

MOBIL CHEMICAL CORPORATION

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“Mobil has concluded that biodegradable plastics will not help solve the solid waste problem. We do, however, see that there are some short-term public relations gains in switching to a photodegradable plastic grocery sack or consumer trash bag, or even a biodegradable bag of each type. And it’s that public relations value that has to be considered as opposed to real solutions to the problem.” – Robert Barrett, spokesman for Mobil Chemical Company, 1988.

In June of 1989, Mobil Chemical Company introduced a degradable line of *Hefty* garbage bags. One year later Mobil Chemical was sued by the attorneys general in seven different states, as well as the Federal Trade Commission (FTC), on charges of deceptive advertising and consumer fraud. The separate lawsuits charged that Mobil misled the public with false advertising claims that its *Hefty* brand garbage bags were “degradable”, eventually forcing them to pull the degradable bags from the product line.

The states involved in the suits included Minnesota, California, New York, Massachusetts, Washington, Wisconsin, and Texas. According to the attorneys general, the problem with *Hefty* ‘s claims was that while the plastic bags may degrade within months of exposure to direct sunlight, most trash bags get buried in landfills where exposure to sunlight is limited, so degradation actually takes many years. Consumers were being misled into thinking they were acting favorably towards the

environment if they purchased the product, when in fact their actions might cause greater environmental damage. Even if the bags did degrade after being buried in landfills, they might release toxic substances that could leach into the groundwater.

The key issue in this case and a number of other similar lawsuits, according to the attorneys general, was that numerous terms were being used in public advertisements insinuating that products were good for the environment, when there was no scientific proof to back up those claims. In some cases, the advertisements were blatantly false. Terms like “recyclable”, “recycled”, “environmentally friendly”, and “ozone friendly” were being used indiscriminately without any basis for the consumer to know exactly what was meant. The attorneys general were determined to hold manufacturers responsible for the accuracy and validity of their claims.

Minnesota Attorney General Hubert Humphrey III described the *Hefty* case as such:

“Unfortunately, Mobil’s advertising claims break down faster than their garbage bags. We simply cannot tolerate this kind of exploitation of consumers or the environment. One of the most exciting trends of the past year is that consumers want to buy products that are good for the environment. But if we allow advertisers to make deceptive claims, consumers may get so confused and frustrated that they stop taking the environment into account when they go shopping.”¹

The Solid Waste Dilemma

During the 1980s, the solid waste disposal crisis made headlines across the United States, as many counties and states realized that their landfill space was becoming increasingly limited. In 1989, Americans produced over 160 million tons of solid waste – more than three pounds per person each day – which was the highest per capita rate among industrialized nations.² Environmental and public health regulations enacted to control the construction of new landfills and waste incinerators were making solid waste disposal dramatically more expensive. Due to the NIMBY (Not In My Back Yard) syndrome, siting became a very difficult issue because nobody wanted one of these facilities located in their community.

General Public belief during this time was that food scraps, paper and other organic-based household products buried in landfills would biodegrade naturally after a period of time. On the other hand, the public believed that synthetic products like plastic would never degrade. By 1990, plastic products accounted for just under 20% of municipal solid waste by volume, and about seven percent by weight (see **Exhibit A**). The public

¹ Press Release, State of Minnesota Office of the Attorney General, June 12, 1990.

² “The Urgent Need to Recycle”, *Time Magazine* Advertising Supplement, June 17, 1989.

cried out for industries, especially the plastics industry, to develop new products that degraded within reasonable period of time.³

Since that time, critics from both the plastics industry and environmental groups have argued that these environmental benefits were grossly exaggerated. As was exposed in a number of studies in the late 1980's, most waste products in typical landfills do not biodegrade nearly as rapidly as public opinion believed. Paper products, organic materials, and even food scraps often are merely preserved in landfills, still recognizable decades after their disposal. In one study of landfill debris, a forty year-old newspaper was uncovered that was still legible. The reporter of the story asked readers to guess what the most common food uncovered in landfills was. The correct answer was hot dogs. The reporter's response: "Their preservatives really work"⁴

Public Demand for Degradables

Consumers, environmental groups, regulators, and grocery retailers began to pressure manufacturers to offer environmentally sensitive products. In a 1990 survey by the Roper Organization, about a quarter of all consumers said they do four things on a consistent basis when making a purchase:⁵

- a) Read labels to determine the environmental impact of the product
- b) Buy degradable plastic garbage bags
- c) Use biodegradable, low phosphate soaps and detergents
- d) Avoid buying products in aerosol containers

The strongest rise in consumer activity during this time came from purchases of degradable plastics. Encouraging such behavior was a large increase in advertising activity by various brands of garbage bags promoting their products as environmentally beneficial. Because of consumer demand, many retailers began reducing store shelf space for product lines that weren't degradable. As many as thirty-five states were considering legislation mandating that unless a *Hefty's* competing lines, most notably *Glad Bags* and *Ruffles*, were already on the market with degradable garbage bags.

