CAIE Chemistry IGCSE

8.2 Group I properties

Flashcards

What trends can be seen in group I elements (lithium, sodium and potassium)?

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- All relatively soft metals.
- Decrease in melting point down the group
- Increases in density down the group
- Increase in reactivity with water down the group.

How does melting point change down Group I?

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Melting point decreases down the group because the strength of the metallic bonds decreases so less energy is required to break these bonds to turn the solid into a liquid.

How does density change down Group I?

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Density increases down the group.

All Group I elements have low densities and will float on water.

What is the trend in the reactivity with water down Group I?

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Reactivity increases down the group.

Why does reactivity increase down Group I?

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Group I elements lose an electron when they react. Atomic radius and electron shielding increase down the group so there is weaker attraction between the nucleus and outer shell electron. This means less energy is required to remove this electron from elements further down the group.

Describe the general reaction of a Group I element with water

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Vigorous reaction with water, producing hydrogen and an alkaline solution. Bubbles will be seen due to the production of hydrogen.

Using the trend in melting points, predict which element in Group I has the highest melting point

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Lithium

Using the trend in density, predict which element has the highest density out of sodium, lithium and caesium

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Caesium