Performance of Protective Clothing: Second Symposium

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ASTM
1916 Race Street
Philadelphia, PA 19103
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Foreword

The papers in this publication, *Performance of Protective Clothing—Second Symposium*, have been selected from those presented at the Second International Symposium on the Performance of Protective Clothing, which was held in Tampa, Florida, during 19–21 January, 1987. This meeting was sponsored by the ASTM Committee F-23 on Protective Clothing and cosponsored by the American Industrial Hygiene Association Committee on Protective Devices and the Royal Institute of Technology of Stockholm, Sweden. This symposium was the second in a series of symposia held to bring together internationally known experts to discuss the emerging issues related to worker protection through the use of protective clothing.

The symposium chairmen were S. Z. Mansdorf, S. Z. Mansdorf & Associates, Inc., and Richard Sager, Sager Corporation. Additional support was provided by Alan Nielsen of the U.S. Environmental Protection Agency who was largely responsible for the overwhelming success of the pesticides sessions. These key individuals also served as editors of this publication.
## Contents

Overview .......................................................... xiii

**THE VOLUNTARY STANDARDS PROCESS**

A Decade of Protective Clothing Standards Development—N. W. Henry III 3

The Need for International Cooperation Regarding Approvals—M. Hougaard 7

**HUMAN FACTORS**


Evaluation of Psychological Reactions in Children When Using Respiratory Protective Devices—E. Mauritson-Sandberg and L. Sandberg 43

A Standardized Dexterity Test Battery—C. A. Ervin 50

**PROTECTION FROM PHYSICAL STRESSORS**

*Thermal Protection*

Thermal Protective Performance of Single-Layer and Multiple-Layer Fabrics Exposed to Electrical Flashovers—M. W. King, X. Li, B. E. Doupe, AND I. A. Mellish 59

Thermal Properties of Protective Clothing and Prediction of Physiological Strain—I. Holmér 82

Measuring the Protective Insulation of Fabrics in Hot Surface Contact—R. L. Barker, S. K. Stamper, AND I. Shalev 87
Evaluation of Fourteen Fabric Combinations, One Glove Material and Three Face Shield Materials to Molten Steel Impact—K. FORSBERG

A Comparative Evaluation of Test Methods and Materials for Thermal Protective Performance—M. DAY

Effect of Permanent Press Resin Finish on Cotton Fabric Thermal Resistivity—I. SHALEV

Setting Standards for the Resistance of Clothing to Molten Metal Splashes—T. D. PROCTOR AND H. THOMPSON


Cut Protection

Performance Evaluation of Chain Saw Protective Leggings—J. ARTEAU AND D. TURCOT

Protection From Industrial Chemical Stressors

Dermal Toxicology

Dose Response of Skin Absorption in Young and Adult Rats—L. L. HALL, H. L. FISHER, M. R. SUMLER, R. J. MONROE, N. CHERNOFF, AND P. V. SHAH

Chemical Breakthrough Parameters

Solubility Parameter Prediction of the Barrier Properties of Chemical Protective Clothing—C. M. HANSEN AND K. M. HANSEN

Determination of Solubility Parameters of New Suit Materials—A. P. BENTZ AND C. B. BILLING, JR.

Permeation of Polymeric Materials by Chemicals: A Comparison of 25-mm and 51-mm ASTM Cells—N. VAHDAT

Effect of Temperature, Material Thickness, and Experimental Apparatus on Permeation Measurement—C. B. BILLING, JR., AND A. P. BENTZ

Comparative Evaluation of a Smaller Version of the ASTM Permeation Test Cell Versus the Standard Cell—N. W. HENRY III

Problems in Determining Permeation Cell Equivalency—G. L. PATTON M. CONOLEY, AND L. H. KEITH

Approaches to Predicting the Cumulative Permeation of Chemicals Through Protective Clothing Polymers—R. GOYDAN, A. D. SCHWOPE, R. C. REID, S. KRISHNAMURTHY, AND K. WONG 257

Roundtable Discussion on Solubility Parameters 269

New Laboratory Test Methods

An Analytical Technique for Permeation Testing of Compounds with Low Volatility and Water Solubility—M. W. SPENCE 277

Carbon-14 Tracers in Permeation Studies: Feasibility Demonstration—C. URSIN AND I. DRABAEK 286

Testing the Quality of Breathable Textiles—P. SALZ 295

Field Test Methods and Application of Laboratory Data

Using Dipropyl Sulfide to Test the Leakage of Protective Clothing—G. FANG, H. DINGMAO, AND W. HUAIMIN 307


Field Experiences

Problems in Personal Protective Equipment Selection—D. N. EISER 341

Selected Protective Clothing for Semiconductor Manufacture—D. H. GITTELMAN 347

Decontamination

Decontamination of Chemical Protective Clothing Exhibiting Matrix Release—S. P. BERARDINELLI AND R. HALL 359

