

Meitnerium (Mt)

Element 109 | Transition metal - superheavy | Period 7 | d-block

Atomic number	109
Atomic mass	[278]
Electron configuration	[Rn] 5f ¹⁴ 6d ⁷ 7s ²
Reference isotope	278Mt
Density	Unknown
Melting point	Unknown
Boiling point	Unknown
Structure	Bulk crystal structure unknown

Big idea

Meitnerium is known primarily through production and decay events. Periodic position motivates chemical predictions, but its macroscopic material properties remain unknown.

Five things to remember

- Atomic number 109 means every meitnerium nucleus has 109 protons.
- The ground-state/reference electron configuration is [Rn] 5f¹⁴ 6d⁷ 7s².
- The representative teaching isotope is 278Mt.
- Meitnerium is known primarily through production and decay events. Periodic position motivates chemical predictions, but its macroscopic material properties remain unknown.
- Material structure status: Bulk crystal structure unknown.

Structure, evidence and real-world context

No defensible macroscopic crystal lattice is displayed for Meitnerium. 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.

Nuclear-decay and superheavy-element studies - Research-only context; no operational production or handling guidance.

Discovery and history

1982 - Peter Armbruster, Gottfried Münzenberg and colleagues at GSI produced element 109; it was named for physicist Lise Meitner.

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 the atomic number of meitnerium?

The atomic number is 109, meaning every meitnerium nucleus has 109 protons.

What is the symbol for meitnerium?

The chemical symbol is Mt.

What is meitnerium?

Meitnerium is element 109, symbol Mt, a synthetic superheavy Group 9 element.

What is meitnerium used for?

It is used only for scientific research.

Is meitnerium a metal?

It is classified as a d-block transition element and expected to be metallic, but no macroscopic sample exists to measure ordinary bulk-metal properties.

Who was meitnerium named after?

It was named for physicist Lise Meitner.

What does meitnerium 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 Meitnerium's atomic number?

Answer: 109

Atomic number 109 defines Meitnerium by its proton count.

Which statement best describes the material evidence for Meitnerium?

Answer: Bulk crystal structure unknown

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

What is the safest rule for Meitnerium 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 - Meitnerium: <https://periodic-table.rsc.org/element/109/>

NIST - Atomic Weights and Isotopic Compositions: 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/>