

TANK VENTING

IN FOOD INDUSTRY



Safe and appropriate conditions within storage tanks

- One of the most important possible sources of contamination in the environment of food production is air. The quality and shelf life of the product will be at hazard if the air utilized in the process is contaminated.

Tank venting in the food industry refers to the process of releasing excess pressure or vacuum from storage tanks used for various food products.

- This is important to maintain the integrity and safety of the tanks, prevent potential damage, and ensure that the stored food products remain in good condition.



Components



1. Pressure Relief Valve

- As food products undergo temperature changes, chemical reactions, or other processes, they can produce gases that lead to an increase in pressure inside the tank.
- Excessive pressure can cause the tank to rupture or leak, potentially damaging the contents and creating safety hazards.
- Pressure relief valves release this excess pressure by allowing the built-up gases to escape. This maintains a safe pressure level within the tank.



2. Vacuum Relief Valve

- Conversely, there are situations where the pressure inside the tank drops below atmospheric pressure, leading to a vacuum.
- This can happen when food products cool down or shrink, or when the tank is being emptied. A vacuum can potentially collapse the tank, negatively impacting its structural integrity.
- Vacuum relief valves open to allow air into the tank, equalizing the pressure and preventing collapse.

'These valves automatically open when the pressure inside the tank exceeds a certain set limit (for pressure relief) or falls below a certain limit (for vacuum relief).'



Steps



1. Valve Installation:

- Installation of pressure relief valves and vacuum relief valves on each storage tank valves made from food-grade materials to prevent contamination.

2. Pressure and Vacuum Settings:

- Pressure relief valves are set to open when the pressure inside the tank exceeds safe levels or when vacuum conditions threaten tank integrity.

3. Temperature Control:

- Stable temperatures to minimize pressure fluctuations are maintained.

4. Product Handling:

- Cautious product transfers to avoid sudden pressure changes due to temperature or volume shifts.

5. Emergencies & Regulation Adherence:

- Emergency protocols for relief valve failures or sudden pressure spikes are established.
- It's ensured tank venting meets food safety regulations.
- records of inspections, maintenance, and valve settings are kept.

6. Training & Documentation:

- Personnel are trained to recognize pressure-related issues and respond appropriately.
- Detailed records of all venting activities and incidents are maintained.



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