



TRIGEA

Refining
pet food.



Innovations from wheat.

The Crespel & Deiters Group is one of the leading producers of wheat starches and wheat proteins. For more than 160 years, wheat and its variety of possible uses have exerted a fascination over us. Based on this natural raw material, we develop innovative ideas with our Loryma, C&D Corrugating & Paper, C&D Technical Applications, Trigea and Crespeo brands, all of which advance our customers across the globe.

Passionate about wheat. Since 1858.

Trigea is the Crespel & Deiters Group's brand for the development of functional wheat-based products for the production and optimisation of wet and dry pet food.

Functionality and performance made of wheat.

Wheat is one of the oldest cultivated plants on Earth. Having originated about 7000 BC, it has remained an important staple food in many countries on Earth to this very day. Bread and baked goods are made from wheat flour that is high in nutrients. As is the case with people, animals also benefit from the wheat kernel's valuable ingredients.

More naturalness in animal feed.

With our functional wheat-based products we support the pet food industry in the production of natural pet food. For this, we utilise the large number of benefits offered by wheat as a provider of nutrients. Starch, vitamins, minerals, trace elements, and fibre are found in our products in well-balanced and abundant quantities, and offer holistic solutions for the optimisation of pet food.

Trigea's functional raw materials ensure optimum texture and stability, in addition to increasing the naturalness and flavour of the pet food, depending on the respective application. What is more, they can also give the end-consumer products their desired appearance.

Quality starts with the grain.

We give preference to using regional wheat when manufacturing our products. Not only is it particularly high in nutrients, it is also characterised by a high degree of purity. The wheat separation and the subsequent product manufacturing ensue in processes and process environments that satisfy all requirements regarding safe and hygienic production.



Gustav Deiters, Managing Director.

Trigea: **Competence, Performance, Experience**

- Long-standing partner to the pet food industry
- Contribution to a balanced, natural diet for pets
- Competent manufacturer of binding agents and stability systems
- Solutions for optimising the end-consumer product and for improving the recipe or the production process



More nature and sustainability in feed.

In animal nutrition, the regionality and sustainability of raw materials are becoming increasingly important for end consumers. Wheat is an important foodstuff, not only for humans, but also for animals. What is more, thanks to their good digestibility, high-quality wheat-based raw materials are also ideal for developing natural and sustainable feed for pets.

With functional products obtained from wheat, Trigea supports – among others – the production of dry and wet animal feed products, in addition to increasing the share of natural raw materials. The different wheat-based products can, for instance, be used as binders with different properties or as texturizers and flavour carriers.

For some pet owners, sustainable feeding also means avoiding meat in their pets' diet. Therefore, our wheat-based products also provide support in the production of vegetarian and vegan pet food.

Thanks to its high quality raw materials and in-depth expertise in the development of wheat-based solutions, Trigea satisfies the pet food industry's high demands regarding the texture and appearance of pet food.

Optimisation of the end-consumer product.

Today, pets are fully integrated members of the family. Ensuring their well-being and health is important for the owners. A balanced and wholesome diet is an important contributor to healthy and vital pets. Wheat contains valuable nutrients. High-quality amino acids, unsaturated fats and fibres, highly digestible proteins, minerals, vitamins, and carbohydrates ensure tasty, healthy feed as well as the vitality of pets like dogs, cats, birds, and ornamental fish.

Trigea does not produce the end-consumer product for pet food; rather, we are a versatile and experienced partner of the pet food industry. We take a holistic approach in considering our customers' desired final result. Apart from their nutritional properties, our developments offer a wide range of optimisation options for the end-consumer product in terms of texture, stability, naturalness, and appearance.

Our wheat-based Trigea solutions are also neutral aroma carriers in the feed, thanks to the tastelessness and odourlessness of the raw material.

Solutions for dry feed, wet feed, and snacks.

With our experience in the pet food sector, we have a deep understanding of products and processes across all industries. This knowledge helps us to optimise stock recipes, production processes, or also new product developments.

