LIST OF FIGURES

LIST OF TABLES

LIST OF SYMBOLS / ABBREVATIONS

COP	Coefficient of Performance
VAR	Vapour Absorption Refrigeration
VCR	Vapour Compression Refrigeration
PER	Primary Energy Ratio
EV	Expansion Valve
SHE	Solution Heat Exchanger
A	Cross Sectional Area , m^2
$\dot{m}$	Mass Flow Rate, kg/s
P	Absolute Pressure, N/m^2
v	Specific Volume, m^3/kg
u	Specific Internal Energy, kJ/kg
V	Velocity, m/s
h	Specific Enthalpy, kJ/kg-K
Z	Elevation above an imaginary datum, m
t	Time in seconds
$\dot{S}_{gen}$	Entropy generation kW K^{-1}
T_0	Atmospheric Temperature
A	Available Energy in kJ/kg
s	Specific Entropy (kJ/kg-K)
x	Ammonia Mass Fraction
$LiNO_3$	Lithium Nitrate

NaSCN Sodium Thiocyanate

R Universal Gas Constant, kJ $kmol^{-1}$ K^{-1}

T Temperature in ^0C or K

$\dot{W}$ Power in kW

GREEK SYMBOLS

η_I First Law Efficiency

η_{II} Second Law Efficiency

SUBSCRIPTS

v Vapour phase

l Liquid phase

ws Weak solution

ss Strong solution

s Solid phase

p Pump

e Exit

ABSTRACT

In this work first and second law analysis of NH_3-H_2O Vapour absorption refrigeration system running on waste heat extracted from automobile's exhaust has been carried out. Thermodynamic property at each point of the proposed system has been calculated using related equations at that state with the help of EES software. Heat transfer rate of various components and various performance parameters are calculated using first law analysis by applying mass and energy balance. Here variations in generator temperature, condenser temperature, absorber temperature and evaporator temperature are examined and its effect on coefficient of performance and circulation ratio is observed. From the results obtained it is observed that with increase in generator and evaporator temperature coefficient of performance of the system increases but with increase in condenser and absorber temperature COP starts decreasing. Effect of circulation ratio is also analysed and it is observed that circulation ratio decreases with increase in generator and evaporator temperature while circulation ratio increases with increase in absorber and condenser temperature. Second law analysis is used to calculate entropy generation in each component and it was found that entropy generation is very high in generator.