An Analytical Method for Minimizing Energy in Multistage Compression for CO_2–H_2O Binary System

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Multistage compression process is necessary for conditioning CO_2 in CCS chain. The energy required for compression is accounted for about 30 % of the total chain and it is high priority on the second after energy for capture process. Despite this importance, it is unknown for a method of optimizing a multistage compression ratio without conducting iterative simulation under phase separation condition. In this study, we suggest a new analytical method for minimizing energy in multistage compression for CO_2–H_2O binary system based on the sequential optimization method. This research was supported by 'Development of sensor-based virtual plant engineering technology for the support of plant O&M', funded by the Ministry of Trade, Industry & Energy(10048341).