

# NH3-Based Highly Efficient Brine Cooling System

Highly Efficient and Energy-Saving Cooling System at a Beer Factory

*A pioneering system based on the combination of NH3 and highly efficient brine cooling system.*

Asahi Beer is the first company in Japan that has introduced a completely fluorocarbon-free factory (Nagoya Factory); it is known for its efforts for climate change prevention and environmental conservation.

In extending its experience of the fluorocarbon-free factory in Nagoya to other key factories, they adopted a highly efficient NH3-refrigerant cooling system combined with a brine (antifreeze coolant) cooling system.

For the purpose of cooling the heated brine, two NH3-based cooling units are installed in a cascade system, thereby achieving high efficiency.

When the temperature of the brine is not high, only one NH3-based cooling unit operates. In this flexible cooling system, the system operation efficiency has been enhanced.



Place: Asahi Beer Ibaraki Factory

Location: 1-1-1 Midori, Moriya City, Ibaraki Pref. Japan

Area: 387,855 m<sup>2</sup>

Technology: Large temperature difference brine cooling technology

Equipment: Outdoor brine cooling facilities, system control facility



## «Energy-saving»

- Energy consumption reduction (converted in electricity)

1,146,995 kWh/year

## «CO2 emission reduction»

- CO2 emission reduction (energy-source CO2 reduction)

786 tCO<sub>2</sub>/year (electricity 0.555 kgCO<sub>2</sub>/kWh)



This project was MOEJ's model project in FY 2005 for the promotion of energy-efficient equipment using natural refrigerants and other alternative refrigerants.