

Abstract

In this invention, a new combination using a conventional refrigeration cycle with an adsorption chiller is able to increase the energy efficiency by up to 60%. The refrigerant used is R134a or equivalent with a high condensing temperature. Due to the higher condensing temperature, the cooling medium (water) in the condenser is able to operate at 70 deg C which is possible for use in drying the silica gel in the adsorption chiller. This allows for the adsorption chiller to provide additional cooling and hence increasing the overall COF (coefficient of performance) from a conventional chiller of 4-6 to 6-10. With this design, the electrical energy consumption for cooling can be reduced as a smaller capacity of conventional chiller can be used. This invention will contribute greatly to the green environment and lower the need for electrical power.