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Potential Toxic Tort Litigation: Will Used Oil Be the Asbestos of the 21st Century

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POTENTIAL TOXIC TORT LITIGATION: WILL USED OIL BE THE "ASBESTOS" OF THE 21ST CENTURY?

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I. INTRODUCTION

Man's technological achievements stem from his ability to develop an understanding of the environment and harness desirable characteristics for a perceived benefit. To achieve the desired result, man extrapolates from the known to unknown. Because these predictions extend beyond the known realm, unforeseen problems often develop. Chemicals used in applications which were initially considered harmless, have, at times, caused unanticipated, injurious side effects. This phenomenon has been observed for petroleum-based oils. Over the past several years, scientific evidence has determined that many common oils - oils used to lubricate automobiles, industrial machinery and the like - cause detrimental health effects in persons exposed to them over prolonged periods of time. However, while these oils are potentially quite harmful, litigation arising out of prolonged exposure to common oils is minimal; plaintiffs have been slow to bring suit and courts have been reluctant to assess liability.

This paper explores why there has been so little litigation in this area considering both the harm posed by used oils and the high rate of exposure in many occupations. To aid in an analysis, three distinct topics will be addressed. First, basic information establishing the harm caused by prolonged exposure

1 See generally RACHEL CARSON, SILENT SPRING (1962).
to used lubricating oils will be presented which will aid in understanding the potential liability. Second, existing case law shall be analyzed. Finally, the development of future litigation will be explored. Plaintiffs in these suits will typically be persons exposed to used oil by common machine lubrication applications—occupations such as automobile mechanics, manufacturing maintenance personnel and industrial machine operators—who have been exposed to these oils for prolonged periods of time. Likely defendants are companies engaged in formulating, processing, marketing, selling and distributing these oils.

II. HARMFUL EFFECTS OF COMMON LUBRICATING OILS

Common petroleum based lubricating oil is composed of organic molecules, the majority of which are polynuclear aromatics (hereinafter PNAs). PNAs are composed of ring-like structures consisting of linked carbon atoms with a hydrogen atom extending out from each of the carbon bonds. Other atoms, especially halogens, will readily replace the hydrogen atoms. These rings can also link with other rings forming chains. The multitude of arrangements formed by organic molecules accounts for the many physical traits they assume, from volatile gasoline to solid plastic. Besides affecting the physical traits, these arrangements have a significant effect on the potential to cause disease. For instance, several PNAs with four, five and six ring structures are known carcinogens and mutagens.

To understand the harm posed by common oils, it is first necessary to establish an understanding of the type of injury they can inflict. A toxic substance is defined as one which is capable of killing, injuring or otherwise impairing a living organism. The degree to which a substance is considered toxic is quantified through the science of toxicology, the study of the harmful effects caused by chemical substances on living organisms.

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2For example: manufacturing equipment, automobiles and related transportation equipment.

3Personal injury caused by specialty oils such as PCBs, whose harmful effects are already well established, will not be addressed. See Charles A. Wentz, Hazardous Waste Management 72 (1989).


6See Freeman, supra note 4, at 4.4.

7Id.

8Id.


10Id. at 33.
divides the type of harm produced by a toxic substance into two categories, acute and chronic. Acute toxicity is the immediate onset of illness or death as a result of exposure to a substance. Chronic toxicity is the onset of disease that occurs many years after the person has received long-term exposure to a substance. Symptoms of chronic toxicity include a reduction in life expectancy, susceptibility to disease, cancer, harm to developing fetuses and mutation of future offspring. These symptoms manifest themselves as diseases such as silicosis and asbestosis.

Millions of persons come into daily contact with used oil and suffer no immediate harm. Therefore, the primary concern in exploring the harmful effects from exposure to used lubricating oils is the potential for chronic disease. Because of the long latency periods and interrelated causes of chronic toxicity symptoms, the precise effects of chronic toxicity are difficult to pinpoint. This difficulty, combined with the multitude of molecular structures that organic molecules can form, have resulted in much controversy regarding the toxicity of oil.

Those not wanting to see common lubricating oils classified as hazardous argue that the harmful PNAs can be removed during the petroleum refining process. This contention is sound for new, clean oils. However, as oil is working its magic inside the bowels of machinery, subject to extreme temperature and pressure, it undergoes physical and chemical changes, resulting in a potpourri of PNAs, some inevitably toxic. In internal combustion engines this phenomenon is amplified by minute amounts of fuel which constantly seep from the combustion chamber into the crankcase, mixing with the engine's oil. These fuels are recognized toxicants because they contain known carcinogens such as benzene and lead.

The fact that it is used oil which acquires harmful characteristics magnifies the health risk. Although the refining and processing of crude oil can remove known carcinogens, people are most likely to come into contact with used, and therefore carcinogenic, oil. New oil is easily controlled; it is either poured or pumped from clean, new containers. However, after transportation equipment and industrial machinery have been used, worn and broken, someone must change the spent oil, repair the worn chain, gear or ball bearing. All of these components are covered in used, and inevitably toxic, oil. It is a common sight in factories and repair shops to see workers with hands, clothes and faces covered with used oil.

11Id. at 36.
12Id.
13Hazardous Materials Management, supra note 4, at 36.
14Id. at 37.
16See Freeman, supra note 4, at 4.4.
Perhaps one reason many persons do not recognize the harmful propensities of oil is because the Environmental Protection Agency (hereinafter EPA) has not classified it as "hazardous." Failure to classify oil as hazardous may lead people to believe that oil is not as potentially dangerous as other listed hazardous substances. The EPA, however, has recognized the toxicity of common oil but has declined to list it as hazardous because of political considerations.

In 1978, the EPA initially proposed to list used oil as a hazardous waste based on its toxicity when first promulgating regulations pursuant to the Resource Conservation and Recovery Act of 1976. However, before the EPA could finalize its rule, Congress enacted the Used Oil Recycling Act of 1980, causing the EPA to defer listing oil as hazardous out of fear that such a classification would impede used oil recycling.

The EPA's failure to list used oil as hazardous does not diminish the fact that the EPA has recognized its toxicity. In proposing rules and requesting comment concerning regulations covering used lubricating oil, the EPA discussed methods for distinguishing between hazardous waste and used oil. After the comment period, the agency concluded that it is often impossible to distinguish between used lubricating oils and listed hazardous waste. In another report, responding to questions whether oil could be used to control dust on unpaved roads, the EPA recommended against such use because the "components in oil are toxic to humans and the environment."

