BROCHURE

Boron in potatoes

20 MULE TEAM BORAX™
RioTinto

The cooking quality of potatoes may be compromised when the tubers have a boron deficiency

Boron supply

Providing potatoes with adequate boron is necessary for:

- Movement of calcium throughout the plant for correct calcium nutrition
- Uniformity of cell type
- Increased vitamin C concentration, which boosts nutrition
- Yield and overall quality

Soil sampling and potato petiole and leaf analysis are crucial to determining if your potatoes are receiving adequate boron. If boron fertilizers are applied in the first 14-30 days after tuber initiation, when potato cells are just beginning to divide, there is better uniformity of cell type.

Boron deficiency symptoms

Symptoms of boron deficiency are seldom seen on the shoot, although reduced growth with short internodes and curled leaves have been reported. Symptoms are more readily seen in the tubers in the form of brown necrotic patches. Diseases including internal rust spot, potato scab, and several bacterial and viral infections have shown a positive response from boron treatments along with adequate nutrition.

The condition known as “internal rust spot” is responsive to application of boron fertilizers, but it is yet to be proved whether it is due to boron deficiency or only an indirect association with boron.

Granulated agriculture product comparison

	GRANUBOR®	Ulexite 10% B and 15% B
% B average	15%	Inconsistent
Water solubility	100% soluble	Incomplete dissolution
Research	15+ years worldwide field tests	Limited
Purity	No added ingredients, fillers, or coatings	Contains colemanite, calcite, and other mineral impurities. Can contain high levels of arsenic, aluminium, barium, and lithium.

The difference between borate sources

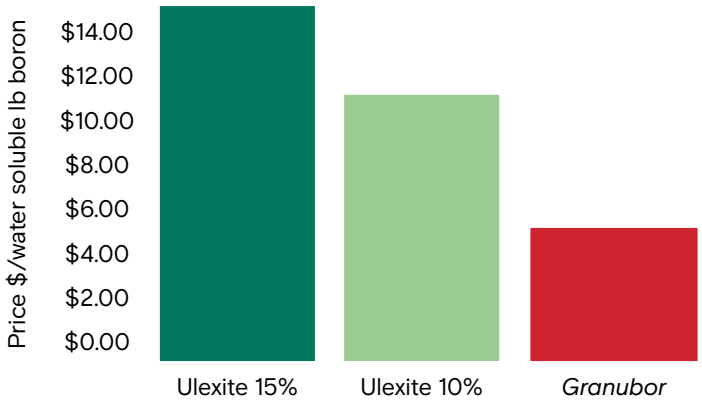
Unrefined borates (ulexites)

- Potentially high levels of impurities and arsenic, a heavy metal
- Generally irregular granulometry
- Incomplete dissolution in water
- High hygroscopicity
- Inconsistent release of boron over time
- High content of dust creating segregation and poor distribution of the product in the field
- Limited field tests and certifications

Refined borates (*Granubor*®)

- No impurities, dust, fillers, coatings, or added ingredients
- Average particle size 2.8 mm—perfect for blending with NPK fertilizers
- 100% water soluble
- Very low hygroscopicity for even blending in NPK fertilizers
- Gradual release of boron for consistent, long-lasting benefits
- Crush resistant, limited dust during transport, hauling, and spreading
- OMRI-listed and USDA-certified for use in organic food production, processing, and handling
- Mined and refined in the USA

Granubor delivers more water soluble boron to plants at a more affordable price



About U.S. Borax
U.S. Borax, part of Rio Tinto, is a global leader in the supply and science of borates—naturally-occurring minerals containing boron and other elements. We are 1,000 people serving 650 customers with more than 1,800 delivery locations globally. We supply around 30% of the world's need for refined borates from our worldclass mine in Boron, California, about 100 miles northeast of Los Angeles.

Our local agriculture experts understand the uses and benefits of boron on crops. In addition to a global sales team, we have a number of agronomists on staff to help fertilizer distributors maximize the benefits of borates in agriculture applications. Our ag team can answer individual growers' questions and concerns about their particular crop.

High quality, high reliability, high performance borate products. It's what we're known for.

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agriculture.borax.com