410967

by weight

Take 100 g air = 80 g N_2 + 20 g [illegible]

$= \frac{80}{28}$ moles N_2 + $\frac{20}{32}$ moles O_2

| STP O_2 20 g O_2 (V_1) |
| STP N_2 80 g N_2 (V_2) |

$V = V_1 + V_2$

so, $V = \frac{80}{28} 22.4 + \frac{20}{32} 22.4$

$(2.855 + .626) 22.4 = 3.48 (22.4)$

$\therefore V = $ 78.0 liters

O_2, $78000\, ml = A \left(\frac{80}{28}\right) 7 + \left(\frac{20.0}{32}\right) 8$

$A(40 + 10)$

$= 50 A = 50$

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(one mole of air) $= \frac{50}{78000}$

18 ml = 1 gm mole H_2O

one ml of water =

32

22.4 l / mole of air

mole of air = 22400 ml ... $6.02 \times 10^{23} \times 19$

mole of H_2O = 18 ml ... $6.02 \times 10^{23} \times 10$

$$\frac{\text{air}}{H_2O} = \frac{\frac{19 \times 6.02 \times 10^{23}}{22400}}{\frac{10 \times 6.02 \times 10^{23}}{18}} = 1.16 \times 10^{-3}$$

SCRIPPS

$$\frac{H_2O}{\text{air}} = 862$$

Memo [illegible]

From Page 431 EAW, [n/sec] = 1.45×10^{-5} [flux in Mev/sec/cm²]

= 1.45×10^{-5} [energy absorbed/sec/cm² in Mev]

[mr/hr] = (1000)(3600)(1.45×10^{-5}) [energy absorbed/sec/cm² in Mev]

= 52.3

Now it can be shown that the ratio of the [illegible] [illegible] in equal units to the electron [illegible] [illegible] is of about 866

SCRIPPS

Imagine now a bubble of air absorbing from a [illegible] flux energy at the rate of 1 mev/sec/cm² or at the equivalent rate 52.3 mr/hr.

A perfect "r-meter" would read equivalently 52.3 scale units. The Radiac [illegible] would read 52.3 C° = (52.3)(.523) = 27.4 [illegible] since [illegible] I^{131} [illegible].

Now let us imagine [illegible] [illegible] bubble while holding [illegible] [illegible] energy would now be [illegible] [illegible] electrons present. The [illegible] about 866 mev/sec/cm² [illegible] 866 × 52.3 mr/hr. However, [illegible] probe would still read 27.4 [illegible] mr*/hr

There are [illegible] [illegible] [illegible] I^{131} [illegible]

[illegible] [illegible] mr*/hr [illegible] [mev/sec/cm²] [illegible]

Converting by the number of [illegible]

$$[\text{neu/sec/cm}^2] = 1/31.7 = .0317\,[\text{mr}^*/\text{hr}],$$

the latter being the approx. [illegible] dose equal on the [illegible] of the probe.

SCRIPPS

Now since an infinite absorber source, the flux intensity everywhere is uniform and the activity everywhere is uniform; and this can only occur if the activity density is numerically equal to the rate of absorption per unit volume per unit time.

Thus we can put in this special case, the activity density also,

$$[\text{neu/sec/cm}^3] = .0317\,[\text{mr}^*/\text{hr}]$$