How Plastics Degradability Works

Plastics are made up of stable chains of complex hydrocarbon molecules, or polymers, which make it a very strong, lightweight, and durable product. In order for the plastic to begin degrading, these strong molecular bonds must be severed to allow the plastic to

³ Rahtje, Willian L. "Once and Future Landfills", *National Geographic*, May 1991, p. 122.

⁴ *Ibid*, p. 126.

⁵ The Roper Organization, "The Environment: Public Attitudes and Individual Behavior", July 1990, p. 70.

become more susceptible to break under stress. The two types of degradable plastics on the market are photodegradable and biodegradable.

The photodegradation process relies on sunlight to break down the plastic. While hydrogen-carbon bonds may have a low degree of sensitivity to ultraviolet (UV) rays in sunlight, other molecules and ions do not. Therefore, breakdown of these links can be caused by attaching UV sensitive ions along the hydrocarbon chain. When exposed to sunlight, these ions react to the energy generated and break down the bonds between the hydrogen and carbon atoms. The most common photosensitive additives to plastic resins are carbon monoxide (CO) and vinyl ketone.⁶ Photodegradable plastics are designed to break down in three to four months when exposed to sunlight.

Biodegradation relies on bacteria and microbes to break apart the hydrocarbon polymers through enzyme attacks.⁷ Essentially, bacteria feed off the plastic, slowly breaking down the bonds between the individual atoms of the hydrocarbon chains, leaving water (H₂O) and carbon dioxide (CO₂). In order to expedite the biodegrading process, about seven percent corn starch is added to the plastic resin.⁸ When buried in a landfill, bacteria first attacks the starch granules, which are much easier to break down. The hydrocarbon molecules remaining are shorter with more surface area exposed, so more microorganisms can attack a larger area of hydrocarbon chains simultaneously, theoretically speeding up the biodegradation process.

Research has been ongoing by the American Society of Testing and Materials (ASTM) to determine the effectiveness of these treatments in actual landfill systems. Other types of degradables being studied include hydrolytic (requires the presence of water) processes and dissolvable plastics. All of these methods are somewhat slower acting and more expensive than biodegradables.

Problems with Degradables

In theory, as they degrade, plastic bags break down into smaller pieces, leaving only water and carbon dioxide as end products. However, disposing of degradable plastics in modern landfills inhibits such a degradation process. Typically, landfills are designed to minimize the exposure of garbage to water, air, and sunlight in order to prevent certain environmental problems, such as air pollution, groundwater contamination, and disease. Each day, the landfill wastes are covered with a new layer of topsoil, thereby quickly eliminating exposure to sunlight and moisture, the two elements necessary for degradation to occur (see **Exhibit B**). Under such circumstances, photodegradable trash bags would probably not degrade quickly under normal conditions.

⁶ Goldstein, Gina, "Degradable Plastics: Designed to Break Down", *Mechanical Engineering*, p. 53.

⁷ *Ibid*, p. 53.

⁸ "An Array of Degradables", *In Business*, Summer 1991, pp. 25-26.

A second criticism of degradable plastics has to do with their effects on recycling efforts in the United States. The Environmental Defense Fund (EDF) asserts, “perhaps the most serious drawback to degradable plastics is that they are threatening to derail the most promising approaches to managing plastic wastes: source reduction and recycling.”⁹ EDF believes the public might stop recycling plastic containers because of a mistaken belief that the plastic will simply disappear into the earth. Degradable plastics are also less suitable for recycling because the additives they contain may contaminate pure resins, forcing the plastic to lose strength after continuous exposure to sunlight.

Another concern about degradable products is the long term effect they could have on the environment. Doris Cellarius of the Sierra Club says, “We’re concerned that degradable plastics like diapers will leach toxic chemicals into the ground and water. We think we might be better off, after all, if plastic *is* stable.”¹⁰ To this day, data remains too limited to determine the potential dangers from toxic leachates from degradable plastics in municipal solid waste landfills.

Mobil Solid Waste Position

By the mid-1980’s, Mobil Chemical Company, one of the largest producers of plastic packaging, realized that plastics were a significant component of the nation’s solid waste stream. At the time, degradability was viewed as the ecological cure for plastics disposal by many consumer and environmental groups. Mobil’s own position placed degradable products as the choice of last resort. Although the company felt degradability had its place, such as for six-pack loop connectors, it would not on its own **solve** the solid waste disposal problem. Instead, Mobil advocated the view of the U.S Environmental Protection Agency which called for a waste management balance involving source reduction, recycling, incineration, and as the last resort, selective landfilling (see **Exhibit C**).

