

CONTENTS

Preface	ix
1. Thermodynamic values for desulfurization processes	1
2. Reliable data for flue gas desulfurization processes	41
3. Use of pitzer's equations to estimate strong-electrolyte activity coefficients in aqueous flue gas desulfurization processes	57
4. Limestone dissolution : effects of pH, CO ₂ , and buffers modeled by mass transfer	75
5. Studies of the major factors affecting magnesium limestone dissolution	99
6. Thermal decomposition of sulfite, bisulfite, and disulfite solutions	113
7. Kinetics of reactions in a wet flue gas simultaneous desulfurization and denitrification system	127
8. Kinetics of the oxidation of bisulfite ion by oxygen	153
9. Sulfite oxidation in organic acid solutions	173
10. A model of oxidation in calcium sulfite slurries	191
11. Laboratory investigation of adipic acid degradation in flue gas desulfurization scrubbers	221
12. Buffer additives for lime/limestone slurry scrubbing	243
13. Adipic acid-enhanced lime/limestone test results at the EPA alkali scrubbing test facility	267
14. Energy requirements for SO ₂ absorption in limestone scrubbers	307
15. The limestone dual alkali process for flue gas desulfurization	325
16. Control of SO ₂ emissions by dry sorbent injection	349
17. Characterization of volatile organic components of nahcolite and trona	369
18. Conceptual design and economics of an improved magnesium oxide flue gas desulfurization process	381
Index	415