Congress has been active in the political controversy concerning used oil's harmful propensities. It recognized the harmful effects posed by used oils and the societal effects that a "hazardous" listing would have by proposing legislation to "prohibit the administrator of the EPA from listing or identifying used oil as a hazardous waste."

Due to the political pressure exerted against listing used oils as hazardous and in spite of its harmful propensities, the EPA decided that used oil would not be listed as hazardous even if it displays the characteristics of a hazardous material where those hazardous characteristics developed through degradation during use. Here, the EPA acknowledged that an oil, which

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18 Many specific forms of PNAs are listed as toxic by the EPA, including benzene and its variations, phenols and halogenated hydrocarbons. See 40 C.F.R. S 261, Appendix VII (1994).


when new may have had all known chronic toxicants removed, could develop hazardous characteristics due to chemical changes during use.

The Department of Labor also recognized the dangers of common oils when promulgating regulations addressing the harmful effects which exposure to oil has on employees. An Occupational Safety and Health Administration (hereinafter OSHA) standard was amended to provide for additional protection during site characterization, analysis and material handling activities. In a decision to include waste oil in the regulations, OSHA concluded that "many petroleum products present health hazards . . . . In addition they often contain fractions which present high health hazards." Private groups concerned with environmental degradation have also recognized oil's toxicity. Jacqueling M. Warren, of the Natural Resources Defense Council, gave specific reasons why used oil should be treated as a hazardous substance. She noted that studies have consistently found that oils contain significant concentrations of substances which are known toxicants and carcinogens, including lead, cadmium, arsenic and solvents such as benzene.

Various studies also point to the toxicity of oil. In a study performed to determine whether a National Pollutant Discharge Elimination System Permit should be granted, the researchers found that the mortality rate of duck embryos significantly increased after the embryos were treated with oil. The report concluded that the higher mortality rates were the direct result of the toxic nature of the oil. Some of the general pathological effects observed during the study resulting from the direct ingestion of oil by waterfowl include: lipik pneumonia, gastrointestinal irritation, fatty livers, enlarged adrenal glands and damage to the kidneys and pancreas. In other animal tests, oils derived from shale have been shown to cause such harmful effects as skin inflammations, degenerative changes in internal organs, a reduction in thyroid functions and derangement of the nervous system. Human exposure results in

26 Id. at 2.
27 See 29 C.F.R. § 1910.120, Appendix A & B (1994) (regulations dealing with hazardous waste operations and emergency response and covering personal protective equipment and levels of protection).
32 Id. at *187.
33 Id. at *356.
a decrease of immunologic resistance, impaired peripheral blood circulation and derangement of the central and autonomic nervous system.\textsuperscript{34}

Governmental agencies charged with protecting the public health, together with private researchers, have recognized the toxic propensities of used oils. After reviewing the evidence pointing toward the chronic effects which result from prolonged exposure to used oil, persons who may have been skeptical of the potential harm are likely to acknowledge the danger posed by used oil. Following this line of reasoning, one is likely to conclude that suits resulting from the harm caused by used oil must be relatively common. This, however, is not the case; suits in tort due to chronic illness caused by prolonged exposure to used oils are rare.

III. CURRENT LITIGATION DUE TO OILS HARMFUL PROPENSIETIES

Research into existing case law concerning harmful, chronic effects of used oil reveals only one case directly on point. In \textit{Sweger v. Texaco, Inc.},\textsuperscript{35} a life long auto mechanic alleged that prolonged exposure to used motor oil caused him to develop cancer.\textsuperscript{36} However, the District Court for the Western District of Oklahoma disagreed and granted summary judgment for the defendant oil companies. The trial court reasoned that Sweger had failed to establish a causal link between his illness and the defendants' products. In attempting to establish causation, Sweger had relied on the testimony of an expert witness, Dr. Daniel Teitelbaum.

On appeal, the 10th Circuit Court of Appeals upheld the district court's decision after reviewing the relevant evidence presented at trial, including the testimony of Dr. Teitelbaum.\textsuperscript{37} The court upheld the trial court decision because of a conflict between the two main theories of causation presented by Sweger.

\textsuperscript{34}H. Kahn, \textit{Scandinavian J. of Work Environment and Health}, Vol. 5, 1-9 (1979)(in a study conducted to determine the toxicity of oil products derived from shale, phenols were found - a proven carcinogen).


\textsuperscript{36}But see \textit{Royal Globe Ins. v. Great American Ins. Corp.}, 325 N.W. 2d 556 (Mich. Ct. App. 1982). The plaintiff alleged that his 37 years of daily exposure to the defendant's oil caused him to develop cancer. The trial court granted summary judgment for the plaintiff and the defendant appealed. The appellate court held that summary judgment was inappropriate because all of the necessary facts required to render summary judgment were not heard by the trial court. The appellate court reasoned that the lower court failed to hear any medical testimony which would establish a causal link between the defendant's oil and the plaintiff's cancer.

Although this case is significant in that it establishes a basis for suit where prolonged exposure to an oil resulted in cancer, the record contains no information on the type of oil. The only information given was that the oil was manufactured by the defendant to the plaintiff's employer's specification. Therefore, if the oil contained PCBs, it would not be on point, actions for exposure to oils containing PCBs have already been established and are not addressed herein.

\textsuperscript{37}See Sweger, WL 35345, at *5.
The court reasoned that Dr. Teitelbaum's "one-molecule theory" of cancer formation conflicted with Sweger's allegation of "market-share liability." The court's reasoning grew out of the dichotomy between the plaintiff contending that a single molecule initiated Sweger's cancer while, at the same time, alleging that all of the defendant oil companies should be held liable. The court further reasoned that Teitelbaum's testimony was inconclusive based on the one-molecule theory; he could not say which of the defendants' motor oils interacted to cause the cancer, or when the interaction occurred.

The court also rejected Sweger's argument that, if the one-molecule and market-share theories were in conflict, the one-molecule theory should be rejected and liability should be based on the market-share theory alone. The court concluded that, even if it ignored the conflict between the causal theories presented by the plaintiff, Dr. Teitelbaum's acknowledgment that the defendants' motor oils may not have been a factor in Sweger's cancer fell short of the required degree of certainty necessary to establish causation. The court held that Oklahoma law requires a plaintiff to demonstrate a "significant probability" that the cancer was the result of repeated and collective exposure to the defendants' products, and that Dr. Teitelbaum's testimony fell short of this requirement.

