BorealIndia

Product Analysis Report

The Origin of the Boreal Agromineral (BAM)

The birth of Boreal Agromineral is unique amongst unique carbonatites. A rock, 10 kilometres (6 miles) in diameter and travelling at approximately 143,000 kilometres per hour, (89,000 mph), impacted the Earth. The resulting catastrophic shock wave resulted in a plume of super-heated rock, from the deepest part of the crust, catapulting into the Earth's early atmosphere; only to return under the pull of gravity in a great splat; extensively turning the crust inside out. After the dust had settled, a hole that was originally 250 kilometres (155 miles in diameter) was created, in addition to a molten rock lake that was three times the size of the current super volcano Yellowstone caldera. Yet, out of this Hades, scientists theorize that, similar to what occurred in Yellowstone, the vast network of hydrothermal vents and complexity of mineral constituents created the very conditions necessary for life.

This catastrophy, referred to as the Sudbury Event, is the leading hypothesis for the genesis of the Sudbury nickel basin and fortuitously, the BAM Carbonatite Complex. The modern surface of the deposit consists of the very roots of the original outflow of igneous material. These remnants of the impact site are known as the Sudbury Basin, and this deep magma resulted in the deposition of one of the richest nickel deposits in the world. Near the outer perimeter of the Sudbury Basin is a volcanic pipe representing the lower depths of an ancient volcano, which we refer to as the Boreal Agromineral Carbonatite Complex. The pipe linked the mouth of the volcano, on the surface, to the liquid magma far below, and it is now filled with solidified granitic material. The granite is comprised of calcium, magnesium, silica, phosphorous, potassium minerals, rich in life essential chemistry and primary minerals; precursors to life-essential secondary clays.

Mineral Content of Boreal Agromineral (BAM)

The BAM is comprised of four major rock units defined by mineral composition. These divisions are sovite, silicocarbonatite, pyroxenite and syenite. All major rock units are quarried together to produce current Boreal agromineral product.

Ongoing research is in response to current SRC users that desire individual mineral constituents in order to address specific fertility concerns. These minerals include respectively: magnesium, phosphate, potassium and silica mineral constituents.

Average Mineral Composition

Mineral	Emperical Formula	Approx. %	Comments
			Sulfide Minerals
Sphalerite	(Zn,Fe)S	trace	Source of zinc, sulfur, iron
Chalcopyrite	CuFeS2	trace	source of copper, sulfur, iron
Pyrrhotite	Fe(1-x)S (x=0-0.17)	trace	Source of sulfur, iron
Pyrite	FeS2	trace	Source of sulfur, iron
			Carbonates
Calcite		40	
Siderite	Fe2+(CO3)	trace	source of iron
Magnesite	Mg(CO3)	minor	reactive source of magnesium
Bastnasite	La(CO3)F	trace	source of REE's (lanthanum)
			Oxide Minerals
Magnetite	Fe3+2Fe2+O4	minor	Magnetite is a very important biogenically produced mineral from a wide variety of organisms. Source of iron.
Hematite	Fe3+2O3	minor	Source of iron
Rutile	TiO2	trace	
			Phosphates
Apatite Group	Ca5(PO4)3(OH)0.33F0.33Cl0.3	8.94	Commonly referred to as hard rock phosphate
			Sulphates
Barite	Ba(SO4)	trace	
			Silicates
Olivine - Forsterite	Mg2SIO4	trace	
Pyroxene Series - Aegirin	NaFe3(Si2O6)	minor	The pyroxenite series totals approximately 10% of SRC,
- Acmite		trace	it is a highly reactive magnesium silicate when incorporated into the soil converts to high activity clays
- Ferrosilite	Fe2+MgSi2O6	minor	
- Enstatite	Mg2Si2O6	minor	
Forsterite	Mg2(SiO4)	4.14	Magnesium silicate used in lasers, refactory materials and gems
Amphibole - Arfvedsonite	Na3Fe24Fe3(S8O22)(OH)2	minor	
Biotite Series	KMg2.5,Fe20.5(AlSi3O10(OH)2	5	Exceptional source of potassium upon releasing K into soil converts to high activity clay vermiculite
Vermiculite	Mg1.8Fe2+0.9Al4.3SiO10(OH)2	5	Exceptional high activity clay
Serpentine		trace	
Sphene - Keilhauite	Ca0.95REE0.05Ti0.75Al0.2Fe3+	minor	Rare earth bearing mineral species
Qaurtz	(SiO2)	trace	
Corundum	(Al2O3)	trace	Corundum is a gem with color variations resulting rubys, and sapphires.
Alkali Feldspars - Orthoclase	KAlSi3O8	4.09	Slow release potassium silcate
- Microcline	KAlSi3O8	minor	
Plagioclase Feldspars - Albit	Na0.95Ca0.05Al1.05Si2.95O8	6.49	Slow release sodium, calcium silicate
Arfvedsonite	Na3Fe2+4Fe3+(Si8O22)(OH)2	minor	
Chlorite	(Mg,Fe++)5Al(Si3Al)O10(OH)8	trace	
Leucite	KAl(Si2O6)	trace	Slow release potassium silicate
Kalsilite	KAlSiO4	trace	Slow release potassium silicate
Nepheline	Na0.75K0.25Al(SiO4)	minor	Slow release sodium, potassium silicate
Carnegieite	NaAlSiO4	trace	Rare form of nepheline
Thernardite	Na2(SO4)	minor	Very reactive source of sodium and sulfur
Gehlinite	Ca2Al2SiO7	minor	Calcium silicate
Wollastonite	CaSiO3	5.19	Regarded as a bioactive calcium silicate in the regeneration of bones.
Fayalite	Fe2+2(SiO4)	4	Iron Silicate
Riebeckite	Na2Fe2+3Fe3+2(Si8O22)(OH)2	trace	Sodium, iron silicate

Note: Trace equals less then 1%; minor equals less then 4%