TECHNOLOGIES

Thermal Technology profile

rotary dryers, coolers & kilns

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JND
TECHNOLOGIES

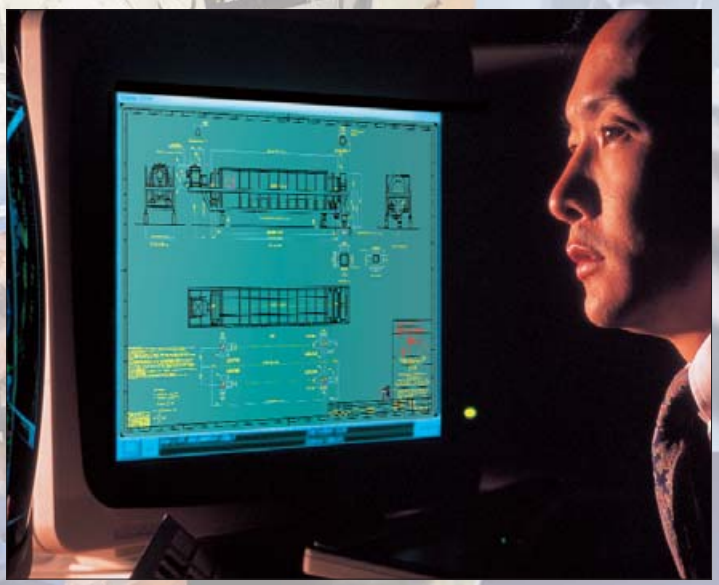
All round ability – all around the world

JND Thermal Process is a division of The Jenkins Newell Dunford Group Ltd (JND) whose headquarters are in England, offering technologies in the field of materials processing to a wide range of industry. JND is a wholly-owned subsidiary of Langley Holdings plc, a privately controlled UK engineering group with regional offices in the Americas, Europe, China and the Far East.

In virtually all industrial processes, heat is a vital component. Applying that heat in a controlled environment is a key requirement in the manufacture of thousands of products from metals to minerals, fertilizer to foodstuffs and chemicals to waste processing.

JND has more than 100 years experience in thermal technology making it a world leader in the supply of rotary dryers, coolers and kilns. We employ advanced computer technology to design and manufacture our equipment, backed up by a high level of client service and support. Throughout the operation - from planning and resource management to cost and documentation control - each project is carefully managed to ensure the finished product precisely matches clients' needs.