The fact that the Sweger case failed to establish a cause of action due to prolonged exposure to common oils should not discourage other potential litigants from pursuing similar actions. Rather, public policy considerations driving product liability actions should encourage future litigation in the light of the potential harm posed by used oils. In Sweger, after the appellate court affirmed summary judgment for the defendant oil companies, Mr. Otto D.

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38 ld. Under the "one molecule" theory, a single carcinogenic molecule from anyone of the defendants' possibly carcinogenic oils interacted with a single Sweger DNA molecule and produced cancer.

39 See GARY E. CRAWFORD, BASIC PRODUCT LIABILITY AND TOXIc TORT LITIGATION 112-123 (1990)(Under a "market share liability" theory, a plaintiff is required to identify the specific products to which he had been exposed and demonstrate that any of these products would pose a significant probability of causing disease.); See also RESTATEMENT (SECOND) OF TORTS, § 433B(2) (1963) (once the plaintiff has demonstrated that the harm could have resulted from any of the tort-feasors, the burden of proof is on the defendants to show their product did not cause the injury).

40 Sweger, WL 35345, at *5 (the appellate court did acknowledge that the plaintiff was able to prove that he was exposed to all of the joined defendants' products, and that this was required under Oklahoma law).

41 ld.

42 ld.

43 Because of the technological nature of today's products, consumers are generally unable to detect dangers posed by products. Therefore, justice requires that product suppliers be held liable for the harm caused by their products, as an economic incentive to produce safe products, and because suppliers are in the best position to safeguard users. See CRAWFORD, supra note 39, at 11.
Hewitt, appellate counsel for the plaintiff, commented that the carcinogenic characteristics of used motor oil is not a settled question. Mr. Hewitt likened the defendant oil companies of today to Johns-Manville of 30 years ago when it won its first asbestos case.44

The injury caused by prolonged exposure to oils is similar to that caused by asbestos45 and many other chronic toxicants which have a long latency period between exposure to the product and the onset of discernible symptoms.46 Many of these substances were initially considered useful, necessary, and relatively harmless by those who were in everyday contact with them.47 Because of these similarities, precedent based on chronic injury caused by other substances will provide a background for understanding the potential liability facing the oil industry.

IV. DEVELOPMENT OF FUTURE LITIGATION

Suits involving chronic injury due to chronic toxicity are often referred to as "toxic torts."48 As in Sweger, the predominant issue arising in toxic tort litigation generally involves the causal relationship between the defendant's product and the plaintiff's disease. Because the characteristics which cause chronic illness are latent, there is often a great deal of difficulty in establishing causation in toxic tort litigation.49

44Toxics Law Daily, (BNA), May 22, 1992, available in LEXIS BNATLD Database.

45See Kane v. Johns-Manville Corp., 843 F.2d 636, (2nd Cir. 1988)(Johns-Manville was a major manufacturer of asbestos products and prolonged exposure to asbestos was found to cause asbestosis and various forms of lung cancer); See also Beshada v. Johns-Manville Prods. Corp., 447 A.2d 539 (N.J. 1982)(many cases involving asbestos date back to exposure as far as the 1930's); DEBORAH R. HENSLER ET AL., ASBESTOS IN THE COURTS: THE CHALLENGE OF MASS TOXIC TORTS (1985).

46See Abaun v. General Electric Co., 3 F.3d 329 (9th Cir. 1993)(suit for alleged future disease due to exposure to PCBs - a known chronic toxicant), cert. denied, 114 S. Ct. 650 (1994).


48See EDWARD GREER & WARREN FREEDMAN, TOXIC TORT LITIGATION (1989)(Toxic torts can fall under almost any of the common tort theories, including trespass, assault, battery, nuisance, negligence, strict liability in tort and strict liability in warrantee); See also McNair v. Owens-Corning Fiberglas Corp., 890 F.2d 753 (5th Cir. 1989) (toxic tort is a cause of action in tort for a breach of implied warrantee due to exposure to, among others, oil base hydrocarbons); Prego v. City of New York, 247 A.D.2d 164 (N.Y. App. Div. 1989)(the attorney general defined toxic torts as cases arising from injury due to exposure to substances with latent harmful effects).

A. Causation and the Expert Witness

Because toxic torts have evolved out of civil common law, the "common sense of the jury" is generally relied upon to determine whether the defendant's product was "more likely than not" to have been the cause of the plaintiff's illness.\(^5\) Also, due to the latent nature of the injuries arising in toxic tort litigation, expert testimony plays a determinative role in clarifying relevant information for the jury.\(^5\) This is accomplished through the expert witnesses' interpretation of the relevant evidence dealing with a product's toxicity, which is based primarily on animal studies and epidemiological data.\(^5\)

1. Animal Studies

Typically, animal studies are an acceptable basis for an expert witness's opinion linking the plaintiff's disease with the defendant's product.\(^5\) Animal studies monitor the effect brought on by a substance when administered to an animal species at a high dosage rate. The gathered data is then extrapolated to determine the effect of the substance at a lower dosage rate over prolonged periods of exposure. The likely effect the substance will have on humans is then inferred from the results of the study.\(^5\) However, because of the many variables which affect the accuracy of this analysis, such as response variations between humans and animals, along with the inherent inaccuracy of extrapolating from non-uniform dose-response curves, the findings of animal studies are controversial and not universally accepted as being determinative of toxicity in humans.\(^5\)

2. Epidemiological Studies

The causal link between exposure to a product and the resultant injury is less controversial when established through epidemiological studies.\(^5\) In an epidemiological study, a statistical group which is thought to be representative of the general population is surveyed to determine what percentage of the

\(^{50}\) See Greer, supra note 48, § 5 at 2.

\(^{51}\) See Greer, supra note 48, § 4 at 20.

\(^{52}\) See Greer, supra note 48, § 4 at 17.

\(^{53}\) See Fed. Reg. 33,992, § 6 (1986) (it is reasonable to imply that a substance is carcinogenic to humans if there is sufficient evidence of carcinogenicity in animals).

