## Summary of radon measurements on Urethane O-Rings

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The following is a summary of the measurements of radon emanation into vacuum done on Urethane O-Ring cord.

The sample was yellowish in color and translucent. It was in the shape of an O-Ring cord (diameter 0.48 cm, length 3.05 m). The sample was obtained from Levac Supplies (Kingston) and made by the Minnesota Rubber Company. Urethane O-Ring material comes in many formulations and we are unable to determine which formulation this sample is.

Total surface area:  $0.0456 \text{ m}^2$ 

The sample was pumped for two days and reached a base pressure of 62 microns.

Four extractions were performed:

- 1: April 27, 1993 after 5 day seal:  $33.2 \pm 5.7$  Rn m<sup>-2</sup>h<sup>-1</sup>
- 2: May 4, 1993 after 7 day seal:  $12.0 \pm 4.1$  Rn m<sup>-2</sup>h<sup>-1</sup>
- 3: May 11, 1993 after 7 day seal:  $3.7 \pm 3.8$  Rn m<sup>-2</sup>h<sup>-1</sup>
- 4: May 18, 1993 after 7 day seal:  $12.7 \pm 4.8$  Rn m<sup>-2</sup>h<sup>-1</sup>

Extraction 1 is high probably due to some absorbed room air that comes out of the material.

Extraction 3 is anomalously low for some unknown reason.

Taking the average of Extractions 2 and 4 gives a radon emanation rate of  $12.4 \pm 3.2$ Rn m<sup>-2</sup>h<sup>-1</sup> (or 0.18 ± 0.05 Rn m<sup>-1</sup>h<sup>-1</sup>) for Urethane O-Ring cord.

(This rate is about a factor of 100 lower than filled O-Rings such as Buna-N and Viton. Carbon black and clay are commonly used fillers.)