

LANDMINES ON THE ROAD TO SURVIVAL: ADAPTING FORMULAE AND EXPANDING DISTRIBUTION CHANNELS WITHOUT ATTRACTING HORDES OF LAWYERS

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Abstract: Regulatory and economic pressures are accelerating the development of many new formulations. However, pressures to shorten the time to market make it easier to overlook product safety concerns. This article discusses patterns of product claims, and ways to minimize them during new product development in this rapidly changing market.

regulatory pressures with a slew of new products — many developed in expedited product development cycles. Although one could presume that the substitution of more environmental friendly formulations would naturally reduce the number of claims arising from use of those products, the law of unintended consequences is inexorable. New formulations create new risks.

INTRODUCTION

Product liability law bears close kinship to the law of unintended consequences. Products that effectively or inexpensively fill market needs sometimes harbor unanticipated risks. Product composition, distribution, and labeling can all create problems — often resulting from miscommunications between product designers, and those who market or use products. The risks can be real, with a product creating unnecessary personal or environmental hazards. The risks can be largely imaginary, with lawsuits manufacturing non-existent problems, or magnifying trivial ones.

Big box retailers can dictate product composition, container, and label design. Perhaps more significantly, unsophisticated consumers increasingly mingle with professional users at discount home improvement centers or marine suppliers, resulting in novices acquiring products that their designers intended only for experienced users. Wider distribution to consumers greatly increases the idiot factor that so often heavily contributes to personal and environmental injury claims arising from paint and coatings.

Whether product problems are real or imagined, suspect products attract hordes of lawyers like honey attracts bees. Lawyers and lawsuits, in turn, generate publicity. Whether or not successful, a few highly publicized lawsuits can smear the reputation of a company or product. A *well-founded* lawsuit can irreparably tarnish a company's reputation, particularly among consumers. Lawyer generated publicity is not what the marketing group has in mind when it launches a new product.

Although product liability claims will never disappear, they can be greatly and, in many instances, easily reduced. Certain patterns of claims against paint and coatings manufacturers and distributors have recurred over the last twenty years. Those patterns reveal ways proactively to minimize the risks, and avoid learning by trial and error.

Yet, market pressures may be creating conditions conducive to a new wave of product liability claims against even the most prudent companies. A steady stream of state, federal, and even international, regulations demand frequent reformulation, re-labeling, or both. Industry has responded to the combined effect of market and

Not only will that minimize legal liability expenses, it will obviously improve customer relations, since injured customers are, by definition, unhappy ones. Thus, the things that can be easily done to reduce claims make good business sense.

REGULATORY AND ECONOMIC PRESSURES DRIVING NEW FORMULATIONS

A number of factors have combined to stimulate a boom in new paint and coatings formulations. Regulatory mandates by state, federal, and international governments certainly account for many new product developments.

Consumer demand for easier to use, less odorous formulations is driving others.

Some formula changes have been dictated by state regulations. California, for example, imposed limits on the Volatile Organic Compound (VOC) content of virtually all aerosol coatings. Regulations limiting VOC content of general coatings took effect in 2002. Regulations affecting specialty coatings took effect in 2003.ⁱ California's restrictions on solvents that exceed state maximum incremental reactivity (MIR) limitations have generated a wave of formulations using solvents that will not be regulated and emit no Hazardous Air Pollutants (HAPs).

Internationally, restrictions on biocides used in marine formulations require new solutions. In 1989 the International Maritime Organization adopted a resolution recommending elimination of antifouling paint containing proven and economical tributyltin (TBT). TBT prevents marine organisms from growing on ship and yacht bottoms, and has been used in many time-release applications that prolong its biocidal effect. The United States signed the treaty in 2002, and ultimate ratification is expected. In Europe, the EU has already banned application of TBT.

In addition, the European Biocidal Products Directive threatens to impose stringent registration and labeling requirements that could force substantial changes in formulations, marketing strategy, or both.

