



World's Leading Manufacturer of Engineered and Advanced Material Products



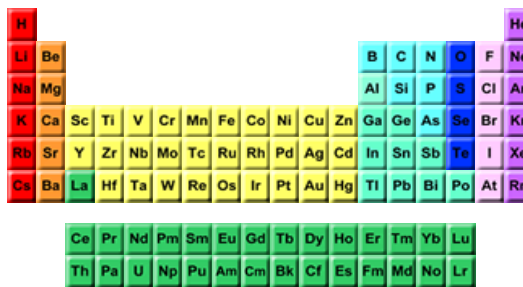
**Products**

- [1,1'-Dianthrime](#)
- [4-Hydroxyphenylboronic Acid Pinacol Ester](#)
- [Ammonia-borane-carboxylic Acid](#)
- [Barium 135 Carbonate Isotope](#)
- [Barium 136 Nitrate Isotope](#)
- [Barium 137 Carbonate Isotope](#)
- [Barium 2 - Ethylhexanoate](#)
- [Barium Acetate](#)
- [Barium Acetate Solution](#)
- [Barium Acetylacetonate](#)
- [Barium Bars](#)
- [Barium Bromide](#)
- [Barium Bromide Dihydrate](#)
- [Barium Carbide](#)
- [Barium Carbonate](#)
- [Barium Chlorate](#)
- [Barium Chloride](#)
- [Barium Chloride Solution](#)
- [Barium Chromate](#)
- [Barium Coins](#)
- [Barium Diphenylaminesulfonate](#)
- [Barium Disc](#)
- [Barium Flake](#)
- [Barium Fluoride](#)
- [Barium Fluoride Sputtering Target](#)
- [Barium Fluorosilicate](#)
- [Barium Foil](#)
- [Barium Hexafluorophosphate](#)
- [Barium Hydroxide](#)
- [Barium Iron Oxide Nanopowder](#)
- [Barium Lump](#)
- [Barium Manganate](#)
- [Barium Molybdate](#)
- [Barium Naphthenate](#)
- [Barium Oxalate](#)
- [Barium Oxide Rotatable Sputtering Target](#)
- [Barium Oxide Shot](#)
- [Barium Perchlorate](#)
- [Barium Peroxide](#)
- [Barium Phosphide](#)
- [Barium Plate](#)
- [Barium Ribbon](#)
- [Barium Rotatable Sputtering Target](#)
- [Barium Sheet](#)
- [Barium Shot](#)
- [Barium Silicate](#)
- [Barium Sodium Niobium Oxide](#)
- [Barium Sphere](#)
- [Barium Stearate](#)
- [Barium Strontium Niobium Oxide](#)
- [Barium Strontium Titanium Oxide](#)
- [Barium Sulfate](#)
- [Barium Sulfate Solution](#)
- [Barium tetracyanoplatinate\(II\) Tetrahydrate](#)
- [Barium Titanate](#)
- [Barium Titanium Oxide](#)
- [Barium](#)
- [Trifluoromethanesulfonate](#)
- [Barium Tungstate](#)
- [Barium Yttrium Tungsten Oxide](#)
- [Barium Zirconate](#)
- [Bis\(2,2,6,6-tetramethylheptane-3,5-dionato\)barium](#)

**Barium** information, including Technical Data, Safety Data and its [high purity properties](#), [research](#), applications and other useful facts are discussed below. Scientific facts such as the atomic structure, [ionization energy](#), [abundance on Earth](#), [conductivity](#) and [thermal properties](#) are included.

Barium is a member of the alkaline-earth metals. It has technical applications in glass, electronics and medicine. It is also used in paints and colorants. Barium is available as [metal](#) and compounds with purities from 99% to 99.999% (ACS grade to [ultra-high purity](#)); metals in the form of [foil](#), [sputtering target](#), and [rod](#), and compounds as [submicron](#) and [nanopowder](#). Electronic coatings based on barium titanate are essential to cell phones and other microelectronics. It has long been used in medical diagnostic techniques because it makes a good x-ray contrast medium. Barium is a dopant in various fluorescent lamp coating formulas.

Barium facts, including appearance, CAS #, and molecular formula and safety data, research and properties are available for many specific states, forms and shapes on the product pages listed to the left. Elemental or metallic forms include pellets, rod, wire and granules for evaporation source material purposes. [Nanoparticles](#) and [nanopowders](#) provide ultra high surface area which nanotechnology research and recent experiments demonstrate function to create new and unique properties and benefits.



