

has been with the MgO, ammonia and the cold water adsorption systems. The citrate process has operated on a pilot-plant scale.

Each of the FGD scrubbing systems has seen application at only one smelter; the MgO and lime/limestone at the Onahama smelter in Japan, ammonia at Cominco, Canada, dual alkali at Afton, Canada and cold water at Boliden, Sweden. Flakt and Boliden are jointly developing a citrate system for smelter weak SO₂ which is in the pilot stage. Currently the state-of-the-art is such that FGD by wet scrubbing can be accomplished, but there are significant financial and technical risks in the selection, design and application of such systems owing to lack of extensive pilot experience on various types of concentrates. Because of the nature of the scrubbing processes, energy consumption will generally be substantial and disposal of waste products will often create environmental problems. Work underway will provide background information for these aspects.

The costs (capital and operating) for these systems are being developed and will be available for inclusion at a later date.