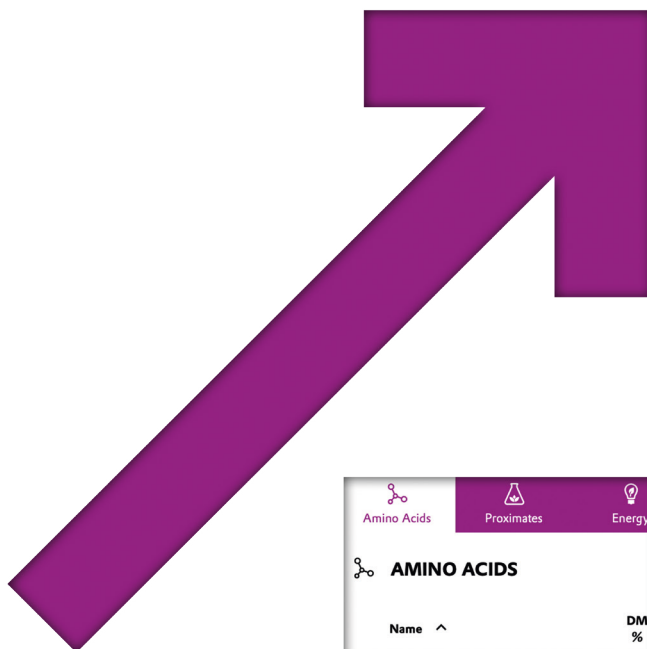


ANALYTICAL SERVICES

Know your ingredients
inside out





Amino Acids



Proximates



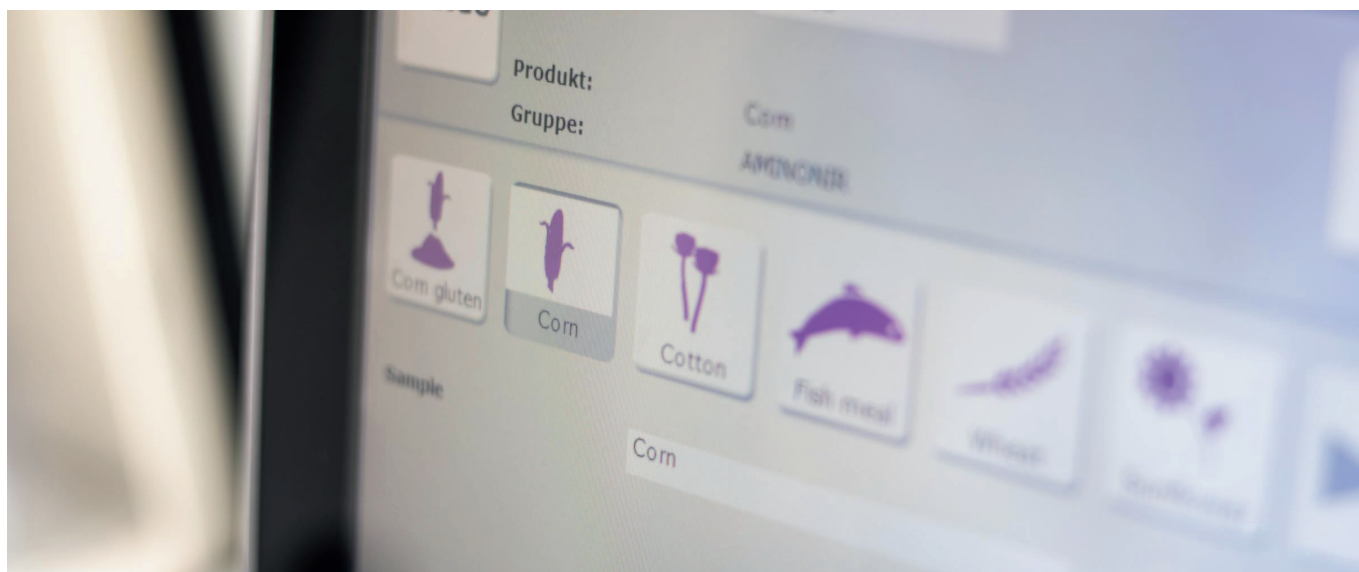
Energy



AMINO ACIDS

Name ^		DM %
Corn		88.00
Global, 2020-2022		
Corn		88.00
Argentina, 2021-2022		
Corn		88.00
Bangladesh, 2021-2021		
Corn		88.00
Brazil, 2021-2021		
Corn		88.00
China, 2020-2021		
Corn		88.00
Egypt, 2021-2021		
Corn		88.00





A KEY INGREDIENT in the ideal feed: Data

Animal nutrition has come a long way. From aquaculture to poultry, swine and ruminants, science has enabled great advances in productivity, animal health and environmental compatibility.

