

# HISTORY

## Perry's Chemical Engineers' Handbook

Don W. Green, Editor-in-Chief

*2 February 2019*

### OUTLINE

- Origin of the Handbook
  - Early significant events relating to chemical engineering
  - John Perry and the first edition
- Chronology of the eight editions
- Content of the different editions
- Role of the editor
- Plans for the future

### Origin of the Handbook

- 1888: First chemical engineering degree program started at MIT in chemistry under the direction of Lewis Norton
- June 22, 1908: Nineteen people meet in the Engineer's Club in Philadelphia on a hot, humid day to form AIChE. This was opposed by the ACS and ASME
- 1915: Arthur D. Little of MIT develops the concept of a unit operation
- 1920: MIT forms separate chemical engineering department
- 1922-1925: AIChE develops accreditation criteria
- 1926: First department accredited: University of Michigan
- 1922: First Handbook: Handbook of Chemical Engineering; McGraw-Hill, Liddell
- 1923-1926: Early Textbooks in Chemical Engineering
  - Elements of Chemical Engineering; Walker, Lewis, McAdams
  - Principles of Chemical Engineering; Badger, McCabe, 1926
- Late 1920's: McGraw-Hill book publisher forms a high-level chemical engineering committee to recommend books for chemical engineers. They recommend a Handbook and identify John H. Perry of DuPont as the editor.
- 1930-1934: Chemical Engineers' Handbook, developed: Published 1934 by McGraw-Hill

**Founding Editor: JOHN H. PERRY**

1895: Born in Hampden, ME

1917: Undergraduate degree at Univ. of Maine

1918-1919: Served in army during WW1

1920: MS in chemical engineering from Northwestern

1922: PhD from MIT

1922: Worked for several companies, but eventually joined DuPont Experimental Station in Wilmington, DE. He was a physical chemist studying sulfuric acid production. Remained with DuPont or subsidiaries for the remainder of his career.

1930: Commissioned by McGraw-Hill to develop the "Chemical Engineers' Handbook"

1934: First Edition published

1941-1950: Editor of Second and Third editions

1953: Died at the relatively early age of 58 years



*Figure 1: Handbook Editors over the years*

## NINE EDITIONS TO DATE

### First Edition

1930: John Perry begins work on this edition

1934: Published. 2,569 pages, cost: \$9

- About ¼ of the content was contributed by DuPont people. This included a lot of physical data.
- Interesting sections:
  - Arithmetic
  - Slide rule use
  - Accounting
  - Safety and Fire Protection

### Second Edition

1941: Published, 2,957 pages, cost: \$10

### Third Edition

1950: Published, 1,884 pages, but larger pages, cost: \$15

### Fourth Edition

1953: John Perry dies. His son, Robert H. Perry, takes over as editor. Sidney Kirkpatrick and Cecil Chilton serve as co-editors.



Figure 2: First eight editions of Perry's Handbook

1958: Bob Perry becomes a faculty member at the University of Oklahoma. Stays until 1964. From 1961-1964 he was department director.

1963: 4<sup>th</sup> edition published. 1,876 pages, cost: \$29.40

- Note: 4<sup>th</sup> edition is the first edition without a safety and fire protection section. This will not reappear as a process safety section until the 7th edition in 1997.

#### **Fifth Edition**

1973: Published. Robert H. Perry and Cecil Chilton are editors. However, Cecil Chilton dies before it is published.

1,891 pages, cost: \$35.00

#### **Sixth Edition**

1977: Work started by Robert H. Perry. Don W. Green, who was Bob Perry's first PhD student, agrees to serve as section editor.

Nov. 1978: Bob Perry dies in an automobile accident in London

Nov. 1980: Don W. Green named editor

July 1984: Published. 2,336 pages, cost: \$85.50

#### **Seventh Edition**

1997: Published. 2,548 pages, cost: \$125

Process Safety section returns under the section editorship of Stan Englund of Dow Chemical

#### **Eighth Edition**

Nov. 2007: Published. 2,637 pages, cost: \$150.

#### **Ninth Edition**

Associate Editor Marylee Z. Southard added.