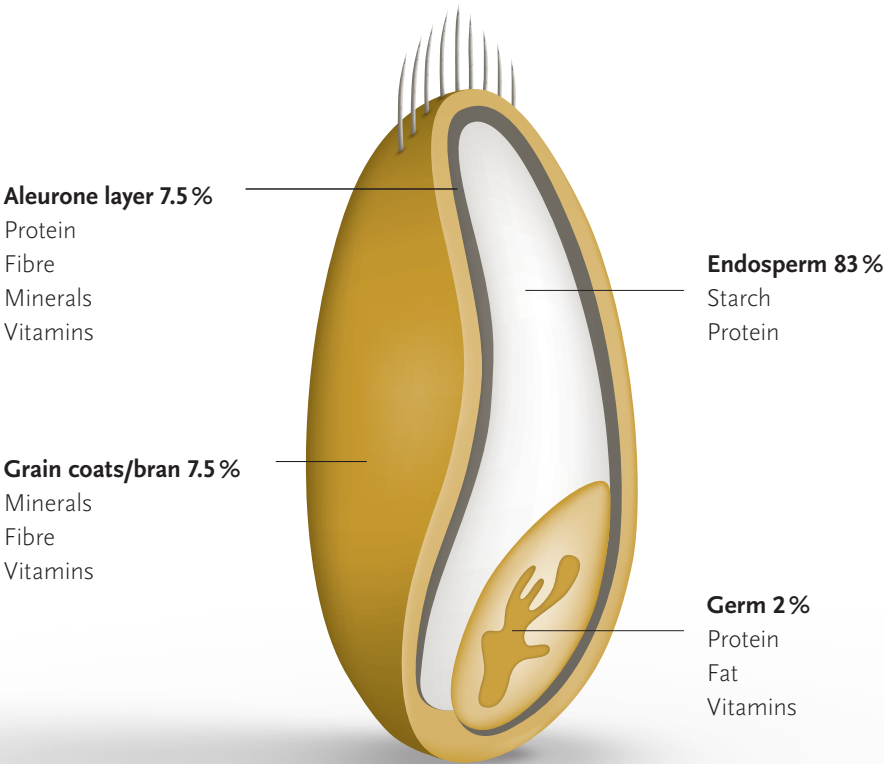
We cooperate closely with our customers. The optimal product is selected from our portfolio and is based on the analysis of the current situation and the defined objectives. Alternatively, a custom solution is developed for the special customer requirements. Our products can also be combined to attain the best result.

Trigea: Solutions for pet food

- Versatile partner for the pet food industry
- Optimisation of the end-consumer product and production process
- Improvement of texture, stability, and appearance of the end-consumer product
- Natural and sustainable pet food
- Also supports the production of vegan and vegetarian pet food

Only the best for our pets.

With its natural ingredients, wheat provides us with the basis for sustainable solutions, which can support our customers' end-consumer products in their functionality in terms of texture, stability and nutrient density, in addition to giving the pet food the desired appearance. This is because each constituent part of the grain has its own properties and possible applications. This knowledge revolving around the raw materials' performance and the high development competence at Trigea provide the foundation for efficient wheat-based product concepts for producing pet food.



First, the wheat is ground. Then the wheat endosperm is broken down into its components by adding fresh spring water and applying heat. This mixture is then sieved and centrifuged to obtain the wheat starches, proteins, fibres, and extract. During further processing steps such as mixing, extrusion, and modification, these raw materials are turned into functional products that are specially refined for our customers. In doing so, we fully utilise the grain's ingredients, making use of all its constituent parts.

Trigea: Raw materials from wheat

- Refinement of natural raw materials from wheat
- Consistent product quality, even with natural fluctuations in raw material properties
- Secure availability of the renewable, natural raw material
- Certified quality and safety



Wheat: Endless possibilities from nature.

High standards and GMO-free guarantee.

The Crespel & Deiters Group uses only EU wheat for the production of its wheat-based products, of which a share of at least 75% comes from German cultivation. This guarantees that the raw material contains no genetically-modified constituent parts. In addition, using supply-chain specifications, Crespel & Deiters ensures that all upstream processes are evaluated in accordance with an HACCP system and possible risks regarding chemical, physical, and microbiological contamination were minimised or excluded. When it comes to the manufacturing of our products, we also do not use any genetically-modified organisms or aromas. Thus, our products can be labelled as "GMO-free" in accordance with the EU regulation 1829/1830 of 2003.

Reliable quality.

The efficiency of our production processes ensures that our products always maintain a high quality level. Thanks to the accompanying quality assurance measures throughout the entire manufacturing process, we are able to absorb natural fluctuations in the quality of the natural raw material and can provide consistently reliable products. Structured workflow sequences and far-sighted planning also contribute towards permanent product availability for our customers.

Certified in accordance with ISO norms:

Based on ISO 9001 for quality, ISO 14001 for the environment, and ISO 22000 for food safety, Crespel & Deiters satisfies the highest requirements in terms of quality, environmental protection, hygiene, and sustainability.



