

BRANDT[®]

Ultra Concentrated Humic Matter

Brandt Uptake[™]

Visible Results . . . Systemic Action



Humic Acids and Their Role in Agriculture

What Are Humates?

The sodium, potassium and ammonium extracts of humic acids derived through alkaline extraction are referred to as humates. While sodium humates may have applications in various industries such as printing inks, potassium humates are used extensively in agriculture.



When organic matter decomposes to the point of becoming humus we can classify it as:

Humic - the portion of humus which is soluble called humic acid.

Non-Humic - the portion of humus that is not soluble called humin.

What Are Humic Acids?

Humic acids are the water soluble organic acids present in soil organic matter. They are the main component, the biological center, of natural humic matter. It is the collective term for both humic and fulvic acids.

Where Does Humic Acid Come From?

Humic matter is formed through the microbial breakdown of plant and animal matter. The main component of humic matter are the humic acids, which contain both humic and fulvic acids. Humic acids are a natural way to provide plants and soils with a concentrated dose of essential nutrients, vitamins and trace elements that are normally not provided by typical fertilization. These complex molecules exist naturally in soils, peat, oceans and fresh waters, but considered the best source of humic acid is the sedimentary layers of a form of lignite which is 250-300 million years old, commonly known today as Leonardite.

Leonardite has not reached the state of coal and differs by its high oxidation degree, a result of the process of coal formation. Among the varieties of Leonardite available, North Dakota Leonardite is often thought to be among the richest in those essential nutrients providing the highest beneficial plant impact.

What Do Humic Acids Do?

Humic acids stimulate and promote plant development, resulting in both higher yields and higher quality. The key features of its use in agriculture are improvements to the structure of soil, improved water usage, seed germination, root growth and ultimately the quality of yields. For soils to remain fertile, humus must either be replaced or added. Applying humic acids accomplishes this and increases the natural fertility of the soil.

The effect of humic acids on plants and soils:

■ Nutrient Availability and Biological Stimulation

Humic acids have been shown to have the ability to convert a number of mineral elements into forms available to plants as well as the increasing the availability of phosphate. Humic acids also serve as a host for microorganisms, as well as direct plant stimulation by providing a slow release of auxins, amino acids, and organic phosphates.

■ Physical Modification

By assisting in the retention of moisture, humic acids help to prevent water and nutrient losses in sandy soils. Humic acids also assist in increasing soil particle aggregation, making the particles larger and looser.

■ Chemical Change

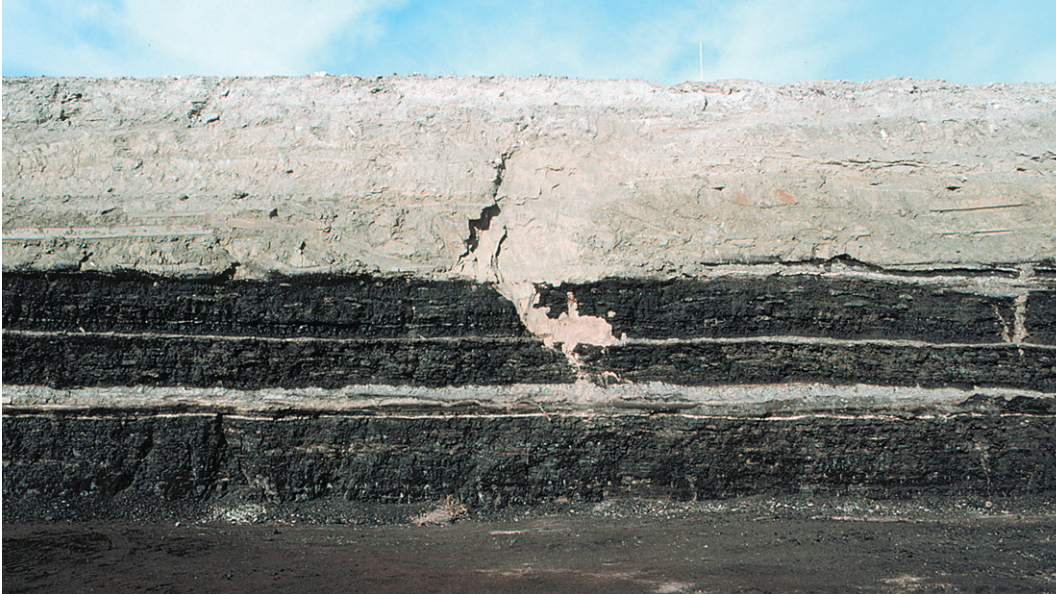
Humic acids chemically change the properties of the soil. They regulate the pH of the soil whether acid or alkaline, helps to retain water soluble inorganic fertilizers in the root zones and reduce their leaching, and improves the cation exchange capacity (CEC).