With advanced feed additives, it is now possible to precisely supplement feed formulations to meet the needs of any livestock variety and farming operation. Yet feed supplements alone are not enough: it takes **precise and reliable data coupled with the tools and knowledge** to analyze them to harness the power of nutritional science.

As a globally leading supplier of cutting-edge animal nutrition solutions, Evonik Animal Nutrition has developed an **array of targeted analytical tools and services** to support feed mills and livestock producers in mastering this challenge. With facilities located all over the world, our experts are there for you when and where you need them.





CHALLENGE

Especially considering the varying nutrient content of feed ingredients such as soy or DDGS, the task of determining and maintaining the perfect balance of feed ingredients is extremely demanding. **Formulating the ideal feed** calls for precise and in-depth data. Feed mills and livestock farms are generally not equipped with the analytical devices and scientific resources required to capture these data and adjust feed ingredients and supplements accordingly. In today's competitive, global livestock industry, the precision of finished feed and the efficiency of feed conversion can mean the difference between profit and loss. **To maximize performance, you need sound and timely data.**

BENEFITS AT A GLANCE

- Reliable and timely nutritional data
- Full support in optimizing your feed specification
- Comparison of nutritional value when selecting feed ingredients
- Up-to-date knowledge of fluctuating feed ingredient quality
- Fast support from experts in your region
- Lower nitrogen emissions
- Better animal health



SOLUTION

Evonik Animal Nutrition answers this need with a **complete portfolio of analytical tools and services**. Some are offered in conjunction with our products, others on a standalone basis. They can be divided into three general categories: sophisticated wet-chemistry lab services, lab-based or onsite near infrared (NIR) analytics and overarching Web-based services that allow you to monitor and consolidate your proprietary data. By drawing on this offering, our customers all over the world are able to monitor and adjust virtually every relevant variable in their feed. Regardless of which factors you wish to optimize, our experts can suggest the right methods and support you in applying them and interpreting the data.

WHAT'S IN IT FOR YOU

Whether you are a livestock producer or a feed mill operator, our analytical tools and services can help you reduce the proportion of costly feed ingredients, while boosting feed conversion ratios.

In the following pages, you will find an overview of our current offering.

GET THE BIG PICTURE:

Two platforms to help you turn your data into knowledge

ANALYTICAL DATA ADVANCED

To provide customers with a single easy access point for all of their proprietary lab data, Evonik has established *Analytical Data Advanced (ADA)*, a secure, Web-based platform accessible through our customer portal. The system is highly flexible, allowing users to filter data by feed ingredient or timeframe and configure the data columns as required. *ADA* notifies the customer by e-mail whenever new lab results become available.

You can request customized reports showing the data you need, which you can also individually schedule to be sent to you automatically as e-mail attachments, for example, on a certain day of the week. Statistics can be included such as average, minimum, maximum or standard deviation. You can download the data in the format you need: PDF reports for documentation and Excel, xml or csv for spreadsheets, calculation and data import.

AMINOINSIGHT®

AMINOInsight®, a further platform within our customer portal, enables you to quickly identify the values hidden in large datasets of feed ingredients. That means you can easily recognize changes in feed ingredient quality or compare feed ingredients to determine whether a given supplier delivers superior quality. The solution streamlines data processing and brings together data from different sources, which you can then monitor on predefined dashboards.

Considering that feed ingredient expenditures make up the main cost position in feed milling and animal production, the ability to control feed ingredient quality and evaluate different sourcing options with *AMINOInsight®* is a key asset in maintaining profitability.

AMINOTOOLS

Analyzing feed ingredients with precise and reliable methods coupled with the tools and knowledge to extract the value from the generated data



INDUSTRY-LEADING wet-chemistry capabilities

AMINOLAB®

With AMINOLab®, you can reliably determine the total amino acid, dry matter and crude protein content in your feed ingredients and finished feeds. At three lab locations in China, Germany and Singapore – representing internationally unsurpassed animal nutrition laboratory capacity – we perform sophisticated analyses with exceptional accuracy. Using globally recognized wet-chemistry methods, our experts evaluate samples and return findings on a timely basis, enabling nutritionists,

purchasers, quality control and livestock production managers to make informed decisions. Data on the free amino acid content of different components in your feed also reveal how well the dosing system in use functions.

