



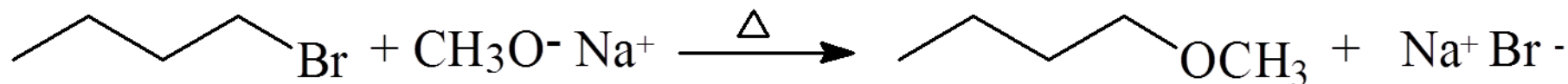
# 威廉森醚類合成反應

## Williamson Ether Synthesis

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## 1. The reaction :



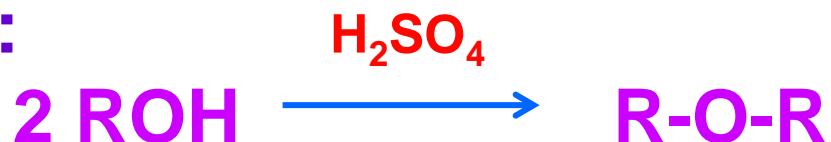
## 2. Nomenclature :

common name : **n-butyl methyl ether** (大的在前)

IUPAC name : **methoxybutane** (小的為官能基)

### 3. Ether Synthesis :

(1) Acid:



- 缺點** :
- a. only symmetric ether
  - b. rearrangement of cation
  - c. by-products : alkene
  - d. reversible reaction

(2) Basic: **The Williamson Ether Synthesis**



1.62g  $\text{NaOCH}_3$  + 5mL  $\text{CH}_3\text{OH}$  in 50mL R-B flask

↓ (ice-water bath)

add 2.75g (2.15mL) n-butyl bromide (dropwise)

↓

gentle reflux for 30 min (stirring bar)

↓ (cool)

add 3 mL dist.  $\text{H}_2\text{O}$  through the condenser

↓

distillation (azeotrope:  $\sim 64^\circ\text{C}$ )

↓

collect the crude distillate (ice-water bath)





wash the product with cold 25%  $\text{CaCl}_2(\text{aq})$  (1.5mL x 3)



shake and collect the upper organic layer



dry it with 0.3g  $\text{CaCl}_2(\text{anhy})$  (用完隨手蓋好)



filter and collect the filtrate in ice bath



**distillation (不做)**



weight → % yield



1. 繳交產物並告知產物淨重。
2. 實驗問題：2, 4, 6





*The End !*

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