Safety throughout the entire supply chain:

Guaranteeing feed safety along all stages in the feed chain. Certified in accordance with the EFISC European Feed Ingredients Safety Certification (European certification system for feed safety).



Crespel & Deiters Group Policy:

In accordance with certified standards and other guidelines, Crespel & Deiters has implemented binding guidelines for appropriate quality control management and energy efficiency, as well as environmental impact, occupational safety, risk management, compliance, sustainability, and social responsibility, and it promotes the ongoing development and improvement of these systems.

All Trigea products correspond with the current EU Food and Feedstuffs Act.

The name for natural quality: Trigovit®.

With high-quality wheat-based products that go by the name of Trigovit®, Trigea satisfies the growing demand for natural and sustainable pet food. The Trigea solutions give the end-consumer product its desired functionality. What is more, wheat is an excellent flavour carrier, as well as a valuable source of protein. As such, it offers

additional nutritional value. This way, apart from functional aspects, it also adds more naturalness, nutrients, and flavour to the feed.



Texture

The textured **Trigovit® Tex** wheat protein products are produced at Trigea in a technologically sophisticated extrusion process. They guarantee the optimal texture of the end-consumer product. **Trigovit® Tex** can be produced in a variety of different forms and colours and can also be adapted to comply with individual requirements. **Trigovit® Tex** acquires its fibrous, meat-like texture and unique crunchiness when it absorbs liquids. **Trigovit® Tex** is both odourless and tasteless. This makes it suitable for use in innovative end-consumer products and for attaining the desired appearance.

Naturalness

Trigea uses the natural ingredients of wheat to develop products that increase the functionality of animal feed, create an additional supply of nutrients, and add more naturalness to the feed:

- **Trigovit® Starch**

Wheat starches such as **Trigovit® Starch** are easy to digest and are an excellent source of carbohydrates.

- **Trigovit® Protein**

With its amino acids, wheat protein has a high nutritional value and, as a valuable source of protein, is an important ingredient in pet food. Our vital and hydrolysed products optimise the protein balance and, with their specific properties, offer an additional functional advantage.

Flavour

As a general principle, the odourless and tasteless components of wheat are extremely mild and gentle on the animals' digestion. To improve the palatability of the feed, **Trigovit® Tex** products absorb the flavours and aromas of the feed at an early stage in the manufacturing process. This has a positive effect on the end-consumer product's taste. **Trigovit® Tex** thus acts as a flavour and aroma carrier.

Our competence for your product. Effective. Sustainable. Useful.

Wheat is a regional and versatile natural base substance. Used in various Trigovit® products, it provides a fibrous structure similar to meat and a unique crunchiness, for example. Or it helps to optimise the appearance of the end-consumer product. Additionally, with its many valuable nutrients, the high-quality wheat ingredients

create added nutritional value. To offer the best solutions for your end-consumer product, many experts at Trigea are working on the further development of existing products and the realisation of new concepts.

Stability

Trigea solutions help to maintain the functionality of the end-consumer product over a long period of time. At the same time, they have a positive influence on processability. Our solutions ensure a stable end-consumer product that retains consistent quality even under fluctuating environmental influences such as temperature and ambient humidity.

- **Trigovit® Starch**

As an effective binding and thickening agent, modified starches provide the desired stability in the production of wet and dry feeds, for example, for the production of sauces and gravies in moist feeds, or for improving flexibility, crunchiness, or crispness in dry and semi-moist products.

- **Trigovit® Mix**

The functional pre-blends based on our wheat starches are ready-to-use solutions for the production of gravies, jellies and sauces. Depending on the requirements, we can set different viscosities in the process and end-consumer product. All compounds are heat and process stable, thereby making them suitable for autoclaving.

- **Trigovit® Protein**

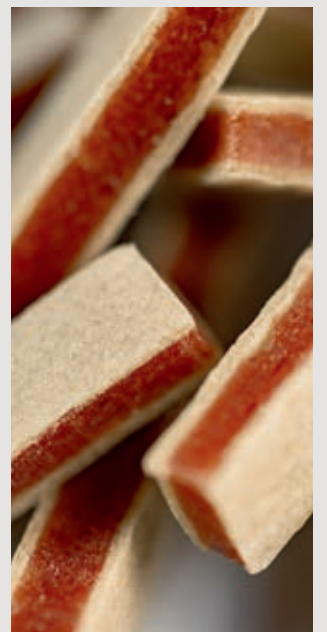
Particularly gentle drying ensures that the vital wheat protein retains its full vitality and has distinct agglomeration and water-binding properties. When **Trigovit® Protein** absorb water, their viscoelastic properties are created. These are unique among animal and vegetable protein sources. This product is used as a protein component in a variety of different animal feed applications.

