In the process of abandoning the refrigerants which cause the greenhouse effect, R-717 has regained importance. However, energy efficiency of these refrigerant systems should be enhanced. To generalize more competitive and environmentalist systems, thermodynamic analysis of a two stage ammonia refrigeration system was performed. By using ammonia (R-717) refrigerant, energy and exergy analysis of single stage and two stage refrigeration systems were compared. In analyses EES program was used. To enhance efficiency in two stage compressions, two stage expansion and bubble through was used. Analyses were carried out with different step pressures and varied system temperatures. When the two systems were compared with each other, it was confirmed that refrigeration efficiency coefficient of two stage system is higher than that of the single stage system.