

# Lawrencium (Lr)

Element 103 | Actinide | Period 7 | f-block

|                               |                                                       |
|-------------------------------|-------------------------------------------------------|
| <b>Atomic number</b>          | 103                                                   |
| <b>Atomic mass</b>            | [262]                                                 |
| <b>Electron configuration</b> | [Rn] 5f <sup>14</sup> 7s <sup>2</sup> 7p <sup>1</sup> |
| <b>Reference isotope</b>      | <sup>262</sup> Lr                                     |
| <b>Density</b>                | Unknown                                               |
| <b>Melting point</b>          | 1900 K (reported reference)                           |
| <b>Boiling point</b>          | Unknown                                               |
| <b>Structure</b>              | Bulk crystal structure not experimentally established |

## Big idea

Lawrencium closes the actinide sequence and has an unusual 7p<sup>1</sup> ground-state reference. Its atomic electronic structure is better constrained than its inaccessible bulk material properties.

## Five things to remember

- Atomic number 103 means every lawrencium nucleus has 103 protons.
- The ground-state/reference electron configuration is [Rn] 5f<sup>14</sup> 7s<sup>2</sup> 7p<sup>1</sup>.
- The representative teaching isotope is <sup>262</sup>Lr.
- Lawrencium closes the actinide sequence and has an unusual 7p<sup>1</sup> ground-state reference. Its atomic electronic structure is better constrained than its inaccessible bulk material properties.
- Material structure status: Bulk crystal structure not experimentally established.

# Structure, evidence and real-world context

No defensible macroscopic crystal lattice is displayed for Lawrencium. Nuclear/atomic evidence and theory are kept separate from unmeasured bulk material properties.

## Evidence boundary

Atomic identity and source-reviewed reference values are separated from predictions. Search demand shapes headings and FAQs but never overrides scientific evidence; unknown bulk structure/density/phase values remain visibly unknown.

## Where is it used?

**Scientific research only** - Research-only context; no operational production or handling guidance.

**Atomic and actinide chemistry studies** - Research-only context; no operational production or handling guidance.

## Discovery and history

**1961 onward** - Berkeley and Dubna teams made competing discovery claims; lawrencium is named for cyclotron inventor Ernest Lawrence.

**Naming / context** - The element name and discovery story are part of the historical record; search-led questions are answered without turning history into scientific evidence for bulk properties.

**Today** - Current use is described at the level supported by the element's availability and evidence, with research-only elements kept research-only.

## Safety / interpretation

This page is educational and non-operational. It provides no radioactive-material production, separation, source-preparation, handling or access instructions.

# Search-led questions and review

The questions below reflect genuine learner/search intent. Answers remain source- and evidence-led.

## What is lawrencium?

Lawrencium is chemical element 103, symbol Lr, classified here as actinide.

## What is the atomic number of lawrencium?

The atomic number is 103, meaning every lawrencium nucleus has 103 protons.

## What is the symbol for lawrencium?

The chemical symbol is Lr.

## What is the electron configuration of lawrencium?

The modern ground-state reference used here is [Rn] 5f<sup>14</sup> 7s<sup>2</sup> 7p<sup>1</sup>, reflecting the unusual low-lying 7p orbital.

## What is lawrencium used for?

Lawrencium has no practical use outside scientific research.

## Is lawrencium a metal?

It is classified with the actinides and expected to be metallic, but no ordinary macroscopic sample is available for a measured bulk-lattice display.

## What does lawrencium look like?

No ordinary macroscopic sample has been measured well enough to justify a definitive bulk appearance or crystal-lattice claim on this page.

## Quick review

### What is Lawrencium's atomic number?

Answer: 103

Atomic number 103 defines Lawrencium by its proton count.

### Which statement best describes the material evidence for Lawrencium?

Answer: Bulk crystal structure not experimentally established

The Structure view follows measured/reviewed evidence; unknown bulk structures remain unknown.

### What is the safest rule for Lawrencium uses?

Answer: Distinguish the element from its isotopes, compounds and engineered materials

Elemental, isotope-specific and compound properties must not be conflated.

## Sources

Royal Society of Chemistry - Lawrencium: <https://periodic-table.rsc.org/element/103/>

NIST - Atomic Weights and Isotopic Compositions: [https://physics.nist.gov/cgi-bin/Compositions/stand\\_alone.pl](https://physics.nist.gov/cgi-bin/Compositions/stand_alone.pl)

IUPAC - Periodic Table of Elements: <https://iupac.org/what-we-do/periodic-table-of-elements/>