NUTRITION NOTES
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PATENTED TECHNOLOGY DECREASES MOISTURE IN FEED – REDUCING POTENTIAL FOR HARMFUL MOLD, PATHOGENIC BACTERIA, FUNGUS

Michael Edmonds, Ph.D., Vice President, Swine and Poultry Nutrition
Jeanne van der Veen, MS, PAS, Equine and Specialty Nutritionist

IS YOUR FEED SAFE?

It is well accepted that feed quality is one of the foundations of a successful operation. The growing, harvesting, and storage of grains are directly affected by unpredictable environmental conditions. Improving the quality and consistency of the nutrients provided by feed is a prime concern of the producer.

One of the most common problems with feed quality is the accumulation of moisture in the grain during harvesting, processing, and storage. A high moisture level is the main cause of the development of harmful molds, bacteria and fungus in the grains, which can lead to risk of mycotoxins. Molds, once established, spread quickly because as the mold's enzymatic process breaks down nutrients; more moisture is produced allowing other molds to germinate. Even when grains have been stored dry, moist spots may develop due to adverse environmental conditions allowing the development of molds.

Today there is another option available to reduce moisture contamination in your feeds. Algonite is a new, patented product developed and designed specifically for animal health. Algonite is manufactured using the nanoclay called AMADÉITE®, dried yeast cells, and diatomaceous earth. The combination of these ingredients, using the best technology available, brings forward a new era in animal health.

Algonite™

WHY IS ALGONITE DISTINCTLY DIFFERENT FROM OTHER PRODUCTS ON THE MARKET?

Through the use of nanotechnology, the natural absorbent quality of clay has been dramatically improved in Algonite. To accomplish this, the layers of clay have been widely separated to increase the surface area available for absorption. The product is then finely ground to further improve the absorption ability and to allow easy dispersion throughout the feed. The Ohio State University Extension Newsletter states that, "mold inhibitors cannot be effective unless they are completely and thoroughly distributed throughout the feed." Because of the small particle size, less Algonite will be necessary to obtain better results.

WHAT CAN YOU DO TO REDUCE THE RISKS OF MOLD CONTAMINATION?

Aeration of grains can help to prevent mold problems, but once the mold has been established, additional oxygen and lower temperatures caused by aeration may actually assist certain molds in their development. Mold inhibitors are another means of reducing the risk of mold contamination; however, the effectiveness has been variable for the producer. Once again, if the mold has already been established, the mold inhibitors will not destroy the existing mold, they will only prevent development in other areas of the grain supply. There are several types of mold inhibitors and a combination of types is probably the most effective. Organic acids (propionic, sorbic, benzoic or acetic) are typically used; however the salts of the organic acids (calcium propionate or potassium sorbate) are less caustic and are more widely utilized. The North Carolina Extension Bulletin states that if the concentration of the inhibitor is not high to stop mold growth, the mold can actually use the inhibitor as a food source, therefore increasing the mold contamination.

BENEFITS OF ALGONITE

Algonite is a superior product which is used for moisture reduction in feed. When moisture levels are lower, the potential for harmful mold, pathogenic bacteria, and fungus is also lower.

PRODUCTS WITH ALGONITE

The Algonite products available from KNG include **Algonite** (the ingredient) #8220 and **Kent Algonite Supplement Meal** #8218 for beef cattle, dairy cattle, swine, sheep, goats, horses, and poultry.

KENT NUTRITION GROUP

Algonite™

for a better life olmix

Feed Additive

Is your feed safe?

It is well accepted that feed quality is one of the foundations of a successful operation. The growing, harvesting, and storage of grains are directly affected by unpredictable environmental conditions. Improving the quality and consistency of the nutrients provided by feed is a prime concern of the producer.

One of the most common problems with feed quality is the accumulation of moisture in the grain during harvesting, processing, and storage. A high moisture level is the main cause of the development of harmful molds, bacteria and fungus in the grains. Molds, once established, spread quickly because as the mold's enzymatic process breaks down nutrients; more moisture is produced allowing other molds to germinate. Even when grains have been stored dry, moist spots may develop due to adverse environmental conditions allowing the development of molds.

