



Recycling Preparative HPLC
LaboACE LC-5060

Related Product : Recycling Preparative HPLC Series

Analysis of Discoloring Matters in Polymer 2

Keyword:

Polymer Additives, Degradation Analysis, Extraction of Discoloring Substance, Size Exclusion Chromatography

Introduction

When polymer additives deteriorate or react with each other in polymer, the polymer get discolored and lose its commercial value. Recycling preparative HPLC is often used as a very effective means to identify the cause. Here is one of such examples.

Experiment and Results

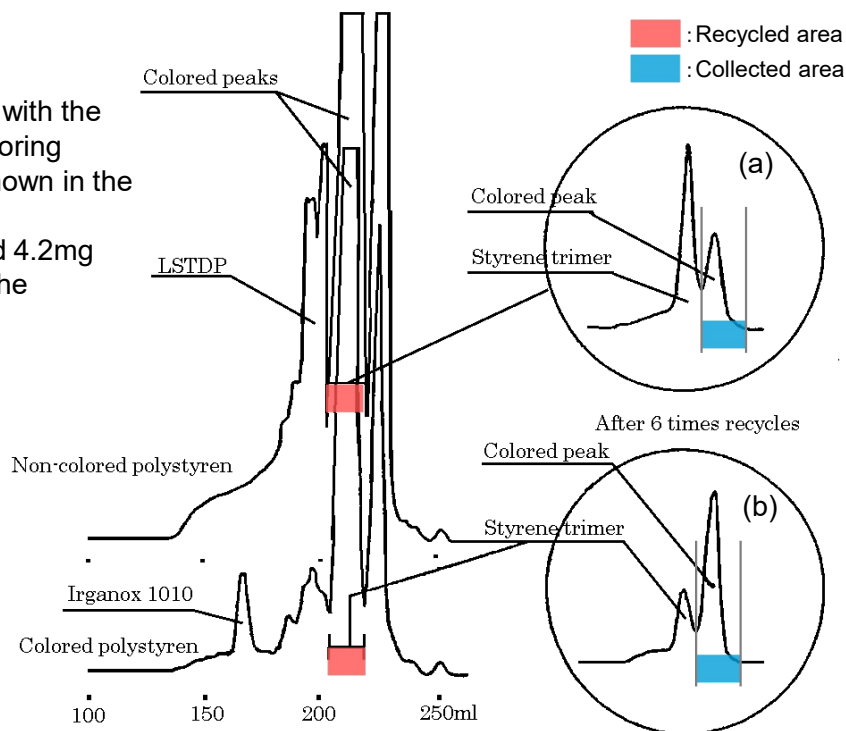
Polystyrene sheets made by two manufacturers using the same lot of base polystyrene had different coloredness. So we tried to identify the cause.

After Soxhlet extraction and methanol precipitation, we tried to isolate the discoloring substance.

Instrument : LC-908 (Detector : RI)
Column : JAIGEL-1H + JAIGEL-2H in series
Mobile phase : Chloroform
Flow rate : 3.5 mL/min

We ran recycling preparative HPLC with the peak supposedly containing the discoloring substance and isolated the peak as shown in the circles (a) and (b) at the 6th cycle.

We found the non-colored contained 4.2mg and the colored contained 11.8mg of the discoloring substance.



Conclusion

We found that the two polystyrene sheets contained different antioxidant.

The uncolored contained LSTDP (Lauryl stearyl thiodipropionate) and the colored contained Irganox 1010.