

Vinyl Plastics: An Environmental Profile

Vinyl has become one of the most widely used materials in part because of its cost-efficiencies and economic use of natural resources. These efficiencies begin when vinyl is produced, and continue throughout its lifecycle, encompassing such elements as raw material usage, energy used in processing, energy used in distribution and transportation, durability (time before the product must be disposed of or replaced), maintenance requirements, and disposal costs.

Facts at a Glance

- ✓ Vinyl is only partially derived from petroleum feedstocks. The balance (over 50 percent) comes from salt. Worldwide vinyl production represents less than 0.3 percent of all annual oil and gas consumption, and about 10 percent of annual salt consumption.¹
- ✓ Vinyl compares favorably to other packaging materials. In 1992, a lifecycle assessment comparison of specific packages made from glass, paperboard, paper and selected plastics concluded:²
 - Vinyl was the material with the lowest production energy and carbon dioxide emissions, and the lowest fossil fuel and raw material requirements of the plastics studied.
 - The vinyl chloride monomer (VCM) production process (the precursor step to vinyl production) is a classic case of in-process waste-minimization since virtually all material used to make it is recycled back into the process.
- ✓ Vinyl compares favorably to other materials used in the transportation and construction industries. A 1991 study of the energy consumed by various materials used in these markets found:³
 - Vinyl is one of three plastic materials with the lowest energy requirements of twelve major plastics used, and saves more than 34 million BTUs per 1,000 pounds manufactured compared to the highest energy-consuming plastic.
 - The use of vinyl in the transportation market saves an estimated 10 trillion BTUs per year -- the equivalent of 1.7 million barrels of oil, or ten billion cubic feet of natural gas.
 - The use of vinyl in eight major building and construction applications saves an estimated 260 trillion BTUs per year -- the equivalent of 44.2 million barrels of oil, or 260 billion cubic feet of natural gas.
 - Together, the use of vinyl in the transportation and construction markets alone saves 270 trillion BTUs per year -- enough to meet the annual energy requirements of nearly 2.7 million households.
- ✓ Additional resources are saved because of the durability of vinyl. Some PVC pipe installations, for instance, have been in use for nearly 50 years and do not yet need to be replaced. By reducing the frequency with which a product must be replaced, vinyl further reduces raw material consumption, and as well as demolition scrap destined for landfills.

¹ *PVC and the Environment*, Norsk Hydro, 1992.

² *"Vinyl Products Lifecycle Assessment,"* Chem Systems, Inc., Tarrytown, New York, March 1992.

³ *Comparative Energy Evaluation of Plastic Products and Their Alternatives for The Building and Construction and Transportation Industries*, Franklin Associates, March 1991.