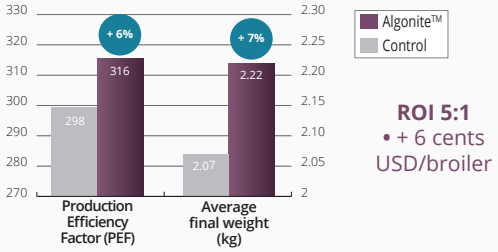
Today there is another option available to reduce moisture contamination in your feeds. **Algonite™** is a new, patented product developed and designed specifically for animal health. **Algonite™** is manufactured using the unique algo-clay technology (AMADÉITE™), dried yeast cells and diatomaceous earth. The combination of these ingredients, using the best technology available, brings forward a new era in animal health.

Why is Algonite™ distinctly different from other products on the market?

Through the use of patented technology assembling clay and algae extracts, the natural absorbent quality of clay has been dramatically improved in **Algonite™**. To accomplish this, the layers of clay have been widely separated to increase the surface area available for absorption. The product is then finely ground to further improve the absorption ability and to allow easy dispersion throughout the feed. The Ohio State University Extension Newsletter states that, "mold inhibitors cannot be effective unless they are completely and thoroughly distributed throughout the feed". Because of the small particle size, less **Algonite™** will be necessary to obtain better results.

Have any research trials been performed on Algonite™?

① **Algonite™ on production performance of BROILERS exposed to polycontamination** (Slovak Republic)
132,000 animals were alloted in 6 buildings. 3 received **Algonite™** at 0.75 kg/T in prestarter and 0.5 kg/T in grower & finisher.

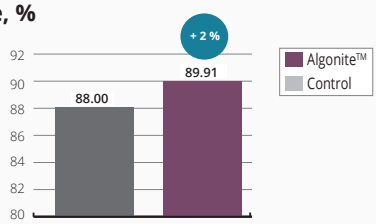


ROI 5:1
• + 6 cents USD/broiler

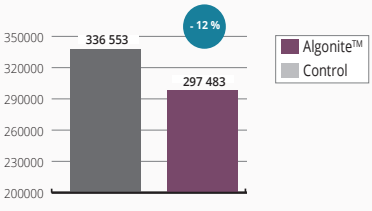
In this trial, **Algonite™** group had a higher daily weight gain and final weight than the control group. FCR was also improved wich lead to a better PEF in **Algonite™** group, reflecting a better protection with **Algonite™** than the other toxin binder.

② **Algonite™ on the performance of LAYING HENS** (Malaysia)
2 buildings (100 000 laying hens in total) were included in the trial. The hens were fed a standard diet with no apparent imbalance. However the farmer was confronted to a problem of wet feces after entrance of the pullets in the farm (16th week of age) and decided to reconsider his choice of mycotoxin binder.
Algonite™ was incorporated at 1 kg/t of feed in half of the flock, in replacement of the previously used mycotoxin binder. The trial lasted from the 24th to the 36th week of age.

→ **Laying rate, %**



→ **Withdrawn eggs per month for 100 000 hens unit**



Algonite™ allowed to improve the laying performance of the hens, with more laid eggs and less withdrawn eggs. The decreased level of dirty eggs indicate that wet feces problems were decreased.
Algonite™ proved to be efficient and profitable, with 1.21 extra eggs per laying hen per month. Moreover mortality was reduced by 39% (1.36 vs 2.21).

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www.olmixna.com

Algonite™

③ Algonite™ on BREEDING DUCKS exposed to polycontamination of mycotoxins (Vietnam)

Ducks are the most sensitive poultry specie to mycotoxins.

The study was conducted by the Institute of Animal Sciences for Southern Vietnam (IASVN) from November 2014 to February 2015.
396 laying ducks (19 weeks old, Triet Giang genetic) were allocated to 4 treatments with 3 pens of 33 ducks/treatment in an open housing system.
The trial lasted 13 weeks.
Treatments differed by their diet, following a 2*2 factorial design:

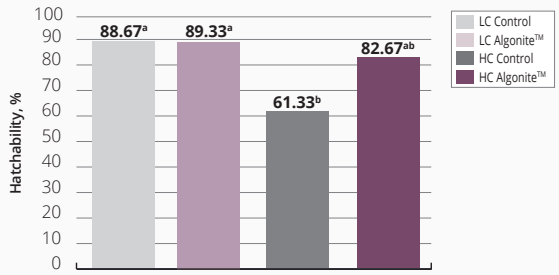
	Control	Algonite™ 0.1%
Low-contaminated diet (LC) (ppb) AFB_1: 6 / DON: 775 / FB_1: 230	LC Control	LC Algonite™
High-contaminated diet (HC) (ppb) AFB_1: 18 / DON: 2 420 / FB_1: 1 605	HC Control	HC Algonite™

→ Duck laying rate

Parameters	LC Control	LC Algonite™	HC Control	HC Algonite™	P-value[1]
Average laying, %	70.98[a]	71.34[a]	65.67[b]	69.94[ab]	0.005

[1] Analysis of variance, [a,b] On a same line, different letters indicate a highly significant difference.

