6. Exercise General Chemistry   08.12.2023

WS 2023/24

6.1

What is the molarity (molar concentration) of a $KMnO_4$ solution containing 5 wt-% $KMnO_4$? The density of this solution is 1,034 g/cm^3.

6.2

20 kg of a 10% sodium chloride solution and 30 kg of a 20% sodium chloride solution are mixed. Calculate the mass fraction of sodium chloride in the resulting solution.

6.3

1 mole of hydrogen occupies a volume of 22.4 dm^3 under normal conditions (1 atm, 0°C). Calculate the volume of hydrogen produced when 100 g of magnesium is reacted with a sufficient quantity of hydrochloric acid to dissolve it.

6.4

740) 20 °C? The solubility of KCl in water is 51.0 g at 80 °C and 34.2 g at 20 °C in 100 g of water.

6.5

3.00 g of solder are dissolved with HNO_3. 2.93 g of $PbSO_4$ precipitate after addition of sulfuric acid. The remaining solution is neutralized, the new precipitate is transferred to 1.27 g of SnO_2 by heating. Determine the composition of the solder.

6.6

The half-life period of a 1st order reaction is 1 s. Calculate the 10th life period, i.e. the time when only 1/10 of the starting concentration is still there. What is the relationship between half life time and n^{th} life time?