

10. List the properties of oxygen, thus: *A*, Physical properties, 1, 2, &c. *B*, Chemical properties, 1, 2, &c.

11. Why should we expect to find oxygen colorless, odorless, tasteless?

12. Taking several of the experiments in this chapter together, what do they teach us as to the chemical composition of wood?

13. Cite some examples of oxidation from the experiments in this chapter.

14. Criticise the statement: The temperature of ignition (kindling temperature) is the temperature at which a substance will burn.

15. Compare, in tabular form, the burning of sulphur, iron and carbon in oxygen and also in air, with the products obtained. What does this suggest as to the chemical composition of the air?

16. Why is it wrong to write $\text{KClO}_3 = \text{KCl} + \text{O}_3$?

17. In preparing oxygen from chlorate of potash, three bottles of the gas are collected. Which bottle do you think contains the purest oxygen, and why?

18. The rusting of iron is really a case of combustion. Why does the iron not get hot?

19. When the end of a splinter of wood is lighted, why does not the whole splinter burst into flame—why does the flame creep slowly along the wood?

(The following calculations should be left till after Chapter VIII has been studied.)

20. 36 grs. of mercuric oxide is heated. How much oxygen is given off?

21. How much mercuric oxide must be heated in order to obtain 4 grs. of oxygen?

22. With how much oxygen can 100 grs. of mercury combine to form mercuric oxide?

23. A gas-holder has a capacity of 100 litres. How much chlorate of potash must be heated in order to produce enough oxygen to fill it under standard conditions? At 740 mm. and 15°?

24. 5 grs. of iron is burned in oxygen. What is the weight of the iron oxide produced?

25. With what volume of oxygen can 12 grs. of carbon combine to form CO_2 ? What will be the volume of the CO_2 .

26. If the price of potassium chlorate is 25c. per kilo and that of mercuric oxide \$1.75, what will it cost to prepare 1,000 litres of oxygen from each?