\(^{54}\) See Greer, supra note 48, § 5 at 8 (The response in test animals is plotted graphically against varying dose rates to produce a "dose response curve." From this curve the effects of the toxicant can be predicted at lower dose rates for longer exposure periods.); see also ALI-ABA COURSE OF STUDY, PROOF OF CAUSATION AND DAMAGES IN TOXIC TORT CASES, 49-53 (1988).

\(^{55}\) See Lynch v. Merrell-Nat'l Lab., 646 F. Supp. 856 (1986) (limitations inherent in the use of animal studies); see also Greer, supra note 48, § 5 at 8.

population will develop a specific ailment. A second group, which has been exposed to the substance in question, is statistically analyzed to determine the percentage of affected individuals. The difference between the number of affected individuals in the two groups is indicative of the toxicity of the product under study. However, finding that a specific percentage of the population will be afflicted does not end the legal controversy. There still remains the question which arose in *Sweger*: was the plaintiff afflicted because of his exposure to the defendants' product or did his disease develop naturally, as part of the general population which would have been afflicted anyway?

In determining whether a plaintiff was actually affected by the defendants' product, courts typically require that the plaintiff establish that the defendants' product was a significant or major factor in causing the plaintiff's disease. This was demonstrated in the *Sweger* decision where the Court of Appeals for the 10th Circuit determined that Teitelbaum's testimony failed to establish that there was a "significant probability" that the cancer occurred from "repeated and collective" exposure to the defendants' products.

For a plaintiff to successfully fulfill his burden establishing causation, the expert must be able to testify that the substance was the cause of the disease using whatever legal rhetoric the jurisdiction requires, such as "major" or "significant" factor, and not concede that the disease may have resulted without exposure to the defendants' product. However, even if the expert uses the required verbiage, the expert's conclusions as to the origin of the plaintiff's disease may still not be adequate to establish causation. First, the jury could elect not to believe the witness. Also, the expert's testimony could be rejected by a judge, before the case ever gets before the jury, if the judge determines that the testimony will not assist the jury or the opinion is not generally accepted by the scientific community. Often, this approach is taken because "justice" requires the expert's testimony to be discounted, where an expert testifies with-

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58 See Viterbo v. Dow Chem. Co., 826 F.2d 420 (5th Cir. 1987) (expert witness conceded that plaintiff's symptoms could have had many causes); Intalco Aluminum Corp. v. Department of Labor and Indus., 833 P.2d 390 (Wash. Ct. App. 1992) (the causal relationship does not have to be clearly established by animal or epidemiological studies before a witness can testify that the relationship exists).

59 Tragarz v. Keene Corp., 980 F.2d 411 (1993) (a plaintiff must show that exposure was a substantial factor in causing his disease); See also Burton v. Johns-Manville Corp., 613 F. Supp. 91 (W.D.Pa. 1985) (expert's testimony that defendant's product was a significant or major factor in causing plaintiff's disease was sufficient to prove causation).

60 See *Sweger*, WL 35345, at *4.

61 See C. MARC WHITEHEAD, *PREPARING A TOXIC TORT CASE FOR TRIAL* 107-123 (1991) (preparing an expert witness for a toxic tort trial); See also Greer, supra note 48, § 4 at 19.
out a firm factual basis.\textsuperscript{62} Still, some courts have upheld the validity of expert testimony if the expert was able to draw a firm conclusion as to the cause of a plaintiff's disease, even where definitive animal and epidemiology studies were lacking.\textsuperscript{63}

3. Class Actions

Even though toxic torts rely heavily on the credibility of an expert witness to establish causation, as more suits are successfully litigated, reliance on this testimony becomes less crucial. As the number of suits entering the court system increase, they are often combined into "class actions" where a multitude of plaintiffs are represented in a single case.\textsuperscript{64}

The burden of proof for establishing causation is diminished through precedent, implicating the defendant's product as unreasonably dangerous. Precedent is established through "test cases," where plaintiffs are selected based on their exposure histories and injuries, with those who stand the best chance of success being chosen.\textsuperscript{65} After the "test cases" have demonstrated that a cause of action is legitimate, the problem becomes one of determining whether an individual plaintiff was exposed to the defendant's product, thus reducing the dependance on expert testimony.\textsuperscript{66} In determining whether a plaintiff's exposure to a product was sufficient to establish causation, courts have employed a "frequency, regularity and proximity test."\textsuperscript{67} As awards for damages become even more common, some courts have concluded that exposure to a substance is harmful "as matter of law," thus eliminating the necessity for expert testimony altogether.\textsuperscript{68}

Because oil is such a common substance in our society, millions of people are exposed to it on a daily basis. Like many other substances which were initially

\textsuperscript{62}See \textit{e.g.}, Abaun, 3 F.3d at 334 (in a case alleging risk of future cancer based on a single exposure to PCBs, the trial court held that the plaintiff's expert witnesses had failed to establish causation where a theoretical analysis of the plaintiff's exposure by one expert was superfluous and blood tests by a medical doctor failed to reveal any difference between the plaintiff and the general population.).

\textsuperscript{63}See \textit{Ferebee v. Chevron Chem. Co.}, 736 F.2d 1529 (D.C. Cir. 1984)(causal relationship does not have to be clearly established by animal or epidemiology studies before an expert can testify), \textit{cert. denied}, 469 U.S. 862 (1984).

\textsuperscript{64}See generally \textit{Hensler}, supra note 45.

\textsuperscript{65}See \textit{Whitehead}, supra note 61, at 185-286 (use of class action suits, test cases and bifurcation in toxic torts).

\textsuperscript{66}See \textit{Hensler}, \textit{supra} note 45, at 116 (a critical issue in mass torts is the relationship between the exposure and the disease); \textit{but see Migues v. Fibreboard Corp.}, 662 F.2d 1182 (5th Cir. 1981)(all asbestos products are not "unreasonably dangerous" as a matter of law).

\textsuperscript{67}See \textit{Tragarz}, 980 F.2d 411 at 421 (the "frequency, regularity and proximity test" focus on the plaintiff's exposure rather than the effect of the exposure).

regarded as harmless but were later shown to cause chronic injury, \footnote{In re Joint E. & S. Dist. Asbestos Litig. v. Bliken, 129 B.R. 710 (E.D. N.Y. 1991)(as of June, 1991, there were approximately 10,000 cases involving asbestos related injuries filed in the state and federal courts of Mississippi).} initial suits involving latent harm caused by used oils must be successfully litigated through the use of well-prepared test cases. These cases will require that causation be established through expert testimony based on relevant toxicology data.