In 1987, against a backdrop of growing public pressures to introduce degradable products, Mobil Chemical initiated a public education program to address what it felt were key issues in waste management. Robert Barrett was appointed to head a plastics industry solid waste management advisory group called The Council for Solid Waste Solutions. Mr. Barrett addressed solid waste symposiums around the country to discuss Mobil’s position in favor of alternatives to degradables, most importantly source reduction and recycling. Still, their efforts weren’t enough to stop the backlash of mounting negative publicity.

Mr. Allen Gray, Public Relations Manager for Mobil Chemical, complained,

“We didn’t create the public perception as far as degradability solving the (environmental) problems. That was the environmentalists; that was done by the media.

⁹ Goldstein, “Degradable Plastics: Designed to Break Down”, *Mechanical Engineering*, pp. 57-58

¹⁰ Enslow, Beth, “Degradable Liaisons”, *Across the Board*, p.44.

*We find ourselves in a competitive position where consumers wasn't degradable products, and if we're going to stay in business, we have to do what the consumer wants."*¹¹

Introducing Hefty Degradable Bags

In the fall of 1988, David Marshall, Vice President of Marketing and Sales in Mobil Chemical's consumer products division concluded. "Faced with consumer demand, regulatory situations, trade demands, and competitive offerings, we made the decision that we had to offer a degradable product to survive in the marketplace."¹²

Once the decision was made, Mobil researchers went to work on an additive that would satisfy three requirements:

- a) Maintain *Hefty*'s strength
- b) Allow degradation to occur
- c) Not increase the cost to the consumer.

Degradable *Hefty* trash bags were ready by June 1989. The new product included an additive which accelerated the bag's degradability then exposed to direct sunlight. Ultraviolet rays initiated a chemical reaction that increased the degradability of the bags by up to 40%. The cost of the additive was offset by using a slightly thinner sheet of plastic.

The features of the new product were outlined on its packaging (see **Exhibit D**). The front of the box displayed "NEW" in bold letters on the upper right corner and the word "DEGRADABLE*" underneath the *Hefty* label. The asterisk after "DEGRADABLE" was explained in smaller letters at the bottom of the box: "*Activated by exposure to the elements." The back of the box detailed some of the environmental benefits of the new product. Mobil claimed that the bags "contain a special ingredient that promotes their breakdown after exposure to the elements". The box claimed that only "harmless particles" would result from the degradation of the bags, which would continue even after the bags were buried. A bald eagle flying through a sunbeam on the front of the box and a sunlit pine tree on the back added to the environmental appeal of the package.

Environmental Labeling

During the late 1980's, consumers grew more aware of the environmental impacts of manufacturing and disposing of products they purchased and became increasingly willing to change their buying habits in ways to reduce those impacts. Consumers began to seek out products they believed were better for the environment and avoid products they believed contributed to the problem. As a result, ecological packaging and promotion of

¹¹ "Critics Blast Biodegradable Plastic as 'Marketing Ploy'", *Marketing News*, March 19, 1990, p.21.

¹² Lawrence, Jennifer, "Mobil", *Advertising Age*, January 29, 1991, p.12.

products emerged as integral components of the marketing strategies for many manufacturers. However, the information conveyed to the public was sometimes very misleading and controversial.

Numerous survey conducted in the late 1980s found that most American consumers did not believe labels that claimed that products were environmentally safe. Watchdog groups were quick to point out inconsistencies between corporations' environmental records and their environmental claims, in what they perceived as "greenwashing".¹³ While almost three quarters of consumers rated environmental labeling on product packages important only fifteen percent found environmental claims on packages "extremely or very believable".¹⁴

In response to the growing frustration on the part of consumers towards inconsistent marketing claims, a number of environmental labeling organizations have been established. The oldest and most respected label to date is the "Blue Angel" logo in Germany. To date, the "Blue Angel" has been issued to over 3500 products in 64 different product categories. Labeling decisions are made by a jury of sixteen people, with representatives from a variety of interests, including consumer, environmental and industry groups. A 1989 poll showed that almost eighty percent of the German public recognizes the "Blue Angel" environmental label.

