

Catalysis: Concepts and Green Applications

Lecture slides for Chapter 4: Heterogeneous catalysis

Most of the graphics here were drawn using PowerPoint and Chemdraw (version Ultra 9.0).

Feel free to modify and/or add your own pyrotechnics.

Please send any feedback to feedback@catalysisbook.org

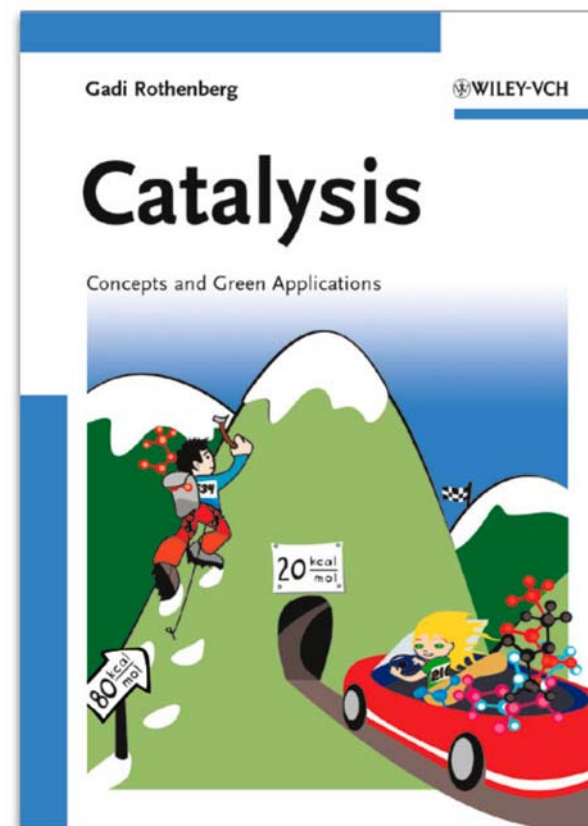


Figure 4.1

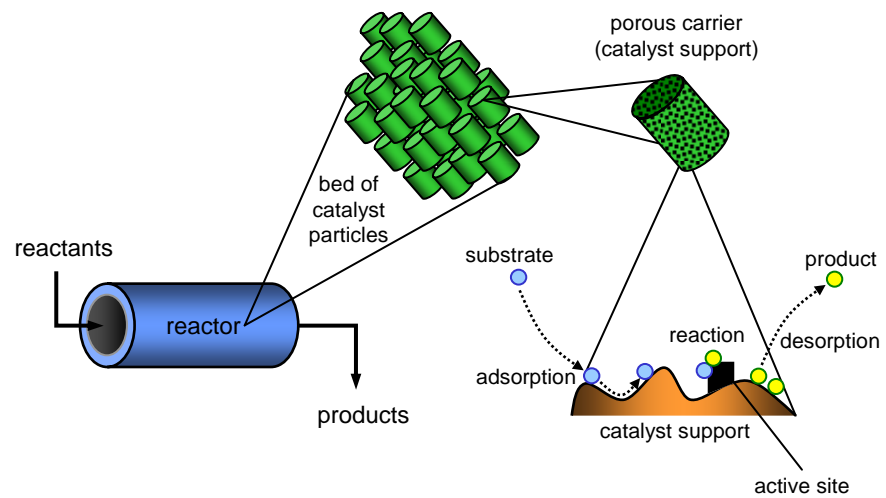


Figure 4.2