(click on an element)

[Oxides](#) are available in forms including powders and dense pellets for such uses as optical coating and thin film applications. [Oxides](#) tend to be insoluble. [Fluorides](#) are another insoluble form for uses in which oxygen is undesirable such as metallurgy, chemical and physical vapor deposition and in some optical coatings. Barium is available in soluble forms including [chlorides](#), [nitrates](#) and [acetates](#). These compounds are also manufactured as [solutions](#) at specified stoichiometries.

Barium is a Block S, Group 2, Period 6 element. The electronic configuration is [Xe] 6s<sup>2</sup>. In its elemental form barium's CAS number is 7440-39-3. The barium atom has a radius of 217.4.pm and it's Van der Waals radius is 200.pm.

All elemental metals, compounds and solutions may be synthesized in [ultra high purity](#) (e.g. 99.999%) for laboratory standards, advanced electronic, metallurgy and optical materials and other high technology advantages. Information is provided for stable (non-radioactive) [isotopes](#). [Organo-Metallic](#) Barium compounds are soluble in organic or non-aqueous solvents. See [Analytical Services](#) for information on available certified chemical and physical analysis techniques including MS-ICP, X-Ray Diffraction, PSD and Surface Area (BET) analysis.

Barium was first discovered by Sir Humphrey Davy in 1808.



**Abundance.** The following table shows the abundance of barium and each of its naturally occurring [isotopes](#) on Earth along with the atomic mass for each isotope.

Isotope	Atomic Mass	% Abundance on Earth
Ba-130	129.906310	0.106
Ba-132	131.905056	0.101
Ba-134	133.904503	2.417
Ba-135	134.905683	6.592
Ba-136	135.904570	7.854
Ba-137	136.905821	11.23
Ba-138	137.905241	71.70

**Safety Data.** The safety data for barium [metal](#), [nanoparticles](#) and its compounds can vary widely depending on the form. For potential hazard information, toxicity, and road, sea and air transportation limitations, such as DOT Hazard Class, DOT Number, EU Number, NFPA Health rating and RTECS Class, please see the specific material or compound referenced in the left margin.

**Ionization Energy.** The ionization energy for barium (the least required energy to release a single electron from the atom in it's ground state in the gas phase) is stated in the following table:

1 <sup>st</sup> Ionization Energy	502.86 kJ mol <sup>-1</sup>
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[Bis\(diisopropyl-D-tartrate Glycolato\)diboron](#)  
[Boric Anhydride](#)  
[Copper Barium Alloy Powder](#)  
[Potassium Tetraphenylborate](#)  
[Strontium Barium Niobate](#)  
[Yttrium Barium Copper Oxide](#)

2 <sup>nd</sup> Ionization Energy	965.24 kJ mol <sup>-1</sup>
3 <sup>rd</sup> Ionization Energy	- kJ mol <sup>-1</sup>

**Conductivity.** As to barium's electrical and thermal conductivity, the electrical conductivity measured as to electrical resistivity @ 20 °C is 50 μΩcm and its electronegativities (or its ability to draw electrons relative to other elements) is 0.89. The thermal conductivity of barium is 18.4 W m<sup>-1</sup> K<sup>-1</sup>.

**Thermal Properties.** The melting point and boiling point for barium are stated [below](#). The following chart sets forth the heat of fusion, heat of vaporization and heat of atomization.

Heat of Fusion	7.66 kJ mol <sup>-1</sup>
Heat of Vaporization	150.9 kJ mol <sup>-1</sup>
Heat of Atomization	180.7 kJ mol <sup>-1</sup>

Formula	Atomic Number	Molecular Weight	Electronegativity (Pauling)	Density	Melting Point	Boiling Point	Vanderwaals radius	Ionic radius	Energy of first ionization
Ba	56	137.33 g.mol <sup>-1</sup>	0.9	3.5 g.cm <sup>-3</sup> at 20 °C	725 °C	1640 °C	200.pm	0.135	502.86 kJ.mol <sup>-1</sup>

**PRODUCT CATALOG**

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#### Production Catalog Available in 36 Countries

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#### Recent Research & Development for Barium

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