

Arrange the mechanism steps in order:

Mechanism for S_N1 Reaction

| Reaction | | |
|----------|---|---|
| Step | Mechanism | |
| Step 1 | | |
| | Aided by the polar solvent, a chlorine departs with the electron pair that bonded it to the carbon. | This slow step produces the 3° carbocation intermediate and a chloride ion. |
| Step 2 | | |
| | A water molecule acting as a Lewis base donates an electron pair to the carbocation (a Lewis acid). This gives the cationic carbon eight electrons. | The product is a <i>tert</i> -butyloxonium ion. |
| Step 3 | | |
| | A water molecule acting as a Bronsted base accepts a proton from the <i>tert</i> -butyloxonium ion. | The products are <i>tert</i> -butyl alcohol and a hydroxonium ion. |

