

Manual on Flash Point Standards and Their Use

Methods and Regulations

HARRY A. WRAY, Editor



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Harry A. Wray, Editor

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NOTE: This manual does not purport to address (all of) the safety problems associated with its use. It is the responsibility of the user of this manual to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

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Foreword

The ASTM Manual on Flash Point Standards and Their Use: Methods and Regulations (MNL 9) is sponsored by the ASTM Coordinating Committee for Flash Point. Harry A. Wray, Chairman Emeritus of the Committee, is editor of the publication.

Acknowledgments

The editor acknowledges the help provided by the ASTM staff, especially Brent Backus, Dorothy Savini, and the editorial and word processing departments. The U.S. National Institute of Standards and Technology, National Center for Standards and Certification Information helped in providing lists of flash point standards of U.S. and other national standards organizations. Information obtained from U.S. standards, code, and tariff organizations, such as the National Fire Protection Association, the Underwriters Laboratories, United Parcel Service, and the Hazardous Materials Systems of the Association of American Railroads is appreciated.

The information obtained from the U.S. Regulatory Agencies and from international regulatory bodies regarding the control of flammable liquids was helpful in making this guide a source of information on international regulations.

Finally, the editor wishes to thank the members, past and present, of the ASTM Coordinating Committee for Flash Point and Related Properties, especially the present chairman and vice chairman, Mr. E. M. (Bud) Nesvig and Mr. John E. Rogerson for making available a forum for obtaining the information that provided the background for this manual.

Harry A. Wray
Editor

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Overview

At present, there is no single reference available on flash point standards and their relationship to regulations controlling hazardous materials. This manual provides such information. In addition, it gives information on the relationship between various national and international regulations using flash point to define flammable liquids.

During the last 15 years, there has been a continued major activity in regulations and flash point standards development worldwide to control the manufacturing, storage, shipment, and use of hazardous materials. With the advent of the U.S. Occupational Safety and Health Administration's use of the closed-cup flash point apparatus and the change in flash point method from the open to the closed-cup apparatus by the U.S. Department of Transportation, U.S. industry was required to do extensive flash point testing. This has continued with the addition of regulations to control the environment and will continue with the change from open to closed-cup apparatus in the U.S. Consumer Safety Product Commission regulations.

At present, efforts to make the United Nation's Recommendations on Transportation of Dangerous Goods the basis for worldwide standards and regulations are being considered. Thus, availability of information on worldwide standards and regulations becomes important.

This volume includes the eight full ASTM flash point standard test methods and excerpts of all other ASTM flash point standard test methods and specifications with complete alphanumeric and date designations. Furthermore, all the ASTM flash point standard test methods and specifications with their volume numbers are listed in Chapter 2.

Selected excerpts of regulations for control of flammable liquids as they apply to definitions, classification of, and exceptions to hazardous materials are quoted exactly. Those quoted are from the regulations of all U.S. Regulatory Agencies as specified in the U.S. Code of Federal Regulations and in the publications of the International Regulatory Bodies, such as the International Civil Aviation Organization and the International Maritime Organization. Although the open-cup method specified by the Consumer Product Safety Commission (CPSC) regulation is an old method, and since its use will be permitted even after the adoption of the closed-cup method, it is printed in its entirety.

This guide is as complete as possible, but may contain omissions. As always, ASTM welcomes constructive comments. These can be directed to the Chairman of the ASTM Coordinating Committee for Flash Point and Related Properties, ASTM, 1916 Race Street, Philadelphia, PA 19103.

Harry A. Wray
Editor



HARRY A. WRAY

ABOUT THE EDITOR

Currently retired from the E.I. du Pont de Nemours and Company, Inc., Harry A. Wray served there for 29 years. Part of his early career was spent as a research chemist in industrial finishes prior to his work with standards and test methods. Before joining the Dupont Co., Wray spent 10 years teaching at Lewistown, PA High School, Long Island University, and for Pennsylvania State University. The editor holds a B.S. degree in Science from Albright College and a Masters Degree in Chemistry from Columbia University.

While with Dupont, Mr. Wray became interested in flash point testing and Government regulations based on these tests. He has published several articles on flash point testing and contributed to the development of several related ASTM standards. Wray has served on many ASTM committees including, Committee D-1 on Paint and Related Coatings, D-2 on Petroleum Products and Lubricants, E-27 on Hazard Potential of Chemicals, E-43 on Metric Practices and the ASTM Standing Committee on Terminology.

Mr. Wray was one of the founders and the first chairman of the ASTM Coordinating Committee on Flash Point and Related Properties. He is now *Chairman Emeritus* of the committee.

During Wray's long membership with ASTM he has been honored with many awards including; Honorary Member of D-1, the Committee on Terminology Membership Award, and their Certificate of Appreciation, the Henry A. Gardner Award, the William T. Pearce Award, and ASTM's Award of Merit. Wray has also been awarded the U.S. Environmental Protection Agency's National Enforcement Investigations Center Certificate of Appreciation.

Wray, with the help of his local Congressman, was able to convince congress to amend the Federal Hazardous Substances Act to permit the Consumer Product Safety Commission to adopt flammability regulations similar to other agencies.

Now retired, Mr. Wray continues to work with flammability of liquids as a consultant and expert witness.

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