→ Eggs hatchability after 17 days of incubation



→ Feed performance

Parameters	LC Control	LC Algonite™	HC Control	HC Algonite™	P-value[1]
FCR, kg feed/10 laid eggs	2.07[ab]	2.06[a]	2.24[b]	2.12[ab]	0.04

[1] Analysis of variance, [a,b] On a same line, different letters indicate a highly significant difference.

CONCLUSION:

Mycotoxin contamination showed to have a negative effect on breeder ducks productivity: decreased laying and hatchability, poorer feed efficiency and increased mortality. The use of **Algonite™** in the case of either low or high polycontamination protected the animals from these negative effects and lead to improved zootechnical and economic performance.

What can you do to reduce the risks of mold contamination?

Aeration of grains can help to prevent mold problems, but once the mold has been established additional oxygen and lower temperatures caused by aeration may actually assist certain molds in their development. Mold inhibitors are another means of reducing the risk of mold contamination, however the effectiveness has been variable for the producer. Moreover if mycotoxins can have already been produced, destroying the molds will have no effect on the level of mycotoxins contamination. There are several types of mold inhibitors and a combination of types is probably the most effective. Organic acids (propionic, sorbic, benzoic or acetic) are typically used, however the salts of the organic acids (calcium propionate or potassium sorbate) are less caustic and are more widely utilized. The North Carolina Extension Bulletin states that if the concentration of the inhibitor is not high to stop mold growth, the mold can actually use the inhibitor as a food source, therefore increasing the mold contamination.

Feeding rates for Algonite™

	Preventive:	*Treatment:*
Broiler:		
- less than 20 days	2 lbs	3-4 lbs/ton
- more than 20 days	1lb	3-4 lbs
Layers	1-2 lbs	3-4 lbs
Breeders	2 lbs	3-4 lbs
Turkeys & Ducks	2 lbs	3-4 lbs/ton

These are recommended levels, but inclusion rates should be adjusted based on the contamination level of the feed. **Algonite™** should be thoroughly mixed into the feed to insure even distribution.

Benefits of Algonite™

Algonite™ is a superior product which is used for moisture reduction in feed. When moisture levels are lower, the potential for harmful mold, pathogenic bacteria and fungus is also lower.

Algonite™ is available through Advanced Management Solutions, a company that is already well established in the livestock industry as the distributor of the popular product, **Mistral**.

Algonite™ / Algonite-G™

Algonite™ is designed to be incorporated in the diet directly at the feed mill. Algonite™ provides iodine supplementation.

Algonite-G™ composition has been specifically designed for easy use on the farm. Allows a better distribution of the product in the final feed (layer feed) and limits dust emission.

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www.olmixna.com

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Feed Additive

Is your feed safe?

Quality feed and ingredients are paramount to optimize animal health and performance. A common concern is the accumulation of microbes (mold, bacteria, yeast) during the growing, harvest and storage of field grown crops and resulting ingredients by-products.

The growing, harvesting, and storage of grains are directly affected by unpredictable environmental conditions. Improving the quality and consistency of the nutrients provided by feed is a prime concern of the producer.

One of the most common problems with feed quality is the accumulation of moisture in the grain during harvesting, processing, and storage. A high moisture level is the main cause of the development of harmful molds, bacteria and fungus in the grains.

Molds, once established, spread quickly because as the mold's enzymatic process breaks down nutrients; more moisture is produced allowing other molds to germinate. Even when grains have been stored dry, moist spots may develop due to adverse environmental conditions allowing the development of molds.

Today there is another option available to reduce moisture contamination in your feeds. **Algonite™** is a new, patented product developed and designed specifically for animal health. **Algonite™** is manufactured using the unique algo-clay technology (AMADEITE™), dried yeast cells and diatomaceous earth. The combination of these ingredients, using the best technology available, brings forward a new era in animal health.

Why is Algonite™ distinctly different from other products on the market?

