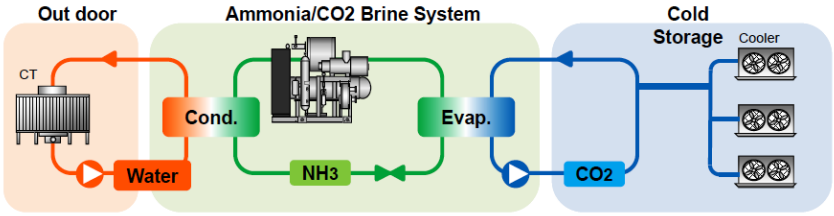
Summary of study: Refrigeration system in a food processing unit: Unit - 4

Industry : Food processing

Unit profile : A seafood processing unit located in Nellore (Andhra Pradesh)

Technology :

- NH_3-CO_2 brine refrigeration system
- Thermo-shutter (air curtain)



Application : Energy savings in the plant's cold storage facilites by (1) installation of NH_3-CO_2 brine refrigeration system in place of the existing R404-based systems; and (2) installation of thermo-shutter

Year of investigation: 2018

Key features:

- NH_3-CO_2 brine refrigeration system that brings energy saving, high safety and easy maintenance. Features include:
  - New screw compressor
  - Semi-hermetic IPM motor
  - Flooded evaporator
  - Double economizer
  - Automatic operation
- Thermo-shutter (air curtain) for improving insulation efficiency, reducing leakages of cold air during opening/shutting of doors, and reducing frosting

Energy and cost saving:

Details	Existing	Recommended	Energy saving potential
Cold storage system	R-404 based systems	NH_3-CO_2 brine refrigeration system	Very high (25–30%)
	–	Thermo-shutter	Very high