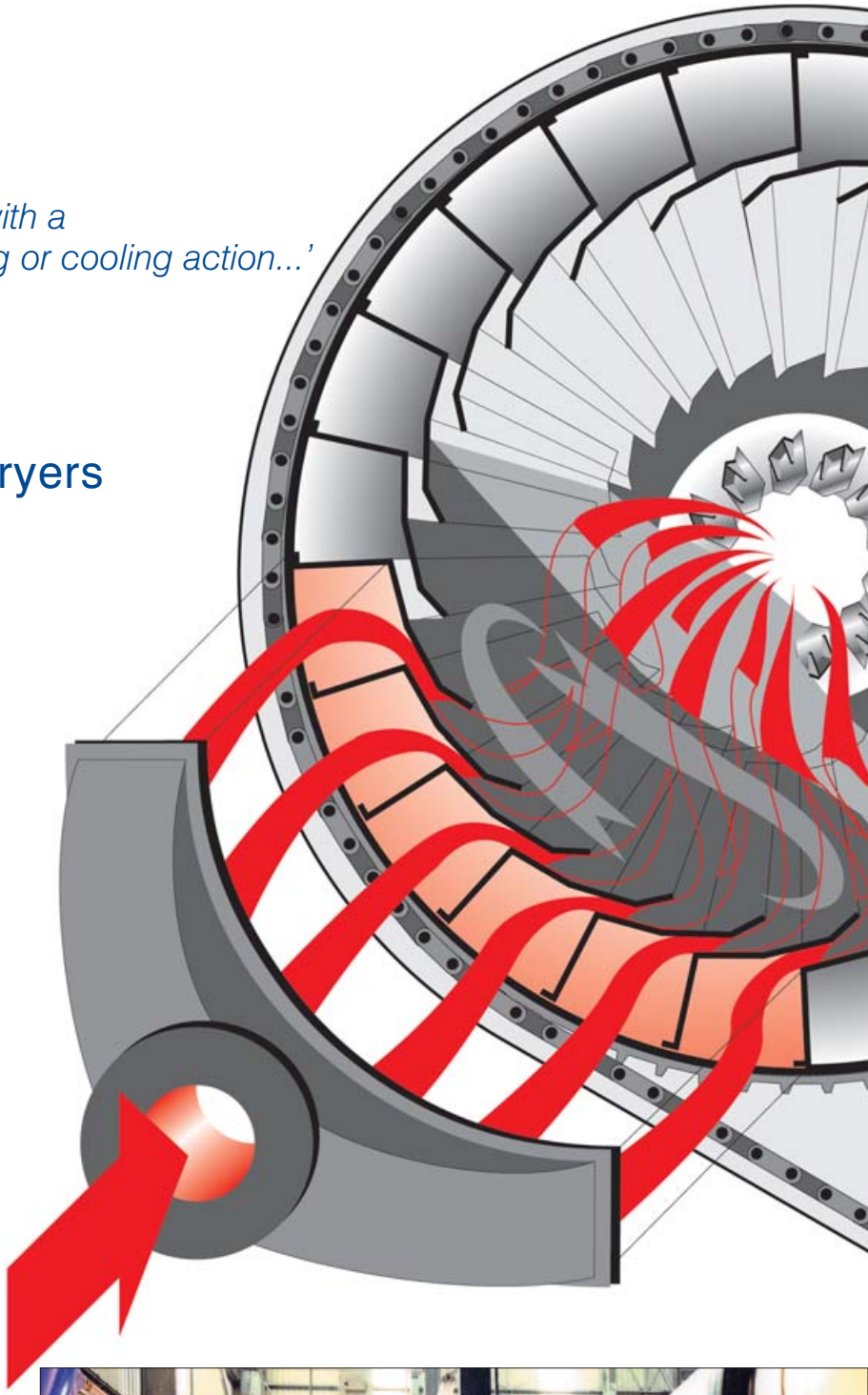
The result is a range of rotary thermal technology products that offer all round ability - all around the world.



'...JND Thermal Process – the name synonymous with the design and manufacture of rotary thermal processing equipment...'

Thermal technology...

'... combines a high heat transfer with a gentle drying or cooling action...'



Rotary Louvre Dryers

To the casual observer, modern production techniques appear to be highly robust processes, yet many materials - particularly foodstuffs, chemicals, oxides and catalysts - require gentle handling in the drying and cooling stages to prevent their degradation or breakdown.

The JND Rotary Louvre Dryer - a mechanically assisted, semi-fluidised bed system - combines a high heat transfer with a gentle drying or cooling action.

Using cold air in one section allows drying and cooling to be carried out in the same unit, saving cost and space.

Energy efficiency is one of the notable advantages of the JND Rotary Louvre Dryer achieved by close control over temperatures along the length of the dryer and product residence time.

Low air velocities ensure that product over-carry or dust is kept to a minimum.

A range of direct or indirect heating options is available using gas, oil or steam and dry or wet exhaust gas stream cleaning systems are used according to the application.

Rotary Louvre Dryer in the sugar industry.

'...can handle a wide range of particle sizes and moisture contents for a variety of products...'

Rotary Cascade Dryers

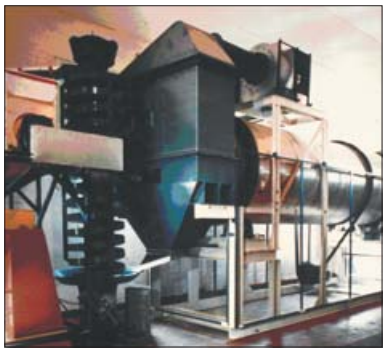
Fertilizer dryer.

With tube diameters of up to 5 metres and lengths in excess of 35 metres, JND Rotary Cascade Dryers are often the only practical solution to high-volume bulk drying of materials.

These giants of the drying world can handle a wide range of particle sizes and moisture contents for a variety of products such as minerals, metal ores, fertilisers, bulk foodstuffs etc. combining a high degree of flexibility with robust design and reliability.

Drying air, heated to temperatures from 80°C to 1000°C, flows through the dryer either co-current or counter-current depending on the product to be dried. The hot drying air can be generated by gas, oil or steam. Dry or wet exhaust gas cleaning can be provided as required.

