



Castle Ingredients®

Probably the Best Food Ingredients



HEAT TREATMENT SERVICES

Elevate your ingredients, enrich your impact. Discover sustainable excellence with Castle Ingredients. Crafted with innovation, powered by solar energy, and committed to a greener tomorrow.

WELCOME



Lontzen, Belgium

Castle Ingredients® is an industry expert in the heat treatment of a broad spectrum of products. Our mission is to deliver top-notch and diverse services to our esteemed customers. Notably, Castle Ingredients® is proud to be a **green company that operates entirely on solar energy**, underlining our commitment to sustainable practices and environmental responsibility.



CONTENT

ABOUT US	4
OUR SUSTAINABILITY	5
OUR SERVICES AND THEIR APPLICATIONS	7
TOASTING/ ROASTING	9
PASTEURISATION	11
DRYING	13
SEASONING	15
STEAM FLUSHING	17
ENZIMATIC ACTIVATION/ DESACTIVATION	19
STERILISATION	21
PROTEIN DENATURATION	23
EXTRACTION OF TOXIC MOLECULES	25
GRAIN PUFFING	27
SACCHARIFICATION	29
OTHER SERVICES	31
NOTES	33



Hombourg, Belgium



ABOUT US

Castle Ingredients® excels in a diverse array of services, including toasting, roasting, drying, saccharification, pasteurization, and sterilization, all of which enhance the product's taste, colour and preservation period. Our comprehensive offerings extend to blending, milling, packing, and other logistics services. Utilizing cutting-edge equipment, we have the capability to process various food products and ingredients, encompassing grains, nuts, beans, seeds, spices, roots, and more.

With a rich legacy dating back to 1868, we specialize in heat treatment processing for a wide range of food industries. Our two green plants, strategically located in Hombourg and Lontzen, Belgium, near Germany and The Netherlands, underline our global presence and earned reputation for excellence.

We are proud of our ability to tailor products in close collaboration with our partners, leveraging the expertise of our dedicated R&D team. This empowers us to craft outstanding private label products.



GREEN PLANT

Castle Ingredients® is dedicated to environmentally friendly practices and actively contributes to Belgium's renewable energy goals by sourcing 100% of our energy from sustainable solar power.

NO CO2

Castle Ingredients® attains zero CO2 emissions through the utilization of solar panels, generating over 7 MWh of renewable energy annually.

Solar-powered, zero emissions, limitless innovation.

OUR COMMITMENT TO SUSTAINABILITY

GREEN ENERGY, BRIGHT FUTURE

Powered by 100% solar energy, Castle Ingredients® sets the standard for eco-friendly operations. Our cutting-edge facilities harness the sun's power to drive innovation, ensuring a minimal carbon footprint and a brighter tomorrow for generations to come.

REVOLUTIONIZING HEAT TREATMENT

With a fleet of state-of-the-art heat treatment installations, Castle Ingredients® redefines heat treatment processes with efficiency and sustainability at the core. From toasting to pasteurization, our advanced technologies not only elevate the quality of your products but also contribute to reducing energy consumption and waste.



BEYOND ZERO EMISSIONS

Castle Ingredients® achieves zero CO2 emissions through meticulous use of solar panels, generating over 7 MWh of renewable energy annually. Our commitment to a sustainable future extends beyond industry standards, as we strive to be a beacon of environmental stewardship.

YOUR PARTNER IN SUSTAINABLE SUCCESS

Choose Castle Ingredients® as your partner, and together, let's shape a sustainable future. Our dedication to innovation, quality, and environmental consciousness ensures that your products not only meet the highest standards but also contribute to a world where sustainability and success go hand in hand.

Castle Ingredients® operates **three modern and sustainable plants**. Fueled by renewable solar energy, these facilities emphasize our commitment to responsible practices. Through efficient heat treatment processes and adherence to circular economy principles, we prioritize sustainability without compromise. These plants symbolize our dedication to environmental consciousness within the heart of Belgium.



