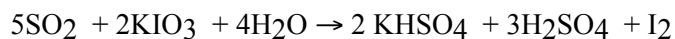
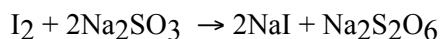


Teacher's Tools® Chemistry
Gases and Stoichiometry: Stoichiometry: Worksheet 4

1. Saturated solutions are often prepared by bubbling a gas through water. At 298 K and 1 atm, SO₂ is bubbled through H₂O to form a saturated solution. A 10 mL sample of the solution is reacted with potassium iodate according to the reaction:



The I₂ formed is then reacted completely with 65.6 mL of a 0.10 molar solution of Na₂SO₃ as shown.



(A) Calculate the moles of iodine liberated.

(B) Calculate the volume of SO₂ at 27°C and 760 mm Hg needed to prepare 1.00 liter of the saturated SO₂ solution.

2. Consider the following reaction: $\text{NaCN}_{(s)} + \text{H}^+_{(aq)} \rightarrow \text{HCN}_{(g)} + \text{Na}^+_{(aq)}$

(A) What mass of sodium cyanide, NaCN, is required to produce 5.67 L HCN at 25°C and 754 mm Hg?

(B) What volume of HCN would be produced at STP from 1.00 g NaCN?

3. Calculate the volume of CO₂ produced when 32.0 g of CH₄ is completely burned. All measurements are made at 745 mm Hg and 25°C.