**2.1.3 Exercise 3 – Further Reactions of Alkenes and their Applications**

1. **Applications of addition reactions**
2. Give the reagents and conditions required for the “hydration” of ethene and write an equation for the reaction.

Explain whether or not ethanol should be described as a petrochemical.

1. What is the laboratory use for the reaction of alkenes with bromine?
2. What is the industrial use for the reaction of alkenes with hydrogen? Give the required conditions for this reaction. What do we call this type of reaction?
3. **Addition Polymerisation**
4. Explain the meaning of the following terms:

|  |  |
| --- | --- |
| Monomer |  |
| Polymer |  |
| Polymerisation |  |

1. Complete the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| Name of monomer | Structure of monomer | Structure of polymer (two repeating units) | Name of polymer |
| Ethene |  |  |  |
| Propene |  |  |  |
| But-1-ene |  |  |  |
| But-2-ene |  |  |  |
| Methylpropene |  |  |  |
| Chloroethene |  |  |  |
| Tetrafluoroethene |  |  |  |

1. **Problems with polymers**
2. Why are most polymers difficult to dispose of?
3. Outline three ways in which waste polymers can be usefully processed.
4. Explain why halogenated plastics (eg PVC) are particularly hazardous to dispose of.
5. Explain how chemists minimise environmental damage when disposing of halogenated polymers.
6. State, giving examples, two other ways in which scientists have minimised the environmental damage caused by polymers.