Two similar nonprofit groups were recently established in the United States: Green Seal and Scientific Certification System (formerly Green Cross). Manufacturers pay a fee to these certification organizations to have their products' environmental attributes and claims reviewed and then promote their affiliation by displaying the authorized emblem of the certification organization on the product packaging. Although their methods are completely different, their goals are identical – to provide consumers with more information from which to make purchase decisions. One corporate officer insists that independent verification is essential. "In order to build consumer confidence and to maintain credibility the program has to be done by independent people who aren't beholden to the retailer."¹⁵

Scientific Certification System primarily verifies the truthfulness of specific marketing claims made by manufacturers about the environmental attributes of their products. Examples of specific claims that may be certified are "recycled content", "biodegradable", and "energy efficient". They also prepare "Life-Cycle Inventory" reports detailing the comprehensive effects of each stage of the product's manufacture, distribution, use, and disposal. The reports provide information over a full range of concerns – resource use, energy use, air and water emissions, and solid waste disposal.

¹³ Ottman, Jacquelyn, "The Four E's Make Going Green Your Competitive Edge", *Marketing News*, February 1992, p.7.

¹⁴ Dagnoli, Judann. "Consciously Green", *Advertising Age*, September 1991, p.14.

¹⁵ Sansalo, Michael, "Going Green: 3 ways to Build Trust", *Progressive Grocer*, February 1991, p.45.

Green Seal also uses a life-cycle analysis, but sets minimum environmental impact standards for specific industries product categories. Underwriters Laboratories Inc. then conducts rigorous product testing to evaluate whether the manufacturer's product meets these environmental standards for that category. Depending on the product, Green Seal's standards seek to: reduce or eliminate toxic pollution, improve energy efficiency, minimize impacts on wildlife and their habitats, and protect the Earth's atmosphere.

The Green Reports

As the number of products touting unsubstantiated environmental claims grew during the late 1980s, the risk of consumer fraud increased. Based on the states' experiences with nutritional advertising claims in the early 1980s, several potential categories of vague environmental claims were identified. In November 1989, a task force of ten state attorneys general began a series of public forums to study environmental advertising practices in the United States.

There was agreement among all groups that confusion was rampant among consumers trying to make informed choices about the environmental impacts of products they purchased (see **Exhibit E**). It was feared that misunderstandings and abuses of marketing claims would cause a consumer backlash against all products making environmental claims. According to the task force,

“... as consumers demand products that are safer for or have less impact on the environment, industry will strive to meet that demand. But consumer clout can become a major motivating force for improving environmental policies only if the public receives accurate, specific, and complete information about the environmental effects of the goods and services they buy. Unfortunately, attempts to take advantage of consumers' interests in the environment have led some companies to make environmental advertising claims that are trivial, confusing and misleading.”¹⁶

The first report of the findings of the task force was published as “The Green Report” in November 1990. An update that addressed several concerns of the advertising industry was published as “The Green Report II” in June 1991. The task force recognized that enforcement of consumer protection and false advertising laws are under the jurisdiction of the states' general police powers. Therefore, they recommended that federal regulation should supplement, rather than supplant, existing state laws regarding these actions. The attorney general stated that they would vigorously oppose any federal statute or regulation that proposed preemption of state's rights in governing false advertising and deceptive practices. The recommendations contained in the reports are considered by the FTC and other advisory groups as the minimum standards under which responsible environmental advertising claims should be made.

The recommendations included the following (see **Appendix A** for more detail):

¹⁶ The Green Report II, May 1991, p. V.

- a. Establish unified standards for eco-labeling at the national level
- b. Establish standard definitions for frequently used environmental terms (see **Exhibit F**)
- c. Make environmental claims as specific as possible
- d. Support environmental claims with competent scientific evidence
- e. Accurately identify products' environmental attributes.

Why Sue Mobil?

Acting in their traditional roles as enforcers of state laws prohibiting deceptive advertising, the attorneys general investigated a number of questionable environmental claims made during 1989 and 1990. The task force asked several manufacturers to provide scientific substantiation for specific claims, and in some cases to stop making unsubstantiated statements all together. When companies were unwilling to enter into legally binding agreements to modify troublesome environmental claims that task force members felt violated state laws, some members decided to take legal action.

Hefty trash bags' statement of degradability was one such claim with which the task force took issue. After discussions with Mobil failed to result in a negotiated settlement, seven attorneys general filed suit against Mobil Chemical Company on June 12, 1990 (The Federal Trade Commission later filed a similar suit as well.) The attorneys general alleged that consumers were misled into believing that *Hefty* trash bags provided an environmental benefit when disposed of under normal disposal conditions. They charged Mobil Chemical with "failure to provide an adequate scientific basis for its claims that the bags, when disposed of as trash, will completely break down, decompose, and return to nature in a reasonable short period of time".¹⁷

Mobil maintained that everything stated on *Hefty's* package was true. They insisted that the plastic bags would deteriorate, as claimed, under the right conditions. At the same time, in order to avoid consumer backlash, they agreed to delete any references to degradability from all new boxes made, and restock them after existing inventory on grocery stores shelves sold out.¹⁸

¹⁷ FTC News Release, October 9, 1991

¹⁸ Lawrence, "Mobil", *Advertising Age*, p. 13.

