



**PROTECH LEADED EYEWEAR INC,
DBA PROTECH MEDICAL**

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ATTENUATION RESULTS: PREMIER LEAD FREE

ASTM F2547-06:

3.1.1.1 Discussion—In this test method, the attenuation is calculated as 1 minus the ratio of the measured exposure with a protective material in the beam to the measured exposure without the protective material in the beam at a specific accelerating potential. Multiplying the resulting value by 100 gives percent attenuation.

$$\text{Attenuation (percent)} = \left(1 - \frac{\text{exposure with sample}}{\text{exposure without sample}} \right) \times 100 \quad (1)$$

X-RAY TUBE VOLTAGE
80

MEASURED TUBE VOLTAGE
80.7

HVL
3.93mm Al

MAS
10

SAMPLE	DOSE WITH	DOSE WITHOUT	ATTENUATION %
Lead Free - 0.125mm Pb	96.40	471.04	79.53%
Lead Free - 0.25mm Pb	32.39	473.2	93.16%
Lead Free - 0.375mm Pb	14.20	472.3	96.99%
Lead Free - 0.50mm Pb	7.19	472.4	98.46%
Lead - 0.1mm Pb	98.09	471.5	79.20%
Lead - 0.2mm Pb	42.02	472.1	91.10%
Lead - 0.3mm Pb	22.39	473.1	95.27%
Lead - 0.4mm Pb	12.73	472.4	97.31%
Lead - 0.5mm Pb	7.735	471.1	98.36%

ATTENUATION RESULTS: PREMIER LEAD FREE (CONT.)

X-RAY TUBE VOLTAGE
90

MEASURED TUBE VOLTAGE
91.3

HVL
4.3mm Al

MAS
10

SAMPLE	DOSE WITH	DOSE WITHOUT	ATTENUATION %
Lead Free - 0.125mm Pb	141.7	599.8	76.38%
Lead Free - 0.25mm Pb	55.94	600.3	90.68%
Lead Free - 0.375mm Pb	28.49	600.3	95.25%
Lead Free - 0.50mm Pb	16.09	600.0	97.32%
Lead - 0.1mm Pb	150.1	601.1	75.03%
Lead - 0.2mm Pb	72.59	601.1	87.92%
Lead - 0.3mm Pb	42.39	600.1	92.94%
Lead - 0.4mm Pb	26.16	600.3	95.64%
Lead - 0.5mm Pb	17.37	599.9	97.10%

X-RAY TUBE VOLTAGE
100

MEASURED TUBE VOLTAGE
101.8

HVL
5.1mm Al

MAS
10

SAMPLE	DOSE WITH	DOSE WITHOUT	ATTENUATION %
Lead Free - 0.125mm Pb	198.5	736	73.03%
Lead Free - 0.25mm Pb	86.97	736	88.18%
Lead Free - 0.375mm Pb	47.85	737.8	93.51%
Lead Free - 0.50mm Pb	28.94	736.5	96.07%
Lead - 0.1mm Pb	208.6	737.1	71.70%
Lead - 0.2mm Pb	106.7	736.6	85.51%
Lead - 0.3mm Pb	64.1	736.6	91.30%
Lead - 0.4mm Pb	40.34	736.2	94.52%
Lead - 0.5mm Pb	27.32	737	96.29%

The undersigned, being a high level representative of Protech, hereby states that the above x-ray protective materials were taken as a random sampling from Protech's inventory and tested in accordance with industry standard ASTM testing methods.



Signature

President

Title

01/30/19

Date