4. Other Issues

In the \textit{Sweger} decision, the appellate court raised two other elements in addition to causation on which the plaintiff has the burden of proof in order to maintain a products liability action. First, the plaintiff must show that the defendant's product was defective at the time the product left the manufacturer's control. Second, the plaintiff must show that the product was unreasonably dangerous.\footnote{See Sweger, WL 35345, at *3.}

\textit{a. Existing Defects}

The first requirement, determining whether the product was defective at the time it left the defendant's control, appears reasonable when considered under typical product liability actions. This element is often used as a defense where the defendant is able to show that someone outside of his control modified the product and the modification rendered the product unsafe.\footnote{See Hammond v. Int'l Harvester Co., 691 F.2d 646 (3rd Cir. 1982)(product defect is solely a function of the condition in which a product is sold).} However, in a case alleging chronic injury due to the harmful effects of prolonged exposure to used oil, a defendant will likely ask the court to apply this rule in a strict manner, arguing that the oil was non-toxic when it left the control of the manufacturer and that they should not be held liable for any change the oil undergoes during use.

The \textit{Sweger} decision gives no indication of how a court would handle this issue because summary judgment was granted based on causation and the court refused to address this issue. Also, there is no direct precedent addressing the issue of a toxic product undergoing physical change during use. Typically, substances involved in toxic tort litigation are harmful as manufactured.\footnote{See generally GREER, supra note 48.}

Although a plaintiff has a high hurdle to overcome in establishing a defendant's liability where the product underwent change after leaving the defendant's control, the hurdle is not insurmountable. A plaintiff will have a strong argument based on the fact that change which the oil undergoes is known to occur. This argument will rely on the generally accepted product liability doctrine requiring manufacturers to warn buyers of latent defects
which the manufacturer learns of after the sale has occurred and the product has left the manufacturer's control.\textsuperscript{73}

An additional argument on the plaintiff's behalf which will aid in establishing liability against an oil supplier who contends his product was harmless when it left his control is found in the Second Restatement Of Torts (1965). The wording of § 402A.(1)(b) provides liability for selling a product that is unreasonably dangerous if it is "expected to and does" reach the consumer without substantial change. Although this references the product as not undergoing change, it also implies that a seller should have knowledge of "expected" change which might occur to his product. Thus, it establishes a duty on a seller to know the condition of his product when it comes into contact with the public. It follows that if the seller knows the product will become harmful, the seller must take steps to protect the public, such as issuing an effective warning.

\textit{b. Unreasonable Risk}

The second issue which the appellate court raised in \textit{Sweger}, but did not address, was whether the risk posed by a product was unreasonable.\textsuperscript{74} A plaintiff attempting to establish a cause of action based on chronic injury due to prolonged exposure to used oil will typically be required to prove that the risk posed by the product was unreasonable.\textsuperscript{75} The courts generally employ a balancing test where the utility of the product is weighed against the potential harm caused by the product and the ability of the defendant to guard against that harm. A "risk-utility" test is typically applied to a product liability suit in determining whether the risk posed by a substance is reasonable.\textsuperscript{76}

In establishing a cause of action based on chronic injury caused by the toxic effects of used oil, it would be difficult, if not impossible, to challenge the utility of lubricating oils in our society.\textsuperscript{77} However, the issue of whether the defendant's efforts to guard against the harm posed by prolonged exposure to

\textsuperscript{73}See Patton v. Hutchinson Wil-Rich Mfr. Co., 861 P.2d 1299 (Kan. 1993) (manufacturer of farm equipment has post-sale duty to make reasonable effort to warn of latent hazards which were unforeseen at time of manufacture and sale).

\textsuperscript{74}See Sweger, WL 35345, at *3.

\textsuperscript{75}See Restatement (Second) Of Torts, § 402A, Comment i, (1977)(many products cannot be made entirely safe, therefore, some degree of risk is necessary).

\textsuperscript{76}See Perkins v. F.I.E. Corp., 762 F.2d 1250 (5th Cir. 1985)(risk utility test employed in personal injury suit against manufacture of handguns, the court held there was no liability; the handgun functioned as intended and the dangers of handguns are well known); Carson v. BIC Corp., 1993 WL 53540 (E.D. Mich. 1993)(risk-utility test used to determine whether disposable lighter manufacturer exercised reasonable care in design); Bondie v. BIC Corp., 739 F. Supp. 346 (E.D. Mich. 1990)(court applied risk-utility test and found that manufacturer had duty to design childproof lighter).

\textsuperscript{77}In 1980, the United States produced 947,905,000 barrels of oil which amounted to only 4.3% of the nation's total demand. The World Almanac & Book of Facts 130 (Hana U. Lane ed., 1982).
used oil was reasonable in light of possible safeguards which could have been employed is likely to result in much controversy.78

When dealing with "toxic torts," where improper use leads to unnecessary exposure, and the resulting harm stems from that exposure, the courts generally impose a duty on the manufacturer to issue a warning which will allow the product's user to guard against harmful exposure. Failure to warn of the potential harm would constitute a breach of the duty by exposing users to "unnecessary risk." This has been demonstrated in many product liability cases where the defendant's failure to warn was a main issue at trial.79

The warnings issued to users that are currently employed by oil suppliers consist mainly of Material Safety Data Sheets (hereinafter MSDS) in industrial environments,80 and printed warnings on oil containers for consumers.81 Whether these warnings are sufficient will undoubtedly lead to controversy in future litigation.