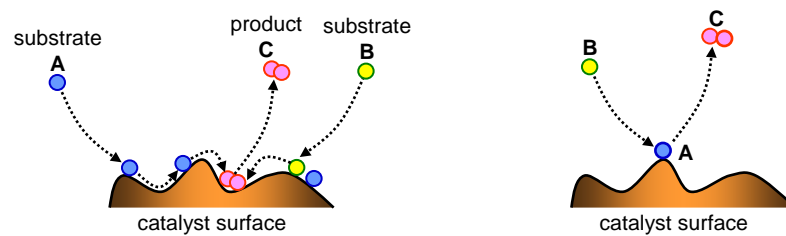


Figure 4.3

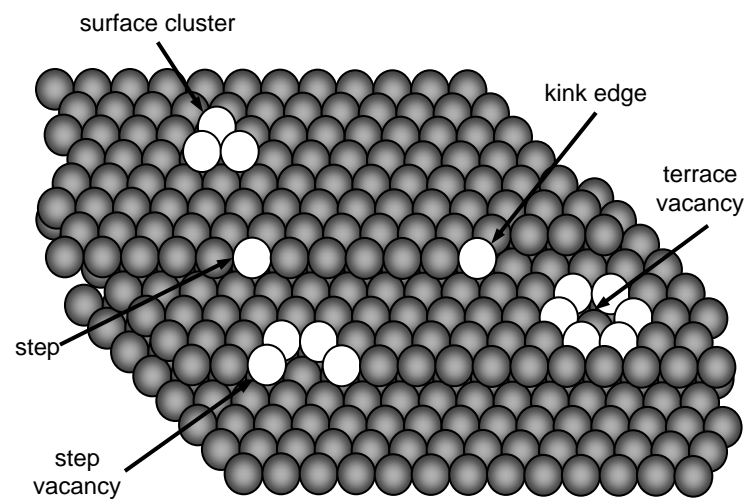


Figure 4.4

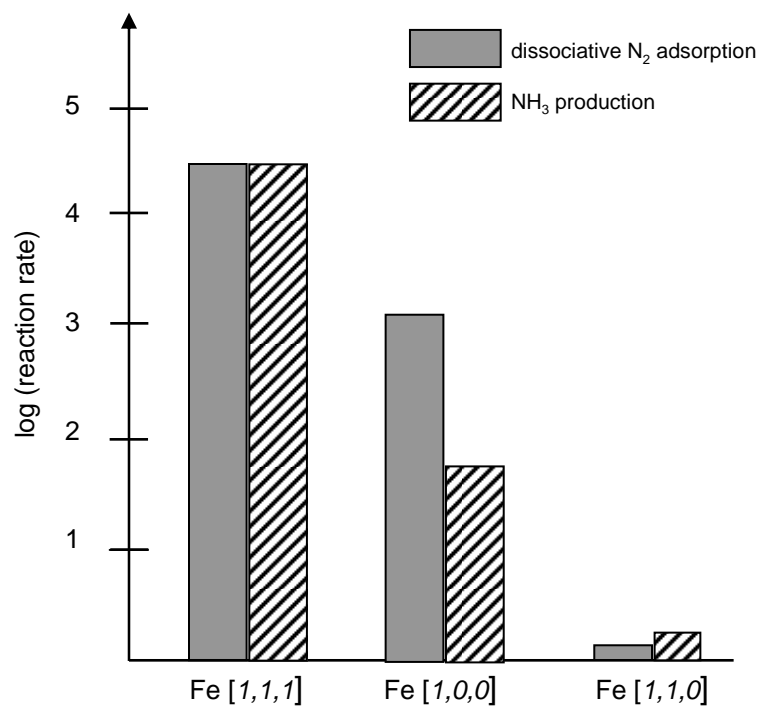


Figure 4.5

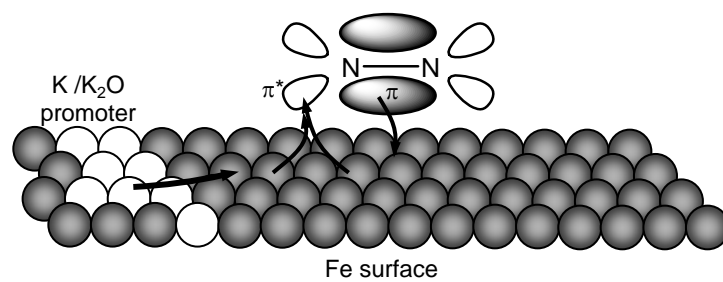


Figure 4.6

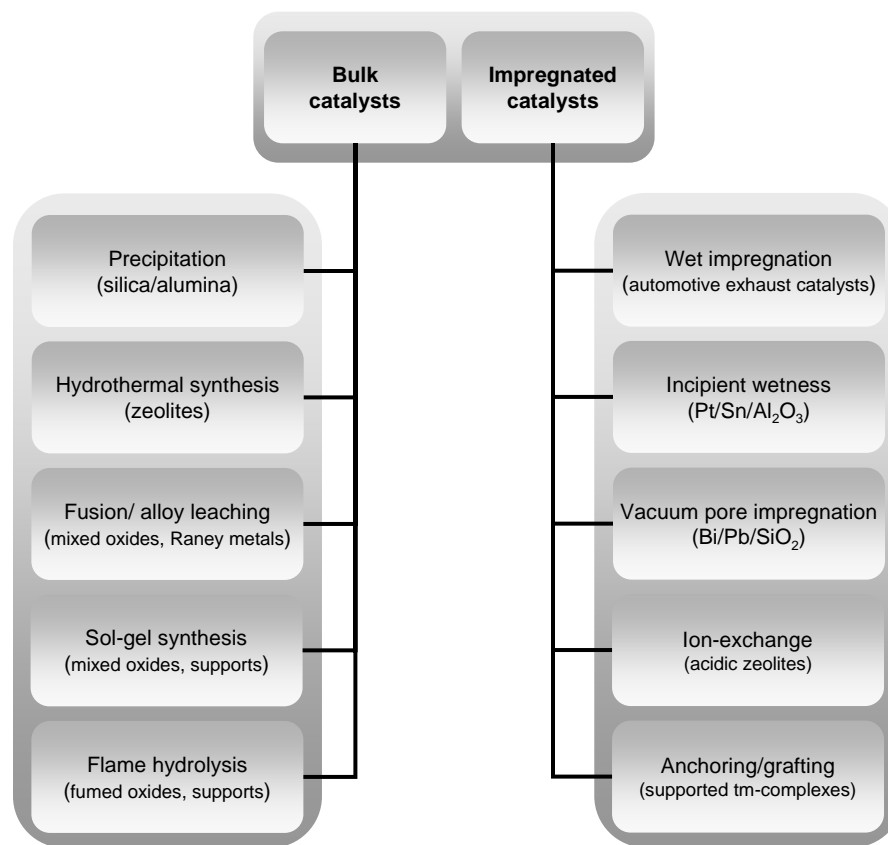


Figure 4.7

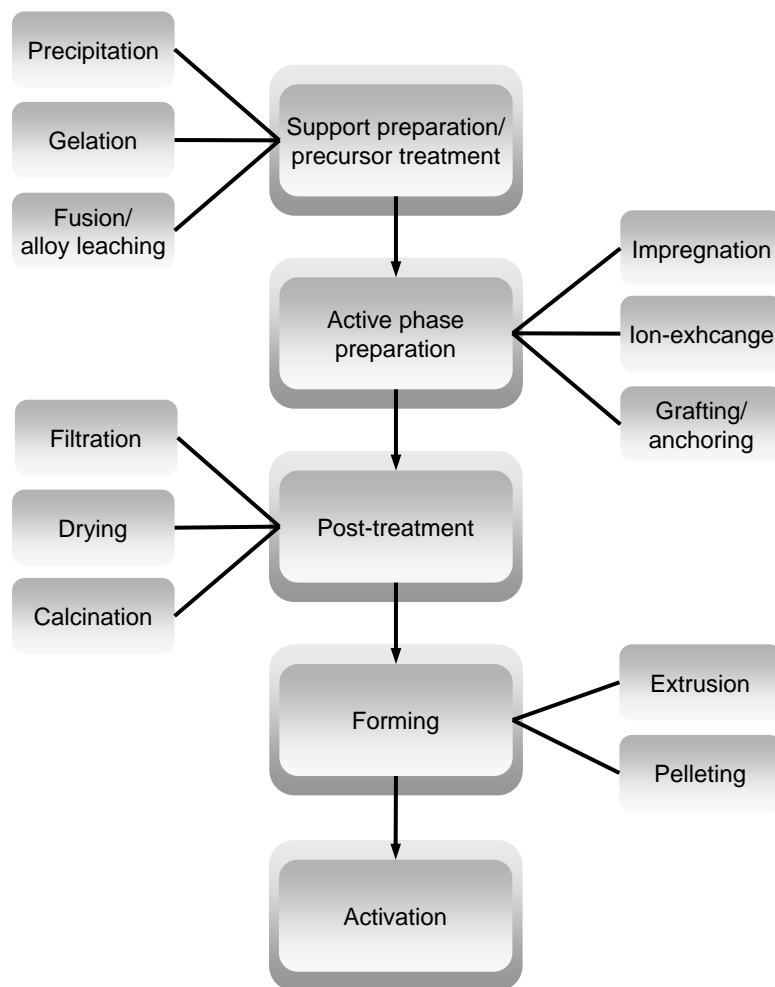


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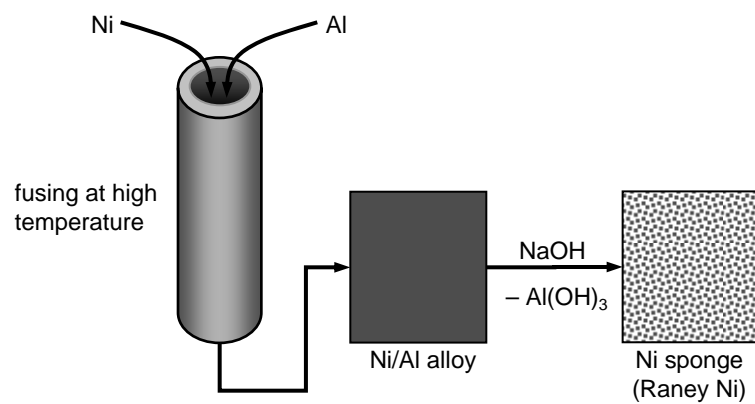


