

Boron is naturally present in all soil. It is one of the 114 elements that make up the earth, and every member of the plant world relies on it to grow. Boron not only plays an essential role in a tree's reproductive cycle, controlling flowering, pollen production, and seed development, but also works in the primary cell structure of the tree and so affects almost every area of tree health and growth including root growth, nutrient uptake, timber density, apical dominance and disease resistance. Unfortunately, many Australian soils are on the most part, extremely deficient in boron. **OrganiBOR® Forestry Grade** is a naturally occurring Magnesium/Calcium Borate rock that replenishes the boron levels in the soil in a slow, controlled and natural way.

Boron is always found naturally bound to either sodium, magnesium or calcium. Sodium is the most soluble form of boron and calcium is the least soluble with magnesium falling somewhere in the middle. Because of boron's role in the primary cell structure, plantation trees need a continual supply of boron right through their entire growing rotation. However most boron fertilisers are based on sodium borate (Ulexite, Boric Acid, Borax Pentahydrate or Di Sodium Octaborate Tetrahydrate) which is extremely water soluble. Because of this high solubility it is extremely difficult to achieve the correct boron level in the soil or tree over the long term growing rotations required by the forestry industry.

OrganiBOR® Forestry Grade on the other hand, is a rock based product that has less than one hundredth of the water solubility of the borates traditionally used in the Australian forestry industry. Because of this low water solubility the boron will not wash out of the soil at the first sign of rain and relies on the slow weathering of the rock to release the boron into the soil over the full rotation of the trees. The effect on the trees is the same as if they were grown in boron rich soils. This slow weathering process also completely eliminates the chance of inducing toxicity in the trees except in cases of severe overdosing.

Pinus Radiata, which is commonly grown in Australia, is native to California in the USA, an area rich in boron both in the soil and ground water. So naturally this species grows in soils far more abundant in boron than what is found in many parts of Australia where plantation forestry is in operation. This lower than ideal boron level in the soil causes many problems in forestry plantations including lower root mass, weaker timber, lack of apical dominance, tip die back and cankers. Using **OrganiBOR® Forestry Grade** on plantation forestry at the recommended rates will eliminate these problems if low boron levels are the cause.

Basic specification

Chemical Formula	CaO Mg0.3B2O3.6H2O
Appearance	Whitish chip
Boron content	12.5% min
MgO	4.6% - 6.2%
CaO	13% - 16%
Particle Size	95% between 4-8mm
Packing	25kg bags or 1100kg bulk bags
Organic Certification	BFA Allowed Input 10982AI

Application Rates

These application rates apply to Pinus Radiata, for other species, please talk to Omnia Specialties Australia Pty Ltd for specific rates.

Rainfall	Light soils	Medium soils	Heavy Soils
Greater than 2000mm per annum	85kg/h	100kg/h	115kg/h
Between 1500mm and 2000mm per annum	105kg/h	125kg/h	145kg/h
Less than 1500mm per annum	130kg/h	150kg/h	170kg/h

Application Timing

Application is usually best done at the start of the growing rotation in the second year after planting. However, **OrganiBOR® Forestry Grade** can be applied any time after this if boron deficiency is evident.

Release Time

As **OrganiBOR® Forestry Grade** is a slow release fertiliser it is not uncommon for only small movements in the leaf boron levels to occur in the first year, especially in heavy soils with low rainfall. The desired ppm range is more likely to be occurring in the second and third growing seasons.

Foliage Boron Targets

These foliage targets apply to Pinus Radiata, for other species please talk to Omnia Specialties Australia Pty Ltd for specific rates.

Rainfall	Foliage boron target
Greater than 2000mm per annum	Greater than 20ppm
Between 1500mm and 2000mm per annum	Greater than 25ppm
Less than 1500mm per annum	Greater than 30ppm



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