Manufacturers and suppliers of chemical substances are responsible for performing toxicology tests on the chemicals they produce and, pursuant to OSHA, making those results available to persons exposed to those substances.82 Chronic toxicity is an item specifically addressed in an MSDS.83

A review of MSDS for various types of oils demonstrates a tendency on the part of oil suppliers to reveal a minimum amount of information which would indicate possible toxicity. Warnings ranging from "Nontoxic (Estimated) - Based on testing of similar products and/or the components,"84 to "3/10 rats

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79 See Dunn v. Hovic, 1 F.3d 1371 (3rd Cir. 1993)(although defendant knew of harm posed by asbestos, brochures represented product as "non-toxic," therefore breaching duty to warn), cert. denied, 114 S. Ct. 650 (1993); Repola v. Morbark Indus. Inc., 934 F.2d 483 (3rd Cir. 1991)("Failure to warn" suit based on common law "reasonable" test); Roesberg v. Johns-Manville Corp., 85 F.R.D. 292 (E.D. Pa. 1980)(advertising and effort to educate users were issues in finding liability for alleged failure to warn); Johns-Manville v. Contra Costa Superior Ct., 612 P.2d 948 (Cal. 1980) (fraudulent concealment of asbestos exposure allowed "action at law" in spite of workman's compensation).


81 Suppliers of motor oil have apparently become concerned with this possibility. Common 1 quart bottles of motor oil sold to the general public at retail outlets now bear the label: "Warning: Continuous contact with used motor oil has caused skin cancer in animal tests. Avoid prolonged contact. Wash skin thoroughly with soap and water. Launder or discard soiled clothes." Valvoline, Inc., a subsidiary of Ashland Oil, Inc., 1 quart bottle of 20W50 motor oil (Copyright 1991).


83 Id. at § 1910.1200(c).

84 Material Safety Data Bulletin No. 673590, VASCUL 18F - Metal Processing Oil. (Mobil Oil Corp., 1989).
died at this dosage level, considered to be no more than slightly toxic . . . " are typical of the listed warnings.85

In examining the warning of potential harm in an MSDS, "three out of ten dead rats" seems to indicate that the oil is toxic, but the inference created by the additional verbiage, "no more than slightly toxic," produces an enigma, requiring further analysis of MSDS phraseology. In a 1985 MSDS covering asbestos friction materials, the chronic toxicity was listed as a "suspect carcinogen."86 However, by 1985 the carcinogenic effects of asbestos were well established.87

Of the least-toxic oil examined, the MSDS stated the oil was "nontoxic (estimated)." This warning would seem to imply that this oil is nontoxic.88 However, the "nontoxic (estimated)" rating was based on tests performed on "similar products." Further examination of the MSDS reveals that the nontoxic designation was based on "[s]everely solvent refined and severely hydrotreated mineral base oils [that] have been tested at Mobil's . . . laboratory . . . [and] showed no adverse effects." In this case, the severe solvent refinement and hydrotreatment operations were likely performed to remove harmful PNAs, thus rendering this test sample nontoxic.89 However, once oils have been subjected to the rigors of service, it is doubtful whether they could be classified as "severely solvent refined and severely hydrotreated" oils. As previously discussed, oil undergoes physical and chemical changes during use.90

The same MSDS also contains some ambiguous wording under the heading of regulatory information: "The unused product, in our opinion, is not specifically listed by the EPA as hazardous . . . [and] does not exhibit the hazardous characteristics of Ignitability, Corrosivity, or Reactivity, and is not formulated with the metals cited in the EP Toxicity Test."91 (emphasis added). Again, the product is likely referred to as "unused" and "formulated" because of the chemical and physical change which the oil undergoes during service.92 It should also be noted that a recognized hazardous characteristic, Toxicity, was specifically qualified as being associated with hazardous metals, and there was no mention of carcinogenic PNAs.93

85Material Safety Date Bulletin for Mobilmet S125 - Soluble Oil Metal Working Fluid (Mobil Oil Corp., 1989).


87See HENSLER, supra note 45, at 1.

88Mobil's MSDS No. 673590, supra note 84.

89Id.

90See Freeman, supra note 4, at 4.4.

91Mobil's MSDS No. 673590, supra note 84.

92See Freeman, supra note 4, at 4.4.

93See 40 C.F.R. § 261, App. VII.
Because of the manner in which warnings concerning the potentially chronic toxic effects of used oil are given, it is questionable whether those warnings are sufficiently clear. Also, the methods used to warn industrial workers are questionable as to their effectiveness. For an industrial worker to determine whether he is being exposed to a chronic toxicant when working with various oils, the worker must locate all applicable MSDS within his work-place, interpret the often vague language and then make his own determination of the substances potential chronic toxicity.

Vague language used in wording an MSDS covering the harmful effects of benzene, a substance often found in used motor oils, led the court in *Mason v. Texaco, Inc.* to conclude that the defendant's warning did not adequately convey the true dangers posed by the product. The court held that the language used in an MSDS must be comprehensible to a reasonably prudent person using the product and that the language should convey a fair indication of the nature and extent of the product's dangers. In reaching its decision, the court reasoned that the wording "may damage blood forming organs" did not reasonably convey the actual danger. The court reasoned that the words "may" and "damage" could be interpreted by reasonably prudent user to indicate that injury is only "possible" and that any injury which did develop might heal itself or could be repaired or treated. The court held that this warning was insufficient in light of the scientific evidence indicating that death inevitably results from prolonged exposure to benzene.

Based on the vague warnings issued in these and other MSDS, industrial workers, being the reasonably prudent users referred to in *Mason*, who suffer chronic illness due to their prolonged exposure to oils, will have a strong argument that the oil suppliers should be held liable. This liability would be based on the suppliers' failure to issue adequate warnings, thus inhibiting the use of proper protective devices.

In the event that a worker properly interprets an MSDS and determines that an oil is potentially harmful, he must then employ protective devices, such as gloves, boots and aprons to prevent exposure. Use of these protective devices will obviously lead to increased expense, not only for the outward purchase and maintenance of the protective items, but also for the time

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9429 C.F.R. § 1910.1200(e).
96id. at 1483.
97id.
98id. at 1484.
99741 F. Supp. at 1484.
100id. at 1483.
required to employ them. Where workers are handling substances that have a well recognized chronic toxicity, it is an accepted part of the standard operating procedure to use protective devices. However, when dealing with common lubricating oils which are regarded as harmless, it is probable that workers who attempt to employ protective devices will be looked upon unfavorably by their employers. Employee requests for protective devices will be considered disruptive, affecting the workers' chances for future advancement, or even the job itself.

In determining whether the oil suppliers have fulfilled their duty to protect users from the harmful propensities of oil, the courts will consider the availability, and non-use, of self-contained systems. Systems are available which allow the removal of used oils from machinery, thus minimizing the potential for human exposure. It would seem a strong argument on behalf of the plaintiffs that, had the harmful propensities of used oil been better appreciated because of more clearly expressed warnings, these self-contained systems may have been employed. The courts could find that persons were exposed to an unreasonable risk because of their failure to appreciate the potential for harm and employ available safety precautions.

