

OBTAINED MORE GASOIL IN HCR UNIT BY USING ARTIFICIAL NEURAL NETWORK

Ali Shaeri

NIOEC, Iran

A feed forward and multilayer perceptron artificial neural network (ANN) with back propagation algorithm were applied for prediction of maximum rate of gasoil production in a live hydrocracker unit (HCR). To this aim, two years of operating conditions were gathered from distributed control system (DCS). The simulation of unit by petro-SIM software was done as the first step to find important operational conditions. A three-layer ANN was adopted to predict maximum gasoil production in terms of aforementioned inputs. To find the best fitted ANN structure, 3342 different structures were examined. It was found that the best structure possessed 4, 7 and 1 neurons for the first, second and third layer, respectively. Furthermore, logsig, logsig and purelin were found the best transfer function for first, second and third layer. The best model was extracted and the obtained data were applied to the live HCR unit with capacity of 40000 bbl/day. The yielded optimum data related to ANN such as reactor temperature, reactor pressure and H₂/HC mole ration were selected. Applying the ANN data resulted in an increase in the amount of gasoil and save near to \$.

shaeriprocess@gmail.com
a.shaeri@iautnb.ac.ir