Facts About Plastics and the Environment... A Roplast Perspective

"Would you like paper or plastic?" A question we are often asked...

The answer is plastic... whether you are a concerned and environmentally aware consumer or a responsible corporate purchasing executive.

Why plastic rather than paper? Consider the following important environmental issues and related facts:

Issue 1: ENERGY AND OUR NATURAL RESOURCES

■ ENERGY REQUIRED TO MANUFACTURE PLASTIC AND PAPER BAGS:

It takes more than four times as much energy to manufacture a paper bag as it does to manufacture a plastic bag.

PLASTIC BAGS vs PAPER BAGS

ENERGY TO PRODUCE BAG ORIGINALLY (BTUs)

Safeway Plastic Bags	594
Safeway Paper Bags	2511

Source: 1989 Plastic Recycling Directory, Society of the Plastics Industry

From this table you can see that plastic bags consume far less energy in the manufacturing process than paper bags. The primary reason for this is that it takes only one-eighth as much material to produce a plastic bag.

■ LOWER SHIPPING REQUIREMENTS:

Since plastic bags are normally much thinner and lighter than comparable paper bags, it would take at least *seven* 45-foot trucks of paper bags to deliver the quantity of bags contained in *one* 45-foot truckload of plastic bags. Consequently, the use of plastic bags reduces road traffic and the resulting air pollution, as well as truck fuel consumption.

■ NATURAL RESOURCES:

Polyethylene is derived from comparatively small quantities of natural gas. All plastics and chemicals use less than 10% of the total oil and gas produced in this country; most goes into transportation and heating. In contrast, paper is made by destroying trees. Paper is a product that has significantly greater impact on a diminishing resource (forest lands) than does polyethylene (natural gas).

Issue 2: POLLUTION

■ ENVIRONMENTALLY SAFE PRODUCT:

Plastic bags are an environmentally safe product to produce. However, the majority of kraft paper is made by heating wood chips under pressure at high temperatures in a chemical solution. As evidenced by the unmistakable stench commonly associated with paper mills, the use of these toxic chemicals contributes to both air pollution, such as acid rain, and water pollution. Millions of gallons of these toxic chemicals pour into our waterways each year, and the toxicity of these chemicals is long-term and settles into the sediments, working its way through the food chain.

The West German government compared paper grocery sack production with the plastic manufacturing process and found:

PLASTIC BAGS vs PAPER BAGS

Paper sacks generate 70% more air pollutants

Paper sacks produce 50 times more water pollutants

Source: "Comparison of the Effects on the Environment of Polyethylene and Paper Carrier Bags," Federal Office of the Environment, August 1988

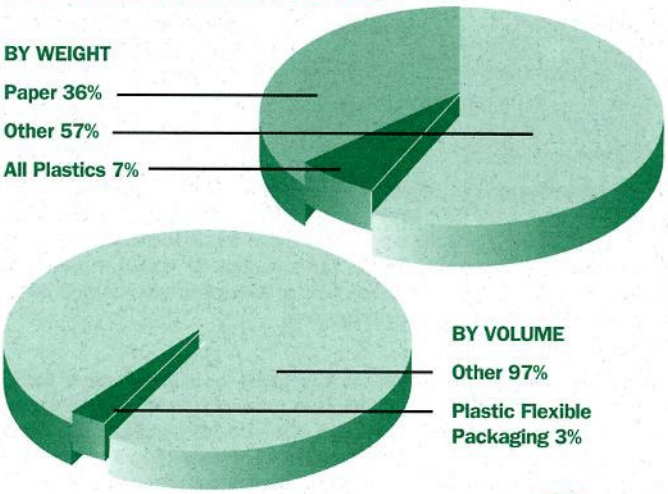
Issue 3: THE LANDFILL CRISIS

At Roplast Industries we advocate an integrated approach for effective solid waste management. This includes: reuse by the consumer, recycling, incineration, source reduction and, in certain applications, degradability.

First consider the facts...

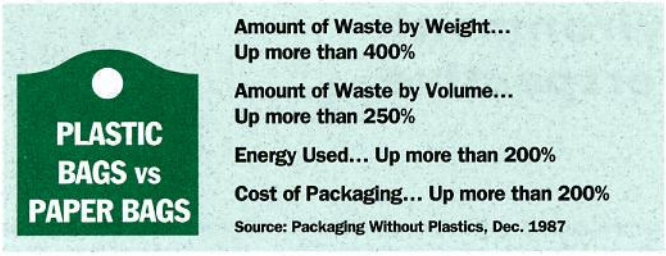
Plastic film is estimated to account for less than 3%, by volume, of municipal landfills. By weight, plastics account for only 7% of U.S. landfills.