Environmental regulations are not the sole impetus of new formulations, however. Market forces continue to drive the development of new formulations, and for some companies this has spelled opportunity. Zero and low VOC products have been on the market for almost ten years now, and consumer demand has been strong. Other companies are marketing zero HAP products. Some small producers carved out market niches as bigger producers were slower to respond. Now, most producers have turned concerns about green building methods, chemical sensitivity, and personal aversion to VOC odor into marketing assets.

Some producers are even quietly marketing coatings that may improve health.ⁱⁱ Consumer

concerns about so-called toxic mold are spurring new biocidal formulations. Massive numbers of lawsuits against home designers and builders have created a ready market for coatings that can resist mold growth. Numerous manufacturers have launched products that deter or defeat mildew, fungi and other organisms.

Despite those seemingly positive developments, the composition, distribution, uses and labeling of new formulations can all lead to claims that the paint or coating had a defective design. It is self-evident that the probabilities of unforeseen consequences increase as R&D time gets compressed, and there is evidence that shorter product development cycles are being required. For example, in a November 2003 survey of coatings industry research and development professionals, 15% cited decreased time-to-market times as the most frustrating parts of their jobs, up from 10% in 2002.ⁱⁱⁱ

PRODUCT DESIGN CLAIMS

Some courts have concluded that paint, by its very nature, is unavoidably dangerous.^{iv} That is because they cannot be manufactured for their intended purpose without the use of chemicals that have hazardous properties.^v That does not mean that all paints and coatings are defective, however.

The vast majority of claims arising from paint and coatings formulations — the composition of the materials, themselves — relate to the toxicity or flammability of the material. In some cases, plaintiffs allege that the formula is defective because it is unreasonably dangerous. Those claims usually rest on the contention that a much less hazardous formulation could have achieved the same result.

The law imposes liability for injuries caused by the defective design of a product. In the case of paint and coatings, the formulation is equivalent to a product's design. In most states, a product is defectively designed when the foreseeable risks of harm posed by the product could have been reduced or avoided by the adoption of a reasonable alternative design.

Other states impose liability differently. One such test examines whether the product failed

to perform as safely as an ordinary consumer would expect when used in an intended or reasonably foreseeable manner. A second test involves a risk-utility balance. A particular design may involve considerable risk, but if the design has sufficient utility, it will not be regarded as defective unless a less risky alternative was available. It is that balancing of risk versus utility that ought to be considered for every new formulation.

Historically, there have been many claims against paint and coatings manufacturers alleging that their products were defective. In a 1958 case, a plaintiff succeeded in proving that a concrete paint commonly available to the general public was defective because it caused nearly instantaneous and permanent blindness upon contact of a small amount with a user's eye.^{vi} In a 1966 case,^{vii} the plaintiff proved that a product was defective when he was required to have part of his lung removed as the result of 25 minutes of exposure to a waterproofing coating, even though he was wearing a protective mask.

However, claims based on defective formulation are not by any means limited to old formulations. In a 1989 case,^{viii} for example, the plaintiff proved that benzene fumes emitted by a stain applied to a child's cradle killed the child months after the stain was dry to the touch. Also in 1989, a spray painter in a shipyard successfully persuaded a jury that epoxy base paints containing epichlorohydrin were unreasonably dangerous.^{ix} The manufacturer submitted evidence that the formula called for a concentration of less than 1 part per million — an amount too low to cause harm. However, the manufacturer was forced to concede that it never tested the actual concentrations in the product.

