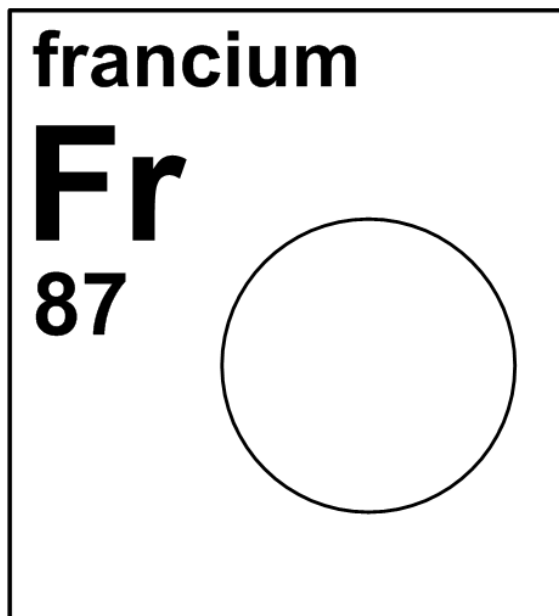


4.87 francium



Stable isotope	Relative atomic mass	Mole fraction
(none)		

Half-life of radioactive isotope

Less than 1 hour

¹⁹⁷ Fr	¹⁹⁸ Fr	¹⁹⁹ Fr	²⁰⁰ Fr	²⁰¹ Fr	²⁰² Fr	²⁰³ Fr	²⁰⁴ Fr	²⁰⁵ Fr	²⁰⁶ Fr
²⁰⁷ Fr	²⁰⁸ Fr	²⁰⁹ Fr	²¹⁰ Fr	²¹¹ Fr	²¹² Fr	²¹³ Fr	²¹⁴ Fr	²¹⁵ Fr	²¹⁶ Fr
²¹⁷ Fr	²¹⁸ Fr	²¹⁹ Fr	²²⁰ Fr	²²¹ Fr	²²² Fr	²²³ Fr	²²⁴ Fr	²²⁵ Fr	²²⁶ Fr
²²⁷ Fr	²²⁸ Fr	²²⁹ Fr	²³⁰ Fr	²³¹ Fr	²³² Fr	²³³ Fr			

Francium was discovered in 1939 by Marguerite Perey, a physicist at the Curie Institute in Paris, France (Figure 4.87.1). ²³³Fr (with a **half-life** of 22 minutes) occurs naturally in uranium minerals as a result of actinium decay; however, it is estimated that no more than approximately 30 g of francium is present in the Earth's crust at any time. Francium can be produced artificially for research by bombarding thorium with **protons**. Francium was named in honor of Perey's home country, France [572-574]. Francium has no known isotopic applications outside of scientific research.



Fig. 4.87.1: Francium was discovered in 1939 by Marguerite Perey, a physicist at the Radium Institute in Paris, France. Photo kindly provided by Musée Curie (Coll. ACJC), Institut Curie, Centre National de la Recherche Scientifique, Paris, France.