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# **Pesticide Formulations and Delivery Systems**

**30th Volume: Regulations and Innovation**

***JAI Guest Editors:***

A David Lindsay  
Richard Zollinger



**Journal of ASTM International  
Selected Technical Papers STP1527  
Pesticide Formulations and Delivery  
Systems, 30th Volume:  
Regulations and Innovation**

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# Foreword

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THIS COMPILATION OF THE *JOURNAL OF ASTM INTERNATIONAL (JAI)*, STP1527, on *Pesticide Formulations and Delivery Systems, 30th Volume: Regulations and Innovation*, contains only the papers published in JAI that were presented at a symposium in Atlanta, Georgia on October 20–22, 2009 and sponsored by ASTM Committee E35 on Pesticides and Alternative Control Agents.

The JAI Guest Editors are A. David Lindsay, Evonik Goldschmidt Chemical Corporation, Hopewell, VA and Richard Zollinger, North Dakota State University, Fargo, ND.





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## Overview

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The first ASTM Symposium on Pesticide Formulation and Application Technology was held on October 7, 1980 in Philadelphia, Pennsylvania. This 1-day meeting, devoted to Pesticide Tank Mix Applications, marked the beginning of this very successful ASTM series of symposia.

October 20, 2009 marked the start of the 30th Symposium which focused on Regulations and Innovation. While the first symposium was a 1-day affair, the meeting in Atlanta followed the typical format of the last 20+ years, that is, a 3-day meeting. A total of 33 speakers provided a wide range of informative talks to an audience that, at times, exceeded 160 attendees. Nineteen of the 33 papers presented have been assembled for this publication, giving a good cross section of the work-effort that was presented at the meeting.

The similarities and differences among the papers given at the two symposiums speak to the changes that have occurred in pesticide formulations and applications during the last three decades. In the first symposium, a number of papers were devoted to tank mix compatibility agents, with a focus on improving the compatibility of pesticides with liquid fertilizers. While compatibility with liquid fertilizer has ceased to be an item of concern, one could argue that our focus on additives has switched from compatibility agents for fertilizers to adjuvants to enhance the efficacy of pesticides. At that same meeting, there was a paper that would prove to be prescient, on a topic that has remained with us throughout the last 30 years, pesticide drift.

The first session of the 2009 meeting was devoted to regulatory issues and Dr. PV Shah, head of the newly created Inerts Branch of the EPA, gave the keynote address. This was followed by comments on the progress of the Joint Inerts Task Force (JITF). After this review on the need for and the progress made by the JITF, there was a presentation outlining the concept of chemical substance clustering, a very effective process used by the JITF to reduce the number of surfactant classes that had to be supported.

The all-day session on Wednesday was devoted to new efforts in formulations; oil based dispersions continue to increase their visibility as topics of discussion. There were also papers focusing on herbicidal efficacy from perennial presenters Dr. Richard Zollinger and Dr. Donald Penner. Interspersed with these talks, the audience was treated to a presentation from Dr. Claudia Vinke of the German Federal Office of Consumer Protection and Food Safety. A new topic of interest was introduced into this symposium with a session devoted to Biopesticides. The speakers represented biopesticides producers and innovators from the U.S. Department of Agriculture. Since this was the 30th Symposium, one of the original E 35.22 members, Dale Gandrud, was asked to provide his perspective on how ASTM E 35.22 has survived the changes in the Industry since its inception.

The last day was devoted to the concerns associated with pesticide drift or the off-target movement of pesticides. As mentioned earlier, at the first symposium, Dr. Robert Holst of the U.S. EPA spoke about the concept of regulating pesticides with respect to spray drift. Thirty years later, we continue to talk about regulating spray drift. During the intervening years, a considerable amount of expense and research time has been devoted to modeling and controlling pesticide drift. As has been the theme at many of the recent symposia, the final session was constructed so the audience could hear about the latest efforts with respect to this important topic. Dr. Curt Elsik spoke on drift control mechanisms, while Kuide Qin spoke on the effects of tank mix additives and optimization of spray parameters. The experts in particle size analysis and spray drift testing and modeling from the USDA-ARS, B. K. Fritz and C. Hoffmann, were co-authors for 5 papers in this session; three are included in this STP. Dr. Andrew Hewitt closed the session with a summary of the current work of the Spray Drift Task Force; the evaluation of tracers and collectors.

As one of the organizers of the first ASTM symposium, I am very pleased to note that the Pesticide and Applications symposia series continues to serve the purpose for which it was created; a place for suppliers, registrants, academia, and government to meet and share information critical to the Industry.

I would like to thank all the authors, presenters, and reviewers whose efforts made this publication possible. Finally a special thanks to those members of ASTM E35.22, past and present, who made the first symposium possible, especially John Wright and the late, Ed Sawyer.

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