OUR HEAT TREATMENT SERVICES AND THEIR APPLICATIONS













	 Grains	 Nuts	 Seeds
Services:			
Toasting/roasting			
Pasteurisation			
Drying			
Seasoning			
Steam flushing			
Enzyme activation / desactivation			
Sterilisation			
Protein denaturation			
Extraction of toxic molecules			
Grain puffing			
Saccharification			

*OTHER SERVICES AND COMBINATION OF SERVICES ON REQUEST
ALL OUR HEAT TREATMENTS ARE CONDUCTED EXCLUSIVELY WITH SUSTAINABLE GREEN ENERGY.



Castle Ingredients®

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	 Spices	 Pulses & beans	 Flours	 Others
Toasting/roasting				
Pasteurisation				
Drying				
Seasoning				
Steam flushing				
Enzyme activation / desactivation				
Sterilisation				
Protein denaturation				
Extraction of toxic molecules				
Grain puffing				
Saccharification				

WE TAILOR OUR SERVICES TO MEET YOUR UNIQUE NEEDS. CONTACT US FOR CUSTOMIZED SOLUTIONS AND ADDITIONAL OFFERINGS.
INFO@CASTLE-INGREDIENTS.COM

TOASTING/ ROASTING



DESCRIPTION

Enhance the natural flavors and textures of nuts, seeds, spices, beans & pulses, flours, coffee beans, and cacao nibs through expert toasting and roasting. Our precise methods bring out rich, aromatic profiles, ensuring a delightful culinary experience.

CHARACTERISTICS

Temperature Range: Precision-controlled temperatures tailored to each product category.

Duration: Optimized roasting times for specific flavors and textures.

Airflow: Adjusted airflow for even heat distribution.

APPLICATIONS



RESULTS

GRAINS •

Enhanced flavor, improved texture

SPICES •

Enhanced aroma, flavor development

FLOURS •

Enhanced color, flavor development

NUTS & SEEDS •

Improved flavor profile, increased crunchiness

BEANS & PULSES •

Improved taste, reduced raw flavor

OTHER •

Developed aroma, unique flavor profiles (ex: coffee beans; cacao nibs, etc)

PASTEURISATION



DESCRIPTION

Prioritise safety and extend shelf life with our pasteurisation process. By effectively eliminating pathogens in nuts, seeds, spices, beans & pulses, flours, and other products, we ensure that your goods maintain quality while meeting the highest standards of food safety.

CHARACTERISTICS

Temperature: Precise heat levels to eliminate pathogens without compromising quality.

Time-Temperature Combination: Tailored to the specific product to ensure effective pasteurisation.

Humidity Control: Maintaining the right moisture levels for safety and quality.

APPLICATIONS



RESULTS

GRAINS

Microbial reduction, extended shelf life

SPICES

Microbial reduction, preservation of quality

FLOURS

Microbial reduction, extended shelf life

NUTS & SEEDS

Microbial reduction, enhanced safety

BEANS & PULSES

Microbial control, improved safety

OTHER

Enhanced safety through microbial reduction (ex: coffee beans; cacao nibs, etc)



DRYING



DESCRIPTION

Elevate your product stability with our controlled drying techniques. From grains to nuts, seeds, spices, beans & pulses, flours, coffee beans, and cacao nibs, our drying process reduces moisture, enhancing shelf life and preserving the natural characteristics of each item.

CHARACTERISTICS

Temperature: Controlled drying temperatures to reduce moisture content without overheating.

Air Circulation: Optimized airflow for uniform drying.

Moisture Control: Monitoring and adjusting moisture levels during the process.

APPLICATIONS



RESULTS

GRAINS

Reduced moisture content, extended shelf life

SPICES

Concentrated flavor, improved preservation

FLOURS

Reduced moisture content, improved stability

NUTS & SEEDS

Enhanced crunchiness, reduced water activity

BEANS & PULSES

Improved storage, reduced microbial growth

OTHER

Reduced moisture, preservation of quality, improved shelf stability through moisture removal (ex: coffee beans; cacao nibs, etc)

SEASONING



DESCRIPTION

Infuse distinct flavors into nuts, seeds, spices, beans & pulses, flours, and more with our expert seasoning. Achieve customized taste profiles and unique seasoning combinations that cater to diverse culinary preferences.

