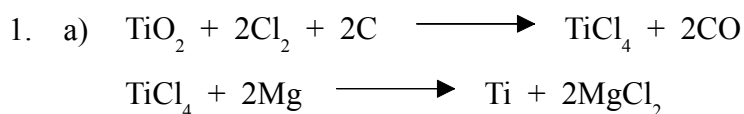


## Chemguide – answers

### EXTRACTION OF METALS: TITANIUM



(In the first equation, you could also produce  $\text{CO}_2$ . That would simply need one carbon and one molecule of  $\text{CO}_2$  in the equation.)

b) Both are about  $1000^\circ\text{C}$ .

c) The mixture is crushed and then treated with dilute hydrochloric acid to react with excess magnesium and also dissolve the magnesium chloride.

d) Titanium reacts with carbon to form a carbide,  $\text{TiC}$ , which makes the metal very brittle.

e) The presence of oxygen or nitrogen in the titanium makes it brittle. (If you were really awake, you might also notice that magnesium reacts with both oxygen and nitrogen as well!)

f) In a batch process, all the reactants are put in a reaction vessel and then left until the reaction is complete. They are then removed from the vessel, and the vessel refilled with a new set of reactants. In a continuous flow process, the reactants are passed continuously through reaction vessel with the products flowing continuously out of the other end.