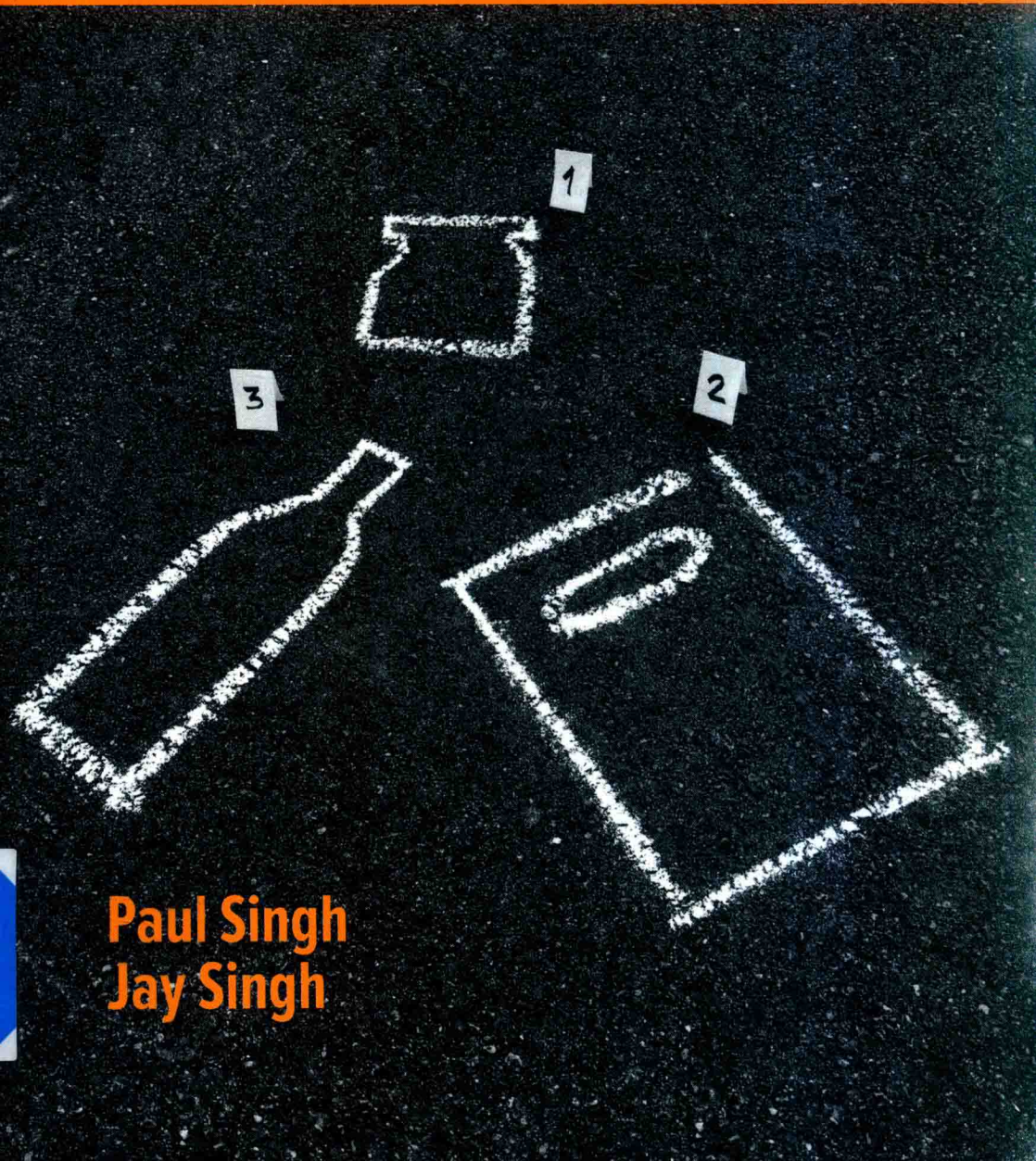


# **PACKAGING *and* TRANSPORTATION FORENSICS**

*Reducing Risk and Liability*



**Paul Singh  
Jay Singh**

# **PACKAGING *and* TRANSPORTATION FORENSICS**

*Reducing Risk and Liability*

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**DESTech Publications, Inc.**

## **Packaging and Transportation Forensics**

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*To the innocent consumer and  
my fellow professionals  
dedicated to delivering products safely!*

## Preface

**T**HE content of this book is intended to provide the reader with a clearer understanding of the importance of regulations and legal requirements that affect the interaction of a package with humans through the course of its design, production, marketing, shipping, sales and use where physical or economic harm may result. This includes the life of a package system in the entire value chain from the materials applied, manufacturing and filling, labeling and all interactions during its useful life. It ends with the final environmental impact at the end of use. At any point during this time a package may cause or be claimed to cause an accident leading to damage and loss.

