Evaluation of the Capability of Coumarin Dye as a Liquid Scintillator for Gamma Ray Detection and Compton Edge Localization.

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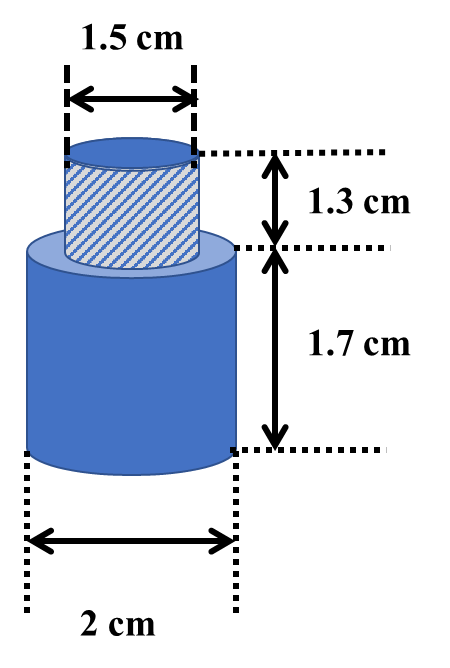


Fig. S1 dimensions of the glass container of LS

Table.S1. The count rate observed by fabricated cells using Cs-137 gamma source

|  |  |  |
| --- | --- | --- |
| **Scintillator** | **C450 Concentration (wt%)** | **Count rate minute (CRM) C/min** |
| LS1 | 0.11 | 24,266 ± 7.8 |
| LS2 | 0.22 | 34006 ± 9.2 |
| LS3 | 0.33 | 15574 ± 6.2 |



Fig. S2 the plot of calculated values of Gaussian fitting (Compton peak) such as mean energy standard deviation (S.D), calculated CE, ratio (ρ) of CE to Maximum pulse Hight, curve goodness (χ2) using LS1, LS2, and LS3 for different voltages.

Table.S2. Mean Energy (channel), SD [channel], calculated CE, the ratio of CE to Max Hight, and fitness of curve 2 of the Cs-137 pulse height distribution spectra obtained for LSs at different voltages of PMT.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Type of cell** | **HV**  **(V)** | **Mean Energy**  **(channel)** | **S.D ( (channel)** | **CE *NCE* (channel)** | ***NCE* to Max Hight** | **2** |
| **LS1** | 865 | 1653.31 | 272.8956 | 1974.508107 | 0.5001 | 0.9933 |
| 885 | 2005.38 | 329.0782 | 2392.705071 | 0.4997 | 0.9912 |
| 905 | 2477.98 | 404.8 | 2954.43 | 0.4996 | 0.9892 |
| 925 | 2950.57 | 480.525 | 3516.147974 | 0.4994 | 0.9872 |
| 945 | 3509.31 | 611.1592 | 4228.644411 | 0.5005 | 0.9811 |
| 965 | 4239.44 | 736.8843 | 5106.752861 | 0.5013 | 0.9734 |
| 985 | 5108.96 | 865.2593 | 6127.370224 | 0.5014 | 0.9576 |
| **LS2** | 865 | 1340.40 | 229.5037 | 1610.525898 | 0.5070 | 0.9963 |
| 885 | 1711.95 | 287.5167 | 2050.357112 | 0.4971 | 0.9957 |
| 905 | 2052.24 | 353.5769 | 2468.400026 | 0.5008 | 0.9943 |
| 925 | 2500.15 | 420.6903 | 2995.302507 | 0.5003 | 0.9925 |
| 945 | 3002.58 | 513.1432 | 3606.5496 | 0.4985 | 0.9909 |
| 965 | 3586.64 | 631.1438 | 4329.496217 | 0.49801 | 0.988 |
| 985 | 4309.7 | 756.9496 | 5200.629634 | 0.5005 | 0.927 |
| **LS3** | 865 | 1289 | 221.8768 | 1550.149026 | 0.5011 | 0.9923 |
| 885 | 1571.28 | 271.0865 | 1890.348848 | 0.4998 | 0.9905 |
| 905 | 1908.34 | 326.3392 | 2292.441194 | 0.5015 | 0.98812 |
| 925 | 2293.16 | 392.8028 | 2755.488942 | 0.5004 | 0.9857 |
| 945 | 2786.98 | 451.3721 | 3318.244927 | 0.5008 | 0.98259 |
| 965 | 3369.72 | 561.2531 | 4030.314874 | 0.5008 | 0.9745 |
| 985 | 4081.22 | 649.4551 | 4845.628709 | 0.5019 | 0.9660 |