410967

by weight

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

$= \frac{80}{28}$ 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, $78000 \, ml = A \left(\frac{80}{28}\right) 7 + \left(\frac{20}{32}\right) 8$

$A(40 + 10)$

$50 A = 50$

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

18 ml = 1 g mole of H_2O = N_A molecules

$= N_A (0.78)$

one mole of water =

$\frac{6 \times 10^{23} \times 60 \times 10^{-23}}{50}$

108

32

11.4 l / mole of air

mole of air = 22400 ml [illegible] 6.02 × 10[illegible] × 1[illegible]

mole of [illegible] = 18 ml = 6.02 × 10[illegible] × 10 [illegible]

$$\frac{air}{H_2O} = \frac{\frac{1.4 \times 6.02 \times 10^{23}}{22400}}{\frac{10 \times 6.02 \times 10^{22}}{18}} = 1.16 \times 10^{-3}$$

SCRIPPS

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

[illegible] From Page 431 EAW [n/sec] = 1.45×10^{-5} [illegible] [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] in equal units to the [illegible] [illegible] 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 equivalent 52.3 [illegible] units. The Beckman probe would read

52.3 C^p = (52.3)(.523) = 27.4 [illegible]

[illegible]

Now let us imagine [illegible] [illegible] bubble while holding [illegible] [illegible] energy would now be [illegible] [illegible] [illegible] The [illegible] about 866 mev/sec/cm² [illegible]

866 x 52.3 mr/hr. However, [illegible] probe would still read 27.4 [illegible]

mr*/hr

There are [illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [mev/sec/cm²] [illegible]

[illegible]

Correspondingly the number of [illegible] [illegible] [illegible],

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

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

SCRIPPS

Now since an infinite absorbing 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 optimal case, the activity density is also,

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