The authors have served as consulting and testifying experts to represent clients and plaintiffs on behalf of law firms and insurance companies, as well as working with defendants on behalf of manufacturers and their insurers. During this activity, spanning over 30 years of our careers, we have come to an understanding that for various issues, for example, standard of care and personal injury, risk and liability can be significantly reduced. Risk mitigation can be achieved by proper choice of materials, conducting scientific testing to show that the design selected is based on technical and marketing superiority and keeping costs from becoming prohibitive for consumer purchase. Based on our collective experience we have created this book for packaging professionals as well as technical experts whose responsibilities are to evaluate the roles and functions of a package while ensuring risk is not added.

In addition this book may be used by universities and academic institutions as part of the curriculum in elective courses taught to juniors and

seniors in packaging and business programs. In the packaging industry a book of this type has long been needed to provide an understanding of legal issues that may affect a package and its manufacturer or shipper, before or after involvement in a lawsuit. It also offers guidance in the use of proper testing techniques and the design and selection of labeling that can be used in reducing liability and risk.

We would like to thank the faculty, staff and students at both of our universities packaging programs (Michigan State University and Cal Poly State University) as well as the numerous attorneys and industry experts who assisted us in preparation to testify as experts in various lawsuits.

Lastly thanks to our friends and families who helped us during this time!

PAUL SINGH, Ph.D.  
JAY SINGH, Ph.D.



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## Introduction

**T**HIS book, *Packaging and Transportation Forensics: Reducing Risk and Liability*, examines recent cases in the areas of patent infringement, trademark duress, shelf-life and seal-integrity issues on food packaging, shipping damage from lack of protective packaging, and personal injury and product liability issues related to packaged products. Some issues are regulated or governed by law, while others are simply decided by juries based on whether a plaintiff or defendant demonstrated that industry practices and standards might have prevented an event. Users of this book could be packaging professionals whose primary aim is to reduce liability and lawsuits by users of packaging that their employers sell; users of this book might also be individuals or experts who want to understand their role in assisting clients facing litigation. *However, this book is not intended to determine who is right or wrong in a given case; that decision lies primarily with the courts in which cases are tried.*

The authors of this book have both worked as experts in the field of packaging, transportation, and material handling. Experts may be either consulting or testifying, and their opinions are used by an attorney to understand a problem in a lawsuit. Experts sometimes testify by filing notarized affidavits or declarations, or they give sworn testimony at a deposition or trial.

Each chapter starts with a general introduction to its topic, describing how it relates to packaging cases, followed by a discussion of specific packaging cases, some of which may seem frivolous and others where an inferior or unsafe design compromises the safety of consum-

ers. Many of these civil cases are settled through mediation or after discovery and an exchange of expert reports. It is therefore difficult to determine whether plaintiff or defendant was at fault without a verdict from a jury or judge.

While various packaging issues are raised in this text, the authors want readers to know that they are not pro or con in a suggested issue when there was no final outcome in a case and both parties accepted some responsibility in reaching an amicable settlement. The book covers the transportation and material-handling industry as it impacts the shipping and handling of products and packages.

The authors' aim is to assist manufacturers, retailers, and consumers to *reduce the risk of liability arising from lawsuits, while manufacturing, transporting and using packages for various products.*

Chapter 2 contains a glossary of terms common to the packaging industry. These terms often play a critical role in a case. The terms may deal with the "prior art" issue in patent-infringement cases by demonstrating that a claim representing a package component or technology was previously developed before the patent's application date. Such issues can either be reexamined by the U.S. Patent and Trademark Office or appear as a contested patent in the federal court where the patent owner is being sued. The terms may also clarify a package's classification, which determines tariffs, duties, or customs imposed on imported articles. These kinds of cases are tried by the Justice Department's International Trade Field Office in New York.

The third chapter focuses on product liability cases in which the authors have been involved, most of which settled before trial. Most of these cases did not concern the Code of Federal Regulations but rather failure to follow consensus standards developed by the industry. This failure often shows a lack of good manufacturing or packaging practices. The chapter looks at these consensus standards and discusses international associations that foster safety and a minimum level of performance in package materials and systems integrity.

