筆記型電腦塑膠物質熱裂解資源回收研究

林建興、吳照雄

E-mail: 9314405@mail.dyu.edu.tw

摘 要

中文摘要 資訊產品遭淘汰而被棄置時，若沒有適當的處置，便會對環境品質造成負面的影響。目前筆記型電腦塑膠外殼並未加以回收再利用，殊為可惜，若能以熱裂解法處理廢塑膠，將廢塑膠分解成有用的物質，對資源回收再利用應有相當的助益。筆記型電腦塑膠外殼主要材質為聚碳酸酯/丙烯?-丁二烯-苯乙烯(PC/ABS)，經由元素分析儀分析碳、氫、氮與氧所佔的重量百分比分別為76.18、5.73、0.92與16.80%。動力分析方面，在氮氣/空氣中熱裂解PC/ABS樹脂，利用不同的升溫速率(分別為2、5及10℃/min)，來獲得不同加熱速率的重量消失曲線。PC/ABS在氮氣與空氣中的熱裂解反應，可分別以一個總括反應速率方程式表示： 在氮氣中 dX/dt = 0.44dX1/dt + 0.56dX2/dt dX1/dt = 1.73×1010(1-X1)0.67exp(-36.4/RT) dX2/dt = 3.33×1012(1-X2)0.72exp(-46.6/RT) 在空氣中 dX/dt = 0.4dX1/dt + 0.3dX2/dt + 0.3dX3/dt dX1/dt = 1.33×107(1-X1)0.69exp(-25/RT) dX2/dt = 3.6×108(1-X2)0.57exp(-30.7/RT) dX3/dt = 6011(1-X3)0.51exp(-19/RT) 產物分析方面，廢電腦塑膠物質在氮氣中恆溫裂解之氣體、粗裂解油及固體殘餘物百分比分別約為29 %、52 %及19 %。 關鍵字：熱裂解、PC/ABS樹脂

關鍵詞 : 熱裂解 ; PC/ABS樹脂

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