

Sodium carbonate ( $\text{Na}_2\text{CO}_3$ ), can be made in the reaction below:  $\text{CaCO}_3 + 2\text{NaCl} \rightarrow \text{Na}_2\text{CO}_3 + \text{CaCl}_2$   
(Formula masses:  $\text{CaCO}_3 = 100$   $2 \text{NaCl} = 117$   $\text{Na}_2\text{CO}_3 = 106$   $\text{CaCl}_2 = 111$ )

Use the equation below to calculate the atom economy for the production of sodium carbonate.

Atom economy = (mass of required product/total mass of product) x 100%