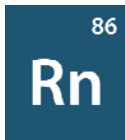


## Isotopes of Radon

Isotope	Atomic Mass	Half-life	Mode of Decay	Nuclear Spin	Nuclear Magnetic Moment
Rn-210	209.98968	2.40 hours	EC to At-210; $\alpha$ to Po-206	0	No data available
Rn-211	210.99059	14.60 hours	EC to At-211; $\alpha$ to Po-207	1/2	0.60
Rn-212	211.99069	24.00 minutes	$\alpha$ to Po-208	0	No data available
Rn-213	212.99387	0.025 seconds	$\alpha$ to Po-209	9/2	No data available
Rn-214	213.99535	0.000027 seconds	$\alpha$ to Po-210	0	-0.020
Rn-215	214.99873	0.0000023 seconds	$\alpha$ to Po-211	9/2	No data available
Rn-216	216.00026	0.000045 seconds	$\alpha$ to Po-212	No data available	No data available
Rn-217	217.00391	0.0006 seconds	$\alpha$ to Po-213	9/2	No data available
Rn-218	218.00559	0.035 seconds	$\alpha$ to Po-214	0	No data available
Rn-219	219.00948	3.96 seconds	$\alpha$ to Po-215	5/2	No data available
Rn-220	220.01138	55.60 seconds	$\alpha$ to Po-216	0	No data available
Rn-221	221.0156	25.00 minutes	$\alpha$ to Po-217; $\beta^-$ to Fr-221	7/2	No data available
Rn-222	222.017571	3.8235 days	$\alpha$ to Po-218	0	No data available
Rn-223	223.0218	23.20 minutes	$\alpha$ to Po-219; $\beta^-$ to Fr-223	No data available	No data available
Rn-224	224.0241	107.00 minutes	$\beta^-$ to Fr-224	No data available	No data available
Rn-225	225.0284	4.50 minutes	$\beta^-$ to Fr-225	No data available	No data available
Rn-226	226.0309	7.40 minutes	$\beta^-$ to Fr-226	No data available	No data available



Radon was discovered in 1900 by Friedrich Ernst Dorn. It was called “niton” until 1923, after the Latin word *nitens*, meaning “shining.” Since 1923 it has been called “radon,” after the element *radium*. It is one of the intermediate Uranium-238 series, and the “first daughter” of Radium-226. A colorless gas that is strongly absorbed onto surfaces, it dissolves in water and is slightly soluble in alcohol and other organic solvents. It solidifies to an opaque crystalline solid.

Radon is a radiation source for treating cancer. It is safer than Radium-226 because of its much shorter half-life. In addition, its solution in petroleum jelly is used in some ointments for treating certain skin diseases. Non-medical uses of radon include its application as a gaseous tracer to detect leaks; to measure flow rates; as a source of neutrons in radon-beryllium mixes; to ionize gases to promote radon-induced chemical reactions such as oxidation, decomposition and polymerization; to measure reaction rates; and as a point source of gamma rays in radiography to inspect welding and castings of metals.

Exposure to radon can cause lung cancer. While it is the second most frequent cause of lung cancer, it is the number one cause among non-smokers, according to United States Environmental Protection Agency estimates.

## Properties of Radon

<b>Name</b>	Radon
<b>Symbol</b>	Rn
<b>Atomic number</b>	86
<b>Atomic weight</b>	222
<b>Standard state</b>	Gas at 298 °K; (the heaviest known mononuclear gas at 298 °K)
<b>CAS Registry ID</b>	10043-92-2
<b>Group in periodic table</b>	18
<b>Group name</b>	Noble gas
<b>Period in periodic table</b>	6
<b>Block in periodic table</b>	p-block
<b>Color</b>	Colorless
<b>Classification</b>	Nonmetallic
<b>Melting point</b>	-71.00 °C
<b>Boiling point</b>	-61.70 °C

## Properties of Radon (continued)

<b>Liquefaction point</b>	-61.80 °C
<b>Solidification point</b>	-71.00 °C
<b>Thermal conductivity</b>	0.00361 W/(m·K)
<b>Heat of vaporization</b>	17.00 kJ·mol <sup>-1</sup>
<b>Heat of fusion</b>	3.00 kJ·mol <sup>-1</sup>
<b>Density of gas</b>	.0093 g/cm <sup>3</sup>
<b>Density of solid</b>	4.00 g/cm <sup>3</sup>
<b>Electron configuration</b>	[He]4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>6</sup>
<b>Oxidation state</b>	0
<b>Critical temperature</b>	104.40 °C
<b>Critical pressure</b>	62.40 atm