

## **Borate Types**

U.S. Borax Inc.

Boron (B) is a nonmetallic chemical element. It only occurs naturally in compounds called borate minerals—deposits of which are found in the Earth's crust. These minerals are what we mine in Boron, California.



## **Borax**

The most abundant ore in our deposit: Romans made glass with borax and Egyptians used it to mummify their dead.



## Kernite

The second most abundant type of ore: Kernite is named after our home county, Kern. Crystals of kernite more than 5 feet long have been found in the mine.



## **Ulexite**

Takes on many different shapes: It can look like a mushroom, cauliflower, snowball, or bunny's tail—which is why it's often called "cottonball."



## Colemanite

Named for borates pioneer, William T. Coleman: After going bankrupt, our founder, F.M. Smith, bought Coleman's holdings and merged them with his own.

Samples of these borates can be found at our Visitor Center which overlooks the largest open pit mine in California.

## Boron Chemistry

Symbol:	В
Atomic number:	5
Recognized as an element:	1808
Melting point:	3769°F (2076°C)
Boiling point:	7101°F (3927°C)
Crystal structure:	Rhombohedral
Thermal expansion:	β form: 5-7 μm/(m•K) (at 25°C)
Thermal conductivity:	27.4 W/(m•K)
Electrical resistivity:	~106 Ω•m (at 20°C)
Mohs hardness:	~9.5

## **Borates**

## Chemistry

Borates are inorganic salts that contain boron. You'll find boron in various combinations with oxygen and other elements, forming substances such as:

- Boric acid (boron, oxygen, and hydrogen)
- Calcium borate (boron, oxygen, and calcium)
- Sodium borate (boron, oxygen, hydrogen, and sodium)
- Lithium borate (boron, oxygen, and lithium)



# U.S Borax History in Boron, California

U.S. Borax's roots stretch back to 1872 when company founders began mining borates in Nevada. These pioneers discovered borates in Death Valley in 1881. They used teams of 20 mules and giant wagons to haul them 165 miles to the nearest railroad in Mojave, California. Our mine in Boron, California began as an underground mine in 1927 and was transformed into an open pit mine in 1957.

Today, we operate California's largest open pit mine. The mine contains one of the richest borate deposits on the planet and supplies more than 30% of the world's demand for refined borates.

No matter how far our product travels, we remain committed to the environmental preservation of Death Valley.

- In 1916, company officials helped write the language that was adopted by the U.S.
  Congress to establish the National Park Service.
- Company leaders donated land holdings to the government and lobbied to have Death Valley protected as a National Monument in 1933 and again as a National Park in 1994.
- Since 2001, our Sustainable Development program has guided how we measure, improve, and report on social, environmental, and economic performance.
- In 2010, Rio Tinto Borates donated another 110 acres and associated mineral rights to the federal government to expand Death Valley National Park.
- We currently operate a 950-square foot, state- and federally-sanctioned Wildlife Rescue Center which is a sanctuary for threatened and endangered bird species.

## **Borax Visitor Center**

Buried deep in the Mojave Desert is one of the biggest and richest deposits of borax on the planet. There, on the rim of our active Borax mine, you will find the Borax Visitor Center: One of the best-kept secrets of the Southern California desert. Built in 1997, the Center tells the story of borax and the local community.

The Center offers an opportunity to explore U.S. Borax's 150-year history as an American icon and learn about mining today and innovations for tomorrow:

- Historical and geological exhibits
- ADA compliant operations overlook
- Photo ops
- Video theater
- 20 mule team replica
- Gift shop
- Borax souvenirs

### **Admission**

Weather permitting, the Visitor Center is open Tuesdays through Saturdays from 9 a.m. to 5 p.m. (last entry is at 4:45 p.m.), excluding major holidays.

Admission is free, but the Center accepts donations to support local community organizations through our nonprofit Borax Visitor Center Foundation. Parking is also free and accessible to recreational vehicles.

#### Location

14486 Borax Road Boron, CA 93516

#### Contact

Phone: +1 760 762 7588 Email: visitor.center@riotinto.com

