



C&D

TECHNICAL APPLICATIONS

Smart solutions
by nature.



Innovations from wheat.

The Crespel & Deiters Group is one of the leading producers of wheat starches and wheat proteins. For more than 160 years, we have been fascinated by wheat and its variety of possible uses. Based on this natural raw material, we develop innovative ideas with our Loryma, C&D Corrugating & Paper, C&D Technical Applications, as well as our Trigea and Crespeo brands, all of which support our customers across the globe in getting ahead.

Passionate about wheat. Since 1858.

C&D Technical Applications is the brand of the Crespel & Deiters Group that is responsible for the development and production of highly functional wheat-based products for use in technical applications.

More economically feasible and sustainable production with wheat.

One key goal of the manufacturing sector is to increase the efficiency of production processes, while simultaneously maintaining or even improving product quality. Here, we have acquired in-depth competence for technical applications in the course of more than 30 years, and many companies from a wide variety of different non-food sectors have already benefited from our support. As a highly innovative and reliable partner, we support our customers with our wheat-based products, helping them to improve the economic feasibility and reliability of their products and production processes.

Innovative solutions for technical applications.

Increasingly, purely chemical-based solutions for technical applications are no longer in keeping with the times, and they are also not sustainable. C&D Technical Applications offers a great number of different business sectors sustainable solutions based on the natural, renewable raw material of wheat. This way, we optimise products and production processes in close collaboration with our customers, thereby making the production of their end-consumer products more efficient and sustainable. The different application possibilities offered by our wheat-based products are varied.

The binding agents of C&D Technical Applications support pelletising, briquetting, and granulating. Through the use of the bonding strength of our starch products, materials that are otherwise disposed of can be made economically viable for recycling. With our wheat-based products, we support the go-green trends in industrial processes and products. We also enable recycling management in many applications so that industrial goods may be more sustainably produced. Our products increase the degree of biodegradability of waste products from production and of end-consumer products or enable them to become recyclable. Our products are also suitable for a variety of different mixing systems in different industries.

The customer is at the centre of everything we do.

Would you like to improve the quality of your products? Are you interested in increasing the productivity of your facilities? Should energy consumption be reduced and product yield be increased? Your requirements guide our development. We will work closely with you to create customised solutions that satisfy your individual objectives and generate impetus for visionary solutions.



Gustav Deiters, Managing Partner.

Customer-specific knowledge for many different sectors.

We are dialogue partners for a large number of different industries. Within these industries, our wheat-based products are suitable for technical applications found in both large and small companies. Whether niche suppliers, start-ups, medium-sized companies, or large industrial enterprises – C&D Technical Applications supports all of them with sustainable solutions for more economical, efficient, and environmentally-friendly development of both their products and production processes. Thanks to our long-standing customer relationships and high delivery reliability, our customers place great faith in our consultation and cooperation.

C&D Technical Applications: Customised Solutions

- Broadly-based knowledge, covering a wide range of industries and sectors
- Development of customised solutions for economic and sustainable end-consumer product manufacturing
- Wide variety of different application possibilities for our products
- Competent partner for the efficient development of production processes
- Highly-functional binding agents made from renewable raw materials



Our employees' cross-sectoral knowledge.

Products close to the customer.

The technical development and applications team at C&D Technical Applications consists of experts from various professional groups such as chemical and polymer technologists, process engineers, building product chemists and agronomists who, owing to their innovative capacity, technical knowledge, and expertise, are able to precisely match the application of our products to your specific requirements.

Precise understanding of what the customer wants.

Our many years of experience and our widely-based industry expertise mean that we know a good deal about your products and production processes. Open, constructive cooperation provides the basis for everything we do and for our long-term customer relationships across all industries.

Working together, side by side, to find the ideal solution.

Not only do we supply you with high-quality products; we also support you with expert advice when it comes to their application. Our consultants are on site, where they support you and ensure the success of your products.

Working together in unison.



More than 160 years of experience with wheat.

