

# 中文摘要

環保意識的提昇促使在加工過程中引入 4R 概念。“4R”即減量使用 (Reduce)、重覆使用 (Reuse)、循環再用 (Recycle) 及改變物理性質再用 (Recovery)。如果在化學機械研磨(CMP)過程中提升加工液使用壽命，可減少化學品對環境的污染。

Presston 方程式明白的定義了在化學機械研磨 (CMP) 中材料移除率與摩擦速率及加工壓力成正比，不過 Presston 方程式未提到加工液流量的影響。事實上加工液流量亦影響材料移除率，改變加工液流量應可以達到加工液壽命。本論文主要是探討如何減少在 CMP 製程中所產出的廢液，達到環保的效果，並在不影響生產的情況下，作一個最有效的資源重覆使用的目的。實驗對 12 吋晶圓再生製程進行。

## 英文摘要

Increasing awareness of environmental protection has promoted the 4 R concepts in manufacturing. The 4Rs are reduce, reuse, recycle, and recovery. If the life of slurry can be extended in the CMP process, amount of chemical waste can be reduced.

In the Preston equation, the effects of grinding speed and normal pressure are clearly defined. However, the effects of flow rate are not specified in the Preston equation.

This work likes to know whether varying flow rate can minimize the use of slurry.

The experiments were carried out on a CMP for 12 inch wafer reclaiming processes.