

Worksheet 4.3

Different types of chemical reaction

1 Aluminium reacts with iron(III) oxide in a reaction called the thermit reaction. In this reaction, the aluminium displaces the iron. The reaction releases a great deal of energy and produces molten iron liquid.

a Write a word equation for this reaction.

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b Write the balanced chemical equation for the reaction.

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c i Why can this reaction be regarded as a redox reaction?

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ii Which substance is being reduced in the reaction?

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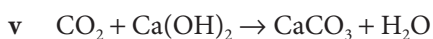
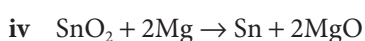
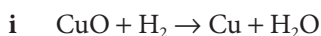
iii What is the reducing agent in the reaction?

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d The reaction is used to weld the ends of rails together when a railway track is laid. What makes it suitable for this purpose?

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2 This question concerns the following reactions:



- a Which of these reactions are redox reactions?
- b Which reaction is a neutralisation reaction?
- c Which reaction involves precipitation?

It is often useful to include state symbols in the equation for a reaction.

- d Re-write equations i, ii and v with state symbols included:

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3 Displacement reactions are also often redox reactions. Write balanced chemical equations for the following reactions.

- a i sodium bromide + chlorine \rightarrow sodium chloride + bromine

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- ii magnesium + copper sulfate \rightarrow magnesium sulfate + copper

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- b What is the oxidising agent in reaction i?

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- c What is the reducing agent in reaction ii?

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- d By which definition of oxidation and reduction can both these reactions be regarded as redox reactions?

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- e Write down the ionic equations for both reactions.

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