In a 1995 case, Stinson v. E.I. DuPont de Nemours Co.,^x an employee in a truck manufacturing plant was permitted to argue that a paint formulation was unreasonably dangerous merely because it contained isocyanates. The plaintiff introduced evidence showing that isocyanates are the most common cause of occupational asthma in the United States, that exposure to isocyanates can cause permanent lung damage, and that seven percent of the people exposed to isocyanates develop increased sensitivity.^{xi}

Despite all this, avoiding defective design claims does not require the elimination of *all* hazards, nor does it require that the product be completely safe. Rather, the principle underlying these cases is that the utility of a particular formulation must outweigh its risk. If the dangerous properties of the paint are necessary for it to achieve its intended purpose, the product will not be regarded as defective. Felix v. Akzo Nobel Coatings, Inc.,^{xii} illustrates this principle. A plaintiff who was burned in a flash fire alleged that a solvent-based lacquer sealer was unreasonably dangerous because it was highly flammable, and because safer water-based sealers were available. The case was thrown out following presentation of evidence that solvent-based sealers were quicker drying, much less expensive, harder and more scratch resistant. Thus, even though there were less dangerous alternatives, the solvent-based lacquer sealer was not defective because there were sound reasons to manufacture and sell the more dangerous formulation.

Thus, the lesson to be learned is to consider whether less hazardous formulations can achieve the same result, and whether, under reasonably foreseeable types of uses, there is an unreasonable risk of injury. Manufacturers are not required to do the impossible by making dangerous chemicals safe. However, a dangerous formulation should not be chosen without exploring the availability of less dangerous alternatives, and without considering the idiotic ways in which the product might be misused.

If the time-to-market cycle is shortened, as anecdotal evidence seems to suggest, the time to explore and identify less dangerous alternatives and potential, harmful misuse of the product, is also decreasing. In such an environment, it is vital for manufacturers to erect institutional controls for the consideration of alternatives and the identification of potential hazards.

PRODUCT LABELING CLAIMS

Although a manufacturer is not required to produce a product that is incapable of causing injuries, the manufacturer must give adequate warnings to potential users when an unavoidably unsafe product is manufactured.

The first step in adopting or altering any product labels should always be to consider whether the label warning language has been dictated by federal law. The Consumer Product Safety Commission has published a list of chemicals that are regarded as hazardous substances under the Federal Hazardous Substances Act.^{xiii} The CPSC has listed numerous chemicals that are commonly used in, or in conjunction with, paint and coatings formulations. Depending on the concentrations in the formulas, these include methylene chloride, toluene, xylene, petroleum distillates, turpentine, and others.^{xiv}

Products that fall within the regulations must bear specific warning language dictated by statute and regulation. Ironically, some of that language is remarkably vague, and fails to convey much of a warning to an ordinary consumer. Nevertheless, federal law preempts product liability lawsuits against regulated products based on the failure to provide adequate warnings.

Warnings regarding fungicide and mildicide additives will similarly be dictated by United States EPA regulations issued under the Federal Insecticide, Fungicide and Rodenticide Act.^{xv} Again, the first step is to determine whether the EPA has listed the chemical as a pesticide (and if not, whether the chemical needs to be registered).

Assuming that federal law has not dictated the warning label language, the most common issue is whether the warnings are sufficiently specific. If so, they will defeat most claims for injuries. For example, in Pruitt v. P.P.G. Indus., Inc.^{xvi} a widow alleged that her husband, an aircraft painter for Lockheed, had died following exposure to aerosol containing a form of 1-1-1-Trichloroethane. The solvent was shipped in 55-gallon drums to which labels were attached. The warnings included, WARNING! VAPOR HARMFUL and DO NOT BREATHE VAPORS. At least for a professional user, those warnings were adequate as a matter of law to prevent a lawsuit based on inhalation hazards.

Unfortunately, many warnings are so generic, or are directed to sophisticated users, that they very vulnerable to challenge. Byrne v. SCM Corp.^{xvii} illustrates the consequence of the uncritical

adoption of generic warning language. The plaintiff was a painter who claimed to have suffered respiratory and brain damage following exposure to epoxy paint. The paint containers came covered in common warnings, such as VAPOR HARMFUL, USE ONLY WITH GOOD VENTILATION, Air-supplied respirators should be worn during application in confined areas without good ventilation, and Exposure controls may require use of a NIOSH approved combination vapor/particulate or supplied air respirator.