LANDFILL COMPARISONS



It takes seven trucks to deliver the quantity of paper bags contained in one truckload of plastic bags.

Another West German study considered eliminating all plastic packaging but concluded...



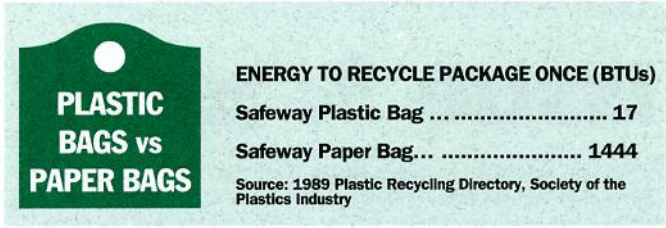
■ RECYCLING:

Plastics can be, and are currently being, reprocessed at both the manufacturing and post-consumer levels.

Roplast has implemented a policy of recycling all manufacturing scrap through an in-house, state-of-the-art reprocessing system, as well as a program to collect, sort, and reprocess bags drawn from the solid waste stream.

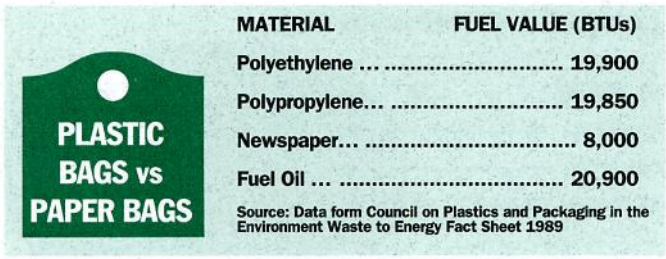
Our reprocessed resin can then be blended with virgin resin. Roplast's recycling plan is instigated by a firm commitment to and concern for the environment.

It is also important to note that it takes 91% less energy to recycle a pound of plastic than it takes to recycle a pound of paper.



■ INCINERATION:

Plastics are a valuable, non-toxic, source of fuel for modern waste-to-energy incineration. Plastics have a fuel value almost as high as fuel oil.



In addition, burning polyethylene has not been shown to increase toxic air emissions in waste incinerators. Eight studies of actual incinerators demonstrate no evidence that the type or amount of polyethylene being burned has any effect on toxic emissions.

■ REUSE:

Consumer reuse of plastic bags has traditionally been an important factor in the growth of plastic bags. Retailers have recognized the enhanced advertising value printed plastic bags offer. The consumer, on the other hand, appreciates the many secondary uses of retail plastic bags in and around the home. Moreover, shoppers reuse of strong, durable, waterproof plastic bags reduces solid waste by reducing the need for new bags.

■ SOURCE REDUCTION:

Plastic bags used today are 20%-50% thinner than plastic bags manufactured 10 years ago. New resin technologies have enabled plastic bag manufacturers, such as Roplast, to provide more affordable premium films offering greater strength and performance than ever before. Plastic bags are up to 90% thinner than their paper alternatives, and the use of these thinner, superior films has had a significant impact on reducing the volume and weight of plastics in municipal landfills. Professor Rathje of Arizona State University estimates that while the proportion of landfills represented by paper has risen from 36% in 1970 to 55% today, the proportion of plastic has only increased from 11% to 12%.

■ DEGRADABILITY:

All polyethylene is inherently photo-degradable over time with exposure to sunlight. Current research demonstrates that paper in today's landfills does not degrade or break down at a substantially faster rate than plastic does. In fact nothing completely degrades in modern landfills because of the lack of water, light, oxygen, and other important elements that are necessary for the degradation process to be complete. However, non-toxic additives (e.g. cornstarch) can be blended with the polyethylene resin to facilitate the degradation process. Thus plastic bags with enhanced "photo" and "bio" degradability are available for certain suitable applications such as compost bags.

References: (papers available form Roplast, 800-ROPLAST, on request)

1. Plastics News, July 1990 "Plastics Fare Well in Energy Use" by David W Dueweke, Physicist for GTE Corp.
2. Canadian Geographic, June/July 1990 "The Challenge, Making Paper Without Pollution" by Des Kennedy
3. The Atlantic Weekly, December 1989, "Rubbish" Professor W. Rathje
4. "Packaging without Plastic," A report commissioned by the Government of the Federal Republic of Germany, 1988
5. "Comparison of Environmental Compatibility of Paper and Polyethylene Merchandise," A report commissioned by the Government of the Federal Republic of Germany, 1988
6. "Resource and Environmental Profile Analysis of Polyethylene and Unbleached Paper Grocery Sacks," Franklin Associates, Ltd, June 1990.