CONCLUSION

Last year, in response to growing concerns about plastics in the waste stream, the plastics industry formed The Council for Solid Waste Solutions to develop effective, rational solid waste solutions. Through the Council, the plastics industry is currently providing direct assistance to communities to help them establish recycling programs that include plastics. This assistance comes in the form of industry funding and guidance by professionals who have the technical know-how to make recycling programs work in individual communities.

The Society of Plastics Engineers (SPE) was organized to promote scientific and engineering knowledge of plastics, SPE works closely with all aspects of the recycling, reclamation, recovery, disposal and incineration of plastic materials. The mission of SPE's Plastics Recycling Division fosters the advancement of technology and development of recycled plastics as a source of raw material. It promotes education of the public and its members. SPE sends forth information by holding local, regional, national, and international seminars and conferences. Through its publications, it reaches both national and international audiences, and the academic and industrial communities.

There can be little doubt that plastic products, like all other products, have contributed to the solid waste problem, and the plastics industry recognizes its obligation to help develop solutions.

A major step in dealing with plastics must lie with recycling. As Americans, we must change our attitudes toward garbage and recycle those materials which have value as other useful products. Presently, plastic has a recycled value second only to aluminum.

American Plastics Council

A Joint Initiative with The Society of the Plastics Industry, Inc.

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SOCIETY OF PLASTICS ENGINEERS

Presented by:
Plastics Recycling Division

PLASTIC FACTS

American Plastics Council

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DID YOU KNOW THAT . . .

- Although the meteoric growth of plastics has taken place in the last 30 years, their invention—development—occurred during the mid to late 19th century.
- Owing to their light weight, high strength properties and economics, plastics have captured a significant portion of the market for packaging.
- Because of their high visibility, both in every-day life and as litter, many consumers feel that plastics are responsible for closing America's landfills.
- Contrary to popular belief, Franklin Associates, Ltd. in a study for the U.S. EPA, has determined that plastics account for 7.3 percent by weight of municipal solid waste in 1986.
- Landfills do not close because they are too heavy, but because they reach maximum volume. The more important statistic is that plastics account for nearly 18 percent by volume of MSW in 1986 (Franklin Assoc., Ltd.).
- Polystyrene foam foodservice items account for roughly one quarter of one percent of MSW by weight.
- The plastic soft-drink bottle reached a recycling rate nationwide of nearly 23 percent for the year ending 1988. This amounts to roughly 170 million pounds.
- 93 million pounds of milk, juice and water jugs were recycled in 1988. Demand for post-consumer recycled HDPE currently exceeds supply.
- A pound of plastic holds 270 ounces of liquid. Its glass counterpart holds 30 ounces.
- Plastic packaging is the most energy efficient packaging to manufacture and transport.

INTRODUCTION

Consumer demand for flexibility, safety, convenience and cost-efficiency have led to the unprecedented growth of plastics in the last two decades, especially in the packaging industry. Plastics have replaced many traditional materials such as glass, paper, wood and metals in various applications. However, plastics popularity has also increased their visibility as a component of municipal solid waste.

LANDFILLING & DEGRADATION

In a study conducted by Franklin Associates, Inc. of Prairie Village, Kansas, plastics were found to occupy 18 percent by volume of waste generated in the United States in 1986. Paper and paperboard occupied 38 percent by volume in 1986.

The idea that products should be made biodegradable to alleviate our solid waste woes has become very prevalent. Recent scientific data on the nature of landfills reveals that very little in a modern landfill degrades quickly enough to open up free space. Even materials that are completely degradable (grass clippings, food wastes, newspapers, etc.) have been found in a state of mummification after 10-20 years of burial. Environmentalists, government agencies and waste experts agree, biodegradability cannot and will not be the solution to the solid waste disposal problem. The solution must lie with an integrated approach that minimizes waste at its source, recycles what is technically and economically feasible, converts to energy through incineration the combustibles that cannot be recycled and landfills the rest.

ENERGY CONSUMPTION & POLLUTION

Opponents of plastics point to the fact that they are made from petroleum, a non-renewable resource. However, most of the plastics familiar to American consumers are manufactured from ethylene. During the distillation of petroleum, the ethylene fraction comes off as a byproduct which used to be burned for its energy value in refinery processes. Today, this waste gas is the building block for many plastics.

The plastics industry consumes roughly four percent of total annual petroleum consumption by the U.S. This use is more than offset by the savings that plastics create. A study conducted for the British Plastics Federation determined that:

- Plastics in the average motorist's car cuts fuel consumption by nearly 5% and contributes to improved safety performance.
- Plastics packaging has helped reduce food spoilage in the industrialized world to around 2%. Developing countries have a spoilage rate of between 30 to 50%.
- Plastics neither rot nor rust and applications continue to increase. Witness the increased use of plastic lumber.
- Best of all—plastics can be recycled.

In a cradle to grave analysis, conducted by Franklin Associates, that compared plastic bottles to aluminum and glass for the delivery of 1,000 gallons of soft drink, the study found that plastic outperformed glass and aluminum in all categories. The study compared the materials on the basis of energy consumption, air emissions, waterborne wastes and solid wastes produced.

RECYCLING

The plastics industry is committed to significantly increasing the rate of plastics recycling. Its goal: to make plastics the most recycled part of the waste stream by the year 2000. Currently, 170 million pounds of all plastic soda bottles and 93 million pounds of milk and juice jugs are recycled.

The Council for Solid Waste Solutions, a program of The Society of the Plastics Industry, has offered direct assistance to more than two dozen communities to help them implement plastics recycling. Hundreds more have received assistance in the form of technical advice. Council member companies have launched both private recycling projects and joint ventures. They are working to overcome the barriers to post consumer plastics collection, implementing technology to sort them by resin type for reclamation and produce high-quality recycled resins for use as raw materials in the manufacture of new products. Across the country, the Council is helping build the plastics recycling infrastructure needed to make large-scale, national plastics recycling a way of life.

The EPA has set the goal to recycle 25 percent of our nation's solid waste by 1992. The plastics industry intends for plastics recycling to contribute significantly toward meeting that goal.

INCINERATION

Plastics are a safe component in municipal waste incineration. According to Dr. Richard Magee of the New Jersey Institute of Technology and other authorities from around the world, in a modern waste-to-energy facility equipped with available high-tech pollution control devices, all wastes can be safely incinerated and their energy value recovered. Because plastics are petroleum and natural gas derivatives they burn at a higher temperature than other wastes and help to make the combustion process more complete. A more complete burn is a cleaner burn.

Incineration plays an important role behind reduction and recycling in the EPA's four-tiered hierarchy for disposal of municipal solid waste. It can safely reduce up to 90 percent of our nation's garbage by converting that waste into useful energy.

SOURCE REDUCTION

Source reduction ranks first among the EPA's four-tiered approach for managing our nation's solid waste. Source reduction conserves environmental resources, prolongs the life of landfills and makes landfilling and incineration safer by removing toxic substances. The plastics industry has made great strides in reducing the amount of plastic utilized in packaging without compromising performance.

- The weight of an average high-density polyethylene (HDPE) milk jug has been reduced from 95 grams, in the early '70's, to 60 grams today. A reduction of 37 percent.
- Double-lamination reduces the volume of many polystyrene foodservice items by as much as 40 percent.
- In 1976, plastic grocery sacks were 2.3 mils thick, in 1984, they were reduced to 1.75 mils, and in 1989, thin being in, thickness was reduced to .7 mils without sacrificing strength or durability.