



Int. J. New. Chem., 2021, Vol. 8, Issue 3, pp 329-344.

International Journal of New Chemistry

Published online 2021 in <http://www.ijnc.ir/>.

Open Access

Print ISSN: 2645-7236

Online ISSN: 2383-188x



Original Research Article

Exergy Analysis for Evaluation of Energy Consumptions in Hydrocarbon Plants

Alireza Bozorgian*

Department of Chemical Engineering, Mahshahr Branch, Islamic Azad University, Mahshahr, Iran

Received: 2020-03-29

Accepted: 2020-06-21

Published: 2021-07-01

ABSTRACT

In order to clarify the situation in energy consuming devices in hydrocarbon plants (Olefin, butadiene and butene1), by using thermodynamic laws (1st and 2nd) and apply energy and exergy balances to all equipment's, loss rate and the amount of renewable energy for each group of equipment such as pumps, towers, heat exchangers and ... were calculated and with the process changes, it was tried to utilize current energy as much as possible. Since the irreversibility's cannot be omitted completely in processes, the rate of energy loss was reduced as much as possible by change in operation condition. Finally, the factors that influence the creation of irreversible processes have been discussed.

Keywords: Three exergy, energy, renewable, irreversibility's

Introduction

To express the actual developments in various processes of thermodynamic concepts used are different. In such cases terms like energy waste, increase the amount of entropy and irreversible with similar meanings are used and all their different views of a general rule, the second law of