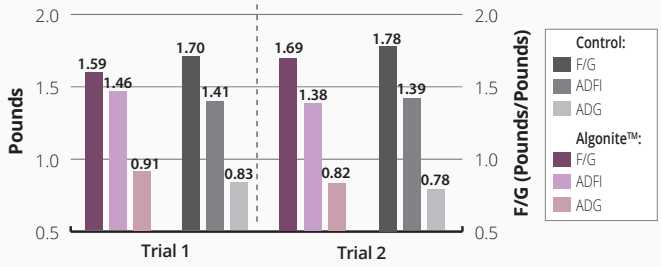
Through the use of patented technology assembling clay and algae extracts, the natural absorbent quality of clay has been dramatically improved in **Algonite™**. To accomplish this, the layers of clay have been widely separated to increase the surface area available for absorption. The product is then finely ground to further improve the absorption ability and to allow easy dispersion throughout the feed. The Ohio State University Extension Newsletter states that, "mold inhibitors cannot be effective unless they are completely and thoroughly distributed throughout the feed". Because of the small particle size, less **Algonite™** will be necessary to obtain better results.

Have any research trials been performed on Algonite™?

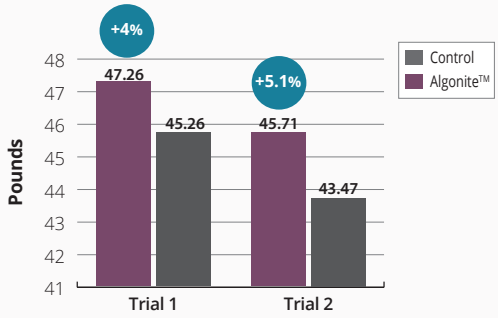
① NURSERY TRIALS

Over 120,000 nursery pigs have completed field trials showing consistent results. Two studies of over 2400 iso-weans were performed comparing **Algonite™** to control groups. These studies were conducted at a production nursery facility in Northern Iowa during two successive years. The results show a similarity in results between the two completed studies (tables 1 and 2).

→ Table 1: Nursery trials



→ Table 2: Overall Weight Increase



• Average Daily Gain **(ADG)**: Both **Algonite™** groups showed a higher ADG of 9.6% (0.08 lbs) and 5.1% (0.04 lbs). Over a 54-day growth period, this would be an increase of 2.16 to 4.32 pounds per pig.

• Pounds of Feed per Pound of Gain **(F/G)**: The **Algonite™** groups needed 5.0% and 6.5% less feed for 1 pound of gain than did the controls.

• Weight Increase: The weight gain of both the **Algonite™** groups were higher than in the control groups by 4.0% and 5.1%. This calculates to an increased weight gain in the pigs fed **Algonite™** of 1.8 pounds to 2.24 pounds per pig.

CONCLUSION:

The trial results indicate that adding **Algonite™** is an advantage to the producer. The overall weight gain of the **Algonite™** groups, when compared to the controls, showed an average weight increase of 2 pounds per pig.

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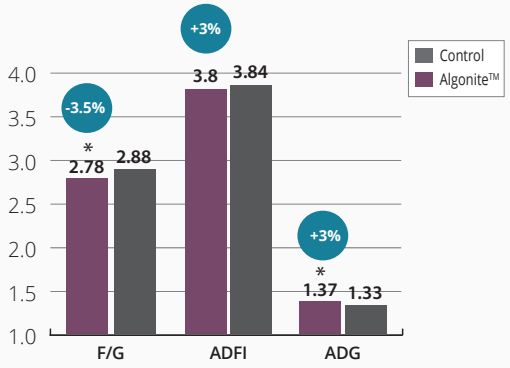
② **FINISHING TRIAL**

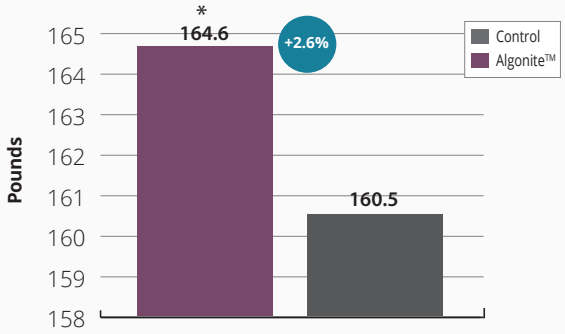
A study of over 400 pigs from growing to market was performed. The pigs were weighed individually and statistical tests were run on the data. The results showed improved production measures for the **Algonite™** group when compared to the control group (tables 3 and 4). In this study the feed was tested for mycotoxin contamination and 100% of the samples were contaminated.