- **Trigovit® Flour**

Pregelatinised Trigea wheat flours are thermally treated during their special manufacturing process. This leads to the flours' developing their unique binding properties at an early stage during cold processes.

Appearance

Trigea products such as **Trigovit® Starch** and **Trigovit® Tex** can give the end-consumer product an optimal shine and attractive appearance, thereby creating the desired look. In addition, they can ensure that the end-consumer product's properties are retained for longer such as, for example, the flexibility of Dentasticks for dogs.



Our product portfolio.

Depending on your respective requirements, our product portfolio offers a comprehensive selection of products that can improve your end-consumer product's texture, stability, naturalness, flavour, and appearance. We are also happy to develop customised products for your special requirements on the basis of our natural, wheat-based raw materials.

Wheat proteins

Our qualities: vital, hydrolysed, textured

Trigovit® Protein (vital)

Essential properties

- Full vitality, thanks to particularly gentle drying
- High water-binding capacity through formation of stable agglomerates
- Increases the nutritional value of the end-consumer product as a natural and sustainable protein source
- Unique structure formation due to its viscoelastic properties

Application examples

- Protein enrichment of various feed applications
- For producing emulsions
- For the production of dry feed, wet feed, and snacks
- Ornamental fish food

Trigovit® Protein (hydrolysed)

Essential properties

- Dissolves very well and can easily be dissolved in applications
- Stirred into water, the hydrolysed protein develops into a homogeneous solution
- Broken down proteins provide high nutritional value

Application examples

- Ornamental fish food
- Baked snacks
- In milk substitute products for puppies and kittens
- As a soluble protein source in pastes, dry food croquettes, wet food applications, and snacks

Trigovit® Tex (textured)

Essential properties

- Meat-like texture and unique crunchiness
- Different forms and colours possible
- Simple processing, thanks to short soaking times
- Texture-stable in autoclaves
- Neutral in odour and flavour
- Suited as a carrier for additional aromas and flavourings

Application examples

- Reproduction of the textures of all meat and fish
- Creation of fibrous or granular structure
- Preferred use after rehydration (swelling and water absorption)
- Increase of the fibrous structure in chunks
- Directly in moist feeds as special "particles" in snack applications

Wheat starches

Our qualities: native, modified

Trigovit® Starch

Essential properties

- Suited to cold and hot processes
- Adds optimal shine and an appealing look to the end-consumer product
- High bonding and thickening properties
- Individual gelation
- Good dispersibility and stirrability
- Provides long-term stability and preserves the product properties

Application examples

- Can be used in moist and dry feed applications as well as dry and semi-moist snacks
- As a binder and to avoid syneresis effects in chunks
- As thickening agent in sterilised products (pâtés, pastes, gravies, sauces, etc.)
- To improve the product properties in snacks and chewing bones in terms of flexibility, crispness, or crunchiness
- Binder for cold pressed dry feed

Blends

Customised, starch-based pre-blends

Trigovit® Mix

Essential properties

- High binding and thickening capacity in cold and/or hot processes
- Serve as filling aids for adjusting the viscosity during the process, with simultaneous thickening performance and/or gelation in the end-consumer product
- Optimisation of sensor technology, optics, and texture
- Process and autoclave stable

Application examples

- Pâtés and whole-meat feed
- Jellies in moist feed
- Gravies and sauces in moist feed
- Binding agent in sausage applications

Pregelatinised wheat flours

Our qualities: extruded, thermal

Trigovit® Flour

Essential properties

- Good dispersibility in water
- Good water absorption (depending on application different qualities)
- Cold-swelling
- High binding capacity

Application examples

- Binder for cold pressed dry feed
- Puppy and kitten milk
- Semi-moist snacks
- Chewing bones
- Viscosity adjustment in the process
- Moist feed chunks

Trigovit®: Many applications for a broad range of requirements.



Wet feed

For many pet owners, the issue of sustainability is also playing an increasingly important role. Not only should packaging make a contribution to sustainability, but also the feed itself. Our textured **Trigovit® Tex** proteins offer an alternative, healthy, and sustainable protein source in wet feed. With a protein content of up to 70 %, they increase the protein content in the feed, and their shape provides attractive and firm feed. The ability to absorb smell and taste further increases the acceptance of feed intake.

