ABSTRACT

THE USE OF *Styrax benzoin dryand* EXTRACTS AS INHIBITOR OF CALCIUM SULPHATE ($CaSO_4$) SCALE FORMATION

By

Suparwaty

The crust has become a serious problem in the industrial sector, especially the oil and gas industry. Therefore, in this study has been the addition of inhibitors benzoin (kemenyan) to reduce the negative impacts caused by the crust. This research has been conducted addition of inhibitors to the crust of calcium sulfate ($CaSO_4$) using the method of adding seed crystals (*seeded experiment*) on $CaSO_4$ concentrations of 0.050 M as well as variations of inhibitors by 250 ppm. Based on analysis using *Scanning Electron Microscopy* (SEM) showed that $CaSO_4$ crystal size with the addition of inhibitors is smalle than without the addition of inhibitors. $CaSO_4$ more fragile than without the addition of inhibitors. The analysis using *Particle Size Analyzer* (PSA) showed that the particle size distribution crust ($CaSO_4$) lower with the addition of inhibitors and as well as analysis of the crystal structure by *X-Ray $CaSO_4$ Difraction* (XRD) showed differences in intensity with the addition of inhibitors. The usage of *Styrax benzoin Dryand* (kemenyan) with concentration of 250 ppm could inhibit $CaSO_4$ 0.050 M crystal growth with *seeded experiment* method of 45.60 %.

Keywords: kemenyan, *seeded experiment*, $CaSO_4$ crust