In their defense, the defendant oil companies may argue that the harmful propensities of used oil have not been conclusively established and therefore no duty exists which requires warnings based on information which is only speculative. However, this argument was specifically rejected in Mason. The court found that where scientific evidence exists which tends to show potential

102 Id. at § 1910.1200(h)(3)(E) & (F).

103 The general public's perception of a substance's toxicity affects the way the substance is handled. For instance, when California designated used oil as a hazardous waste, more oil entered the state's used oil recycling program. 57 Fed. Reg. 41,566 (1992). This was a surprise to many; the Federal EPA has declined to list used oil as a hazardous substance, even though it contains known toxicants, for fear that excessive regulation would result in illegal disposal. 57 Fed. Reg. 21524 (1992); 57 Fed. Reg. 41,566 (1992).

An explanation behind this "California experience" is based on the public perception of governmental classifications. If the government determines that a substance is dangerous enough to warrant a "hazardous" classification, the public appreciates the potential harm. 57 Fed. Reg. 41,566 at 33. If a substance is not considered hazardous, then it can be poured out like dirty water. This phenomena is analogous to personal hygiene. If a person believes a substance is harmful, he may employ protective measures to protect himself. However, if a substance is viewed as harmless, it likely will be handled as such.

104 See In re Joint E. and S. Dist. Asbestos Litig., 129 B.R. 710 at 739 (U.S. Navy required respirators for asbestos work as early as 1943, however, use was not enforced and there was official connivance in covering up the potential harm).


106 See generally Rossell v. Volkswagen of Am., 709 P.2d 517 (Ariz. 1985)(courts will not allow industries to establish their own standards of conduct due to financial influences which compromise safety).
harm, the manufacturer may not ignore it solely because it finds the information unconvincing. The oil suppliers' argument should also fail because product suppliers are generally required to conduct their own research and testing into the potential harm their products can cause, even though the tests required to establish chronic toxicity of a product may be very costly and require a extended period of time to conduct. The fact that the wording used in the MSDS indicate a potential, yet unconfirmed, possibility of harm, and the amount of monetary resources available to the oil suppliers, should establish liability for failure to clearly define and communicate the harmful propensities of used oil.

An alternative argument on behalf of the defendant oil companies would be that, in the interest of a national standard, the federal regulations covering MSDS preempt any efforts to warn that the oil manufacturers may wish to implement. Again, this argument was rejected in Mason. The court found that, in determining the defendant's ability to know of the harm posed by its product, the proper inquiry must focus on all sources of scientific knowledge, not just information issued by the governmental agencies.

Motor oils sold to the general public do carry a warning concerning the toxicity of used oils on the back label of the container. However, the fact that the warning is not prominently displayed on the front of the label could establish a basis for finding that an insufficient warning was given. Typically, the courts have held that a warning should be sufficient to catch the attention of the user. Changing or adding motor oil is not a complicated operation. The most difficult part of the operation is locating the drain plug and determining where to add fresh oil. This is not explained on the oil container, thus making it improbable that anyone will read the label, or the warning. Also, because all of the pertinent specifications describing the oil are located prominently on the front of the container, it is even more unlikely that anyone will reference the back of the container.

107741 F. Supp. at 1483.


109 Testing: EPA Adds Data to Rulemaking Record to Support Solid Waste Proposal Under TSCA, Chemical Regulation Reporter, January 15, 1988 (90 day testing of 73 substances would cost the manufacturers approximately six million dollars).


111741 F. Supp. at 1482.

112 See Valvoline oil bottle, supra note 81.


114 The Service Rating and Viscosity establishing the correct oil type for a particular application. See Valvoline oil bottle, supra note 81.
c. Statute of Limitations

In Sweger, besides challenging the causation issue, the defendant oil companies requested summary judgment alleging that Sweger's suit was barred by the statute of limitations.\textsuperscript{115} However, the district court denied the defendants' statute of limitations motion.\textsuperscript{116} On appeal, the Court of Appeals for the 10th Circuit refused to consider the defendants' appeal on this issue because the causation issue was determinative.\textsuperscript{117} However, had Sweger been able to satisfy the causal element, the statute of limitation issue may have had a significant impact on his case.

Statutes of limitations have been enacted by the federal and state governments, setting a time limit in which certain actions must be brought.\textsuperscript{118} In many early toxic tort suits, actions were sometimes barred by a court's strict interpretation of the statute of limitations where the court held that the plaintiff's injuries accrued at the time of exposure.\textsuperscript{119} Because of the latent nature of chronic injuries - symptoms which manifest themselves many years after exposure - suits were often barred with no equitable remedy for the injured party.

Developing primarily out of asbestos litigation, the "discovery rule" has been used to eliminate this unjust, technical bar for toxic tort litigation.\textsuperscript{120} Under the discovery rule, the statute of limitations does not begin to run until a plaintiff knew, or should have known, of his illness. A minority of courts toll the statute when the plaintiff knew of the defendant's wrongful conduct.\textsuperscript{121} Regardless of what knowledge a plaintiff is required to attain to toll the statute, the issue of when the plaintiff acquired this knowledge is typically a question for the jury, and not subject to summary judgment.\textsuperscript{122}

A relatively new technical barrier used to limit liability by defendants in toxic tort litigation, strikingly similar to statutes of limitations, is statutes of repose. Unlike limitation statutes, which begin to toll when a plaintiff is injured, or, as in latent injury, when the plaintiff learns of his disease, statutes of repose are time limits which begin to toll when the product is either manufactured or sold.\textsuperscript{123} Because of the long latency periods for chronic toxicants, these time limits can prevent a plaintiff from recovering if applied in toxic tort litigation.

