

## Plastic & Environment:

There are three possible environmental problems to be considered. Firstly, plastics are mostly made from oil, natural gas or coal, and these are all limited natural resources that must be conserved. Secondly, the manufacture of plastics produces a lot of harmful pollutants which manufacturing companies need to deal with properly. Thirdly, old and unwanted plastics are not always easy to dispose of. Buried in landfill sites they will take a very long time to rot. To reduce these problems plastics must be 'designed' (for example as biodegradable), manufactured, used and disposed of considerately.

The very properties, which have made plastics such a necessity to modern living, may well present problems once their useful life has finished. Plastics are used as paints, cable coverings and window frames as they do not rot, and they are therefore very difficult to degrade when their useful life is over. Plastics which are used in motor vehicles are very durable and corrosion resistant which also means they are very resistant to degradation. Plastic food packaging increases the shelf life of foods, and provides a cheap, hygienic and very versatile range of wrappings. Although there are obvious advantages for the food industry, the huge increase in plastic packaging has greatly increased plastic waste, and consequently, litter.

In the manufacturing process a certain amount of waste plastics are produced as sprues and runners, (the inlets into injection moulds) and other forms of excess material. To reduce waste, this material can be reground and added back to new raw stock. Though this is possible with most thermoplastic materials, the same is not true for thermosetting materials as the addition of even quite small quantities of re-ground material can reduce the quality of the final mouldings.

Although plastic litter is very visible, the problem of plastics waste has to be seen in perspective. Plastic waste which does not degrade means it will not produce dangerous gases such as methane which can make landfill sites hazardous. This of course is no justification for simply dumping plastics waste and to ensure plastics are correctly disposed of alternative methods must be used.

Most plastics are made from petroleum and could be used as a fuel alternative, since many have an energy value similar to coal. Recycling by burning to produce energy would save raw materials such as crude oil and coal, and the gases produced through burning plastics are also valuable resources, which may be recycled.

An alternative way of recycling plastics is collection and reprocessing. Although recycled materials might be inferior in quality, there is still a wide range of products where the quality is not an essential factor, such as dustbin bags. The main problem with recycling plastics is their collection and sorting. Some very expensive machinery is needed to separate and wash the material, which is then granulated and reused in a similar range of applications to the original. Food packaging is an exception.

# TCE ENVIS - Plastic Waste Management

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Plastics are increasingly used in the motor vehicle industry as they are light in weight, self coloured, impact resistant and readily shaped to make single integrated rather than fabricated components. The motor industries are therefore being pressured into providing recycling facilities for vehicles that have reached the end of their lives. The number of different plastics used is being reduced and those used are nowadays marked for identification. With the backing of the multinational motor companies, plastics recycling is being driven forward and new technologies are being developed which will eventually be used for domestic plastics waste.