APPENDIX A

SUMMARY OF THE GREEN REPORTS I AND II

In November 1990, the attorneys general task force published their findings on the condition of environmental marketing in the United States in “The Green Report”. The task force updated its concerns in “The Green Report II” in June 1991. These recommendations do not have the force and effect of law, but are intended simply to provide guidance to industry for responsible environmental advertising so that companies can avoid violations of deceptive advertising laws of various states. Among the recommendations are the following:

1) Recommendations For Federal Government Action:

A) The Task Force recommended that the federal government establish definitions for frequently used terms for labeling, packaging, and production of products on the basis of a product’s environmental attributes. By developing uniform definitions for terms such as “recycled”, “recyclable”, and “compostable”, business will know what attributes their products must have in order to make specific environmental claims, and consumers will be better informed about what the claims mean when making purchasing decisions.

B) The Task Force also called on the federal government to establish “product life-cycle” assessment procedures so that all of a product’s environmental impacts can be examined, from the harvesting of the raw materials to the final disposal as a waste. Such cradle-to-grave assessment would force businesses to concentrate more on sustainable technologies rather than on just a physical product. However, the Green Report II cautioned advertisers not to promote product life assessments until federal standards are established.

II Recommendations to Industry:

A) Environmental claims should be as specific as possible. Not only are terms such as “environmentally friendly” or “safe for the environment” too vague to be meaningful, they are also inaccurate due to the inherent complexities of environmental issues. These vague and incomplete claims do not permit consumers to make meaningful comparisons between products. Any such claims should include specific background information for consumers to compare the environmental attributes of differing products, and where possible include percentages. For instance, when using the words “Made from Recycled Paper”, the consumer should be told what percentage of the product is made from recycled paper and what percentage from virgin pulp. The term “recycled” should be used only to refer to materials made from post-consumer waste, and not from a manufacturing process waste. If a company wants to advertise both pre- and post-

consumer content, the task force recommends it say something like, “Our package is made from 50% recycled paper and 50% recovered industrial material.”

B) Product attributes should be accurately identified. In promoting previously existing but unidentified environmental attribute, a company should not create the impression that the product has been modified or improved. For example, an aerosol spray product that has been made without chlorofluorocarbons (CFC’s) since the late 1970s should not suddenly claim that it is “ozone friendly”, particularly if it is made with a CFC substitute that also has been determined to damage the stratospheric ozone layer. Also, a clear distinction should be made between the environmental attributes of a product and the attributes of its packaging. At one task force meeting, a county recycling official told of a manufacturer of disposable diapers that placed a large “RECYCLABLE” sticker on its packaging. Below the word recyclable, in small print, were the words “This softpac is recyclable where plastic bag recycling facilities exist.” The county official reported that shortly after the sticker appeared on the box, a consumer dropped off a pile of the boxes and a garbage bag full of dirty diapers. The consumer evidently thought that the diapers, as well as the packaging, were recyclable.

C) Environmental claims should be supported by competent and reliable scientific evidence. As is already required under state and federal law, advertising claims must be supported by tests, analysis, and research conducted and evaluated in an objective manner by persons qualified to do so using generally accepted procedures. The attorneys general saw a serious potential for public deception from private labeling programs, unless such programs were designed, promoted, and monitored very carefully. Because consumers may not know the criteria used for obtaining a particular environmental label, confusion could result if the label were used by the manufacturer to persuade customers that its product was more environmentally sound. The task force indicated the potential for abuse if a company compared its product with a competitor’s product that does not contain an environmental seal. Consumers may consider the product without the seal to be less beneficial, when in fact its attributes may be more favorable than the product have the seal.

D) Disposability claims should reflect currently available options. Businesses advertise disposability attributes of a product only in areas that currently have the infrastructure to handle that disposable option. For example, a product should not claim to be “degradable”, when it will only degrade in composting facilities, and there are no suitable composting facilities available to consumers in the area in which it is sold.