Figure 4.9

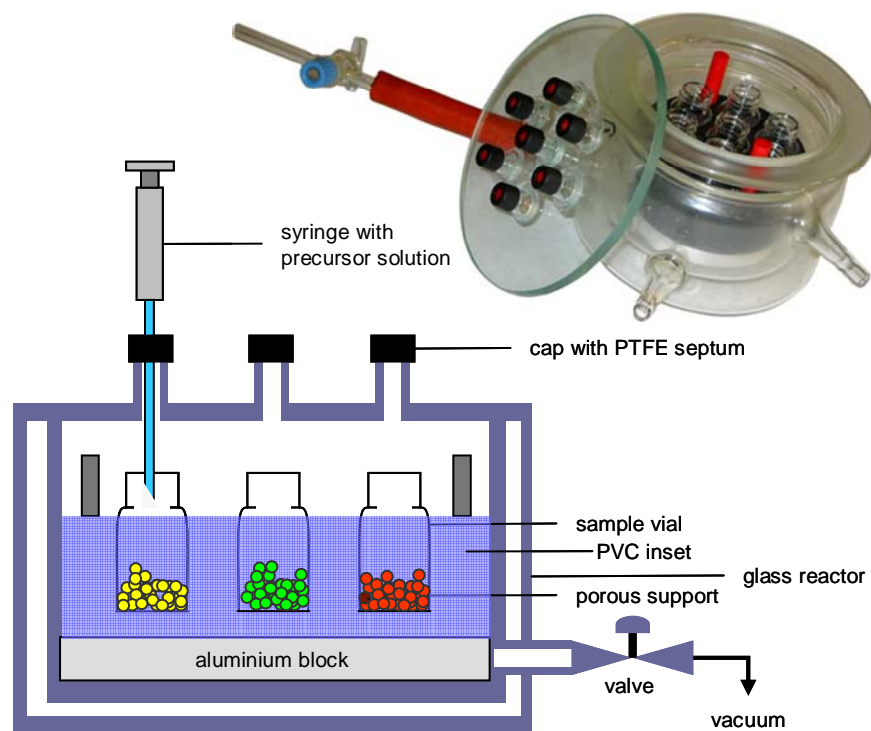


Figure 4.10

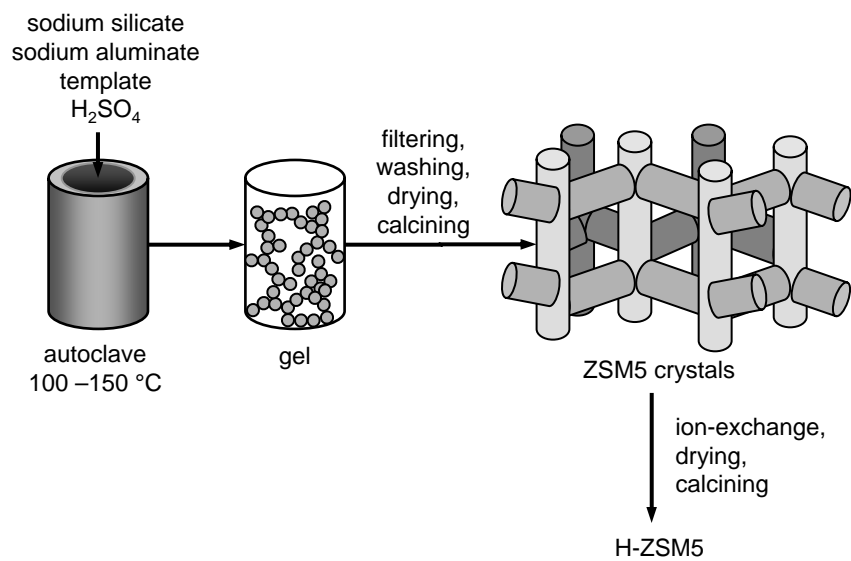


Figure 4.11

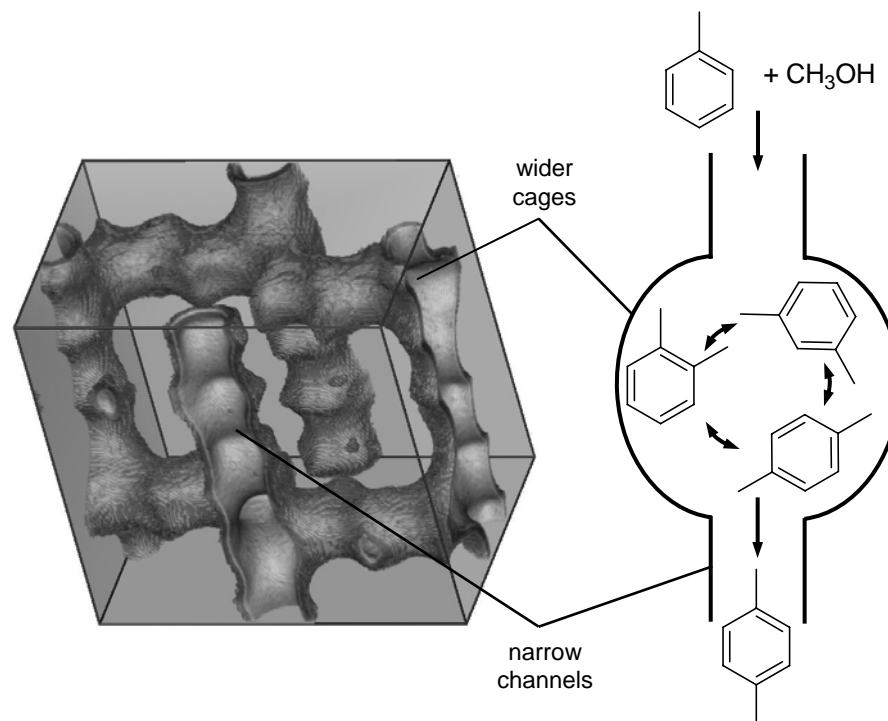


Figure 4.12

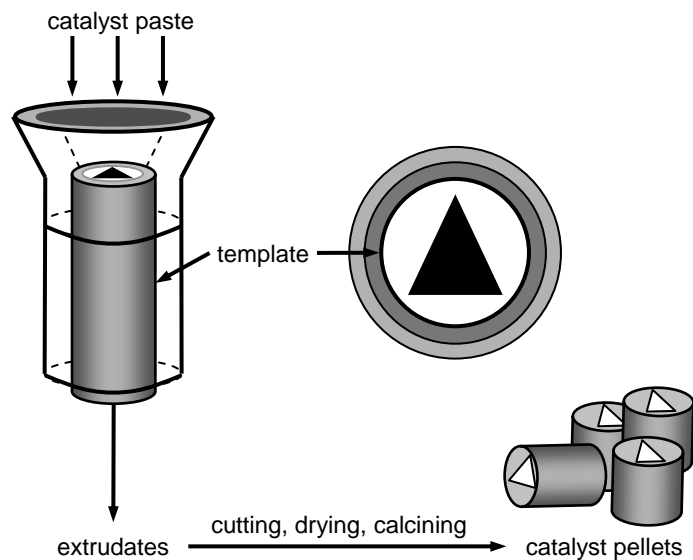


Figure 4.13

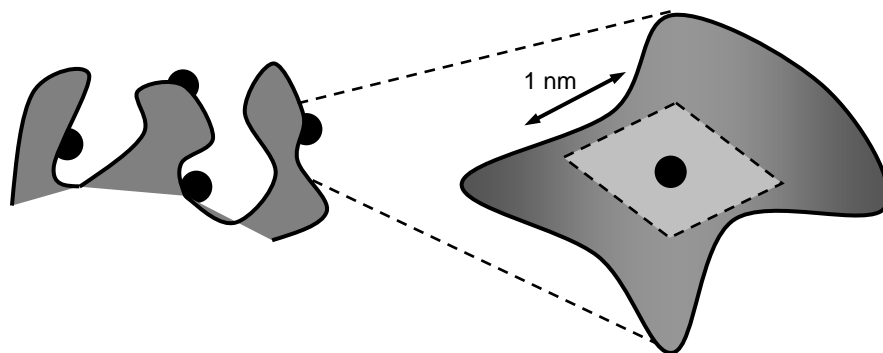


Figure 4.14

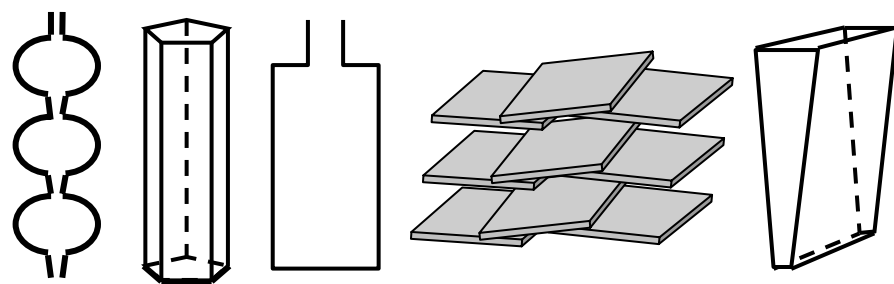


Figure 4.15

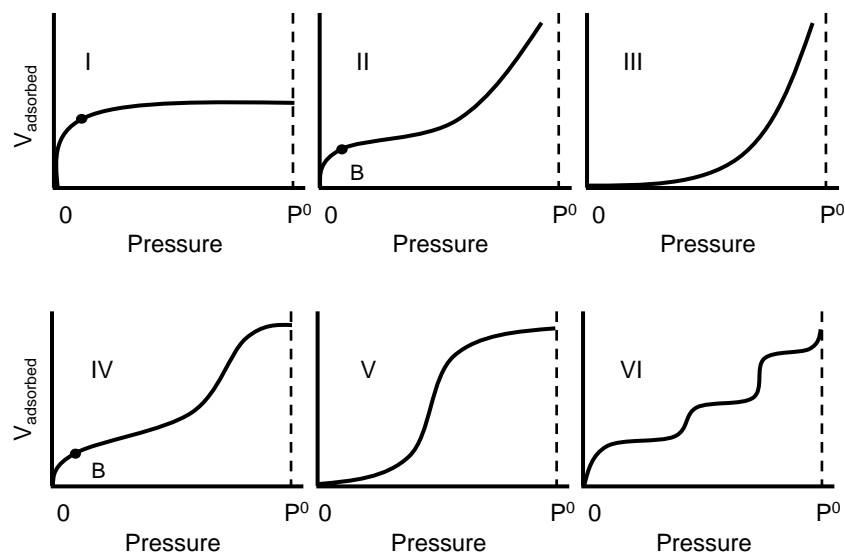


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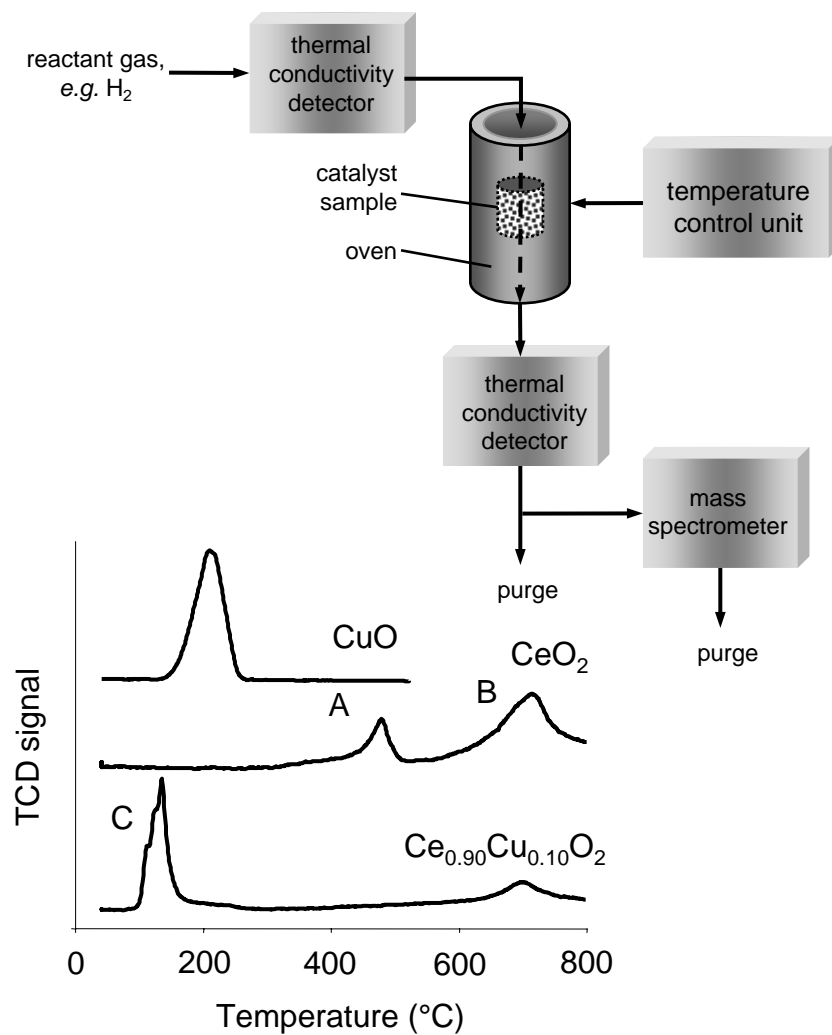


