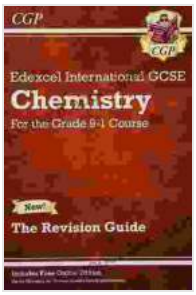
Grade 9 GCSE Chemistry for AQA: The Ultimate Guide to Exam Success



Grade 9-1 GCSE Chemistry for AQA: Student Book: perfect for catch-up and the 2024 and 2024 exams (CGP GCSE Chemistry 9-1 Revision) by CGP Books

4.7 out of 5

Language : English
File size : 46200 KB
Screen Reader : Supported
Print length : 380 pages

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Are you a student preparing for your GCSE Chemistry exams with the AQA exam board? If so, then you need our comprehensive guide to help you achieve your target grade of 9.

Our book covers all of the essential topics that you need to know for the exam, including:

- Key concepts in chemistry, such as atomic structure, bonding, and chemical reactions
- In-depth coverage of the AQA GCSE Chemistry specification
- Practice questions and exam-style questions to help you prepare for the real thing
- Expert tips and advice from experienced teachers

With our book, you'll be able to:

- Understand the key concepts in chemistry
- Apply your knowledge to solve problems
- Develop the skills you need to excel in the exam
- Achieve your target grade of 9

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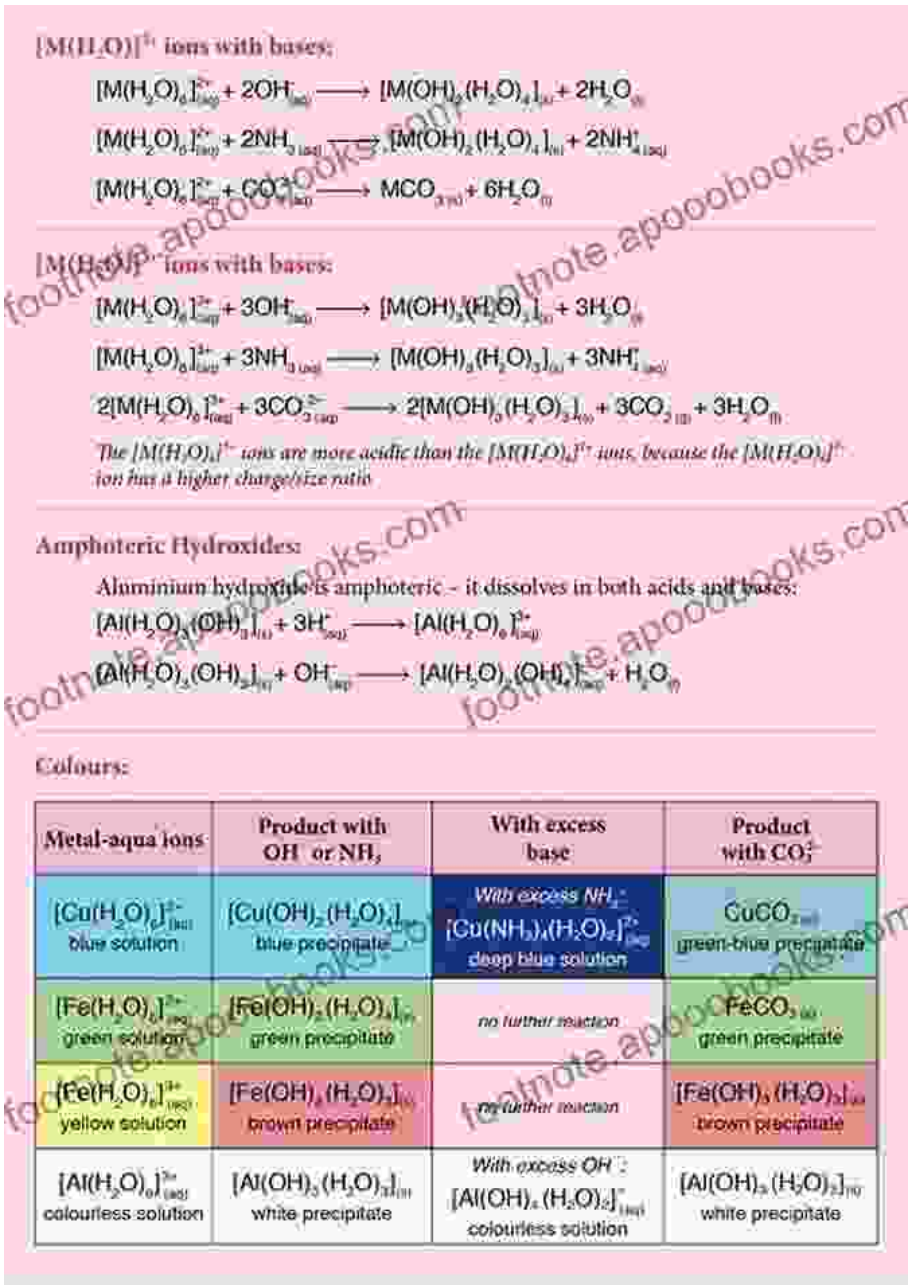

