

Abstract

Recent attention has been drawn to the recycling of compact discs. The current compact disc recycling process is evaluated. It is discovered that there are many drawbacks in the current process such as the use of toxic cyanide. Attempts have been made to design a more effective and environmentally friendly process.

The dye in compact disc is first removed from polycarbonate by burnishing. Polycarbonate (more than 90% by volume of a disc) can be recovered in this stage. By using Fenton's method, the toxic substances in dyes are mainly broken into water and carbon dioxide. The recovered polycarbonate is then melted and moulded into other plastic objects. In the whole process, nearly no toxic substance is formed and released. A UV-Vis absorption measurement is carried out in university laboratory to determine the amount of dye left. The results show that the dyes have disappeared and are broken down.

The advantage of this modified process is that it does not require the use of toxic cyanide and no toxic substances are produced. Also, the polycarbonate can be collected in a more efficient way. Moreover, the amount of ethanol used for washing the dye from compact discs can be greatly reduced.