August 2018: Published. 2,272 pages, cost: \$199

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## SIXTH EDITION – SEQUENCE OF EVENTS

- Fifth Edition Published
- Spring, 1977 Initiation of Project by Bob Perry
- Summer, 1977 Don W. Green (DWG) joined as Section Editor
- March, 1978 Visited Bob in London
- Agreed that DWG would serve as co-editor on 7<sup>th</sup> Edition
- November, 1978 Bob killed
- Negotiations between estate and Mc-Graw-Hill
- November, 1980 DWG formally named Editor-In-Chief
- January, 1981 DWG letter to all editors. Tried to get manuscripts-due date of June, 1981
- Fall, 1982 Editing process in progress
- Fall, 1983 Winter, 1984 page proof
- July, 1984 Publication
- Officially renamed as Perry's Chemical Engineers' Handbook

## COST DATA

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<i>Edition</i>	<i>Date</i>	<i>Pages</i>	<i>Page Area m<sup>2</sup></i>	<i>Cost, \$</i>	<i>¢/m<sup>2</sup></i>
1	1934	2569	36.8	9.5	25.8
2	1941	2957	42.0	10.5	25.0
3	1950	1884	58.5	15.8	27.0
4	1963	1876	58.5	31.1	53.2
5	1973	1891	59.0	36.9	62.5
6	1984	2336	85.7	90.2	105.3
7	1997	2548	90.9	131.9	145.1
8	2007	2637	94.1	158.3	168.2
9	2018	2272		199	

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## First Edition

	Section
Mathematical Tables and Weights and Measures	1
Mathematics	2
Physical and Chemical Data	3
Indicators, Qualitative Analysis, Catalysis, Organic Chemistry	4
Physical and Chemical Principles	5
Flow of Fluids	6
Heat Transmission	7
Evaporation	8
Humidification, Dehumidification, Cooling Towers and Spray Ponds	9
Gas Absorption	10
Adsorption	11
Distillation	12
Drying	13
Mixing of Material	14
Mechanical Separations	15
Crushing, Grinding, and Pulverizing	16
Measurement and Control of Process Variables	17
Materials of Construction	18
High-Pressure Technique	19
Movement and Storage of Materials	20
Fuels	21
Power Generation and Mechanical Power Transmission	22
Refrigeration	23
Electricity and Electrical Engineering	24
Electrochemistry	25
Economic Factors in Chemical Plant Location	26
Accounting and Cost Finding	27
Safety and Fire Protection	28
Reports and Report Writing	29
Patents and Patent Law	30

**Eighth Edition**

	Section
Conversion Factors, Physical Constants and Mathematical Symbols	1
Physical and Chemical Data	2
Prediction and Correlation of Physical Properties	2
Mathematics	3
Thermodynamics	4
Heat and Mass Transfer	5
Fluid and Particle Dynamics	6
Reaction Kinetics	7
Process Control and Instrumentation	8
Process Economics	9
Transport and Storage of Fluids	10
Heat Transfer Operations and Equipment	11
Drying, Humidification and Evaporative Cooling	12
Distillation	13
Gas Absorption and Other Gas-Liquid Operations and Equipment	14
Liquid-Liquid Extraction & Other Liquid-Liquid Operations & Equipment	15
Adsorption and Ion Exchange	16
Gas-Solid Operations and Equipment	17
Liquid-Solid Operations and Equipment	18
Chemical Reactors	19
Alternative Separation Processes	20
Solid-Solid Operations and Equipment	21
Waste Management	22
Safety and Handling Hazardous Materials	23
Energy Resources, Conversion and Utilization	24
Materials of Construction	25

### **Role of the Editor-In-Chief**

- Set general content and organization
- Recruit Section Editors
- Section editors recruit contributors
- Set schedule for manuscript delivery
- Establish consistency of format
- Coordinate work of section editors
- Monitor progress and “encourage” adherence to deadlines
- Edit manuscripts
- Submit manuscripts to McGraw-Hill
- Work with McGraw-Hill and Section Editors to finalize page proofs
- Ensure honorarium paid to Section Editors and contributors

*“I have tried not to edit the individuality out of these contributions, for I think the reader wants the writer’s personality - besides, some of the contributors are large, determined, aggressive men, and it wouldn’t have been safe.”*

Mr. Liddell