

Year 12 Chemistry

Quick Quiz: Environmental Chemistry

ANSWERS

- $\text{NO}_3^-$
  - $\text{CO}_3^{2-}$
- $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
- $\text{NO}_2 \xrightarrow{\text{UV}} \text{NO} + \text{O}$   
 $\text{O} + \text{O}_2 \rightarrow \text{O}_3$  (with excess energy absorbed by a stabilising molecule)
- $\text{SO}_3 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_4$  (which ionises, lowering pH of the rain)
- $\text{pOH} = -\log[\text{OH}^-]$   
 $= -\log(6 \times 10^{-6})$   
 $= 5.2$   
 $\text{pH} = 14 - \text{pOH}$   
 $= 14 - 5.2$   
 $= 9$
- Oxidising action
- Clay particles are attracted towards highly charged cations such as  $\text{Al}^{3+}$ , forming clumps.  
This occurs because of the negative surface charge on the clay particles.
- $\text{Cl}_2$ , as it is a strong oxidising agent and will kill bacteria effectively
- Primary pollutants are emitted directly into the atmosphere (e.g.  $\text{NO}$ )  
Secondary pollutants form from a reaction of a primary pollutant in the atmosphere (e.g.  $\text{O}_3$ )
- The catalytic converter enables and speeds up reactions that break down nitrogen oxides into  $\text{N}_2$  and  $\text{O}_2$ , reducing the amounts oxides of nitrogen emitted through the exhaust.