KJM 5900 Exercise 5 Counting Forms

Your name: _____

Date: _____

Measured background

R_{BG} (raw) = _____   Time (s) = _____

Calculated background rate: R_{BG} = R_{BG} (raw) / Time (s) = _____ cps

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There are five counting forms in this document, one each for 12, 24, 48, 72 and 144 seconds of irradiation. The forms are on separate pages.

12 sec irradiation

Date: _____   Time: _____   Initials: _____

Start time t' (sec)	Count Time Δt (sec)	Counts R'	Count Rate $R = R'/\Delta t$ (cps)	Uncertainty $s_R = \sqrt{R'} / \Delta t$	Centroid Time[*] $t = t' + \Delta t/3$ (sec)	BG Corrected Rate $R_C = R - R_{BG}$ (cps)	R_C Uncertainty $s_{Rc} = \sqrt{(s_R^2 + s_{BG}^2)}$
These values are from the counter					These values are to be used for plotting		
5	20				12		
25	20				32		
45	20				52		
65	20				72		
85	20				92		
105	100				138		
205	100				238		
305	100				338		
405	100				438		
505	100				538		
605	100				638		
705	100				738		

24 sec irradiation

Date: _____   Time: _____   Initials: _____

Start time t' (sec)	Count Time Δt (sec)	Counts R'	Count Rate $R = R'/\Delta t$ (cps)	Uncertainty $s_R = \sqrt{R'}\,/\,\Delta t$	Centroid Time[*] $t = t' + \Delta t/3$ (sec)	BG Corrected Rate $R_C = R - R_{BG}$ (cps)	R_C Uncertainty $s_{Rc} = \sqrt{(s_R^2 + s_{BG}^2)}$
These values are from the counter					These values are to be used for plotting		
5	20				12		
25	20				32		
45	20				52		
65	20				72		
85	20				92		
105	100				138		
205	100				238		
305	100				338		
405	100				438		
505	100				538		
605	100				638		
705	100				738		

48 sec irradiation

Date: _____   Time: _____   Initials: _____

Start time t' (sec)	Count Time Δt (sec)	Counts R'	Count Rate $R = R'/\Delta t$ (cps)	Uncertainty $s_R = \sqrt{R'}\,/\,\Delta t$	Centroid Time[*] $t = t' + \Delta t/3$ (sec)	BG Corrected Rate $R_C = R - R_{BG}$ (cps)	R_C Uncertainty $s_{Rc} = \sqrt{(s_R^2 + s_{BG}^2)}$
These values are from the counter					These values are to be used for plotting		
5	20				12		
25	20				32		
45	20				52		
65	20				72		
85	20				92		
105	100				138		
205	100				238		
305	100				338		
405	100				438		
505	100				538		
605	100				638		
705	100				738		

72 sec irradiation

Date: _____   Time: _____   Initials: _____

Start time t' (sec)	Count Time Δt (sec)	Counts R'	Count Rate $R = R'/\Delta t$ (cps)	Uncertainty $s_R = \sqrt{R'} / \Delta t$	Centroid Time[*] $t = t' + \Delta t/3$ (sec)	BG Corrected Rate $R_C = R - R_{BG}$ (cps)	R_C Uncertainty $s_{Rc} = \sqrt{(s_R^2 + s_{BG}^2)}$
These values are from the counter					These values are to be used for plotting		
5	20				12		
25	20				32		
45	20				52		
65	20				72		
85	20				92		
105	100				138		
205	100				238		
305	100				338		
405	100				438		
505	100				538		
605	100				638		
705	100				738		

144 sec irradiation

Date: _____   Time: _____   Initials: _____

Start time t' (sec)	Count Time Δt (sec)	Counts R'	Count Rate R = R'/Δt (cps)	Uncertainty $s_R = \sqrt{R'}/\Delta t$	Centroid Time[*] t = t' + Δt/3 (sec)	BG Corrected Rate $R_C = R - R_{BG}$ (cps)	R_C Uncertainty $s_{Rc} = \sqrt{(s_R^2 + s_{BG}^2)}$
These values are from the counter					These values are to be used for plotting		
5	20				12		
25	20				32		
45	20				52		
65	20				72		
85	20				92		
105	100				138		
205	100				238		
305	100				338		
405	100				438		
505	100				538		
605	100				638		
705	100				738		