Individual customer requirements

Analysis of the current situation:
At the beginning of every project, we analyse the current situation: What objective is the customer trying to achieve with the end-consumer products and what mode

of action is envisaged for our product? How can C&D Technical Applications best support the customer in meeting the objective? How is the product to be produced and which factors, e.g. technical conditions, need to be taken into account?

Joint determining of objectives:
The analysis of the current situation provides the foundation for a tailor-made definition of customer requirements. These requirements provide the input needed for jointly defining the precise objectives that are to be achieved in the project.

Our development

After defining the objectives together, either the most suitable product is selected from the C&D Technical Applications range or a product is developed especially for the specific customer requirements. In either case, we apply our cross-sectoral knowledge and the experience gained in the course of working with wheat for 160 years.

Your product

At our technical centre in Ibbenbüren, we carry out and document numerous experiments and tests to verify the properties of our products. After the customer accepts the test results, the product launch follows. If needed, C&D Technical Applications can provide on-site application-based support.

C&D Technical Applications: Effective Cooperation

- Holistic approach in consultation, development, production, and service
- We focus on customer requirements and conditions that determine the process and its results
- Mutual trust and cooperation

Endless possibilities from nature.

With its natural ingredients, wheat provides everything we need for the development of efficient products, because each constituent part has its own properties and possible applications. Sustainability is a major driver of our work and our developments. Ensuring careful usage of the natural resource of wheat, we make full use of the ingredients of the wheat grain and all of its constituent parts. Knowledge about the performance of each constituent part, combined with the high level of development of C&D Technical Applications, constitutes the basis for innovative and customised solutions for customers from a varied spectrum of industries and sectors.



To offer the best solutions, a range of experts are working on the further development of existing products and the realisation of new concepts.

Reliable quality, in the process and with the product.

All of the processing stages at the Crespel & Deiters Group are analysed, tested, and evaluated, starting with the selection of the raw materials, through the control of processing methods, and right up to the delivery of the products. The efficiency of our production processes ensures that the quality of our products always remains high. The quality assurance that is performed throughout the entire production process ensures that we are able to absorb the natural quality fluctuations found in the natural raw material and create consistently reliable products. Structured processes and proactive planning also ensure rapid product availability for customers.



We satisfy the highest requirements in terms of quality, environmental protection, sustainability, safety, and social responsibility in accordance with the ISO 9001 standards for quality and ISO 14001 for the environment. Crespel & Deiters attach special importance to using an efficient energy management system in accordance with ISO 50001, the fundamental prerequisite for energy-saving production.

C&D Technical Applications: Wheat-Based Products

- Processing and refinement of natural raw materials made from wheat
- Consistent product quality
- Rapid product availability, owing to foresighted planning and structured processes
- Certified quality and safety
- Own technical centre for immediate testing of new developments

Tests in our own in-house technical centre

The many technical possibilities in our state-of-the-art technical centre support the innovative power and development of C&D Technical Applications. While we conduct analyses in our laboratory, new developments are tried and tested in the technical centre. Here, we are able to carry out preliminary tests that show us to what extent initial formulation approaches for new wheat-based solutions work within the context of technical applications. This enables us to develop custom solutions for our customers' technical production challenges quickly and reliably, and to test them directly on a laboratory scale. For the scale-up, we are also happy to establish contact between the customer

and possible machine manufacturers on request. With our own micro-compactor, we can perform constant compacting of granulates by a downstream granulation crusher or we can produce briquettes. This is done to create feasibility studies for the customer quickly and purposefully.

Equipment in the C&D Technical Applications Technical Centre:

- Various mixing units
- Laboratory extruder
- Laboratory spray dryer
- Pellet press

Applications in the C&D Technical Applications Technical Centre:

- Roller briquetting
- Roll compaction with downstream granulation
- Digital measurement of compressive, tensile, and flexural strength

Application benefits for numerous process technologies.