Pet owners consider both their animals' nutritional physiological requirements and the good appearance of animal food to be very important. With our modified **Trigovit® Starch** starches and the functional **Trigovit® Mix** blends, it is possible to produce the desired sauces and gravies that give wet feed their appealing look. The modified starches can also prevent unwanted properties in the feed chunks, such as breakage or syneresis. Our **Trigovit® Protein** vital gluten is also suitable for improving the feed chunks. In addition to binding all raw materials well, it also improves the quality of the chunks and ensures attractive-looking feed in the bowl. It also serves as a natural and sustainable source of protein.



Dry feed

As a complete feed, dry feed offers many benefits, but for this reason it must also satisfy high requirements. The nutritional-physiological properties play just as important a role as the functional properties of the feed. By specially shaping the feed croquettes, textures are created which, for example, serve the animals' dental health.

Our **Trigovit® Starch** product group offers a variety of special starches which have a positive effect on the properties of the feed croquettes. Thanks to their high process stability, the strengths are perfectly matched to the different processing methods. They optimise both the binding properties and structure of the croquettes in terms of flexibility, hardness, airiness, and crunchiness. **Trigovit® Protein** is also used in dry feed croquettes, serving as a binding agent and improving the protein content and nutrient balance. Depending on the process, **Trigovit® Tex** products give dry feed croquettes a fibrous structure, thereby optimising the croquettes' sensory properties and appearance.



Snacks

Pet snacks are a very popular way to reward animals. Their taste, texture, and appearance all play an important role in terms of crispness, flexibility, and crunchiness. The modified **Trigovit® Starch** wheat starches support creating desired product properties and extending product functionality. The starches are also suited to a versatile range of uses in the production of pastes and semi-moist products.

Trigovit® Tex textured proteins are used to improve the sensory properties and increase the protein content of snacks. They provide for an attractive appearance and a special feed texture. Thanks to their properties.

Trigovit® Protein products improve the flexibility and appearance of the end-consumer products.



Ornamental fish and rodent feed

The choice of the right raw materials is also crucial when producing feed for ornamental fish and rodents. When it comes to their floating and sinking properties, our **Trigovit® Starch** range of products offers a variety of starches that influence the shape and structure of flake foods and pond sticks. In terms of process and product optimisation, our pregelatinised **Trigovit® Flour** wheat flours have an optimising effect in applications. With the flours, it is possible to adjust both the viscosity in production and the texture of the end-consumer product. In addition, our **Trigovit® Protein** provides the animals with a sustainable and easily digestible source of protein. Our textured proteins are also a special protein snack for rodents.



Acting together.



At Trigea we pursue a holistic approach in consulting, development, production, and service. The customer is always at the heart of everything we do. The foundation for our work is provided by the customer's requirements in the production of pet food with regard to the functionality, ingredients, and production process of the product. We not only supply high quality solutions, but also support our customer with competent advice on the application of these solutions and the development and optimisation of new products that must be aligned to production processes. Our consultants go to the customer's site to provide support and ensure the product's success.

Individual customer requirements

Analysis of the current situation:

Every project starts with an analysis of the current situation:

- What objective does the customer wish to achieve with the end-consumer products, and what mode of action is envisaged for the product?
- Which exclusion criteria exist, e.g. for the list of ingredients?
- What is the task that emerges for the end-consumer product?
- What is the manufacturing process of the product, and which factors have to be taken into account in this regard (e.g. heat, acidity level, pressure, procedure sequences)?

Our development skills

Mutual definition of objectives:

First, we analyse the customer's current situation, which leads to defining the customer's specific requirements. These requirements provide the input to jointly defining the precise objectives to be achieved in the project. Its product requirements, with reference to functionality, economic feasibility, and ingredients, represent the basis for our development work.

Your product

Product selection:

Based on the analysis of the current situation and the mutually-defined goals, the optimal product is selected from Trigea's range or custom-developed for the specific customer requirements.

Products and solutions for pet food.

When it comes to healthy and sustainable pet nutrition, Trigea is the strong partner by your side. As a system supplier, we offer you customised solutions to optimise your end-consumer product. For this, we use the many natural benefits of wheat, improving the texture and stability of feed and increasing its acceptance in the process.

Make use of our experience in the production of high-quality natural and economically-viable animal feed. Rely on our competence in the development of functional products and solutions on the basis of wheat. Call us or send us an email! We are happy to advise you about the great number of possibilities offered by Trigea.



Your requirements, our knowledge.

Trigea: Product portfolio

- Wheat-based products and solutions, GMO-free
- Optimisation of the end-consumer product for the pet food industry
- Individual consultation and product adaptation



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