Figure 4.17

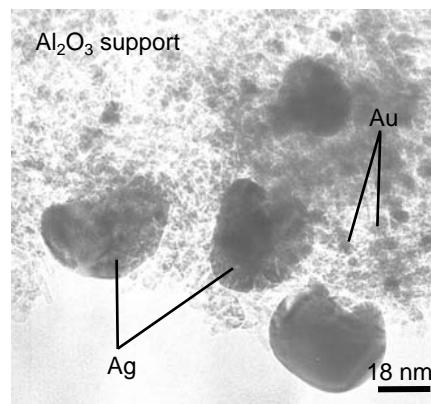
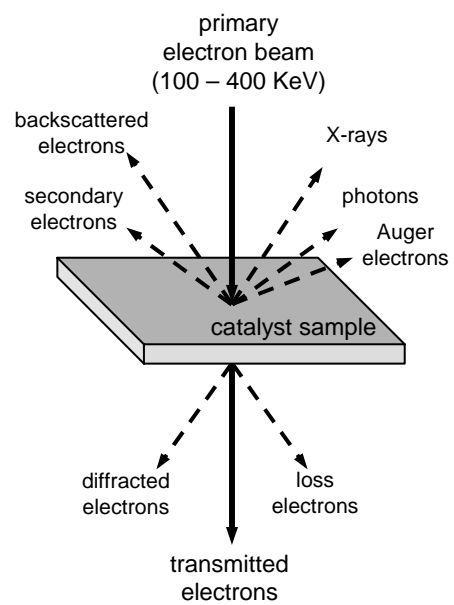


Figure 4.18

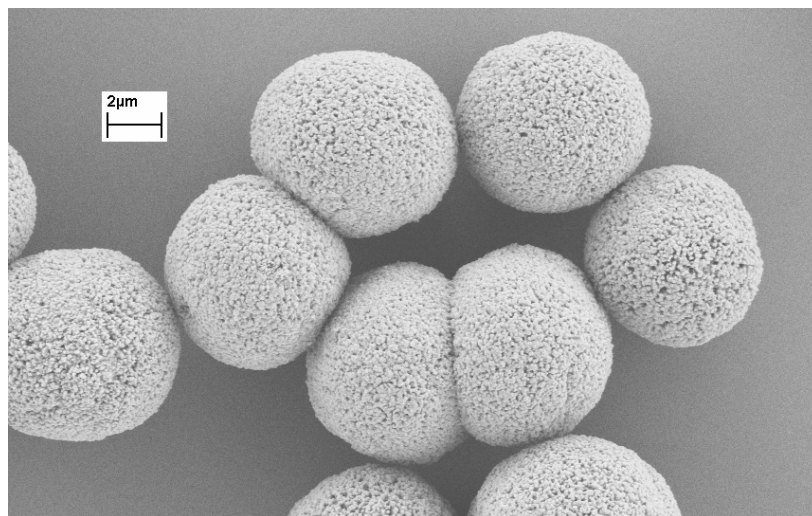


Figure 4.19

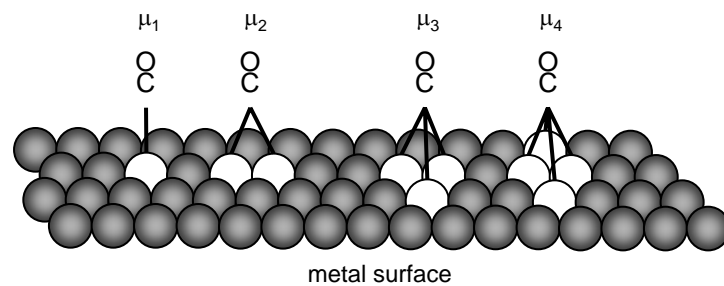


Figure 4.20

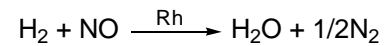
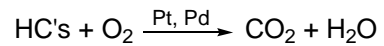
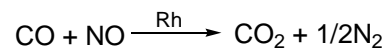
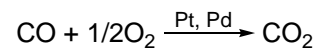
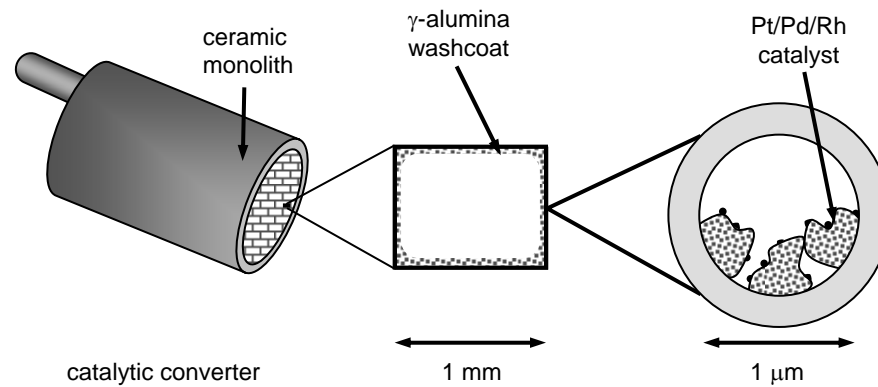