Wheat-based raw materials can be found in numerous industrial manufacturing products, in the form of binders or stabilisers. When they are processed into highly functional products or industry-specific solutions, they offer numerous application advantages and also increase the environmental friendliness of the end-consumer product. The use of our product solutions enables making end-consumer products biodegradable or recyclable.

Our Crespotec® product solutions offer application benefits for many process technologies with varying effects. The further development of production and products for the customer can result in stabilising production processes, increasing energy efficiency, reducing operating costs, and providing a competitive edge in the market. Moreover, sustainable product solutions provided by C&D Technical Applications can fully replace petrochemical and synthetic substances. Hence, C&D Technical Applications makes an important contribution to making industrial production processes and products more ecological with its pioneering solutions or enables sustainable recycling management.

Applications of the wheat-based products from C&D Technical Applications:

- Pelletising
- Coating
- Gluing and binding
- Mixing and compounding
- Briquetting
- Granulating



Pelletising:

Products from C&D Technical Applications reduce the abrasion of pellets, prevent dust formation, and thus prevent conveyors from clogging up. As a result, energy costs are reduced and wear and

tear on equipment and machinery as well, which also contributes to reduced costs. As such, the use of our binders has a positive effect on both pellet quality and process costs.



Coating:

Our Crespotec® Coat products have very good film forming and elastic properties. This is especially helpful when customers wish to coat something temporarily and in a biodegradable manner. As a seed

coating, they provide the grain with additional nutrients and at the same time protect against harmful environmental influences. In weed control, Crespotec® Coat can specifically suffocate certain plants by coating them like a pesticide would.



Gluing & Binding:

Our renewable binding agents are suitable for various bonding and binding processes; for example, fibre injection moulding and compressed air injection, vacuum suction, airlaid, and lamination processes.

Increasingly replacing synthetic adhesives by ecologically sustainable solutions is the objective.



Mixing & Compounding:

Products from C&D Technical Applications serve not only as binders, but also as emulsifiers or dispersing aids. Modified starches cause individual components of a formulation to be more easily and

quickly processed into a homogeneous dispersion when mixed with water. In clay paints, our products help to ensure that the colour pigments are distributed as evenly as possible.



Briquetting:

C&D Technical Applications products for the fuel sector have environmentally-sustainable, CO₂-neutral, low-odour, and low-smoke combustion properties. These products enable producers to

dispense with the use of harmful combustion products, benefiting both employees' health and the environment.



Granulating:

Valuable substrates are often present in a dusty or slurry form, which makes reusing them difficult or even impossible. Because of the binding power of the starch products, which have been developed by C&D Tech-

nical Applications for specific applications in compacting and granulation processes, valuable materials can be made available for reuse in a sustainable and economically feasible way, thus conserving natural resources.

Overview of services.

Our product solutions often have a positive influence on a variety of factors in your production process:

Product yield

The product yield of the end-consumer product can be increased through the use of high-quality raw materials and optimised processes.

Energy use

Well-controlled production processes, combined with ideally-adjusted additives, help to reduce specific energy consumption.

Simple handling

Our high-performance additives provide simple and versatile processability of the end-consumer products.

Quality

The functional characteristics of our natural raw materials can increase the quality of the end-consumer product. Our starch products offer numerous ways to do this.

Production capacity

Production capacity can be increased with the use of high-quality natural raw materials, thereby optimising the composition of the product components.

Environmental compatibility

By substituting or reducing chemical components, the end-consumer products are made more environmentally friendly, and recycling management is also often made possible for the first time.

Cost-effectiveness

In many cases, cost-effectiveness can be increased, or sometimes made possible in the first place, by replacing high-priced constituent parts and by optimising production processes.

Solutions for numerous industries.