CHARACTERISTICS

Seasoning Formulas: Customized blends and formulations for specific taste profiles.

Application Method: Uniform application to ensure consistent flavor distribution.

Quality Control: Stringent checks to maintain seasoning quality and adherence.

APPLICATIONS



RESULTS

NUTS ● ————
Infused flavors, unique taste profiles

SPICES ● ————
Varied flavor profiles, customized seasoning

FLOURS ● ————
Enhanced taste, versatile applications

NUTS & SEEDS ● ————
Enhanced taste, flavored varieties

BEANS & PULSES ● ————
Flavor infusion, unique taste

OTHER ● ————
Customized seasoning for unique products

STEAM FLUSHING



DESCRIPTION

Steam flushing involves the strategic use of steam to either extract valuable fractions for collection or eliminate undesired fractions from the product. This method employs the controlled application of steam, directed through the product, serving the dual purpose of targeted extraction or removal based on the specific objectives for enhancing the product quality.

CHARACTERISTICS

Steam Quality: Controlled steam application for microbial reduction.

Duration: Adequate time to ensure effective steam flushing.

Temperature Control: Monitoring and regulating steam temperature.

APPLICATIONS



RESULTS

GRAINS

Reduced microbial activity, improved safety

SPICES

Microbial reduction, preservation of quality

FLOURS

Microbial control, enhanced safety

NUTS & SEEDS

Enhanced safety through microbial control

BEANS & PULSES

Improved safety, reduced microbial growth

OTHER

Enhanced safety through steam-based microbial reduction



ENZYME ACTIVATION/ DEACTIVATION

DESCRIPTION

Achieve precision in product characteristics with our enzyme activation and deactivation processes. Tailored for grains, nuts, seeds, beans & pulses, flours, and other items, this technique allows for controlled enzymatic activity, optimizing texture and quality.



CHARACTERISTICS

Temperature Control: Precise control of temperature for enzymatic activity.

Reaction Time: Optimization of reaction times for specific product characteristics.

Enzyme Selection: Tailored enzyme selection based on product requirements.

APPLICATIONS



RESULTS

GRAINS

Controlled enzymatic activity, improved quality

NUTS & SEEDS

Enzyme deactivation for better storage

BEANS & PULSES

Enhanced processing, improved texture

FLOURS

Enzyme deactivation for improved stability

OTHER

Controlled enzymatic activity for specific product characteristics

STERILISATION



DESCRIPTION

Prioritize safety with our sterilisation process, applicable to grains, nuts, seeds, spices, beans & pulses, flours, coffee beans, cacao nibs, and other items. By eliminating pathogens, we guarantee a product that meets stringent safety standards.

CHARACTERISTICS

Temperature and Pressure: Controlled conditions to ensure effective sterilisation.

Sterilization Time: Adequate time to eliminate pathogens.

Validation Processes: Rigorous testing to validate the effectiveness of the sterilisation process.

APPLICATIONS



RESULTS

GRAINS

Microbial reduction, extended shelf life

SPICES

Microbial reduction, preservation of quality

FLOURS

Microbial reduction, extended shelf life

NUTS & SEEDS

Microbial control, enhanced safety

BEANS & PULSES

Improved safety, reduced microbial growth

OTHER

Microbial reduction, preservation of quality, enhanced safety through sterilisation (ex: coffee beans, cacao pulses, etc.)

PROTEIN DENATURATION



DESCRIPTION

Modify the texture and processing qualities of nuts, seeds, beans & pulses, and more through protein denaturation. Our expert techniques alter protein structures, enhancing product characteristics and versatility.

CHARACTERISTICS

Temperature Range: Controlled temperatures to achieve protein denaturation.

Processing Time: Optimized processing times for desired texture modification.

Protein Type: Adapted processes for different protein structures.

APPLICATIONS



RESULTS

GRAINS

Pathogen elimination, extended shelf life

NUTS & SEEDS

Altered texture, improved processing

BEANS & PULSES

Improved texture, altered protein structure

OTHER

Modified protein characteristics for specific applications

EXTRACTION OF TOXIC MOLECULES



DESCRIPTION

Ensure product safety with our extraction process. From grains to nuts, seeds, spices, beans & pulses, flours, coffee beans, cacao nibs, and more, we remove harmful substances, contributing to a healthier and safer final product.



