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## Production dosimeter LiF: Mg, Ti and comparison its responses with dosimeter LiF: Mg, Ti (TLD-100) in Harshaw company against of gamma rays

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### Abstract

Thermoluminescence dosimeters are small tablets used with  $3.2 \times 3.2 \times 0.9 \text{ mm}^3$  for measurement of received dose from radioactive various beams. The most common dosimeter is TLD-100 which is lithium-fluoride family and this dosimeter contain magnesium impurities. In this study, first lithium-flouride powder was mixed with titanium and controlled atmosphere samples were heated. After measuring of samples density and hardness, their glow curves were drawn and microscopic pictures of producted samples were provided. Of course, the reader should know that the best press pressure, the best range of temperature heating and the best range of samples heating were determined in 6-8 (ton/cm<sup>2</sup>), 775-800 ° C and 15-20 h, respectively [1]. Then, the response of producted TLD-100 under radiation of gamma sources, <sup>60</sup>Co, was measured in 500 mSv rate and obtained values were compared with obtained values by Harshaw producted samples. Dosimetry characteristics of producted samples was evaluated according to ASTM E 668-00, IEC-ISO 1066 standards. The results of comparisions indicate good agreements between producted sample and Harshaw sample.

**Keywords:** dosimetry, thermoluminescence, Glowcurve, Harshaw, gammaray, neutron, LiF

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