

which can pose a significant hazard to human health and the environment. So too can the manufacture and disposal of the sulphuric acid in the batteries.

At present, however, there is no other way of starting a car that is as relatively reliable, simple and economical, and environmentally acceptable. Therefore promoting the use of long-life batteries and those that contain high percentages of recycled materials, is currently the most practical way of minimising the adverse impacts of lead acid batteries on the environment.

The Environmental Choice specifications require that the batteries contain at least 80 percent recycled lead, and that lead-recycling facilities be provided for spent batteries. This is only a beginning. We also intend to consider the recycling of the sulphuric acid in the batteries when this specification is revised in 1993, when it is expected that such recycling facilities will be available.

It is a slow process defining specifications in different product categories and, before being adopted, each is advertised for public comment. As well as lead-acid batteries, the Environmental Choice committee now has criteria available for



A dumped car battery. Before these products can carry an Environmental Choice logo they will need to contain at least 80 percent recycled lead and the manufacturer will have to provide lead recycling facilities for spent batteries. And after next year this could be extended to the sulphuric acid in the batteries also.

Is paper better than plastic?

THE ONGOING DEBATE over the relative environmental failings of paper and plastic illustrates many of the dilemmas that exist in establishing environmental standards.

This magazine, for example, is despatched in a plastic wrapper and we get queries from members about the wrapper and its supposed lack of environmental friendliness. To be honest, there are some pretty good non-environmental reasons for using the plastic: it costs us less which leaves more money for the society's conservation programmes. It also protects the magazine better: you get less damaged and wet magazines, we get less complaints.

If it was just a matter of saying that paper is a renewable resource and is relatively easy to recycle, while plastic is made from petroleum which is not renewable and is more difficult to recycle, then the decision would be easy. But a good cradle-to-grave analysis has more to it than that. What about some of the less visible environmental impacts such as the relative levels of pollution in manufacture? Or the energy used in transporting the raw materials and the finished products?

Here are some issues to think about in determining the environmental costs of paper and plastic:

- paper is a renewable resource but doesn't always come from renewable forests.
- paper production generally creates more air pollution (sulphur dioxide, nitrogen oxides, carbon monoxide and dust, but not hydrocarbons) than does plastic production. In fact paper manufacture is one of the least environmentally friendly industrial processes known. The paper recycling process is less harmful.
- plastic bags require only half as much energy to produce as the equivalent-strength paper bags.
- paper manufacture produces a lot more waste water than plastic manufacture and also a higher chemical pollutant load.
- plastic is lighter for the equivalent-strength paper thus saving significantly on the energy needed for transport and distribution.
- plastic is very slow to degrade and is hazardous to wildlife if it ends up in waterways or the ocean.
- paper degrades more quickly but in the compacted airless condition

- of landfills produces methane – a greenhouse gas. Sometimes it barely degrades at all and there have been cases of decades-old newspapers being dug up which are still readable.
- paper can be recycled and often is.
- plastic can be recycled but not much is.

There are more issues to consider in the equation. The technology used in the paper manufacture can vary considerably in its environmental impact, depending on whether the paper is bleached with oxygen or chlorine agents. Also, paper made in New Zealand will cause less air pollution than paper made overseas because more of the energy used is from hydro rather than thermal sources. There will also be less energy transport costs.

Confused? It is not obvious whether paper or plastic is the clear-cut environmental villain. Both have their uses. The answers lie in using less, reusing and recycling more, and ensuring that environmentally efficient technologies are employed in manufacture and distribution.

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