Learning Tracker: Chemical Industry

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| **SPECIFICATION HEADINGS** | **R** | **Y** | **G** |
| **KINETICS** |  |  |  |
| **Recall** the terms rate of reaction, rate constant, order of reaction and rate equation |  |  |  |
| **Construct** rate equations using a variety of data and use to calculate the rate constant (including units) |  |  |  |
| Use data (both graphs and tables) to **calculate** half-lives for a reaction |  |  |  |
| **Recall** and **describe** a variety of techniques and procedures for following the rate of a chemical reaction – both initial rate and continuous measurements **(PAG 9 & 10)** |  |  |  |
| **Use** the Arrhenius equation to produce graphs that enable the **calculation** of the Ea of a reaction |  |  |  |
| **Determine** the effects of changing temperature on rate constant by rearranging the Arrhenius equation and given data |  |  |  |
| **Explain** the term rate determining step and **link** the orders of reaction to potential reaction mechanisms |  |  |  |
| **EQUILIBRIUM** |  |  |  |
| **Describe** the effect of changes of pressure and temperature (in any) on the magnitude of the equilibrium constant.  |  |  |  |
| **Recall** that catalysts have no effect on P.O.E. or the magnitude of the equilibrium constant. |  |  |  |
| **Determine** the most economical operating conditions for industrial processes – including principles of equilibrium and rates of reaction |  |  |  |
| **Calculate** equilibrium constants or initial / equilibrium concentrations for homogeneous equilibrium |  |  |  |
| **Recall** techniques and procedures for experiments to determine an equilibrium constant. |  |  |  |
| **INORGANIC CHEMISTRY AND THE PERIODIC TABLE** |  |  |  |
| Use given information to **analyse** the chemical reactions that occur during industrial processes |  |  |  |
| **Recall** some key parts of nitrogen chemistry including bonding, appearance and names of different oxides, interconversion of different nitrogen containing compounds. |  |  |  |
| **Describe** the tests for nitrate(V) and ammonium ions **(PAG 4)** |  |  |  |
| **SUSTAINABILITY** |  |  |  |
| **Use** examples of industrial processes in terms of costs, co-products and by products (no recall of specific processes required. |  |  |  |
| **Describe** benefits and risks associated with processes, including hazards and benefits to society |  |  |  |

**How can I improve?**

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