Figure 4.21

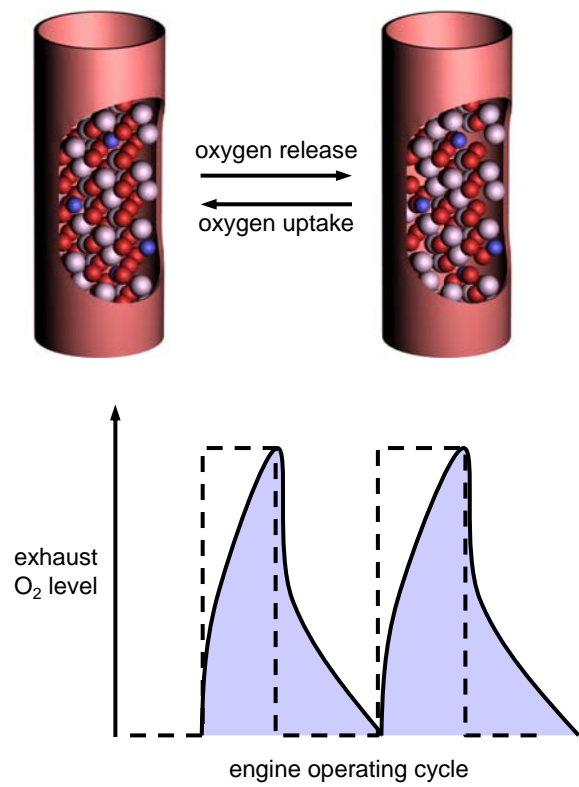


Figure 4.22

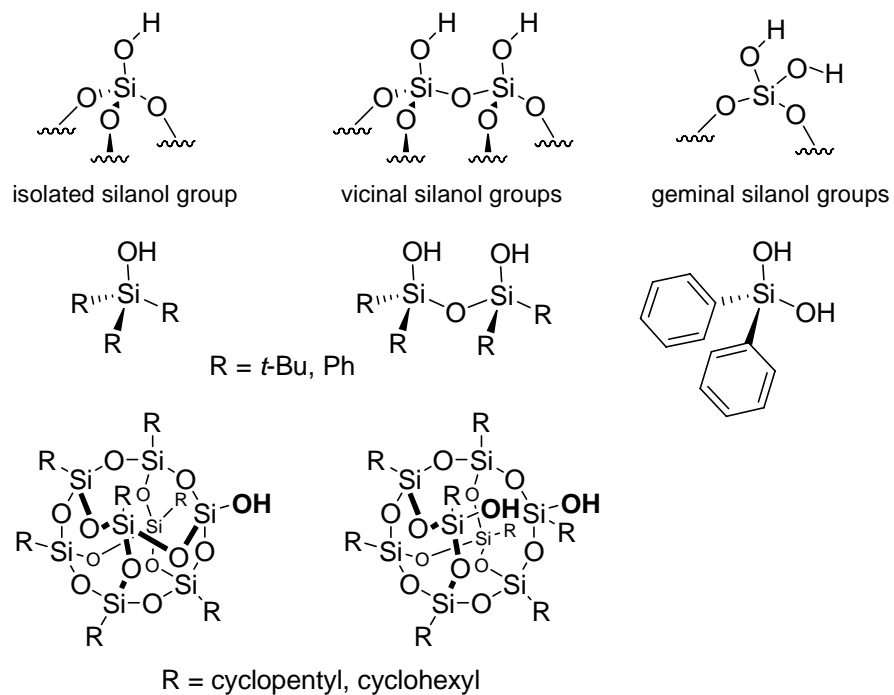


Figure 4.23

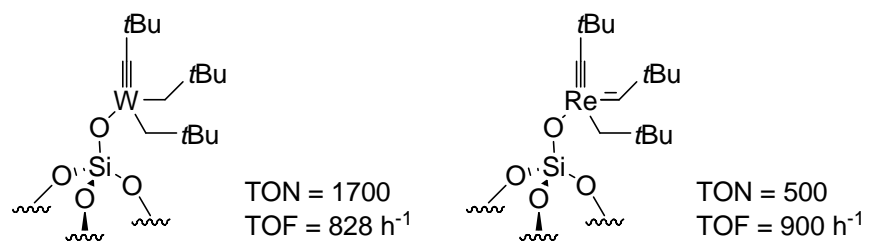


Figure 4.24

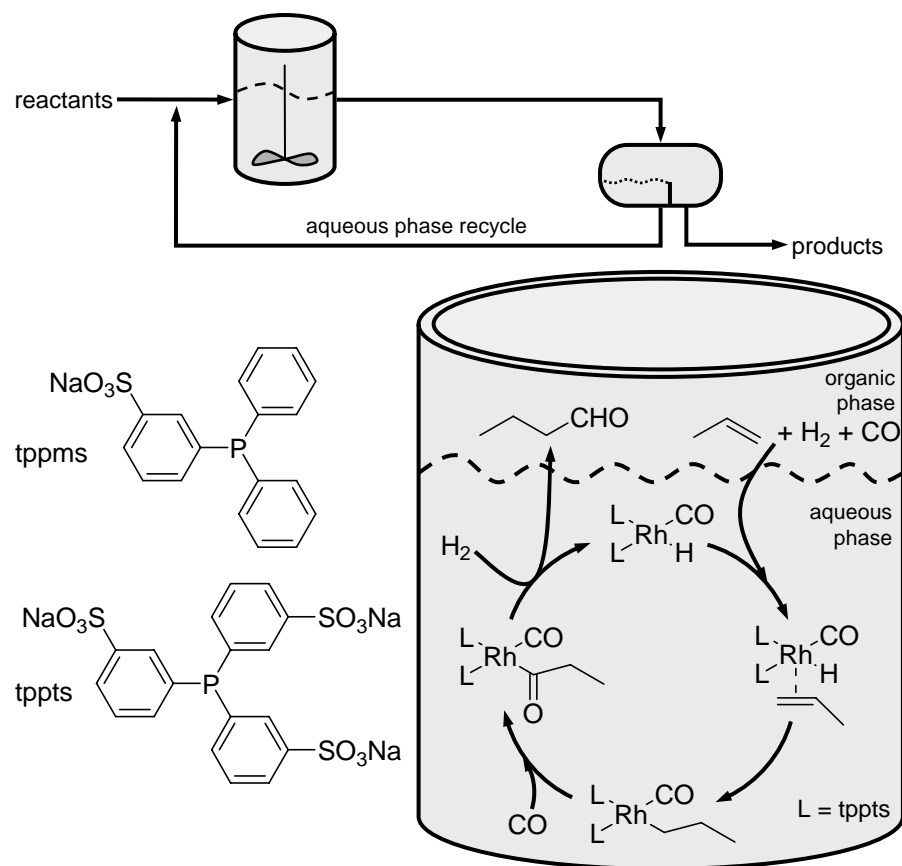


Figure 4.25

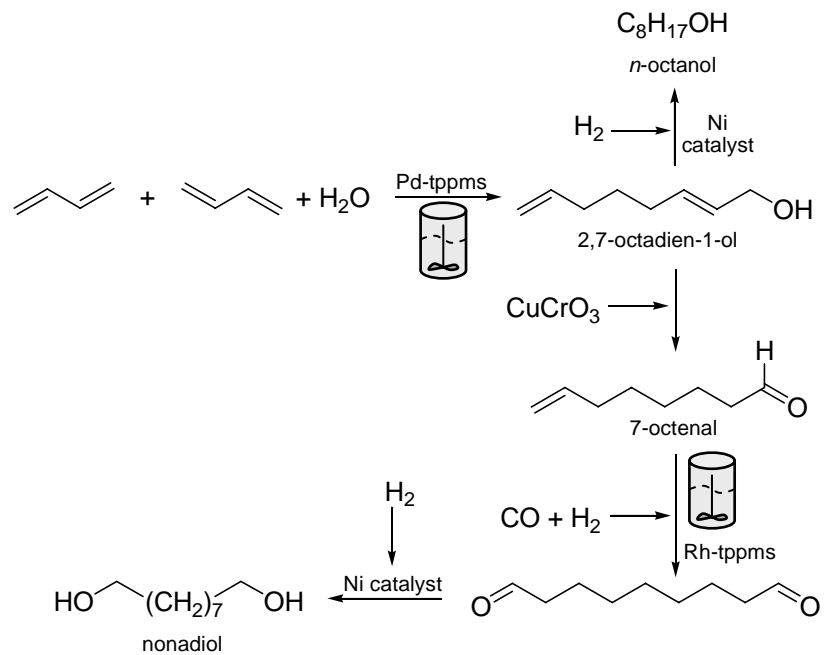


Figure 4.26

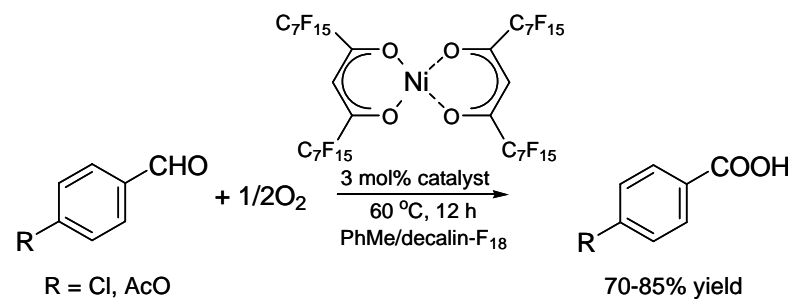
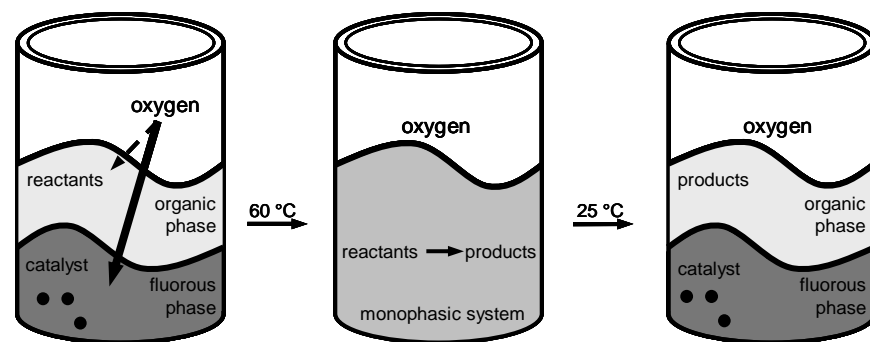


Figure 4.27


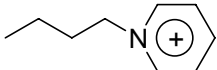
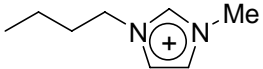
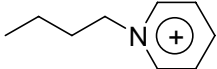
