difficult to protect with deflagration venting as the sole explosion protection measure due to the high laminar burning velocity.

What enclosures were used in HYSEA testing?

The enclosures used in the HYSEA testing were standard ISO 20-foot (6.1-meter) containers with a modified roof to enable testing with 4-, 6-, and 8-square-meter (41.1-, 64.6-, and 86.1-square-foot) areas of deflagration vent panels.

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