Biggest use of plastics: product packaging

Q. How are plastics made? What are the primary uses of plastic?

A. Plastics are manufactured by two separate industries using two distinct processes:

1. The plastic resin-production industry is composed of some very large chemical companies. It converts industrial organic chemicals into plastic resins.

2. The plastic processing industry is made up of many small companies. These small companies extrude, inject, or blow-mold to form the resins into end products.

Plastic resins are made by linking

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small groups of molecules or monomers into long chains called polymers. Through polymerization propylene can be made into polypropylene; natural gas and crude oil are made into polyethylene terephthalate (PET); styrene into polystyrene; vinyl chloride into polyvinyl chloride.

Chemical additives at either stage can transform a single resin into finished products bearing no resemblance to any other. The finished products may be flexible or rigid, transparent, opaque or colored, easy to tear or stronger than steel.

THE SINGLE largest use of plastics is in packaging. It accounts for one-quarter of all plastic used today.

There are six resins used to make plastic packaging: low-density polyethylene (LDPE); high-density polyethylene (HDPE); polystyrene (PS); polypropylene (PP); polyethylene terephthalate (PET); polyvinyl chloride (PVC).

Plastic packaging falls into four categories:

Plastic films, which represents 35 percent of all plastic packaging, is made from all six resins. Polyethylene (LPDE and HPDE) are used most frequently because they are strong and can keep out moisture. Examples include trash bags, plastic wrap and grocery bags.

PET is widely used for boil-in-bag pouches because of its ability to withstand high temperatures. Nearly all meat products are wrapped in PVC film that can keep meat from turning brown.

PLASTIC BOTTLES make up 27 percent of all plastic packaging. All six resins are used in their manufacture.

Polyethylene (low- and high-) are used to make tough, sturdy bottles where transparency is not required, such as milk jugs, bleach and detergent bottles and motor oil.

PET is used when transparency is needed. Plastic beverage bottles are made exclusively of PET because of its unique ability to retain carbonation.

Rigid plastic containers, such as cottage cheese or yogurt tubs, are now made with polyethylene, polypropylene and polystyrene, rather than coated paper containers. These rigid containers account for 24 percent of the plastic packaging market. Polystyrene foam (known commonly to consumers as "styrofoam") has virtually replaced paper to make egg cartons, meat trays and insulated cups.

Plastic coatings, 14 percent of all plastic packaging, are used as barriers to protect paper or metal foil from moisture, oils or chemicals. The milk carton that used to have a wax coating now is coated with plastic.

Screw tops and snap-on lids are frequently made from polypropylene and polystyrene.

Next Week: plastic pollution — front end and back.

The Consumer Mailbag answers your questions. Address mail to The Consumer Mailbag, Concern Detroit, One Kennedy Square, 4th Floor, Detroit 48226.

Older drivers crash at signs

With age, a driver's chances of causing an accident increase. Motorists 70 and older are involved in a higher percentage of traffic sign accidents at intersections than younger drivers, an insurance official told members of the Society of Automotive Engineers (SAE).

"The responsibility for an accident increases as the motorist ages, with those age 70 and over involved in a higher number of stop sign and yield sign incidents," said Rene Monforton, AAA Michigan claim operations director.

He added that the increase may be attributed to a decline in visual and psychomotor skills.

PART OF the reason for more accidents among older drivers, he said, could be that vehicle and road systems are not designed to recognize driver declines based upon the aging process.

Monforton spoke at an SAE seminar at Dearborn, reviewing the findings of a study of 3,301 claim files of AAA insureds age 55 and older. The study was coordinated by Monforton and Thaddeus Dumala of AAA Michigan, Anthony Yanik of General Motors environmental activities staff and Frank Richter, a gerontology research consultant.

"We looked at the claim files of accidents which could be substantiated by police reports between Nov. 1, 1985, and Oct. 31, 1986, in an attempt to determine if certain accident patterns become representative as drivers age," Monforton said.

The analysis was based on collisions involving stop and yield signs, entering a thoroughfare from driveway, traffic signals, rear ends, changing lanes, loss of control and non-intersection turns.

THE SURVEY found:

- Those under 55 years of age tended to be involved in a high percentage of rear-end and loss-of-control accidents, but a lower percentage of traffic signal accidents.
- The 55-64 and 65-70 year age groups showed a decrease in percentage of stop and yield sign accidents, but an increase in traffic signal accidents.
- The 70 and older group revealed a marked increase in percentage of stop and yield sign incidents, signal light accidents, entering from driveway accidents and non-intersection turn accidents.
- But the 70-up group had a smaller percentage of rear-end and loss-of-control situations.
- There is a trend for drivers over age 70 to be at fault at intersection accidents in Michigan.