	ionic liquid	mp, °C	
	[emim] ⁺ [PF ₆] ⁻	62	
ethylmethylimidazolium (emim)	[emim] ⁺ [ClO ₄] ⁻	7	butylpyridinium (bpy)
	[emim] ⁺ [NO ₃] ⁻	38	
	[bmim] ⁺ [PF ₆] ⁻	11	
butylmethylimidazolium (bmim)	[bmim] ⁺ [Br] ⁻	77	butylmethylpyridinium (bmpy)
	[bmim] ⁺ [Cl] ⁻	41	

Figure 4.28

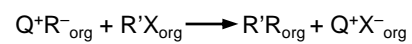
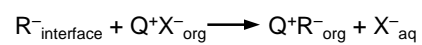
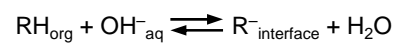
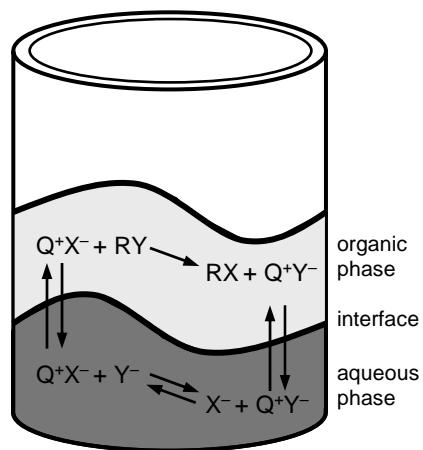
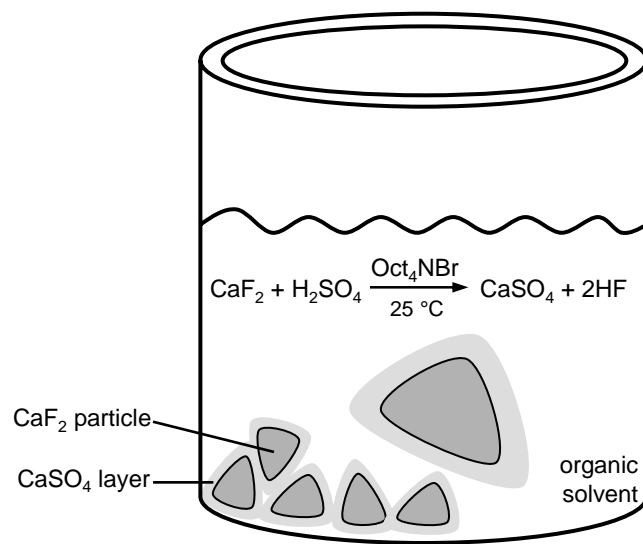
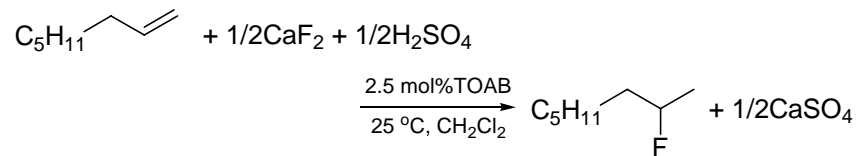