→ **Table 3: Growth performance**



***F/G and ADG values are significantly different at *P*<0.05.**

→ **Table 4: Overall weight increase**



***Change in weight values are significantly different at *P*<0.05.**

• Average Daily Gain (ADG): A significant difference between the **Algonite™** and control groups (*P*<0.05) was found, with the **Algonite™** group showing a 3% higher ADG than the control group.

• Average Daily Feed Intake (ADFI): The **Algonite™** group had a lower ADFI than the control group.

• Pounds of Feed per Pound of Gain (F/G): The F/G was lower for the **Algonite™** group by 3.5% indicating that less feed was required to obtain the end weight by the **Algonite™** group when compared to the control. This was a significant difference (*P*=0.01).

• Weight Increase: The weight increase of the **Algonite™** group was 2.6% higher than the weight increase of the control group (*P*<0.05).

CONCLUSION:

The **Algonite™** group was heavier by an average of 4.13 pounds at the end of the trial, which was significantly different (*P*<0.05). For producers, this improvement in production is a clear advantage to using **Algonite™** during the grow/finish phase.

What can you do to reduce the risks of mold contamination?

Aeration of grains can help to prevent mold problems, but once the mold has been established additional oxygen and lower emperatures caused by aeration may actually assist certain molds in their development. Mold inhibitors are another means of reducing the risk of mold contamination, however the effectiveness has been variable for the producer. Therefore if mycotoxins have already been produced, destroying the molds will have no effect on the level of mycotoxin contamination. The North Carolina Extension Bulletin states that if the concentration of the inhibitor is not high to stop mold growth, the mold can actually use the inhibitor as a food source, therefore increasing the mold contamination.

The best means to reduce the risks of mold contamination is to reduce the moisture allowing development of molds and the mycotoxin by-products produced by molds. **Algonite™** is the answer to reducing moisture in the feed.

Feeding rates for Algonite™

Gestation.....2.2 lb (1 kg)/ton
Farrowing..... 4.4 lb (2 kg)/ton
Nursery..... 3.3 lb (1.5 kg)/ton
Finishing.....1.1 lb (0.5 kg)/ton

These are recommended levels, but inclusion rates should be adjusted based on the contamination level of the feed. **Algonite™** should be thoroughly mixed into the feed to insure even distribution.

Benefits of Algonite™

Algonite™ is a superior product to reduce moisture contamination in feed. When moisture levels are lower, the potential for harmful mold, pathogenic bacteria and fungus is also lower. Repeated trials have shown quick and sustained improvements in production with the use of **Algonite™**.

Algonite™ is available through Olmix, a company that is already well established in the livestock industry as the distributor of the popular product **Mistral**.

Algonite™ IMPROVES...

- **Performance:** low-level pathogen contamination can produce significant production issues. In addition, research has shown that low levels of polycontamination may result in a synergistic negative effect.

  Under typical field conditions, some suspect feed samples have been shown to have no detectable levels of pathogens. However, when Algonite™ was used on these farms, the production rates improved, indicating that even a minimal reduction in pathogens can increase production and health status.

- **Feed quality:** quality feed and ingredients are paramount to optimize animal health and performance. A common concern is the accumulation of microbes (mold, bacteria, yeast) during the growing, harvest and storage of field grown crops and resulting ingredients by-product.

  Molds are also self supporting, because as molds develop they produce their own moisture. Therefore, the molds feed upon themselves and reproduce faster and faster as time goes on.

  The quality of the feedstuff is significantly reduced due to mold contamination. Therefore, feed moisture must be managed correctly before and after mixing with the inclusion of Algonite™.

- **Safety:** many molds can produce metabolic by-products (mycotoxins) while undergoing stress. These metabolites are serious health hazards to livestock and must be judiciously controlled.

  Dried distillers grain (DDGS) is being used extensively in the livestock and poultry feeding industry. A 2007 study found 99% of the samples of DDGS were contaminated with at least one mycotoxin produced by mold.

  Feed safety is further compromised due to moisture contamination. Moisture control will be greatly improved through the use of Algonite™.

- **Profits:** there are a variety of ways to measure profitability. Poor quality feeds compromise performance or hinder reproduction. When feed quality is high, profitability is increased through reduced vet bills, reduced management time, improved reproduction rates and increased feed efficiency.

  Preventing management problems is important to any producer and Algonite™ is an effective way to improve your bottom line.

Algonite™ and Algonite-G™ can be used as an anti-caking agent and iodine source in bulk, mixed or pelleted feeds.