\textsuperscript{115}See Sweger, WL 35345, at *1.
\textsuperscript{116}Id.
\textsuperscript{117}Id. at *6, n.1.
\textsuperscript{118}W. PAGE KEETON ET AL., PROSSER AND KEETON ON TORTS § 30, at 165 & n.9 (5th ed. 1984).
\textsuperscript{120}See GREER, supra note 48, § 3 at 4.
\textsuperscript{121}Id. § 3 at 5.
\textsuperscript{122}Id. § 3 at 6.
\textsuperscript{123}See GREER, supra note 48, § 3 at 7.
Currently, the courts are mixed in their decisions on statute of repose challenges where the victims are suffering from chronic illness.\textsuperscript{124} Another unique issue in toxic tort litigation arises where a plaintiff initially files suit for an earlier disease and later develops another, and usually more severe, disease as a result of the same exposure.\textsuperscript{125} This problem has lead to the development of two unique and controversial forms of damages in toxic tort litigation - increased risk of disease and costs of medical monitoring.

\textbf{B. Damages}

In most classic tort cases for personal injury, the injury, even mental anguish, is a specific injury - pain and/or suffering - experience by the plaintiff.\textsuperscript{126} Perhaps due to the explosion of suits involving asbestos litigation, especially involving Johns-Manville, and the fact that Johns-Manville has sought protection in bankruptcy due to the huge potential liability it is facing,\textsuperscript{127} many plaintiffs have sought to recover for their increased future risk of injury - generally cancer - which has yet to manifest any apparent symptoms.

Two relatively new forms of damages have arisen out of the threat of potential future disease: damages for increased risk of disease and damages for the cost of medical monitoring.\textsuperscript{128} Here, the courts have allowed damages based on a plaintiff's increased likelihood of contracting a disease due to his prolonged exposure to a known toxicant.\textsuperscript{129}

These awards are significant when related to suits involving potential harm due to a plaintiff's prolonged exposure to used oils. First, it should reduce the burden of proof required of plaintiffs. Expert witnesses would not be required to testify that the defendant's oil was a significant or major factor in causing the injury, rather, they would only have to demonstrate that exposure to oil is likely to result in future injury. The potential for harm caused by prolonged exposure to oils has already been established by animal studies. This, and the fact that

\begin{itemize}
\item \textsuperscript{124}Id. § 3 at 8.
\item \textsuperscript{125}Often referred to as "splitting," the majority of courts tend to allow the second action, basing the statute of limitations on the discovery rule. The issue is unsettled however, and it will likely re-occur in future litigation. \textit{Id.} § 3 at 7.
\item \textsuperscript{126}\textit{Keeton}, supra note 118.
\item \textsuperscript{127}See generally Kane, 843 F.2d at 636 (due to extensive pending liability resulting from injury caused by its asbestos products, Johns-Manville filed for reorganization under Chapter 11 bankruptcy proceedings).
\item \textsuperscript{128}A third form of damages which developed out of toxic tort litigation is the fear of developing cancer in the future - cancerphobia - which is closely related to damages for mental anguish under common tort actions. See \textit{Whitehead}, supra note 61, at 347.
\item \textsuperscript{129}See Herber v. Johns-Manville Corp., 785 F.2d 79 (3rd Cir. 1986)(claim for future cost of medical monitoring and for emotional anxiety due to increased risk of cancer were allowed); See also Jackson v. Johns-Manville Sales Corp., 781 F.2d 394 (5th Cir. 1986)(recovery allowed based on a reasonable medical probability of contracting cancer in the future), \textit{cert. denied}, 478 U.S. 1022 (1986).
\end{itemize}
many oils contain known carcinogens, would provide a basis for an expert to testify that a person who has been exposed to those oils over a prolonged period of time is likely to suffer future harm. Second, should the courts grant judgment for the plaintiffs covering payment for preventative medical examinations, these examinations could establish a basis for later awards if actual disease develops. Third, such awards could lay the ground work for epidemiological studies necessary to understand the harm posed by prolonged exposure to common lubricating oils. Finally, in an award of damages to cover the cost of increased medical surveillance, the plaintiff would have a strong argument that the courts should place the burden of the increased medical examinations on the parties who have profited from the oils and on those most able to bear the burden of the examinations - the oil suppliers.

V. CONCLUSION

As time goes on it is probable that an increasing number of individuals will seek compensation for damages caused by the toxic effects of common petroleum lubricating oils. Even today, with warnings appearing on oil containers and Material Safety Data Sheets, lubricating oil is treated as a relatively harmless substance, much as asbestos was treated during the mid part of this century.

This nonchalant treatment of oils may be due to several factors: inadequate warnings issued by manufacturers and suppliers of oil, inadequate governmental regulation which tends to dispel the harm actually posed by oils, the necessity of oil in our industrial society, and the inconvenience required to safeguard persons whose daily work requires high levels of continuous exposure.

Because of the burden of proof which requires a plaintiff to prove that a defendant's oil was a major or significant factor in causing the plaintiff's injury, and the present lack of epidemiological studies available which will clearly establish the required link, early cases based on chronic injury resulting from prolonged exposure to used oil will present a high, but not insurmountable, hurdle for plaintiffs. Animal studies which are indicative of the harm posed by used oils and the fact that used oil contains known carcinogenic substances will form a basis for expert testimony concerning used oil's harmful nature. A first step in establishing a basis for damages may lie

130 See Ferebee, 736 F.2d at 1535 (scientific certainty not required to allow expert testimony).

131 In re Joint E. and S. D. Asbestos Lit., 129 B.R. at 738 (between 1930 and 1935 reports on asbestos appeared in the medical literature which discussed possible health risks posed by asbestos).


134 Toxics Law Reporter, supra note 133.
in an award of damages to cover the necessity of increased medical examinations due to latent and chronic toxicity of used oil.\footnote{Chemical Reg. Daily, supra note 29.}

An acknowledgment of the harm caused to those exposed to used oil today could reduce the number of persons injured due to prolonged exposure to used oil, thus reducing future liability for the oil industry. As further studies link prolonged exposure to used lubricating oil to the resultant injury, the cost imposed by society's misuse of oils will mandate that the courts award damages to compensate the victims.\footnote{See W. Page Keeton, Introduction to Symposium on Development in Tort Law and Tort Reform: Thoughts on Tort Reform, 18 St. Mary's L.J. 669 (1987).} Our society's dependence on oils, the commonalty of oils in our society, and the degree to which we tend to ignore the harm posed by used oils should serve as an impetus for plaintiffs' suits. These suits should be brought, not only to compensate those injured by the chronic effects of used oil, but to enlighten the public to the nature of harm to which million of persons are exposed on a daily basis.

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