Demonstrations in Volume 1

1. THERMOCHEMISTRY

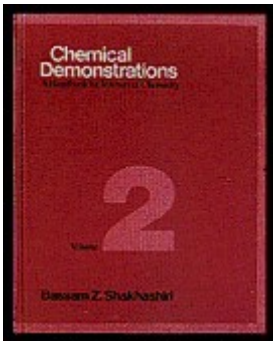
George L. Gilbert, Lloyd G. Williams, Bassam Z. Shakhashiri, Glen E. Dirreen, and Frederick H. Juergens

- 3.8 Polybutadiene (Jumping Rubber)
- 3.9 Poly(methyl acrylate)
- 3.10 Poly(methyl methacrylate)
- 3.11 Polystyrene
- 3.12 Sulfur Polymer or Plastic Sulfur
- 3.13 Thiokol Rubber
- 3.14 Cuprammonium Rayon

4. COLOR AND EQUILIBRIA OF METAL ION PRECIPITATES AND COMPLEXES

Earle S. Scott, Bassam Z. Shakhashiri, Glen E. Dirreen, and Frederick H. Juergens

- 4.1 Iodo Complexes of Mercury(II): "The Orange Tornado"
- 4.2 Chloro and Thiocyanato Complexes of Cobalt(II)
- 4.3 Precipitates and Complexes of Lead(II)
- 4.4 Iodo and Silver(I) Complexes of Silver Iodide
- 4.5 Precipitates and Complexes of Nickel(II)
- 4.6 Precipitates and Complexes of Silver(I)
- 4.7 Bromo Complexes of Copper(II)
- 4.8 Precipitates and Complexes of Copper(II)
- 4.9 Reactions Between Antimony(III) and Chloride Ions
- 4.10 Reactions Between Carbon Dioxide and Limewater
- 4.11 Precipitates and Complexes of Iron(III)



Demonstrations in Volume 2

5. PHYSICAL BEHAVIOR OF GASES

George M. Bodner, Rodney Schreiner, Thomas J. Greenbowe, Glen E. Dirreen, and Bassam Z. Shakhashiri

6. CHEMICAL BEHAVIOR OF GASES

Rodney Schreiner, Bassam Z. Shakhashiri, Glen E. Dirreen, and Lenard J. Magginnis

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- 6.2 Reactions of Carbon Dioxide in Aqueous Solution
- 6.3 Reaction Between Carbon Dioxide and Limewater
- 6.4 Carbon Dioxide Equilibria and Reaction Rates: Carbonic Anhydrase-catalyzed Hydration
- 6.5 Combustion of Magnesium in Carbon Dioxide
- 6.6 Preparation and Properties of Hydrogen
- 6.7 Explosiveness of Hydrogen
- 6.8 Preparation and Properties of Oxygen
- 6.9 Reaction of Oxygen with Dextrose: "The Blue-Bottle Experiment"
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- 6.18 Preparation and Properties of Sulfur Dioxide
- 6.19 Combining Volume of Oxygen with Sulfur
- 6.20 Preparation and Properties of Methane
- 6.21 Combustion of Methane
- 6.22 Preparation and Properties of Hydrogen Chloride
- 6.23 Preparation and Properties of Ammonia
- 6.24 Gas Solubility: The Fountain Effect
- 6.25 Reaction Between Ammonia and Hydrogen Chloride
- 6.26 Catalytic Oxidation of Ammonia
- 6.27 Vapor-Phase Oxidations
- 6.28 Preparation and Properties of Chlorine
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7. OSCILLATING CHEMICAL REACTIONS

Earle S. Scott, Rodney Schreiner, Lee R. Sharpe, Bassam Z. Shakhashiri, and Glen E. Dirreen

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- 7.2 Cerium-catalyzed Bromate-Malonic Acid Reaction (The Classic Belousov-Zhabotinsky Reaction)
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- 7.4 Cerium-catalyzed Bromate-Ethylacetoacetate Reaction (A Modified Belousov-Zhabotinsky Reaction)
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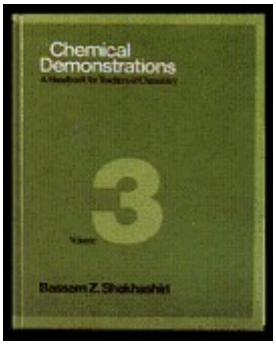
- 7.11 Oxidation of Tannic Acid by Bromate
- 7.12 Traveling Waves of Color
- 7.13 Nitrogen Gas Evolution Oscillator
- 7.14 Liesegang Rings



Demonstrations in Volume 3

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Rodney Schreiner, Bassam Z. Shakhashiri, David B. Shaw, Ronald I. Perkins, and Frederick H. Juergens

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Worth E. Vaughan, Rodney Schreiner, Bassam Z. Shakhashiri, and David B. Shaw

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- 9.45 Shake It and Move It: Thixotropy and Dilatancy
- 9.46 Staying Dry: Phase Transitions of a Poly(acrylamide) Gel
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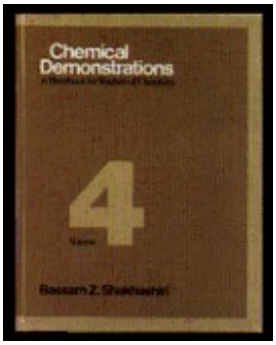
- 9.51 Rotating Rainbows: A Solution in Polarized Light
- 9.52 Floating and Sinking: Osmosis Through a Copper Hexacyanoferrate(II) Membrane



Demonstrations in Volume 4

10. CLOCK REACTIONS

Rodney Schreiner, Bassam Z. Shakhashiri, Earle S. Scott, Jerry A. Bell, and Mary Ellen Testen

11. ELECTROCHEMISTRY: BATTERIES, ELECTROLYTIC CELLS, AND PLATING

Rodney Schreiner, Bassam Z. Shakhashiri, Ronald I. Perkins, Earle S. Scott, and Larry E. Judge

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- 11.9 A Zinc-iodine Cell
- 11.10 A Copper-Magnesium Cell
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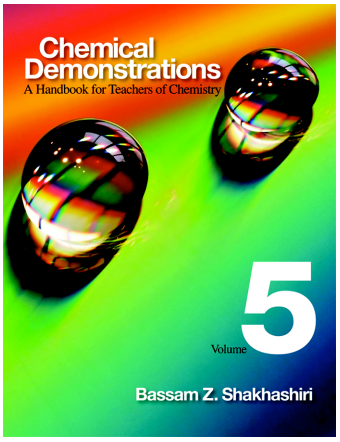
- 11.31 Anodization of Aluminum
- 11.32 The Mercury Beating Heart
- 11.33 Copper to Silver to Gold



Demonstrations in Volume 5

12. Color, Light, Vision, Perception

Rodney Schreiner, Jerry A. Bell, and Bassam Z. Shakhashiri

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- 12.3 Incandescence from the Combustion of Iron and of Zirconium
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- 12.6 Colored Flames from Metal Ions
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- 12.8 Electrogenerated Chemiluminescence
- 12.9 Chemiluminescence
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- 12.12 Refraction and Diffraction: The Separation of White Light into Colors
- 12.13 Disappearing Glass: Index of Refraction
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- 12.15 Observing the Transmission Spectra of Dyes
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- 12.17 Iridescence from a Polymer Film
- 12.18 The Photoelectric Effect
- 12.19 The Tyndall Effect: Scattered Light Is Polarized
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