FEEDING DIRECTIONS: thoroughly mix at the rate of 1.0 to 5.5 lbs per ton (0.5 to 2.5 kg per ton) of complete feed.

Available only in USA & Canada.

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OLMIX NA INC.
805 Red Iron Rd
Black River Falls WI 54615
715-284-3360
www.olmix.com

LEAFLET.ALGONITE.V1.EN

Animal Feed Ingredient

Algonite™

Reduces moisture in feeds,

which is the leading cause of the formation of pathogenic bacteria, molds and other fungi

for a better life olmix

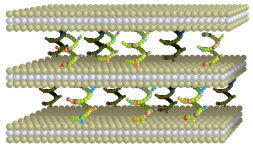
Algonite™

Algonite™ was developed as a highly effective feed ingredient to assure that pockets of moisture do not form in feed. These pockets of moisture are the sites where harmful bacteria, molds and other fungi grow.

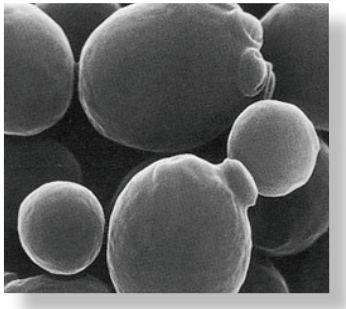
Some molds can produce metabolites or mycotoxins. Therefore, the use of Algonite™ produces a safer feed.

Algonite™ is manufactured using the modified clay called AMADÉITE™, dried yeast cells, diatomaceous earth and algae.

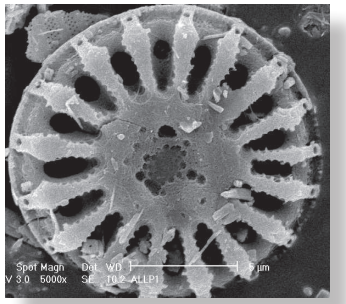
AMADÉITE™ is created from a new, patented process that increases the surface space between the layers of clay by up to 10 times. This increase in space provides a greater area for binding than any other product available for moisture control.



AMADÉITE™



Dried Yeast Cells Walls



Diatomaceous earth

Algae

Algonite™ IS DISTINCTLY DIFFERENT...

First, Algonite™ is finely ground to increase the surface contact with grains and allow for easy dispersion throughout the feed. Algonite-G™ is granulated, allowing the product to be dispersed easily at the farm. Algonite™ has dramatically improved the natural absorbent quality of clay by separating the layers of the Montmorillonite clay. Therefore, less Algonite™ is necessary to obtain better results.

Second, Algonite™ adsorbs the moisture between the layers of clay, sealing any moisture from contact with the grain. When activated, Algonite™ feels dry, so every kernel of grain is dry. In contrast, when other products attract moisture, this moisture adheres to the surface of the product so it feels wet to the touch. Any grains in contact with this wet surface will likely still develop mold.

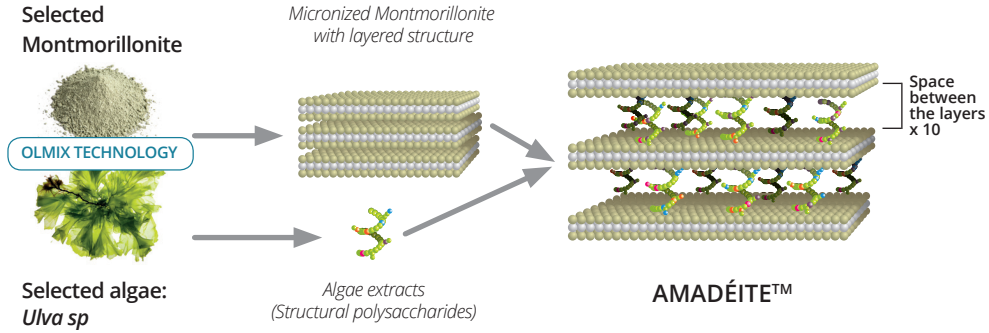
Third, Algonite™ has been developed using the world's most advanced processes, which work at the molecular level, using natural products in their smallest form to bring the largest benefit to the animal.

Fourth, Algonite™ provides a source for iodine, which has shown to be an important trace element of every livestock diet.

Unique technology for ALGONITE™

Thanks to the patented association of clay and algae, Olmix is able to provide a unequalled moisture adsorption capacity.

Available only in USA & Canada.



Unique technology reaches into the feed industry

olmix for a better life