Is Brandt Uptake a Fertilizer?

No, not on its own, but is the ideal complement to conventional fertilizers and a well balanced fertility program. By itself, UPTAKE doesn't supply NPK or micronutrients in a conventional manner but indeed increases their availability.

When humic acids enter plants at early stages of development, they result in increased cell division and root development, act as a respiratory catalyst and natural chelator for metal ions under alkaline conditions, convert nutrients into forms available to plants, protect plants from chlorosis and increase the permeability of plant membranes. They also decrease plant stress and increase quality of yields.

Leonardite mine in Gascoyne, North Dakota



Brandt Uptake Applications

- Agriculture
- Horticulture and Greenhouses
- Hydroseeding
- Hydroponic
- Nursery and Ornamentals
- Seed Treatment
- Viticulture
- Turf

Why Is Brandt Uptake Special Among Quality Humic Products?

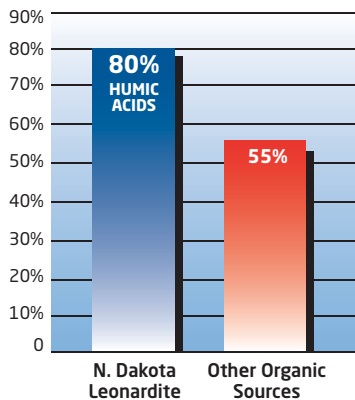
The raw material used to produce Uptake, is strictly North Dakota Leonardite.

Leonardite, coal-like in appearance differs from coal in that it is highly oxidized. Leonardite is organic material that has not become coal due to a high level of active bacteria in the sedimentation layer. Thousands of years ago, large bodies of water existed where huge quantities of organic matter were deposited and began to slowly decompose. Over time, the organic material began to lose oxygen and was transformed under heat and pressure. These particular deposits of Leonardite were never buried deep enough to undergo the complete transformation to coal.

Leonardite has the highest content of humic acids of any natural source. Although humic acids can be extracted from other organic sources; none of these sources are as concentrated and abundant as Leonardite.

In North Dakota, a particular formation of this highly oxidized material was named Leonardite after North Dakota's first geologist, Dr. A. G. Leonard in recognition of his work and discovery. Leonardite as a source of humic acids for crop production was discovered in the 1960's and the former Brandt affiliate company Agra Chem was at the forefront. By definition, the term "Leonardite" refers solely and exclusively to the humic acid deposits discovered by Dr. Leonard in North Dakota and which are distinguishable by their unique chemical and biological characteristics which are quite different from those of other deposits of humic substances in the world. If it's not from North Dakota, it's not Leonardite.





Are all North Dakota Leonardite humic products the same?

Actually, no. Both purity and humic acid percentages vary from region to region, and even from mine to mine. That said, keep in mind that Brandt only sources the highest quality of the North Dakota Leonardites and then processes it in a manner that extracts the best and highest active percentages from that ore. With a patent pending process, Brandt mills the Leonardite ore to expose the highest surface area possible, and then bathes the ore in potassium derivatives for extraction. Once the optimum extraction has occurred, Brandt processes, filters and decants the batches several times for a clean and pure finished product.

Brandt Uptake Availability

UPTAKE is produced in several forms and formats:

Brandt Uptake 12

The primary professional grade liquid known for both its high activity and stability, BRANDT UPTAKE 12 is the industry standard for agricultural or ornamental use as part of a balanced fertility program.

Leonardite Plus Fine

As the name would indicate, a dry powder designed to be mixed or formulated prior to application with dry granular fertilizers, soil amendments, potting soil or any other bulk substrate which is already being applied to a crop.

Leonardite Plus Granular

Granulated in a size and form for easy direct application to crops. LEONARDITE PLUS GRANULAR may be applied alone to build humic matter in the soil, or mixed with a conventional fertilizer application to enhance the uptake and efficacy of the fertilizer application. *OMRI Listed.*

Uptake is a registered trademark of Brandt Consolidated, Inc., Springfield, Illinois.



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