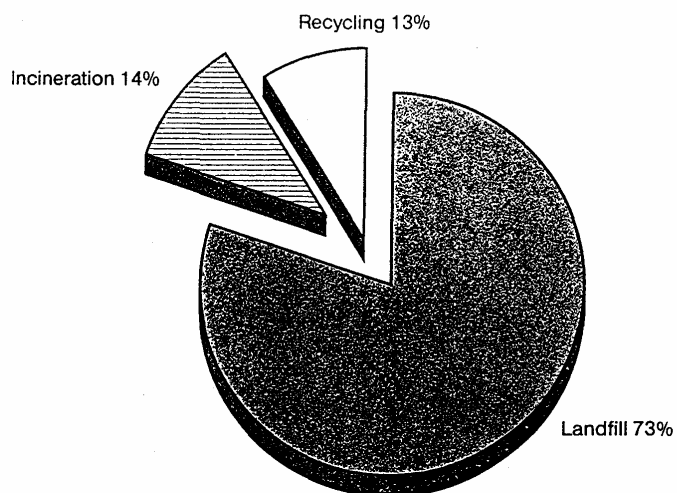
The Green Report specifically cited the usage of the terms “degradable”, “biodegradable”, and “photodegradable” as misleading to consumers. It states:

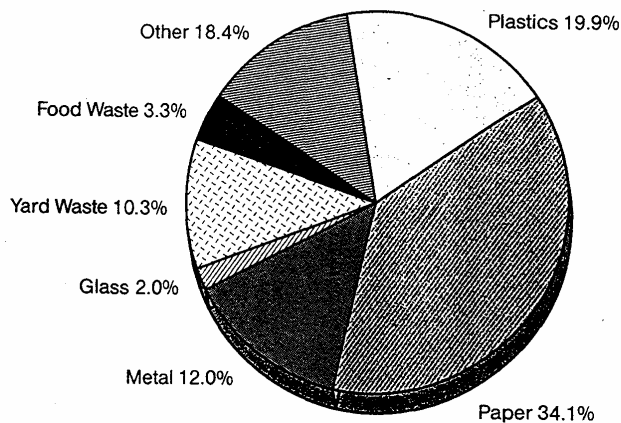
“Products that are currently disposed of primarily in landfills or through incineration- whether paper or plastic – should not be promoted as “degradable,” “biodegradable,” or even “photodegradable.” Virtually all organizations testifying at the Public Forum stated that even products specifically

modified to degrade more rapidly than conventional products do not degrade at any appreciable rate in landfills. ... The Task Force is concerned that consumers do not sufficiently understand that degradability offers little or no environmental benefit for products that will be disposed of in landfills or incinerators and that, consequently, such claims are misleading.”

Manufacturers have countered that this clause creates a burden of “regional advertising”. Such a requirement is particularly onerous to companies who advertise products on a nationwide basis and have little knowledge of state and local solid-waste disposal processes in every region in which they market. They argue that this policy would be very difficult to implement.

Exhibit A1: Waste Management in America

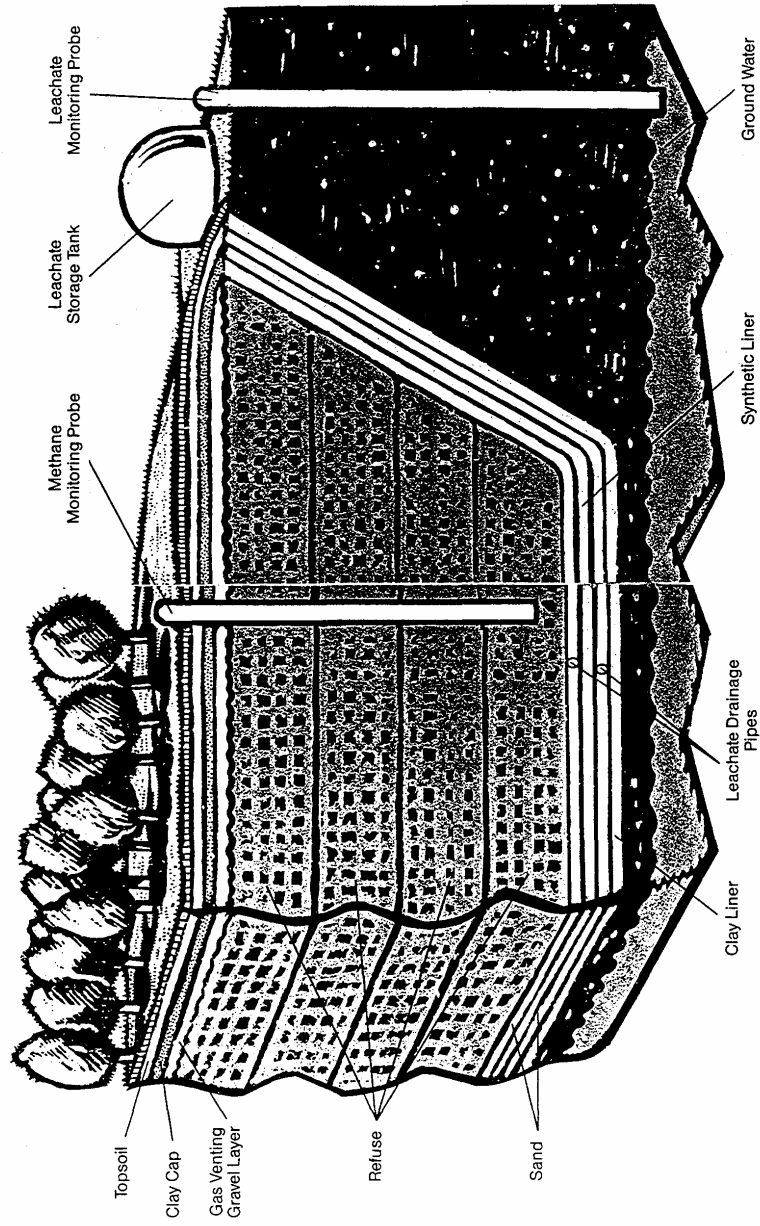
**Exhibit A2: What's In Our Garbage? (by volume)**



