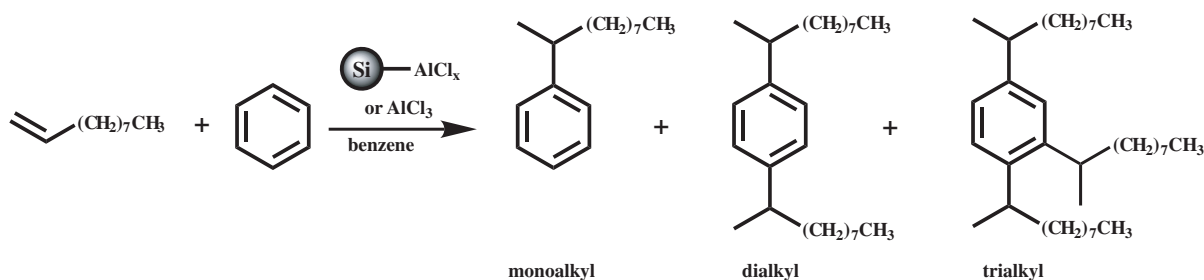


Friedel-Crafts alkylation

Formation of Linear Alkyl Benzene (LAB) by Friedel-Crafts alkylation in homogeneous and heterogeneous conditions



Formation of Linear Alkyl Benzene (LAB) by Friedel-Crafts alkylation in homogeneous and heterogeneous conditions

Alkene	Catalyst	Alkene Conversion (%)	Selectivity Towards Alkylbenzene		
			Mono	Di	Tri
1-hexene ¹	AlCl ₃	100	58.6	31.1	10.3
1-hexene	Si-AlCl _x	100	71.0	28.0	1.0
1-decene ¹	AlCl ₃	100	68.5	22.5	9.0
1-decene	Si-AlCl _x	100	80.0	20.0	-

Conversion determined by GC-MS

SAMPLE PROCEDURE

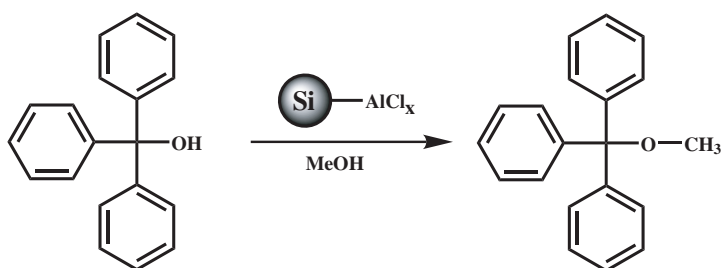
Friedel-Crafts alkylation

- Stir **SiliaBond**[®] Aluminum Chloride (0.03 eq.) in anhydrous benzene.
- Typical reaction solvent volume: 5mL/g of **SiliaBond**[®] Aluminum Chloride
- Add the alkene (1.0 eq.) slowly (over 30 min)(small exotherm observed).
- After the addition is completed, remove the catalyst by filtration. (The resulting products were analyzed by GC-MS.).

RELATED PUBLICATION

- 1) J. Catal., 195 (2000) 412

Formation of methyl triphenylmethyl ether



SAMPLE PROCEDURE

Ether formation

- Triphenylcarbinol (1.0 eq.) was added to a solution of **SiliaBond[®] Aluminum Chloride** (1.15 eq.) in anhydrous methanol.
- The mixture was heated to 60°C until completed by TLC (90 min).
- The catalyst was removed by filtration and the product analyzed by ¹H NMR.

Ether formation with supported Aluminum Chloride

Alcohol	Catalyst	Conversion (%)
Triphenylmethanol	Si- AlCl _x	95.0
	P-AlCl ₃	81.5
<i>tert</i> -Butyl alcohol	Si-AlCl _x	60.0
	P-AlCl ₃	0.0
Benzyl alcohol	Si-AlCl _x	40.0
	P-AlCl ₃	0.0

Conversion determined by ¹H NMR