CHARACTERISTICS

Temperature and moisture: Precise heat and steam levels to eliminate toxic molecules.

Extraction Time: Adequate time to ensure effective removal of harmful substances.

Quality Testing: Comprehensive testing to confirm the absence of toxic molecules.

APPLICATIONS



RESULTS

GRAINS

Removal of harmful substances, improved safety

SPICES

Removal of hazardous compounds, improved safety

FLOURS

Removal of harmful substances, improved quality

NUTS & SEEDS

Extraction of undesirable compounds, enhanced quality

BEANS & PULSES

Enhanced safety through toxin extraction

OTHER

Extraction of undesirable compounds, preservation of quality, improved safety through the removal of harmful substances (ex: coffee beans, cacao pulses, etc.)

GRAIN PUFFING



DESCRIPTION

Create unique textures and characteristics in grains through our grain puffing process. Elevate the appeal of your products with distinctive and eye-catching attributes.



CHARACTERISTICS

Temperature and Pressure: Controlled conditions for puffing.

Expansion Ratio: Monitoring and optimizing the expansion ratio for desired texture.

Moisture Content: Adjusting moisture content for optimal puffing.

APPLICATIONS



RESULTS

GRAINS •

Altered texture, unique product characteristics

SACCHARIFICATION



DESCRIPTION

Tailor carbohydrate profiles to your specifications with our saccharification process. Ideal for grains, beans & pulses, flours, and more, achieve the desired sweetness and functionality in your products through our expert techniques.

CHARACTERISTICS

Reaction Time: Optimized reaction times for desired sugar conversion.

Scaling Processes: Adapting saccharification protocols for different production scales while maintaining efficiency.

Quality Control Measures: Rigorous checks to maintain the quality and consistency of the saccharified product.

APPLICATIONS



RESULTS

GRAINS

Enzymatic conversion to sugars, altered sweetness

FLOURS

Enzymatic conversion for improved functionality

BEANS & PULSES

Modified carbohydrate profile for specific applications

OTHER

Tailored saccharification for unique product attributes



OTHER SERVICES

Within the Castle Ingredients production infrastructure, careful planning and strategic design ensure optimal flexibility. This essential layout empowers us to serve a wide spectrum of customers, accommodating the needs of large food ingredient suppliers, as well as medium and small-sized producers. This adaptability is particularly advantageous for those venturing into new markets or introducing innovative products.

FULL LIST OF SERVICES



THERMAL PROCESSING

Our proprietary line of processing plants (based on programs) through special custom-made industrial heat exchangers and our expertise in the organic sector, ensures a consistent treatment throughout.



DRY BLENDING & MIXING

Our vertical system offers three-dimensional rearrangement of powder and granules and is a very effective yet gentle blender that ensures maximum homogeneity. It is best suitable for a large robust material and can be used for a combination of heavy-duty and very gentle mixing tasks.



PACKAGING

With several fully automated bagging lines, we can pack dry products into various types of bags, including paper, plastic, and polypropylene, as well as big bags.

Available in full: 1kg Bags, 25kg, 10kg, 5kg, 2.5g, 1kg, 500g, 200g, 100g



GRINDING & MILLING

Our equipment is a perfect solution for the specific unique needs of particularly sensitive, low moisture or aromatic materials and produces uniformly fine-granulated products.



WAREHOUSING & LOGISTICS

Castle Processing offers short-term storage for raw materials as well as long- and short-term storage for finished goods in a total area of 46,000 m² dry storage room. Our 2000 storage is 2,200 m² cold storage room with a temperature of + 5°C to -15°C, offering space for about 100 pallets.



PRODUCT DEVELOPMENT

Our product development service is funded by an internal and external knowledge and hands-on experience. From laboratory experimentation, we are dedicated to bringing your vision to life.

THE WORLD'S BIGGEST ELECTRICAL INSTALLATION.

PRODUCTION CAPACITY: FROM 50 KG TO 5000 KG PER PROCESS PER HOUR.





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