Figure 4.29



alkene hydrofluorination



hydroxyl group substitution

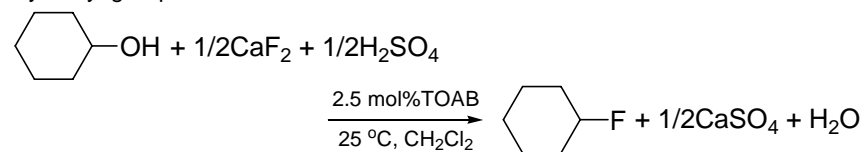


Figure 4.30

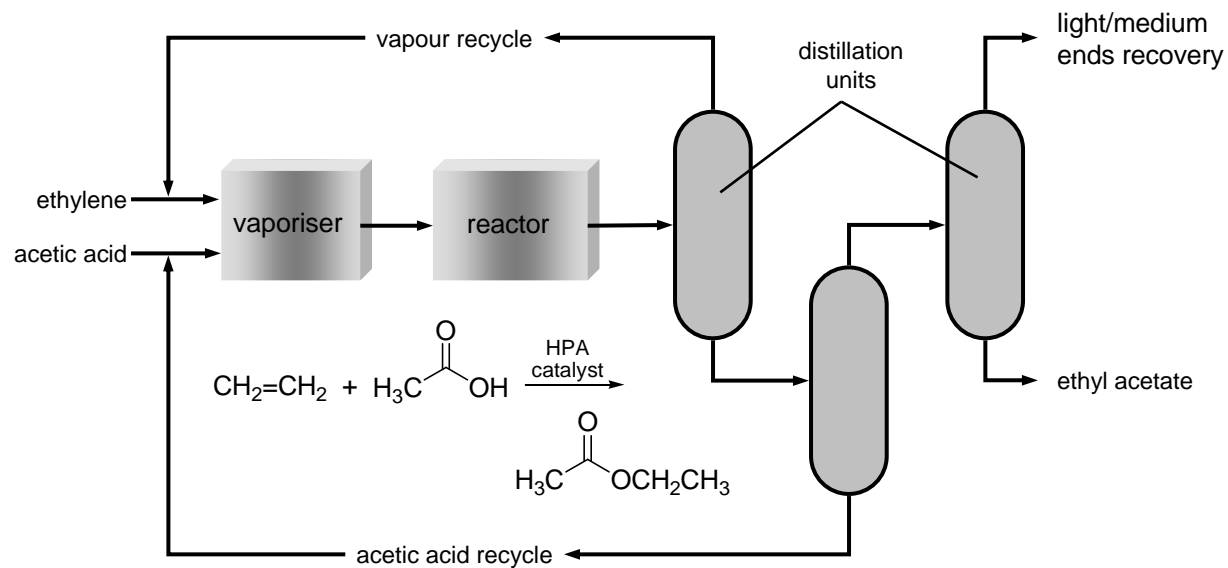


Figure 4.31

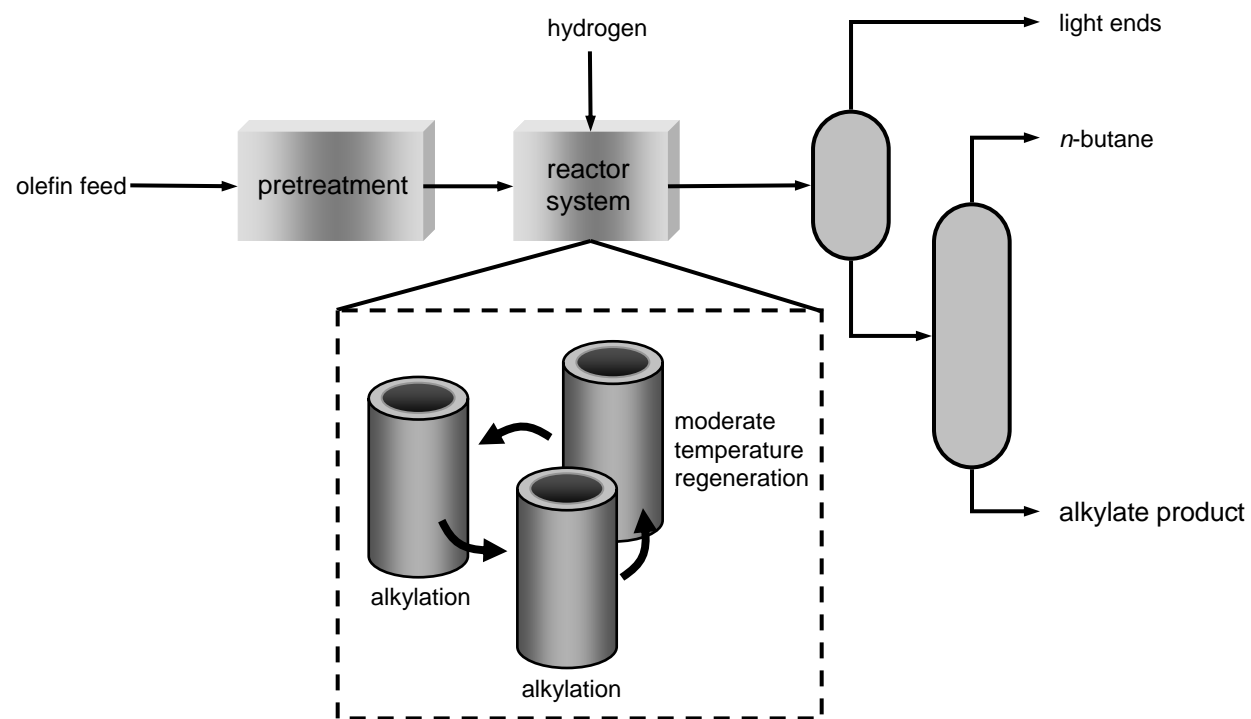


Figure 4.32

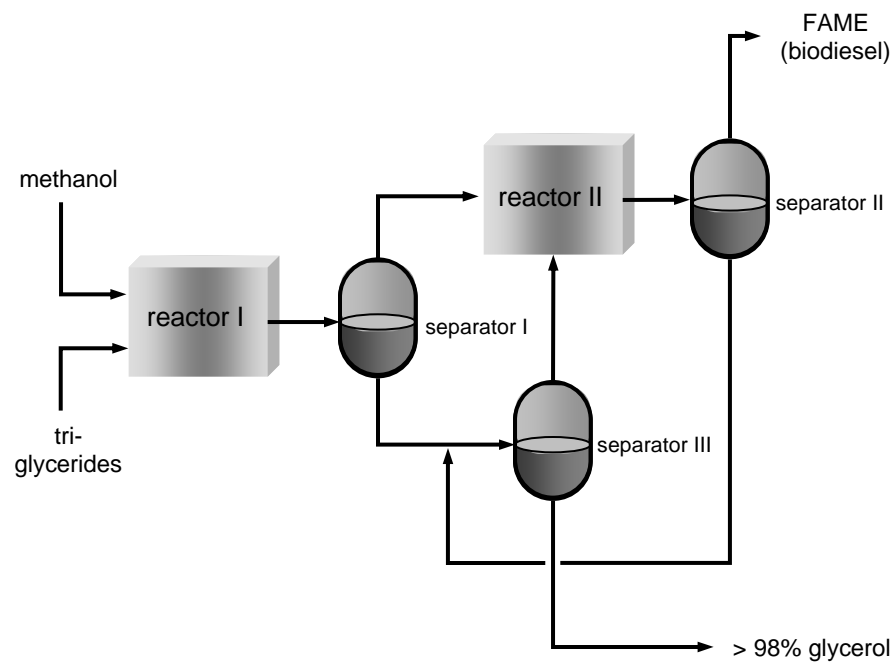


Figure 4.33

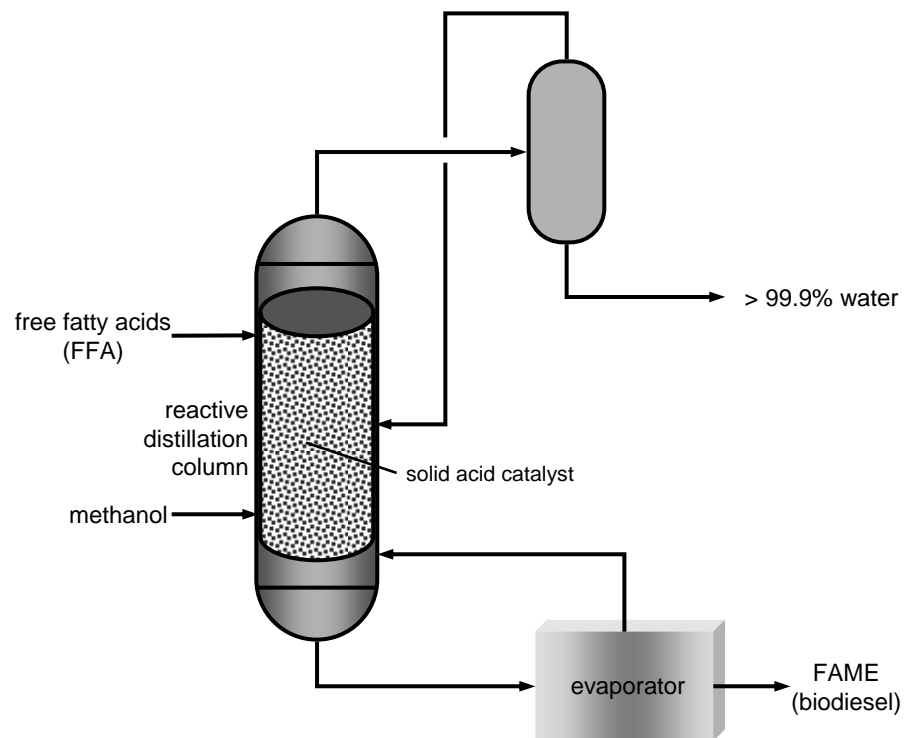


Figure 4.34