Good enough? Think again. The plaintiff called three seemingly well-qualified experts who testified that the warnings were dangerously inadequate because they did not say what good ventilation is and [did] not advise any specific kind of mask.^{xviii} The warnings on the material safety data sheets (MSDS) required that at a minimum, a NIOSH-approved chemical-mechanical filter respirator must be used; in confined areas, the use of approved air-supplied equipment was mandatory. The labels on the cans were ambiguous, however, not requiring any specific equipment, and making it sound as if a NIOSH-approved mask was optional.

Perhaps compounding the damaging testimony from the plaintiff's experts, the product manager admitted that the warning language on the labels omitted language making the use of chemical filter masks mandatory, which he thought had been included as a matter of company policy on all product labels. He also admitted that when a member of the label committee suggested adding the language concerning use of NIOSH-approved respirators, neither he, nor other members of the label committee, knew what a NIOSH-approved respirator was.

Another common, generic warning has also been successfully avoided. In Crane v. Sears Roebuck & Co., Inc.,^{xix} the plaintiff sued after she was burned by a fire caused when a water heater pilot light ignited product fumes. The product label said Caution: Inflammable Mixture. Do not use near fire or flame. The water heater was reportedly six feet away from where the plaintiff was working. Because the label did not indicate how near is near, it was left for a jury to decide whether the label was adequate. The jury concluded that it was not.

Compare those warnings with some of the warnings on a polymeric isocyanate derivative marketed as a rust preventative: Instructions: **Do** use an organic vapor particulate respirator, NIOSH/MSHA approved when spraying [the paint].^o If you are spraying in an enclosed area, you **must** use an air-supplied respirator. This product obviously poses hazards if misused, but the warnings leave little doubt about the need for protection with a respirator when spraying the material.

The point is that new formulations require vigilant consideration of warnings specifically tailored for those products. Do not rely on boilerplate warnings from older products or different formulations. Even as to existing formulations, new developments in personal safety technology may require revision of previously sufficient warnings.

Label clarity should be viewed as a marketing opportunity, as much as loss control. After all, clear instructions and warnings will enhance customer results, avoid claims, and improve product reputation. This is a situation where good risk control is good for business.

PRODUCT DISTRIBUTION CLAIMS

The target market for paint and coatings has always affected manufacturer liability. Sophisticated users are held responsible for their failures to heed well-phrased warnings. Some states recognize a defense to failure to warn claims based on the sophistication of the intended users. Several cases addressing the adequacy of warnings have held that statements to the effect that a product was only intended for professional users prevented novices from claiming that they thought the product was safe.

New distribution channels are granting relatively inexperienced users access to a wide range of technically sophisticated products, however. Painting professionals and do it yourselfers now shop side-by-side in home improvement warehouses and hardware superstores. Market share for warehouse and superstores is reportedly growing dramatically. Some stores staff the paint and coatings department with highly trained and experienced sales people who guide

purchasers to products that are appropriate for their skill levels. In many instances, however, unsophisticated consumers can (and do) make purchasing decisions without any assistance.

Stores selling marine coatings also routinely offer high performance, difficult to use products to non-professionals. One executive was recently quoted in a coatings industry publication as saying that 50% of his company's sales for yachts are DIY (do it yourself) applied.^{xx} The polymeric isocyanate rust preventative described above is a marine coating marketed to hobbyists. Some marine formulations are extremely toxic if improperly used, however.

Marketing channels that simultaneously offer professional grade products to inexperienced users present additional risks along with opportunity. Manufacturers selling through a big box retailer cannot expect to defeat a consumer claim by arguing that they thought only sophisticated users would buy the product. The market knows better, and so do juries. Companies should not rely on a well-written MSDS to substitute for a clear product label because a consumer may never see an MSDS.