In addition to analyses for customers, AMINOLab® provides the detailed data that forms the basis for our NIR services.



NIR SERVICES FOR DAY-TO-DAY DATA CAPTURE AND ANALYSIS:

Customer services and standalone solutions

Our services using near infrared scanning reflectance technology are designed for ongoing monitoring of often variable raw feed materials. Once amino acid variability in key ingredients is reduced, feed mills and livestock production facilities can confidently lower the safety margins in their feed mix, leading to considerable cost savings whilst maintaining consistent animal performance. Their predictive calibrations are based on findings from Evonik's state-of-the-art wet chemistry solution AMINOLab®.

AMINONIR®

The fast and reliable analysis service AMINONIR® uses near infrared spectroscopy (NIR) to predict the crude protein and amino acid content in more than 60 important feed ingredients. Its predictive calibrations draw on a large and global set of diverse samples to estimate crude protein, dry matter, essential and non-essential amino acids for all major feed ingredients.

AMINONIR® SAMPLE

Samples sent to Evonik labs are processed swiftly, with results available via our Web service interface Analytical Data Advanced within days.

AMINONIR® ADVANCED

For faster-than-ever sample analysis, Evonik has developed the onsite system AMINONIR® Advanced. Like its counterpart AMINONIR®, the service evaluates all major feed ingredients, but with one big difference: the customer owns and operates the NIR device. That means you can scan samples, upload the data to the AMINONIR® Web service interface and receive a complete evaluation within three minutes.

A further advantage of AMINONIR® Advanced is that, if you need data in a hurry, it allows you to scan feed ingredients as they are – no grinding required. This is an asset when quick decisions are required, like on delivery of feed ingredients. If precision is a key factor, for example, when updating the nutritional matrix of a feed ingredient in your feed formulation software, the sample should be ground before scanning.

AMINONIR® PROX

As further NIR-based predictive analytics system, AMINONIR® Prox looks at a range of crude nutrients in feed ingredients, as well as in broiler, turkey, duck and layer feed. Parameters evaluated include dry matter, crude protein, ether extract, ash, crude fiber, ADF, NDF, sugars, starch and phosphorus. Calibrations are based on representative sets of globally collected samples.

Here again, customers with in-house NIR systems can upload data to our Web portal for evaluation, while those without equipment can submit samples for swift processing and turnaround.

AMINONIR® NRG

AMINONIR® NRG draws on data from AMINONIR® Prox to enable quick and reliable estimates of important energy parameters in feed ingredients. These include gross energy, apparent metabolizable energy for poultry as well as digestible energy, metabolizable energy and net energy for growing pigs and sows. The solution, also calculates gross energy and apparent metabolizable energy in broiler, turkey, duck and layer feed.

AMINONIR® RED

Focus on determining the ideal heat processing of soy products



AMINONIR® RED

With its focus on determining the ideal heat processing of soy products, AMINONIR® RED is another key component in our comprehensive analytical program. It also relies on NIR technology, in this case to evaluate the duration of heat treatment required to deactivate antinutritional factors (trypsin inhibitors and lectins) without risking overtreatment and damage to amino acids.

The Processing Conditions Indicator (PCI) of a soy sample estimated by our AMINONIR® RED service gives you a fast, reliable and precise evaluation of the soy quality, allowing you to fine-tune processing or look for a better source of soy products.

MONITORING HEALTHY BACTERIA: Our Spore Count Service to support probiotics

SPORE COUNT

To support livestock farmers in improving and maintaining the gut health of their animals on a long-term basis, we offer probiotics. Probiotics are living organisms that must arrive in the animal's intestine alive to have positive balancing effect. They can be damaged in feed processing, especially during pelletizing in feed milling.

Our *Spore Count* Service enables us to back up our probiotics solutions by closely monitoring healthy bacteria colonies in the feed of our probiotics customers. Experts carry out specific spore counts on feed and product samples to determine the presence of spores with probiotic properties (*Bacillus subtilis*, *Bacillus amyloliquefaciens* and *Bacillus licheniformis*). The results enable you to enhance your feed with targeted probiotic supplements – a proven and cost-effective nature-based method of improving animal health and growth.



LET'S TALK

Each livestock species and type of operation has its own specific needs and challenges. We look forward to hearing about your strategic goals – and using our analytics solutions to support you in achieving them.

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