

# RADIOACTIVE SOURCES

**M**odel RN-190 and TH-190 are radon and thoron sources that generate radon and thoron daughters

Radon and thoron daughter sources were developed by Pylon to satisfy the need for a convenient and accurate means of checking and calibrating field instrumentation. These sources feature a reliable rate of emanation, high accuracy and ease of use.

The Pylon RN-190 Radon Daughter Sources and TH-190 Thoron Daughter Sources are the most accurate daughter sources available for radon and thoron daughter detectors, working level meters and alpha spectrometers because they have geometric and spectroscopic characteristics virtually identical to a filtered air sample. The unit contains a radium (Ra-226) or a thorium (Th-228) source which emanates radon gas or thoron gas respectively into a small chamber and subsequently decays into its daughters, which deposit uniformly on the inner surface wall and onto an enclosed filter. Two activity levels are available. The 4000 dpm/cm<sup>2</sup> unit is suitable for most low level monitoring applications. The 20,000 dpm/cm<sup>2</sup> unit is suited for higher radiation level measurements or where shorter counting intervals are desired.

### Applications:

- Accurate reference for Working Level measurements
- Distributed radiation source
- Precise alignment of Alpha Spectrometers
- Progeny monitor testing and calibration



RN-190

### Features:

- ANSI N538-1979 safety standard compliant
- High accuracy
- Easy to use
- Constant rate of emanation

### Theory of Operation:

A filter is sealed within the source. As the radium or thorium decays it produces radon or thoron and the associated progeny or daughter products. The daughter products fall onto the filter in a relatively uniform fashion. Once equilibrium is attained the filter can be used to verify the operation of or calibrate field instrumentation.

RN-190 / TH-190

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## Specifications:

	<u>RN-190-47-4</u>	<u>RN-190-47-20</u>	<u>TH-190-47-4</u>	<u>TH-190-47-20</u>	
Parent nuclide:	Ra-226	Ra-226	Th-228	Th-228	
Nominal activity:	4000	20000	4000	20000	dpm/cm <sup>2</sup>
Activity Tolerance:	-10 / +25	-10 / +25	-10 / +25	-10 / +25	%
Calibration Accuracy <sup>1</sup> :	± 4	± 4	± 8	± 8	%
Housing Material:	Aluminum	Aluminum	Aluminum	Aluminum	
Filter Diameter:	47	47	47	47	mm
Surface Uniformity:	± 5	± 5	± 5	± 5	%
Operating Temperature Range:	0 to +50 (+32 to +122)	0 to +50 (+32 to +122)	0 to +50 (+32 to +122)	0 to +50 (+32 to +122)	°C (°F)
Storage Temperature Range:	-20 to +75 (-4 to +167)	-20 to +75 (-4 to +167)	-20 to +75 (-4 to +167)	-20 to +75 (-4 to +167)	°C (°F)
Relative Humidity Range <sup>2</sup> :	0 to 90	0 to 90	0 to 90	0 to 90	%
Diameter:	10.2 (4)	10.2 (4)	10.2 (4)	10.2 (4)	cm (in.)
Height:	10.2 (4)	10.2 (4)	10.2 (4)	10.2 (4)	cm (in.)
Weight:	518 (1.14)	518 (1.14)	518 (1.14)	518 (1.14)	g (lb.)

<sup>1</sup> At a 1  $\sigma$  Confidence Level.

<sup>2</sup> Non-Condensing.

• Values are nominal.

## Ordering Information:

<b>Order No.</b>	<b>Model</b>	<b>Nominal Alpha Activity</b>	<b>Nominal Source Activity</b>
A202047	RN-190-47-4	4000 dpm/cm <sup>2</sup>	0.32 $\mu$ Ci (12 kBq)
A202045	TH-190-47-4	4000 dpm/cm <sup>2</sup>	0.32 $\mu$ Ci (12 kBq)
6202039	RN-190-47-20	20000 dpm/cm <sup>2</sup>	1.6 $\mu$ Ci (60 kBq)
6202038	TH-190-47-20	20000 dpm/cm <sup>2</sup>	1.6 $\mu$ Ci (60 kBq)

Custom activities are available. Contact Pylon.

THESE SOURCES CONTAIN RADIOACTIVE MATERIALS. PYLON REQUIRES A COPY OF THE USER'S RADIOISOTOPE LICENCE PRIOR TO SHIPPING THESE PRODUCTS.

Specifications subject to change without notice.

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