The wave of new formulations only compounds these risks. Sales staff, and even professional users, will lack experience. Aggressive education campaigns should be undertaken by manufacturers to accompany their new product launches — particularly if new use, clean up, environmental, or personal safety measures are being recommended. As always, this can present substantial opportunity. Product risks can be favorably compared to older, more hazardous products to increase customer acceptance.

As the large warehouse stores have learned, seminars for consumers tend to increase sales and foster product liability.

CONCLUSION

Regulatory and economic pressures are accelerating the development of many new formulations. However, pressures to shorten the time to market make it easier to overlook product safety concerns. It is important to develop institutional controls to ensure customer

satisfaction, and reduce human and environmental hazards.

For each new formulation, substantial consideration should be given to exploration of less hazardous alternatives. Once the hazards have been minimized to the extent reasonably possible, unambiguous instructions and labels should be developed. These will enhance the customers product satisfaction, while at the same time reducing liability and adverse publicity from legal claims. Finally, R&D staff should coordinate with marketing personnel to ensure that the type product being marketed, and its accompanying instructions, is appropriate for the customers likely to buy the product.

^{xii} 262 A.D.2d 447 (1999).

^{xiii} 15 U.S.C. /1261, *et seq.*

^{xiv} 16 C.F.R. 1500.14.

^{xv} 7 U.S.C. /136 *et seq.*

^{xvi} 895 F.2d 734 (11th Cir. 1990).

^{xvii} 538 N.E.2d 796 (1989)

^{xviii} *Id.* at 802.

^{xix} 218 Cal.App.2d 855 (1963). *Crane* was decided prior to the enactment of the FHSA, which might have preempted claims based on the failure to warn if the label had included the required language.

^{xx} Marine and Offshore Coatings, *Coatings World* (May 2004).

ⁱ Cal. Air Resources Board regulations, 17 CCR /94520 - 94528

ⁱⁱ Federal regulations restrict the ability of producers to make claims that products improve health, but in the hysteria concerning toxic mold, many consumers associate anything that prevents mold and mildew with more healthful living conditions.

ⁱⁱⁱ *Coatings World's Second Annual R&D Salary Survey*, November 2003.

^{iv} See, e.g., *Byrne v. SCM Corp.*, 538 N.E.2d 796 (1989).

^v *Crane v. Sears, Roebuck & Co.*, 218 Cal. App.2d 855, (1963).

^{vi} *Haberly v. Reardon Co.*, 319 SW2D 859 (Mo 1958)

^{vii} *Rice v. Gulf States Paint Co.*, 406 SW2D 273 (Tex.Civ.App. 1966)

^{viii} *Mulloy v. Longaberger, Inc.*, 547 NE2D 411 (1989)

^{ix} Epoxy based paints are used in marine environments because the epoxy resins form a hard, durable surface, which is impervious to water. Some epoxy based paints are shipped in two parts, with a

^x 904 S.W.2d 438 (1995)

^{xi} Isocyanates are highly reactive chemicals typically found in the hardener of two-part paints and primers. They are frequently used in paints and primers for marine and automotive applications. Isocyanates are present in two forms, monomer and prepolymer. The isocyanate monomer content is frequently indicated in Material Safety Data Sheets (MSDS), but this is only a small part of the total unreacted isocyanate present. Both forms of unreacted isocyanate are a risk to health when they are released into the air during paint or primer spraying. Breathing unreacted airborne isocyanate can cause coughing, chest tightness, fever, fatigue and sensitization. According to a website maintained by a Canadian health department, many cases of isocyanate-related sensitization have occurred. Once a worker is sensitized, further exposure to even very small amounts of isocyanate will cause distressing asthma-like reactions. The reaction may occur immediately or several hours after exposure. One exposure to a high airborne concentration or several exposures to lower concentrations may result in sensitization. There is no proven method for predicting whether any particular person will become sensitized if exposed to isocyanates.