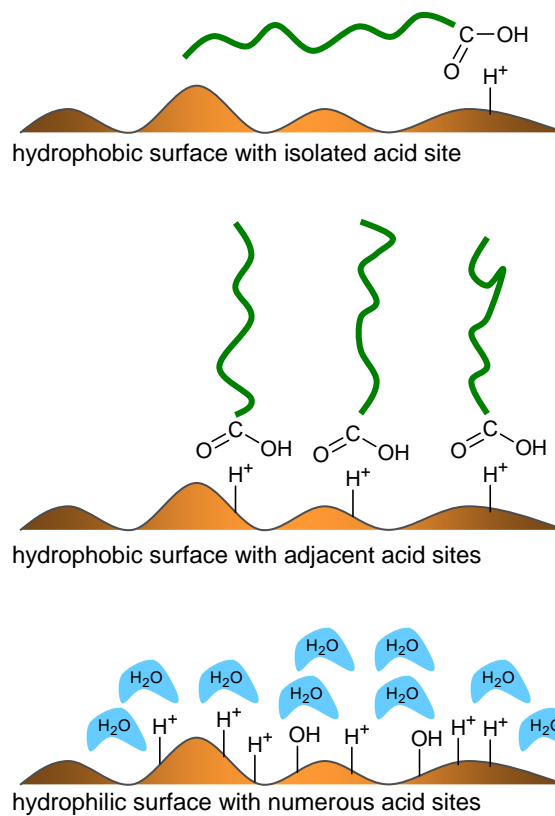


Figure 4.35

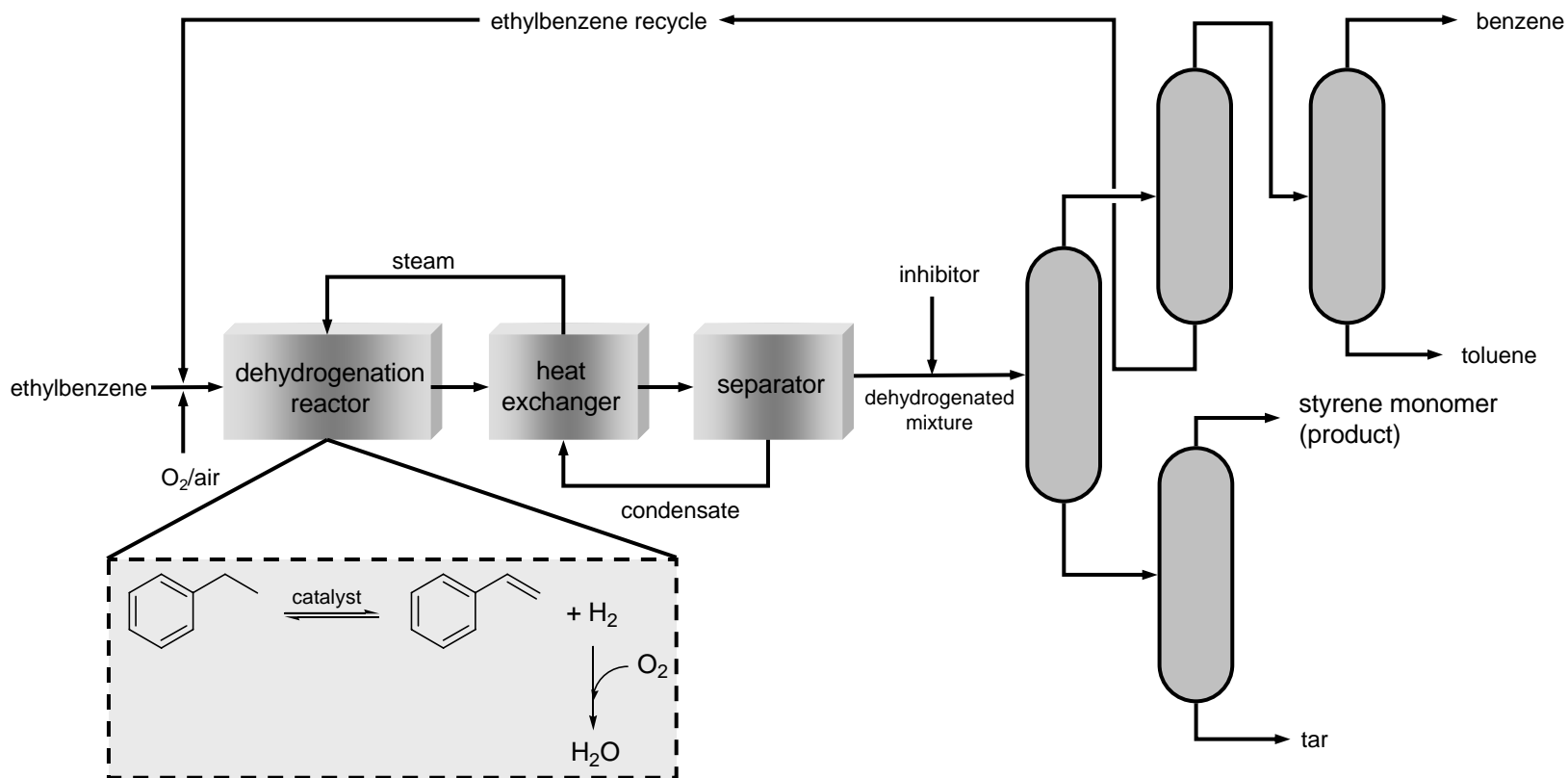


Figure 4.36

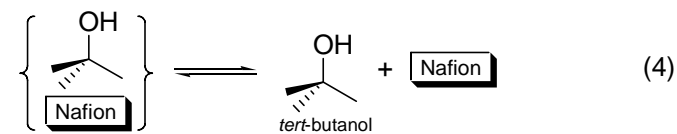
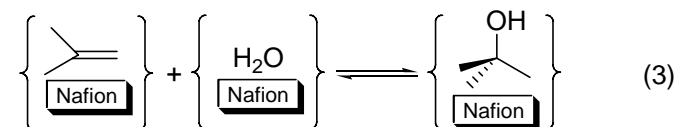
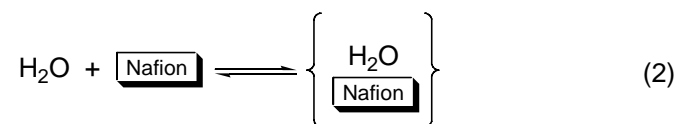
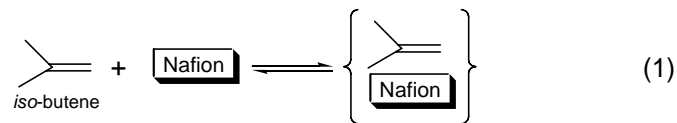


Figure 4.37

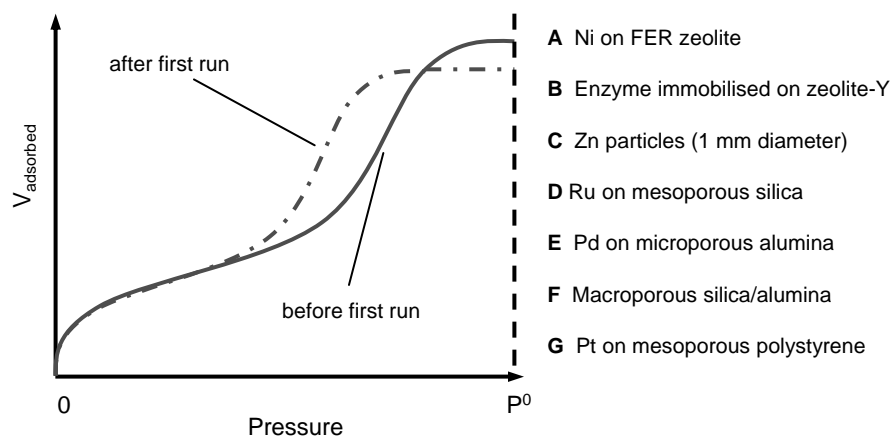


Figure 4.38

