Answer on Question: 60024

Process reaction:

$2KClO_3 = 2KCl + 3O_2$

The ideal gas low:

$$pV = nRT$$

where *p* is the absolute pressure (SI unit pascals), *V* is the volume of gas (SI unit cubic metres), *n* is the amount of gas (SI unit moles), *T* is the temperature (SI unit kelvins)

Task data (to SI units)

$V = 680\ ml = 0.68\ l = 0.00068\ m^3$

$T = 128C = 401K$

$P = 742\ torr = 98925.2\ Pa$

$R = 8.314\ J\,K^{-1}mol^{-1}$ (**ideal gas constant)**

n = PV/RT

$n = 0.0201\ mol$

$nKClO_3$: $n(O2) = 2:3$

$$m(KClO3) = M(KClO3) \times n(KClO) = M(KClO3) \times \frac{2}{3} n(O2)$$

$M(KClO_3) = 122.55\ g/mol$

$m(KClO_3) = 2.46\ g$