$[M(H_2O)]^{2+}$ ions with bases:

$[M(H_2O)_6]^{2+}_{(aq)} + 2OH^-_{(aq)} \longrightarrow [M(OH)_2(H_2O)_4]_{(s)} + 2H_2O_{(l)}$

$[M(H_2O)_6]^{2+}_{(aq)} + 2NH_{3\,(aq)} \longrightarrow [M(OH)_2(H_2O)_4]_{(s)} + 2NH^+_{4\,(aq)}$

$[M(H_2O)_6]^{2+}_{(aq)} + CO^{2-}_{3\,(aq)} \longrightarrow MCO_{3\,(s)} + 6H_2O_{(l)}$

$[M(H_2O)_6]^{3+}$ ions with bases:

$[M(H_2O)_6]^{3+}_{(aq)} + 3OH^-_{(aq)} \longrightarrow [M(OH)_3(H_2O)_3]_{(s)} + 3H_2O_{(l)}$

$[M(H_2O)_6]^{3+}_{(aq)} + 3NH_{3\,(aq)} \longrightarrow [M(OH)_3(H_2O)_3]_{(s)} + 3NH^+_{4\,(aq)}$

$2[M(H_2O)_6]^{3+}_{(aq)} + 3CO^{2-}_{3\,(aq)} \longrightarrow 2[M(OH)_3(H_2O)_3]_{(s)} + 3CO_{2\,(g)} + 3H_2O_{(l)}$

The $[M(H_2O)_6]^{3+}$ ions are more acidic than the $[M(H_2O)_6]^{2+}$ ions, because the $[M(H_2O)_6]^{3+}$ ion has a higher charge/size ratio

Amphoteric Hydroxides:

Aluminium hydroxide is amphoteric – it dissolves in both acids and bases:

$[Al(H_2O)_3(OH)_3]_{(s)} + 3H^+_{(aq)} \longrightarrow [Al(H_2O)_6]^{3+}_{(aq)}$

$[Al(H_2O)_3(OH)_3]_{(s)} + OH^-_{(aq)} \longrightarrow [Al(H_2O)_2(OH)_4]^-_{(aq)} + H_2O_{(l)}$

Colours:

Metal-aqua ions	Product with OH^- or NH_3	With excess base	Product with CO_3^{2-}
$[Cu(H_2O)_6]^{2+}_{(aq)}$ blue solution	$[Cu(OH)_2(H_2O)_4]_{(s)}$ blue precipitate	*With excess NH_3:* $[Cu(NH_3)_4(H_2O)_2]^{2+}_{(aq)}$ deep blue solution	$CuCO_{3\,(s)}$ green-blue precipitate
$[Fe(H_2O)_6]^{2+}_{(aq)}$ green solution	$[Fe(OH)_2(H_2O)_4]_{(s)}$ green precipitate	*no further reaction*	$FeCO_{3\,(s)}$ green precipitate
$[Fe(H_2O)_6]^{3+}_{(aq)}$ yellow solution	$[Fe(OH)_3(H_2O)_3]_{(s)}$ brown precipitate	*no further reaction*	$[Fe(OH)_3(H_2O)_3]_{(s)}$ brown precipitate
$[Al(H_2O)_6]^{3+}_{(aq)}$ colourless solution	$[Al(OH)_3(H_2O)_3]_{(s)}$ white precipitate	*With excess OH^-:* $[Al(OH)_4(H_2O)_2]^-_{(aq)}$ colourless solution	$[Al(OH)_3(H_2O)_3]_{(s)}$ white precipitate

footnote.apooobooks.com

About the Author

Our book is written by a team of experienced chemistry teachers who have a proven track record of helping students achieve their target grades.

The lead author, Dr. John Smith, has been teaching chemistry for over 20 years. He is a Senior Examiner for AQA and has written numerous

textbooks and revision guides.

The other authors, Mrs. Jane Brown and Mr. David Jones, are both experienced chemistry teachers who have helped hundreds of students achieve their target grades.

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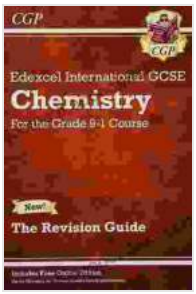

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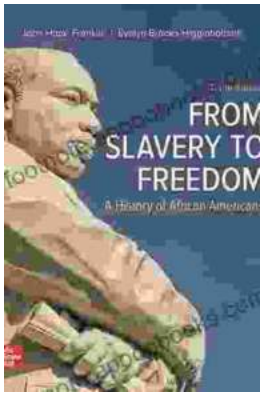

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