



ChemTech

International Journal of ChemTech Research

CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.11 No.10, pp 221-226, 2018

Numerical study of the global heat transfer coefficient in a shell-and-tube heat exchanger with a CFD software

Haner Andrés Escorcía¹, Gonzalo David Zapata²,
Guillermo Eliecer Valencia^{3*}

³Efficient Energy Management Research Group, Universidad Del Atlántico
km 7 Antigua vía Puerto, Colombia

^{1,2} Research Assistant in Mechanical Engineering/ Faculty of Engineering/Universidad
Del Atlántico, Colombia.

³Assistant Professor in Mechanical Engineering Program/ Faculty of Engineering/
Universidad Del Atlántico, Colombia.

Abstract : In this study, the authors analyze the performance of a shell-and-tube heat exchanger with a CFD model done in ANSYS, and compare the results obtained from the simulation with the ones gotten from the laboratory bank. The study, done in parallel and crossflow in both laboratory and simulations, gave results well into the typified error margin for heat exchangers (close to 20%). The study's heat transfer coefficient was approx. 12,8%-25,5% off compared to calculations done with experimental data. For the heat transfer rate, there was a divergence present because of the model used on the simulation. This divergence was more pronounced at high flows, increasing at higher temperatures and diminishing at lower temperatures.

Keywords : Shell and Tube Heat Exchanger, CFD Modelling, Software simulation.

Guillermo Eliecer Valencia *et al* /International Journal Of ChemTech Research, 2018,11(10): 221-226.

DOI= <http://dx.doi.org/10.20902/IJCTR.2018.111027>