Chapter 4 deals with personal injury cases that come up in civil courts resulting from accidents. These range from fatal injuries from handling packages that may be large and heavy and somehow placed into commerce or transportation while being unstable and result in catastrophic accidents. Others relate to faulty dispensing devices that cause harm or hazardous chemicals that, when leaking, harm the environment and humans. This chapter makes no attempt at discerning which party was right or wrong, since these cases reached an amicable settlement

before trial. The cases are presented based on issues described in the complaints filed in the court, the corresponding discovery, and expert opinion that may have been rendered prior to settlement. *It is for the reader to determine how a certain package and its materials and form can reduce the risk of litigation in case of an accident.*

The fifth chapter discusses intellectual property cases relating to the infringement or validity of a patent. It also covers trademark cases involving packaging shapes and profiles that provide branding and design features that prompt retail recognition. In most cases when a plaintiff accuses a defendant of infringing on a patent, the defendant files a case claiming the patent is invalid. If this is made obvious to the court, it forces the court to dismiss the case. While the Patent and Trademark Office tries to ensure that all new patents and trademarks are original, it is the ultimate responsibility of the patent applicant to prove rightful ownership of an original idea, concept, product, or process.

Chapter 6 examines labeling, markings, and warnings placed on a package. All information that is presented on a package, along with colors and logos, helps identify the product in a store where thousands of other products are displayed. Information such as quantity, weight, volume, warnings, and precautionary markings is required on a package to protect the consumers and warn them of potential effects. The seventh chapter focuses on cargo securement and loading and unloading issues of trucks, ships, trains and aircraft. The authors have assisted clients in more than one hundred cases in this area. Agencies such as the Department of Transportation, the International Maritime Organization, and the Federal Aviation Administration govern safe passage of goods through various channels of transportation. This section discusses regulations primarily concerning truck shipments, which are a common source of damage and injury while moving goods in North America. Chapter 8 covers transportation law and regulations for food products and hazardous materials for which packaging, labeling, and transportation are strictly regulated. Chapter 9, "Tamper Evident and Child Resistant Packaging," covers the primary packages used to dispense pharmaceuticals and chemicals subject to the Poison Prevention Packaging Act, which requires specialty closures such as child-resistant and tamper-evident caps on bottles. The efficacy of these systems needs to be tested to show that they meet the desired objectives and functioning criteria.

The tenth chapter covers fork-truck injuries and accidents and corresponding to Occupational Safety and Health Administration regulations

for package handling. Chapter 11, “Laws on Environmental Packaging,” discusses local, state, and federal regulations that cover environmental protection. It also discusses the environmental impact of packaging. Finally, Chapter 12 looks at what is required when giving written testimony in an expert report. We have shared five expert reports from packaging and transportation liability cases. While preparing this book, the authors were engaged in lawsuits that helped shape the examples they cited. In reviewing textbooks on the role of science in litigation, the authors came across a quote stating that an expert does not reach conclusions or provide opinions before analyzing the evidence:

*It is a capital mistake to theorize before you have all the evidence. It biases the judgment!*—Sherlock Homes to Doctor Watson in *A Study in Scarlet*



## Packaging, Transportation, and Material-Handling Terminology

**T**HIS chapter focuses on terms used in the fields of packaging and their association in the transportation and material handling industries. The terms relate to units of measure, forms, and manufacturing. For example, the measurement of 1/1000 of an inch for the thickness of paper, a unit of measure called a caliper, is referred to as *point* for paper-based packaging materials, whereas the same caliper is referred to as *mil* for plastic films. A 3-mil-thick plastic film has the same thickness as a 3-point-thick paper. Terminology plays an important role in intellectual property cases that involve patents and trademarks. Terms can play an important role in decision-based arguments in customs and tariff and classification cases. This chapter first defines two terms used in this book's title.

*Packaging* is the art and science of safely containing, protecting, using, and communicating about a product while protecting the environment [1]. *Forensics* is the application of a broad spectrum of basic sciences and engineering principles to answer questions of interest to a legal system. The authors therefore define *packaging forensics* as the use of this broad spectrum to resolve legal disputes and other issues related to packaging methods and systems.

This chapter presents some critical packaging terms, their definitions, and the sources of the definitions. In providing testimony and expert opinions, an expert relies on the vocabulary used by craftsmen, employees, and professionals in a given industry. The terminology in the packaging industry is an interesting synthesis of art, science, and trade. However packaging terminology and its interpretation can play a critical role in how a product is treated in a court of law.