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FLAME SPRAY PYROLYSIS

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SULFIDE REMOVAL FORE NATURAL GAS PROCESSING. THESIS ADVISOR :
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In this study, removal of H₂S from gas steam and natural gas using the CuO, ZnO and Cu-ZnO mixed oxide adsorbent has been successfully prepared by Flame Spray Pyrolysis (FSP) and Sol-gel method. The best adsorbent and high efficiently develop by supported SiO₂ 5-25% by mol. The obtained powder was characterized by using N₂ desorption, XRD and TEM. Removal of H₂S from gas steam and natural gas was used as the probe reaction for testing the adsorbent ability at ambient temperatures and pressure. All adsorbent will be compare efficiently remove H₂S with commercial adsorbent.

The result for removal of H₂S from gas steam reveal to the adsorbent, prepared by Flame Spray Pyrolysis (FSP) of CuO is excellent, the capacity is 10.56 g S / 100 g adsorbent and observed for CuO with 10 mol% SiO₂ loading given the best adsorbent and the highest sulfur capacity about 33.18 g S/ 100 g adsorbent and capacity of commercial adsorbent (COM-1, COM-2, COM-3) with 3.91, 6.08, 11.33 g S/ 100 g adsorbent, respectively.

Using Flame Spray Pyrolysis (FSP) of CuO with 10 mol% SiO₂ loading prepared powders to test with H₂S from natural gas, experimental result showed about 2.4 order of commercial adsorbent (COM-3). And prepared sphere form, the result of performance tested with 1.22 order of commercial adsorbent to sphere form (COM-3).