Landfills do not close because they are overweight, they close because they have reached their volume capacity. Yet, in the past, the refuse in landfills has been measured on the basis of weight-not volume. This chart illustrates the results of new research that characterizes the volume of materials in US landfills.

(Source: Council for Solid Waste Solutions, "The Solid Waste Management Dilemma".)

Exhibit B: Cross-Section of a Modern Landfill



(Source: Council for Solid Waste Solutions, "The Solid Waste Management Dilemma".)

Exhibit C: Solid Waste Disposal - The Environmental Protection Agency's (EPA) Four Point Plan

The EPA has outlined four different methods of solid waste disposal and ranked them according to which is the least harmful to the environment.

Source Reduction - Emphasis is placed on pollution prevention rather than pollution control. If pollutants are not produced in the first place, then they do not need to be treated or disposed of at the end of their life-cycle. This is the most effective and efficient way of controlling pollution.

Recycling - After use, many products can be turned into other useful goods instead of being thrown out. As of 1991, 13% of the United States' disposable waste was recycled. Recycling is most common with paper and all types of packaging, including glass, aluminum and plastic. The plastics industry argues that degradable bags actually work against the goal of recycling plastic products. The plastic bags that are degradable contain additives that make the plastic less pure, and therefore make recycled plastic less attractive than pure, virgin resins.

Incineration or Waste-to-Energy Schemes - When trash is burned, both the volume and weight of the disposed solid waste are reduced. Burning solid waste at very high temperatures (between 1300-2400 degrees Fahrenheit), almost completely combusts the solid waste while emitting few harmful gases or creating toxic ash. New incinerators utilize the energy released during the burning process and often sell the excess energy to nearby industries and/or utilities. The Clean Air Act of 1990 has also put strict controls on emissions so that few harmful gases ever leave the plant in the combustion process. In 1991, approximately 17% of the country's solid waste was burned either in incinerators or waste-to-energy plants. Both degradable and non-degradable plastic burn easily in these plants.

Landfilling - This is the most common alternative. In 1991, 70% of the nation's solid waste was disposed of in landfills. Modern landfilling techniques require protection against chemicals seeping into the surrounding soil, water and air (see **Exhibit B**). At the bottom of the landfills are clay liners and sand drainage pipes to catch the leachates before they reach groundwater. The refuse is covered daily with a layer of topsoil to prevent odor and chemical gases from escaping into the air. Leachate and methane deposits are monitored from the surface by pipes that run to the bottom of the landfill. When the landfill has reached capacity, it is covered over with gravel, clay and topsoil. With these new techniques, it is difficult for plastics to degrade because of the lack of air and moisture meant to prevent chemicals from seeping out. Less than 15% of all landfills open in 1990 had some of these safety features, but even older landfills do not expose degradable materials to enough moisture and sunlight to allow the process to work rapidly.

(Source: Council for Solid Waste Solutions, "The Solid Waste Management Dilemma"; Environmental Issues Forums, "The Solid Waste Mess: What Should We Do with the Garbage?")

Exhibit D: The New Hefty Degradable Garbage Bag

Hefty **NEW!**
DEGRADABLE*
Tall Kitchen Garbage Bags
30 LEAKPROOF BAGS & TIES
 2 FT. X 2 FT. 5 1/2 IN. / 101 GAL.
 *ACTIVATED BY EXPOSURE TO THE ELEMENTS

New Hefty Degradable
 TALL KITCHEN GARBAGE Bags contain a special ingredient that promotes their breakdown after exposure to elements like sun, wind and rain.

