

GCSE Chemistry B (Twenty First Century Science)

J258/03 Breadth in chemistry (Higher Tier)

Question Set 7

- 1 This is an equation for a reaction that occurs in a lightning flash.
- $$\text{N}_2 + \text{O}_2 \rightleftharpoons 2\text{NO}$$
- Very high temperatures are needed.
- (a) (i) Explain how you can tell that this equation refers to an equilibrium. [1]
- (ii) Use ideas about rates to explain what is happening when the reaction reaches dynamic equilibrium. [2]
- (b) Scientists can use this reaction to make nitrogen compounds from gases in the air.
- (i) Suggest a use for these compounds. [1]
- (ii) The scientists discuss increasing the pressure on the reaction.
- Describe and explain the effect on the equilibrium position. [2]
- (c) There are several ways of making nitrogen compounds from nitrogen gas in industry.
- Give **two** reasons why scientists may choose this reaction and **one** against. [3]

Total Marks for Question Set 7: 9

OCR

Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge