Edexcel iGCSE Chemistry 4CH0 Learning Plan

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| **Section C16: Manufacturing Chemicals** | | |
| Specification | Resources | Assessment |
| 5.22 understand that nitrogen from air, and hydrogen from natural gas or the cracking of hydrocarbons, are used in the manufacture of ammonia  5.23 describe the manufacture of ammonia by the Haber process, including the essential conditions: i a temperature of about 450°C ii a pressure of about 200 atmospheres iii an iron catalyst  5.24 understand how the cooling of the reaction mixture liquefies the ammonia produced and allows the unused hydrogen and nitrogen to be recirculated 5.25 describe the use of ammonia in the manufacture of nitric acid and fertilisers **5.26 recall the raw materials used in the manufacture of sulfuric acid**  **5.27 describe the manufacture of sulfuric acid by the contact process, including the essential conditions: i a temperature of about 450°C ii a pressure of about 2 atmospheres iii a vanadium(V) oxide catalyst**  **5.28 describe the use of sulfuric acid in the manufacture of detergents, fertilisers and paints**  **5.29 describe the manufacture of sodium hydroxide and chlorine by the electrolysis of concentrated sodium chloride solution (brine) in a diaphragm cell**  **5.30 write ionic half-equations for the reactions at the electrodes in the diaphragm cell**  **5.31 describe important uses of sodium hydroxide, including the manufacture of bleach, paper and soap; and of chlorine, including sterilising water supplies and in the manufacture of bleach and hydrochloric acid.** | Video: Section 5 – Lesson 4 – Industrial Chemistry – Haber and Contact processes  Powerpoint: Section 5 – Lesson 4  Textbook: Ch.16 – Manufacturing Chemicals.  Page 133 – The manufacture and uses of ammonia  Page 135 – The manufacture and uses of sulphuric acid  Page 136 – The chlor-alkali industry  Page 138 – End of Chapter Checklist  Edexcel iGCSE Chemistry Student Checklist Section C16.doc | Textbook  Page 138 – Questions 1 to 5  Textbook answers.pdf  Talking paper – Edexcel Chemistry Section  Section C16 Exam Question –. (pdf)  Section C16 Exam Question – mark scheme. (pdf) |

**Jim Clark video clips:** <http://www.chemguide.co.uk/igcse/chapters/chapter16.html>

Videos – www.igcsesciencecourses.com

Textbook Ref: Edexcel International GCSE Chemistry Student Book - Clark

DVD Video Clips – see resource DVD in textbook.