This ingredient promotes degradation without harming the environment. Once the elements have triggered the process, these bags will continue to break down into harmless particles even after they are buried in a landfill.

New Hefty Degradable Bags have the same strength and durability that you've come to expect from Hefty, and you don't have to worry that they'll degrade sitting on your shelf or at the curb. These bags have been specially formulated so they're only activated by exposure to the elements.

Hefty Degradable Bags—a step in our commitment to a better environment.

Hefty Helps!

(Source: Lawrence, Jennifer, "Mobil", Advertising Age, January 29, 1991, p. 13)

Exhibit E: Points of Agreement at the Public Forum

The Attorney General Task Force has identified eight issues on which there was virtually unanimous agreement by both industry, government and consumers.

- 1) Increasing Consumer Demand – Consumer interest in products that are less harmful to the environment has increased dramatically over the past year. Judging by the sheer number of products recently introduced that are promoted on the basis of their alleged environmental attributes, the environment may be the more important marketing trend of the nineties.
- 2) Intense Competitive Pressure – Many companies testified that competitive pressure was the chief reason they began making environmental claims. Some stated that this competitive pressure had taken precedence over concerns about the value of the information to the consumer, and in some instance it was often deemed necessary in order to remain competitive.
- 3) Mounting Consumer Confusion – All concerned parties noted that the growing confusion surrounding many environmental marketing claims leaves fertile ground for abusive advertising practices. This stems from claims which have no clear meaning, the complicated science behind environmental claims, and the different methods of disposing waste which currently exist.
- 4) Derailing Environmental Effects – All parties expressed concern that if consumers begin to feel that companies are taking advantage of consumer's concern about environmental issues, they may become disillusioned and stop taking these considerations into account when making purchasing decisions. Any improvements in environmental quality that accrue through the manufacture and use of more environmentally benign products would therefore be lost.
- 5) Recognition of Corporate Environmental Responsibility – Business representatives candidly acknowledged that each business has an inherent duty of environmental responsibility and that this duty includes a responsibility to minimize the adverse environmental impacts of its products at each stage of a product's life-cycle.
- 6) Need for Standards - Almost every organization testifying at the Public Forums urged the development of uniform national standards, guidelines or definitions to guide business in making environmental claims and to assist consumers in understanding them. Two of the main reasons cited were to try and promote a level playing field for businesses and to reduce the mounting confusion about the meaning of common environmental claims.
- 7) Fostering Competition – Participants expressed concern that government regulation of environmental marketing claims was needed, but could have the adverse effect of stifling the forces of competition which encourages the development and promotion of new, more environmentally benign products.

8) Standard Setting Process – Businesses stressed that since advertising for consumer products is carried out on a national level, any guidelines, standards or regulations must be adopted on a national level and be accomplished through an ongoing dialogue among all parties concerned.

(Source: The Green Report, December 1990.)

Exhibit F: Definitions of Environmental Terms

Biodegradable – Capable of undergoing mineralization in which the predominant mechanism is the enzymatic action of micro-organisms that can be measured by standardized tests reflecting available disposal options.

Biodegradable Plastic – A degradable plastic in which the degradation results from the action of a naturally-occurring micro-organism such as bacteria, fungi and algae.

Compostable – Capable of undergoing physical, chemical, thermal and biological decomposition in a compost facility such that the finished compost ultimately mineralizes into carbon dioxide, water and biomass, leaving distinguishable, persistent, synthetic or toxic residues.

Degradable Plastic – A plastic designed to undergo a significant change in its chemical structure under specific environmental conditions resulting in a loss of some properties that may vary as measured by standard test methods appropriate to the plastic and the application in a period of that determines its classification.

Degradation – A change in the chemical structure of a plastic involving a breakdown of the physical structure.

Photodegradable – Capable of undergoing a significant loss of properties that can be measured by standardized tests after exposure to representative amounts of sunlight.

Photodegradable Plastic – A degradable plastic in which the degradation results from the action of natural sunlight.

Post-consumer recycled material – Those materials that are recycled after having served their intended use.

Pre-consumer recycled material – Those raw materials that are recycled and reused in the manufacturing process.

Recyclable – Capable of being diverted from the solid waste stream in an available program established by the manufacturer, retailer or municipality, being processed and returned to use in the form of raw materials or products.

Recycled – Diverted from the solid waste stream, processed and returned to use in the form of raw materials or products.

Source Reduction – The reduction of the weight or volume of the materials used in making a product or its packaging.

(Sources: ASTM Proposed Definitions and Discussion; Development of Standards for Degradable Plastics by ASTM)

