Your notes

GCSE Chemistry: revision notes

Transition metals

Contents

1. Where they are
2. Compared with group 1
3. Typical properties
4. Key terms
5. Quick questions
6. What to do next

Where they are

- The **transition metals** are in the central block of the periodic table, between groups 2 and 3.
- Examples include chromium (Cr), manganese (Mn), iron (Fe), cobalt (Co), nickel (Ni) and copper (Cu).

Compared with group 1

- **Transition metals** have higher melting points (except mercury), higher densities, and greater strength and hardness.
- They are much less reactive: they do not react as vigorously with water or oxygen.

Typical properties

- Many **transition metals** form ions with different charges, for example iron forms Fe^{2+} and Fe^{3+}, and copper forms Cu^{+} and Cu^{2+}.
- They form **coloured compounds**: for example copper(II) compounds are often blue, and iron(II) compounds pale green.
- Many are useful as **catalysts**: iron in the **Haber process** for making ammonia, and nickel in making margarine by hydrogenation of vegetable oils.

Key terms

Transition metal	A metal from the central block of the periodic table, such as iron or copper.
Catalyst	A substance that speeds up a reaction without being used up.
Density	Mass per unit volume.
Coloured compound	A compound, often of a transition metal, that has a distinctive colour.

Haber process	The industrial process for making ammonia, which uses an iron catalyst.
Ion	A charged particle formed when an atom loses or gains electrons.

Your notes

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. Where are the transition metals in the periodic table?
2. How do transition metals compare with group 1 metals?
3. Which of these is typical of transition metal compounds?
4. Which transition metal is used as a catalyst in the Haber process?
5. Which two ions can iron form?
6. Which transition metal is used as a catalyst to make margarine?
7. How reactive are transition metals with water compared with group 1?
8. Which transition metal is a liquid at room temperature?

Answers

1. In the central block, between groups 2 and 3
2. They have higher melting points and densities
3. They are often coloured
4. Iron
5. Fe^{2+} and Fe^{3+}
6. Nickel
7. Much less reactive
8. Mercury

What to do next

Practise 10 questions on this topic

Try 5 exam questions, with mark schemes

Read the lesson, one step at a time

Free revision for GCSE and KS3 at lycolearn.co.uk. Some notes are for one exam board only, and say so in brackets.