

Markets (cont.)

the plastic wood is damaged or made useless, it becomes garbage. Open loop is not necessarily a bad way of handling waste. Some material cannot be recycled in a closed loop system due to the lack of available technology or other factors. Under such circumstances, recycling material once is better than not recycling it at all.

Further proof of the existence of markets can be seen in the goods made from recycled products. The demand for these goods urges business and industry to buy recyclable material. This leads to the creation of markets. Examples of recycled products and the re-manufacturing methods used to make them are listed below.

Paper (See HANDOUT: **Paper Process Flow Chart** D53)

The use of paper in recycling depends upon the grade of the material. These grades are determined by fibre length; the longer the fibre, the higher the grade. A general ranking of paper, from highest to lowest, is as follows: fine paper, newspaper, box board and kraft paper, cardboard and lastly paper towels and toilet paper. Most paper is recycled in the same fashion. Upon arrival at the plant, the material is churned in a *pulper* with special soaps, then passed through a series of filters and screens to remove contaminants. The mixture now enters flotation cells where air bubbles take inks, soaps and clay fillers to the surface. These are skimmed off and in some cases, the ink is collected for recycling. De-inked pulp is now mixed with new pulp from virgin resources. After passing through presses, dryers and rollers, sheets of recycled paper are produced.

The need for virgin paper would seem to defeat the purpose of recycling but this is not the case. Re-manufacturing paper causes the fibres to become shorter, thereby down-grading the material. Adding new pulp helps keep the old paper strong enough to be useful. Some paper, like newspaper, can be made of 100% recycled product.

Typically, the different grades of paper are either made into a new version of the same product (e.g. fine paper to fine paper) or mixed to make other items. An example of the last point would be using telephone directories to make paper towels. Sometimes material is mixed with non-paper products to form new goods. Old newspaper is combined with fire retardant material to make insulation. Cereal boxes, fine paper, cardboard boxes, books and magazines are also made from recycled paper.

Glass (See HANDOUT: **Glass Process Flow Chart** D54)

Glass is the second greatest recycled material by volume in Canada. Colour is used to differentiate one type of glass from another. Generally, the division is decided by whether the glass is clear or coloured. In some cases, the latter may split into two more categories: green and brown. To tell which class *frosted glass* falls under, a person should examine the neck of the container. Other bottles appear to be clear, but are really a very faint green or blue. By holding this type of glass to the light, the colour can be identified.

Recycling operators collect, sort by colour (depending upon the buyer's request) then ship old glass to facilities where new containers are produced. These loads are inspected by the glass manufacturers to ensure the material is acceptable. Recycled clear glass used to make new clear glass must be 99.5% pure. Conversely, up to half of the waste glass used in making green bottles can be different in colour. Clear and