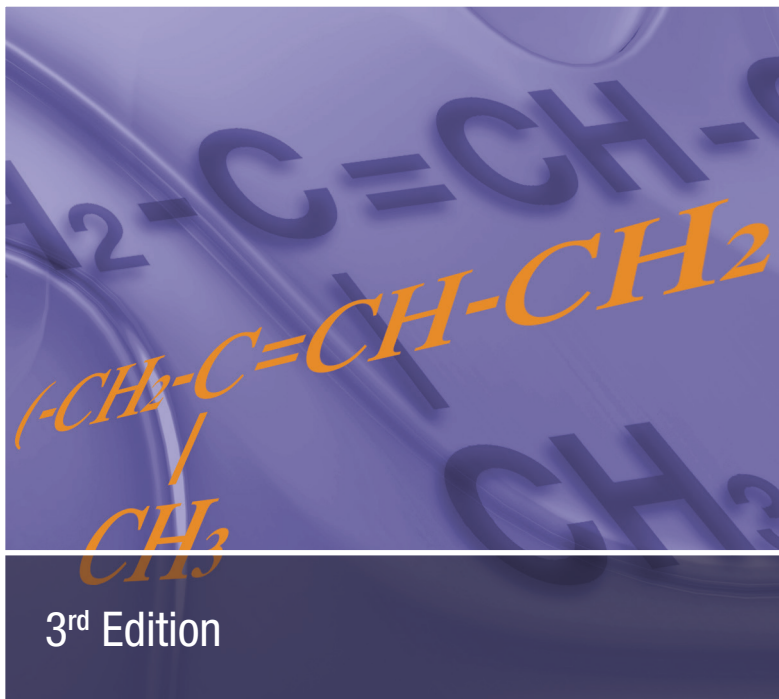


John S. Dick

# Rubber Technology

Compounding and  
Testing for Performance



HANSER

Dick  
**Rubber Technology**



John S. Dick

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## Compounding and Testing for Performance

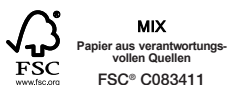
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# Preface

This book is intended to be a practical guide for cost-effective formulating and testing of rubber compounds in order to help achieve optimal processing and product performance. Attention is also given to tradeoffs in properties. The book demonstrates some of these tradeoffs in various chapters.

In this book we covered rubber compounding as a series of interdependent “systems”, such as the elastomer system, the filler-oil system, the cure system, the antidegradant system, etc. We endeavored to use more of a “holistic” approach to show how changes in these inter-related systems can affect specific compound properties.

Rubber compounding is a very diverse subject which draws its body of knowledge from many different areas of science and technology. To address this diversity in the most effective way, we have over 40 authors who are experts in many specific areas of rubber compounding, all contributing to the usefulness of this book. Emphasis was placed on the practical; however, theoretical explanations were used mainly when it was necessary to explain an important principle or concept.

This book consists of 23 chapters and over 750 pages of text. In order to make this book an effective reference, a very extensive index of key words and rubber technology terms is provided.

It is my sincere hope that this book will benefit both new and experienced rubber compounders and technologists in their efforts to improve the art and science of rubber technology.

*John S. Dick*

*[www.rubberchemist.com](http://www.rubberchemist.com)*



# About the Editor

John S. Dick has over 45 years of experience in the rubber industry. He was with BF Goodrich and later Uniroyal Goodrich Tire Co. as a Section Manager and Development Scientist in R & D until 1991, when he joined Monsanto's Rubber Instruments Group (now Alpha Technologies) as a Senior Scientist - Applications until 2016. He is now the Technical Editor of Rubber & Plastics News and a consultant for Alpha Technologies. Additionally, he currently teaches 15 rubber technology courses each year at the University of Akron, University of Wisconsin-Milwaukee, and ASTM International.



Mr. Dick has authored over 80 journal and magazine publications, including five books on rubber technology. He consulted and has given technical papers and seminars in over 40 countries. Some of Mr. Dick's publications have been translated into nine languages.

He received the Monsanto Master Technical Service Award, the ACS Rubber Division "Best Paper Award", and the University of Akron and University of Wisconsin Appreciation Awards for teaching rubber compounding and testing courses in their continuing education programs. He is a Fellow in the American Society for Testing and Materials (ASTM), receiving the Award of Merit in 1990 and the Distinguished Service Award in 2005. Also, he has represented the United States as a delegate to the International Standards Organization (ISO) for the last 35 years. He was appointed in 1992 to be Leader of the USA Delegation to ISO TC-45 on Rubber. He is a member of the American Chemical Society, Society of Rheology, and ASQ with a CQE and CQA. He also is a co-recipient of the Rubber Division, American Chemical Society 2014 Fernley H. Banbury Award for Rheology.

Mr. Dick received his B.S. degree from Virginia Polytechnic Institute and an M.A. from the University of Akron. He is married with a son and a daughter, and his hobbies include photography and amateur radio.





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Sovereign Chemical Co.  
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