IBDP Chemistry
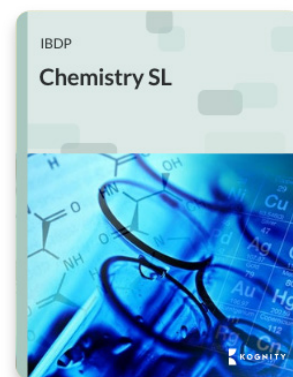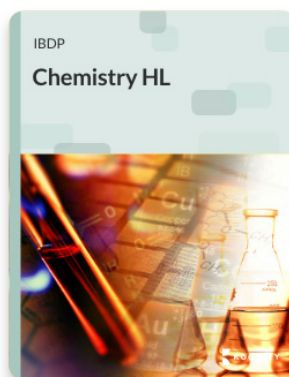
Our IBDP Chemistry SL/HL subject supports the full DP syllabus for first examination from 2016.

IBDP
Chemistry HL

IBDP
Chemistry SL

Key Features

Deriving the empirical formula for a compound using mass changes

Background information

When a chemical reaction occurs, the mass of the reactant(s) must equal the mass of the product(s) to obey the Law of Conservation of Mass. When a compound contains an unknown ratio of atoms, experimental data can be used to determine the empirical formula of that compound. This experiment will determine the empirical formula of copper oxide.
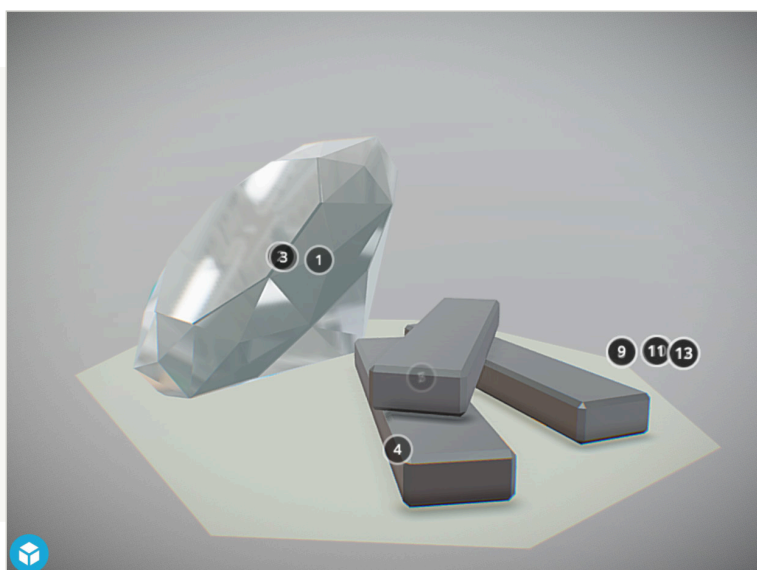
State the two possible empirical formulae for copper oxide.

» Hide answer

Cu_2O (copper(I) oxide) and CuO (copper(II) oxide)

Kognity IBDP Chemistry contains example experiments for each of the required practicals. Each experiment has a detailed procedure with apparatus and safety requirements that can be followed by teachers and students alike. There are also example calculations and practice questions for students to answer as they work through the experiment.

Diagrams, illustrations, photos and videos add a visual perspective to key concepts of the syllabus. Kognity Chemistry also contains 3D models that are embedded directly into the text so that students can access them while they read. These clickable, interactive resources make learning fun and engaging.

Within Kognity Chemistry you will find TOK boxes that help students make connections between TOK and chemistry. These provide interesting discussion points together with examples of knowledge questions. Additionally, Nature of Science boxes make clear the application of TOK to the Natural Sciences.

In addition to the fully syllabus-aligned textbook, Kognity Chemistry includes a detailed support guide for the Internal Assessment as well as a fully-equipped practice centre.

Subtopic IA.1
Internal assessment guide

Create assignment ▼

Students taking questions in this subtopic (by class): 0/0

Contents

IA.1.0 Introduction
IA.1.1 Getting started
IA.1.2 Personal engagement
IA.1.3 Exploration
IA.1.4 Analysis
IA.1.5 Evaluation
IA.1.6 Communication
IA.1.7 Checklist for final report

Worked example

50.0 cm^3 of a $0.500 \text{ mol dm}^{-3}$ solution of aqueous copper(II) sulfate was reacted with 3.00 g of zinc powder, according to the equation:

$$Zn \text{ (s)} + CuSO_4 \text{ (aq)} \rightarrow ZnSO_4 \text{ (aq)} + Cu \text{ (s)}$$
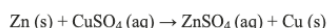
The results are shown in **Table 1** below. Use this data to determine the enthalpy change (ΔH) for the reaction.

Table 1. Results from zinc and copper sulfate experiment

Volume of $0.500 \text{ mol dm}^{-3}$ $CuSO_4$ (aq) used (cm^3)	50.00
Mass of Zn powder added (g)	3.00
Initial temperature of solution (°C)	21.0
Maximum temperature of solution (°C)	43.5

Worked Examples are included throughout Kognity IBDP Chemistry to make clear connections between theory and practice.