the optimum condition for each group. It is the complicated manner to change the condition by manual setting.

The automatic quenching level selector in liquid scintillation system eliminate that complication by automatical compensating for varying samples by adjusting amplifier-gain to the optimum setting for each sample before it is counted.

Trial Manufacture of Dilution Computer for Measuring Circulation Blood Quantity and its Performance.

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"Measurement of circulation blood quantity by radio isotope dilution method has recently been recognized its clinical utility and hence the demand for handy, accurate, speedy and repeatable measuring devices. Then this dilution computor has been developed which can automatically computes the dilution formula and directly read the circulation blood quantity in ml. Its detecting part consists of $2''\phi \times 3''$ side hole type NaI (Tl) scintillation detector and lead shield 3cm thick. The well A in the middle of scintillator and the well B at its surface 17.5cm away from the well A are used for measurements of dilution samples and tracer doses respectively.

The measuring part consists of reversible scaler timer, digital computor, program circuit, etc. The operation formula is as follows:

where
$V = K\ (I_1 - I_2)/(I_3 - I_4)$
I_1 = dose in syringe
I_2 = dose in syringe after injection
I_3 = dose in blood sample after maxing
I_4 = dose in blood sample before injection
K = blood sample (1) $\times$ counting efficiency ratio (well A/B).

I_1 is automatically counted in preset-count of 4×10^4. This counting time t is memorized on the timer, so I_2 is counted in t, and I_3 & I_4 in 4 t. In case of ^{131}I-RISA, the counting efficiency ratio of well A & B is about 55 to 1 and the amount of blood sample is 6ml, so K is approximately $55 \times 4 \times 6/1000$ (=1.320).

Constant K of any four figures can be placed according to the nuclide of Tracer Dose.

Since net amount of tracer dose (I_1-I_2) and time (t) are automatically memorized in memory circuit ,measurement can be repeated.

Performance

Measuring range: 0.51 t o101; 0.15 to 31
Blood sample: 6m1/2m1 twice
RI dose: 1μCi to 10μCi/2ml (^{131}I-RISA)
Accuracy: $\pm$1.5% (4μCi, 41.)
Measuring time: 72 sec to 720 sec (excluding mixing time)
Constant setter: 0.000 to 9.999; two sets
Syringe: disposable syringe (2.5 ml.)
Test tube: W-6, R-6 type (Pre, Post 6 ml.)
W-2, R-2 type (Pre, Post 2 ml.)
Others: Repeating and ratio measurements possible.