

CONTENTS

Pre	face	vii
1.	Introduction	1
	Absorption; Adsorption; Chemical Conversion; References	
2.	Ethanolamines for Hydrogen Sulfide and Carbon Dioxide Removal	18
	Basic Chemistry of the Process; Selection of Process Solution; Flow Systems; Design of Absorption Column; Design of Stripping Column; References	
3.	Mechanical Design and Operation of Ethanolamine Plants	63
	Corrosion; Foaming; Chemical Losses; Nonacidic-gas Entrainment in Solution; References	
4.	Hydrogen Sulfide and Carbon Dioxide Removal with Ammonia Solutions.	87
	Basic Data. Selective Hydrogen Sulfide Removal: Process Description; Design and Operation. Carbon Dioxide Removal: Process Description. References	
5.	Alkaline Salt Solutions for Hydrogen Sulfide and Carbon Dioxide Absorption	115
	CO ₂ Absorption in Alkaline-carbonate Solutions; Seaboard Process; Vacuum Carbonate Process; Tripotassium Phosphate Process; Sodium Phenolate Process; Alkacid Process; Hot Potassium Carbonate Process; Giammarco-Vetrocoke Process; References	
6.	Water as an Absorbent for Gas Impurities	153
	Carbon Dioxide Absorption in Water; Hydrogen Sulfide Removal by Absorption in Water; Absorption of Fluorides; Hydrogen Chloride Absorption; Chlorine Absorption in Water; References	
7.	Sulfur Dioxide Removal by Absorption in Liquids	197
	Sulfur Dioxide Recovery Processes Employing Aromatic Amines: Basic Data; Sulphidine Process; Asarco Process. Sulfur Dioxide Recovery Processes Employing Ammonia: Basic Data; Heat-regenerative Process; Cominco Sulfur Dioxide Recovery Process; Fulham-Simon-Carves Ammonia Process. Sulfur Dioxide Recovery Processes Employing Water or Dilute Aqueous Solutions: Battersea Process; Cyclic Lime Process; Zinc Oxide Process; Basic Aluminum Sulfate Process. References	
8.	Dry Oxidation Processes for Removal of Sulfur Compounds.	240
	Oxidation to Sulfur: Iron Oxide Process; Activated-carbon Process; Miscellaneous Processes. Oxidation to Oxides of Sulfur: Katasulf Process; North	

	Thames Gas Board Process for Organic-sulfur Removal; Soda-Iron Process for Organic Sulfur Removal; Appleby-Frodingham Process. References	
9.	Liquid Processes for Removal of Hydrogen Sulfide by Oxidation	281
	Polythionate Solutions. Iron Oxide Suspensions: Burkheiser Process; Ferrox Process; Gluud Process; Manchester Process. Thioarsenate Solutions: Thylox Process; Giammarco-Vetrocoke Process. Iron Cyanide Solutions and Suspensions: Fischer Process; Staatsmijnen-Otto and Autopurification Processes. Organic Catalysts: Perox Process. Permanganate and Dichromate Solutions. References	
10.	Removal of Basic Nitrogen Compounds from Gas Streams	312
	Removal of Ammonia: Description of Processes; Process Design. Removal of Pyridine Bases: Description of Processes. References	
11.	Absorption of Water Vapor by Dehydrating Solutions	343
	Glycol Dehydration Processes; Dehydration with Saline Brines. References	
12.	Gas Dehydration and Purification by Adsorption	381
	Water-vapor Adsorption: Desiccant Materials; Dehydrator Design. Organic-vapor Adsorption on Active Carbon: Solvent Recovery with Activated Carbon; Odor and Trace-impurity Removal by Adsorption. Miscellaneous Adsorptive Gas-purification Processes: Adsorption of Benzol from Coal Gas; Air Purification with Silica Gel for Low-temperature Separation Plants; Use of Molecular Sieves for Gas Purification. References	
13.	Catalytic Conversion of Gas Impurities	438
	Conversion of Organic Sulfur Compounds to Hydrogen Sulfide: Basic Chemistry; Carpenter-Evans Process; Peoples Gas Company Process; Holmes-Maxted Process; British Gas Research Board Processes; Organic Sulfur Removal from Synthesis Gases; Organic Sulfur Removal from Hydrocarbon Gas Streams. Catalytic Removal of Oxides of Carbon from Synthesis Gases: Conversion of Carbon Monoxide to Carbon Dioxide (Shift Conversion); Conversion of Oxides of Carbon to Methane (Methanation). Cataytic Removal of Acetylenic Compounds from Olefins by Selective Hydrogenation. Purification of Gas Streams by Catalytic Oxidation and Reduction: Basic Data; Description of Processes. References	
14.	Miscellaneous Gas-purification Techniques	485
	Absorption with Complex Formation: CO Removal by Absorption in Copper-ammonium Salt Solutions. Low-temperature Gas-purification Processes: Removal of Gas Impurities by Condensation and Absorption in Liquid Nitrogen; Rectisol Process. Removal of Hydrocarbon Vapors by Oil Absorption: Light-oil Removal from Coal Gas; Naphthalene Removal from Coal Gas; CO ₂ and H ₂ S Removal by Physical Absorption in Organic Solvents. References	
Au	thor Index	535
Sui	bject Index	54 1