Building products



Crespotec® Bind, Crespotec® Rheo

For the manufacture and optimisation of

- Clay building slabs
- Autoclaved aerated concrete blocks
- Clay paints, clay plaster
- Insulating materials
- Plasterboard, gypsum board
- Acoustic ceiling tiles
- Mortar and adhesives for wall and floor coverings
- Dry screed
- Insulating building materials
- Floor covering adhesives

Functionality and benefits of our Crespotec® products:

- Binding
- Bonding
- Water retention
- Rheology
- Lubricant
- Improvement of the final strength
- Substitute for synthetic adhesives
- Dispersing aids
- Migration

Foundry industry



Crespotec® Bind, Crespotec® Compact, and Crespotec® Agglo

For the manufacture and optimisation of

- Foundry aggregates (briquettes)
- Casting powder
- Feeder systems
- Ores
- Mould covers

Functionality and benefits of our Crespotec® products:

- Green strength
- Improvement of the final strength
- Binding
- Stabilising

Agricultural industry



Crespotec® Bind, Crespotec® Agglo

For the manufacture and optimisation of

- Fertilisers
- Seed coatings
- Feed
- Organic crop protection products

Functionality and benefits of our Crespotec® products:

- Binding
- Improvement of the final strength
- Coating
- Processing aids

Fibre-processing industry



Crespotec® Bind

For the manufacture and optimisation of

- Fittings and plates made of fibres (e.g. sound-absorbing plates)
- Packaging fittings
- Insulation fittings
- Plant pots
- Tissue products (tablecloths, napkins, toilet paper, paper towels, kitchen paper)

Functionality and benefits of our Crespotec® products:

- Binding
- Fibre binding
- Bonding

Waste disposal and recycling industry



Crespotec® Compact

For the processing and refinement of

- Grinding slurries
- Industrial dusts
- Organic residues
- Recycled cardboard

Functionality and benefits of our Crespotec® products:

- Process flow optimisation
- Dust reduction
- Binding (e.g. of metallurgical residues and filter dust)
- Green strength
- Improvement of the final strength

Textile industry



Crespotec® Textile

For the manufacture and optimisation of

- Laundry starch
- Finishing

Functionality and benefits of our Crespotec® products:

- Refinement with aesthetic shine
- Fibre stabilisation
- Surface finishing
(e.g. coatings of sun protection/darkening textiles)

Fuel sector



Crespotec® Compact

For the manufacture and optimisation of

- Barbecue briquettes
- Wood pellets
- Vegetable carbon
- Organic charcoal
- Bran pellets
- Mineral coal and lignite

Functionality and benefits of our Crespotec® products:

- The ash content is minimised
- Binding
- Green strength
- Natural binders for roller briquetting
- Improvement of the final strength
- Optimising processes
- Smoke reduction
- Lubricants

Chemical industry



Crespotec® Bind, Crespotec® Rheo

For the manufacture and optimisation of

- Rheological additives
- Adhesives
- Co-binding systems
- Resins
- Lubricants
- Fertilisers (e.g. lime fertilisers)
- Biologically sustainable fertilisers

Functionality and benefits of our Crespotec® products:

- Binding liquid and powdery binding agents
- Emulsification



Working together with our customers, C&D Technical Applications creates products that ensure greater efficiency, performance, and quality.

Visions made of wheat.

C&D Technical Applications is a competent and foresighted partner for innovations in industrial sectors in which the use of wheat-based raw materials and additives can sustainably improve end-consumer products and production processes. Our focus is always on the key aspects of sustainability, cost-effectiveness, productivity, and quality. In-depth knowledge about the performance of natural raw materials and the highly developed skills of our chemists and engineers provide the basis for innovative, customised products.

Comprehensive consultation, intensive research and development, testing in our in-house technical centre, and profound technical knowledge in the design of production processes provide industrial customers with the secure feeling of knowing that they are following pioneering paths with the natural raw material of wheat. So as to achieve this goal, our application technicians cooperate closely with our customers.

Benefit from our experience in the field of technical applications in your industry and from our competence when it comes to developing naturally based highly functional products and solutions. Call us or send us an email! We would be pleased to consult to you on the wide variety of different possibilities for your technical applications.



Production, development, and application technology, all from one source at a single location.



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