Protective Clothing Materials: Chemical Contamination and Decontamination Concerns and Possible Solutions—C. E. GARLAND AND A. M. TORRENCE 368

Effects of Water Rinsing on Subsequent Permeation of Rubber Chemical-Protective Gloves—C. N. SCHLATTER 376
Selection and Use


Development of a Comprehensive Approach to Chemical Protective Clothing Use—S. Z. Mandorf 396


Use of a Relational Data Base for Protective Clothing Research—A. P. Bentz, C. B. Billing, Jr., and M. S. Hendrick 409

Emergency Response and Military Applications

Simulation of the Effect of Moisture Content in Underwear and on the Skin Surface on Steam Burns of Fire Fighters—H. Makinen, J. Smolander, and H. Vuorinen 415


Fire Fighter Turnout Clothing: Physiological and Subjective Evaluation—J. Huck and E. A. McCullough 439

The Role of the U.S. Coast Guard Strike Team in Hazardous Chemical Responses—R. B. Gaines 452


Full Ensemble Performance

Hydrogen Fluoride Exposure Testing of the U.S. Coast Guard's Totally Encapsulated Chemical Response Suit—J. O. Stull, J. S. Johnson, and P. M. Swearengen 475

Propellant Handler's Ensemble: A New-Generation SCAPE—K. S. Ahmie 484

Kennedy Space Center Maintenance Program for Propellant Handlers Ensembles—D. J. Dudzinski 492


An Improved Air-Supplied Plastic Suit for Protection Against Tritium—C. Wiernicki 518
Measuring the Integrity of Totally Encapsulating Chemical Protective Suits—J. S. JOHNSON AND J. O. STULL 525


Evaluation of the Physiological Parameters Associated with the Propellant Handler's Ensemble—D. F. DOERR 541

PROTECTION FROM PESTICIDES

Field Performance


Factors Influencing Design of Protective Clothing for Pesticide Application—A. J. FRASER AND V. B. KEEBLE 565

Guthion Penetration of Clothing Materials During Mixing and Spraying in Orchards—V. B. KEEBLE, R. R. DUPONT, W. J. DOUCETTE, AND M. NORTON 573

Exposure Measurements Concerning Protective Clothing in Agriculture—W. BATEL AND T. HINZ 584


Engineering Controls and Protective Clothing in the Reduction of Pesticide Exposure to Tractor Drivers—C. LUNCHICK, A. P. NIELSEN, AND J. C. REINERT 605

Mechanisms of Clothing Exposure and Dermal Dosing during Spray Application—W. POPENDORF 611

Pattern of Dermal Deposition Resulting from Mixing/Loading and Ground Application of 2,4-D Dimethylamine Salt—R. GROVER, A. J. CESSNA, N. I. MUIR, D. RIEDEL, AND C. A. FRANKLIN 625

Use of Fluorescent Tracers and Video Imaging to Evaluate Chemical Protective Clothing During Pesticide Applications—R. A. FENSKE 630

Comparison of a Thermal Test Battery Analysis and Field Assessments of Thermal Comfort of Protective Apparel for Pesticide Application—C. B. HASSENBOEHLER, JR., H. N. NIGG, AND J. O. DeJONGE 640

Laboratory Test Methods for Materials Resistance and Decontamination

Distribution of Malathion on Gore-Tex Fabric Before and After Sunlight Exposure and Laundering as Determined by Electron Microscopy—D. H. BRANSON AND S. RAJADHYAKSHA 651
Development and Validation of a Laboratory Spray System Designed to Contaminate Fabrics with Pesticide Solutions—K. K. Leonas, J. O. DeJonge, and K. E. Duckett


Effect of Temperature and Humidity on Laboratory Pesticide Penetration Studies—M. T. Anastasakis, K. K. Leonas, C. Dimit, J. Brothers, and J. O. DeJonge


Chlorpyrifos Residues in Protective Apparel Fabrics Following Commercial or Consumer Refurbishment—J. M. Laughlin, J. Lamplot, and R. E. Gold

Effect of Formulation on Removal of Carbaryl and Chlorothalonil from Apparel Fabrics by Dry Cleaning, Aqueous Extraction, and Vaporization—J. R. Fleeker, C. Nelson, M. F. Wazir, and M. M. Olsen


Use of Methylene Blue Dye to Predict Fabric Penetration by Malathion—N. E. Hobbs and B. G. Oakland

Quantitation of Pesticides on Apparel Fabrics—J. R. Fleeker, C. N. Nelson, A. W. Braaten, and J. B. Fleeker

User Attitudes and Work Practices

Impact of Labor Protection in the Registration Process of Pesticides in the Netherlands—C. L. Maas


