

RADIO FREQUENCY HEATING IN THE FOOD INDUSTRY

DRYING • DISINFESTATION • PASTEURISATION

WORLD LEADER IN DIELECTRIC HEATING

Monga Strayfield has achieved a reputation for excellence in the manufacturing industry by following high standards of design and manufacturing practices. Through continuous commitment, dedication and attention to detail, Monga Strayfield has justly earned this accolade and is generally acknowledged as the world leader in dielectric heating.

Monga Strayfield's product range for Radio Frequency heating encompasses equipment for Food, Textile, Paper Converting, Glass Fibre, Ceramics and Wood-Working industry.

With more than 5000 installations we have the technical ability and experience to provide a solution for virtually any drying application within the RF domain.

Monga Strayfield's global corporate network and its agents provide excellent after-sales support to customers.

Strayfield 

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RADIO FREQUENCY PROCESSING IN THE FOOD INDUSTRY

Water is highly receptive to the effect of dielectric heating because of its high dielectric loss factor. This makes the process of Radio Frequency dielectric heating predominantly suitable for drying, moisture removal and pre heating applications.

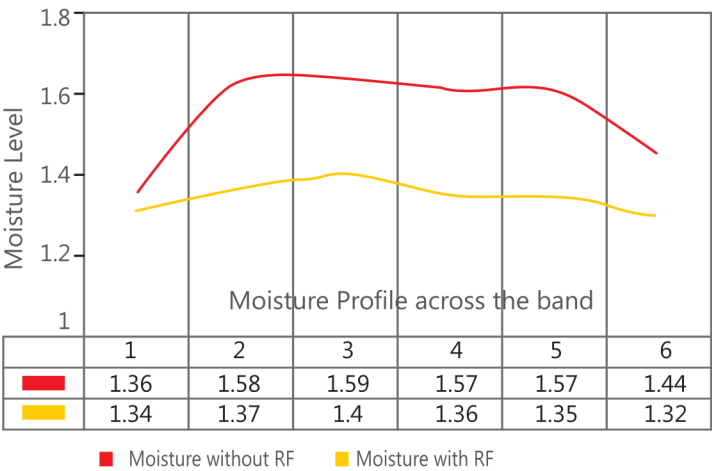
Molecules of dielectrically lossy medium when subjected to a Radio Frequency field will vibrate in resonance with the applied oscillation frequency. This effect produces a uniform generation of heat within the entire mass of the dielectric medium due to the friction produced between the molecules when they are vibrating.

The RF energy will preferentially couple into the water rather than the other ingredients in the product and is therefore able to provide a more efficient means of moisture removal unlike the other conventional drying systems that employ convective or conductive phenomena which also heats up other matter along with the heating equipment, over and above the water that is heated.

The process is simple and precise. Today Radio Frequency Drying is common place in the food industry with appropriate and proven processes available for a wide range of applications like rapid heating of products for both pre-cook and pasteurisation / sterilisation requirements.

PROCESS ADVANTAGES

- Energy Savings - RF directly works on the moisture without heating the surroundings.
- Highly Efficient Heating - As high as 70% conversion efficiency and unlike conventional equipment the efficiency of the RF oven is only marginally reduced at lower moisture levels.
- Increased Production - Throughput of a typical baking oven line can be increased by as much as 40% on certain products.
- Floor Space Savings - Efficient heat transfer results in faster product transfer and reduced oven length.
- Rapid and Even Heating - Ensures retention of food values that get degraded due to elongated exposure to elevated temperatures.
- Moisture Profiling - Automatically profiles moisture due to the inherent attributes of the RF heating process which can enhance shelf life of food products.



ACCURATE MOISTURE CONTROL

This graph shows how RF drying can improve the moisture profile across the band of an oven which is also representative of what is achieved as a moisture profile within the individual product. Conventional ovens overdry the product at the edge of the oven band while trying to maintain targeted moisture limits in the centre of the oven band. With RF drying significant improvements to the moisture profile are achieved.



DESIGN FEATURE

- Ovens made of highly graded materials to achieve high process efficiency & conformance to RFI norms by limiting harmful emissions
- Stainless Steel Structure available as an option to help maintain high sanitised conditions where required
- PLC operated equipment for achieving high process and equipment reliability
- User friendly graphic interface for equipment settings and controls

DRYING

Radio Frequency Drying is a simple precise process and is in common use in the food industry with proven processes available for a wide range of applications like Biscuits, Bread, Extruded products, Farm produce etc.

DISINFESTATION

Pest disinfestation and Larvae control especially in farm produce which is otherwise expensive to control or uses chemical processes, can be easily achieved by exposing the product to Radio Frequency energy and can be used on a variety of products like Nuts, Spices, Flour, Rice, Pulses, Lentils, Beans and other similar products.



PASTEURISATION

Packaged commodities and Pharmaceutical products require low microbiological load, requiring either expensive processors or processes which compromise on nutritional values. Exposing such products to RF Energy, economically achieves low microbiological loads. Most products can be disinfected in their packaged state thus avoiding post handling contamination.