A Review of the Requirements for Protective Clothing for Agricultural Workers in Hot Climates—M. H. Litchfield 796

Protective Clothing and Equipment: Beliefs and Behavior of Pesticide Users in Ecuador—J. I. Grieshop 802

NEW MATERIALS AND TECHNOLOGIES

Conductive Clothing and Materials—J. Davies 813

Kinetics of Vapor Sorption by Latex-Bonded Carbon Particles—D. W. Jones and P. Watts 832

Evaluating a New Material for Use in Totally Encapsulating Chemical Protective Suits—J. O. Stull, R. A. Jamke, and M. G. Steckel 847

Author Index 863

Subject Index 867
Overview

The performance of protective clothing has become a significant concern of the health and safety community over the last ten years. This has been due in large part to the development of standard test methods by the F-23 Committee of ASTM and others which demonstrated significant limitations to previously considered “safe” uses of this equipment. Secondly, increased use of personal protective equipment as an apparent cost effective alternative to engineering controls and for those operations where engineering controls are not feasible has been evidenced.

The F-23 Committee

The F-23 Committee was originally organized in 1977 as the Chemical Protective Clothing Committee under the ASTM organizational umbrella. This committee was formed as a direct result of the recognized need by manufacturers and users for uniform standards for chemical protective clothing.

The first official F-23 standard test method [Resistance of Protective Clothing Materials to Permeation by Hazardous Liquid Chemicals (F 739-81)] was published in 1981. Following the publication of this test method and others, a considerable amount of data were generated that indicated most chemical protective clothing was not an absolute safeguard as was once commonly believed.

The F-23 Committee has grown to become the major recognized force in the protective clothing arena with over 160 active members representing protective clothing users, manufacturers, government, and academia.

Symposia

To help satisfy the growing interest of the general health and safety community in the activities of F-23 and the use of protective clothing, a symposium was sponsored in Raleigh, North Carolina in 1984. The Symposium was an overwhelming success in terms of partici-
pation and the transfer of technical knowledge through an ASTM Special Technical Public-
lication (STP 900), *Performance of Protective Clothing*, containing 48 peer-reviewed technical
papers.

The Second International Symposium on Protective Clothing was held three years later
in Tampa, Florida. It was the most comprehensive and well attended symposium ever held
on the subject of protective clothing. Over 150 papers encompassing a number of broad
areas related to protective clothing were presented by an internationally recognized roster
of experts. The international scope of the subject was evidenced by the fact that two of the
four plenary speakers were from outside of the United States.

This publication, as the second volume to the original STP 900 contains 84 papers selected
from the original presentations. These cover issues and areas of concern related to protective
clothing selection, use, and testing. All of the manuscripts have undergone extensive peer
review in accordance with ASTM requirements.

**Organization**

This STP is divided into six general topic areas. These sections contain a diverse range
of papers on protective clothing which are characteristic of this type of symposium and the
breadth of the subject. They represent the current issues of interest in this emerging field
and thus will be of value to readers desiring both an overview and specific information on
the latest research in protective clothing.

The major topic areas of the book are the voluntary standards process, human factors,
protection from physical stressors, protection from industrial chemical stressors, protection
from pesticides, and new materials and technologies.

The first topic area covering voluntary standards includes a history of the function and
purpose of the ASTM Committee F-23 on Protective Clothing and a paper on the need for
international cooperation for the development of standard test methods. The second topic
area is human factors which contains four papers addressing the proper fit and testing of
protective clothing. The third topic area, containing nine papers on protection from physical
stressors, has a major emphasis on thermal performance and testing but also contains a
paper on cut resistance of protective leggings. The fourth topic area on protection from
industrial chemical stressors is one of the larger sections of the book with 38 papers. It is
subdivided into sections containing papers on dermal toxicology, permeation theory and
testing of protective clothing (including an expert roundtable discussion), new laboratory
test methods, field test methods and the application of their data, field experiences, decon-
tamination issues, selection and use of chemical protective clothing, emergency response
and military applications, and the performance of full ensembles. The fifth topic area cov-
ering protection from pesticides contains 28 papers. It is divided into three major sections.
These are field performance, laboratory test methods for materials resistance and decon-
tamination, and user attitudes and work practices. The final topic areas of the book contains
three papers on new materials and technologies.

**Significance**

This publication in combination with STP 900 contains the most comprehensive body of
knowledge on the subject of protective clothing currently available. It spans the range of
thermal protection to human factors and as such should be a valuable resource for those
interested or responsible for the selection, use, or testing of protective clothing.

It is the hope of the editors that this book will encourage protective clothing research and
subsequently lead to advancements in its selection, safe use and testing. As stated best by
John Moran of NIOSH at the plenary session, “... Protective clothing is clearly the last line of defense ...”

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