This principle of operation is also applied to Rotary Cascade Coolers where the hot air is replaced by ambient or chilled air.



Breadcrumb dryer.

Thermal technology...

'... principally for powders and granules requiring thermal treatment up to 1100°C...'

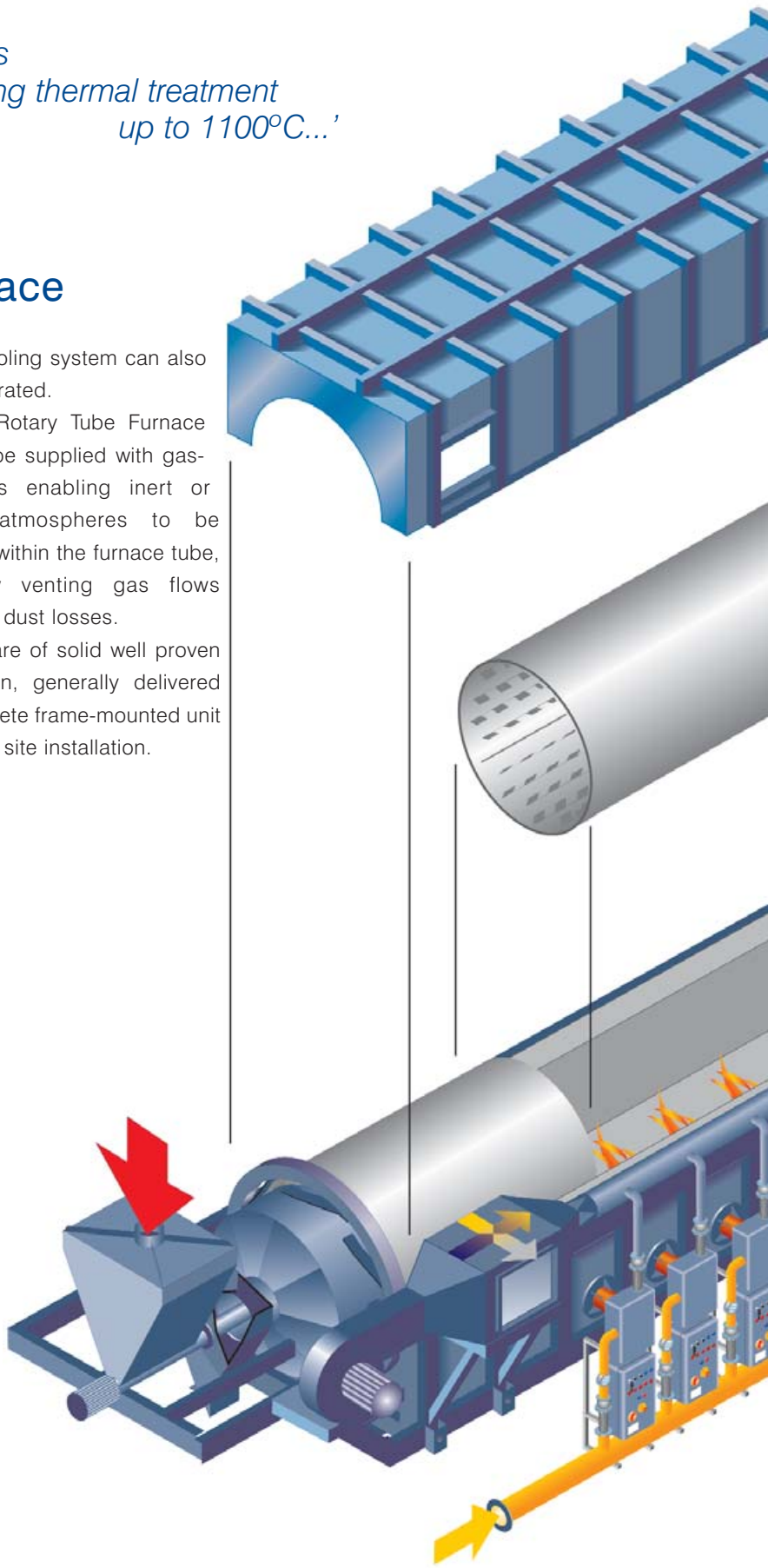
Rotary Tube Furnace

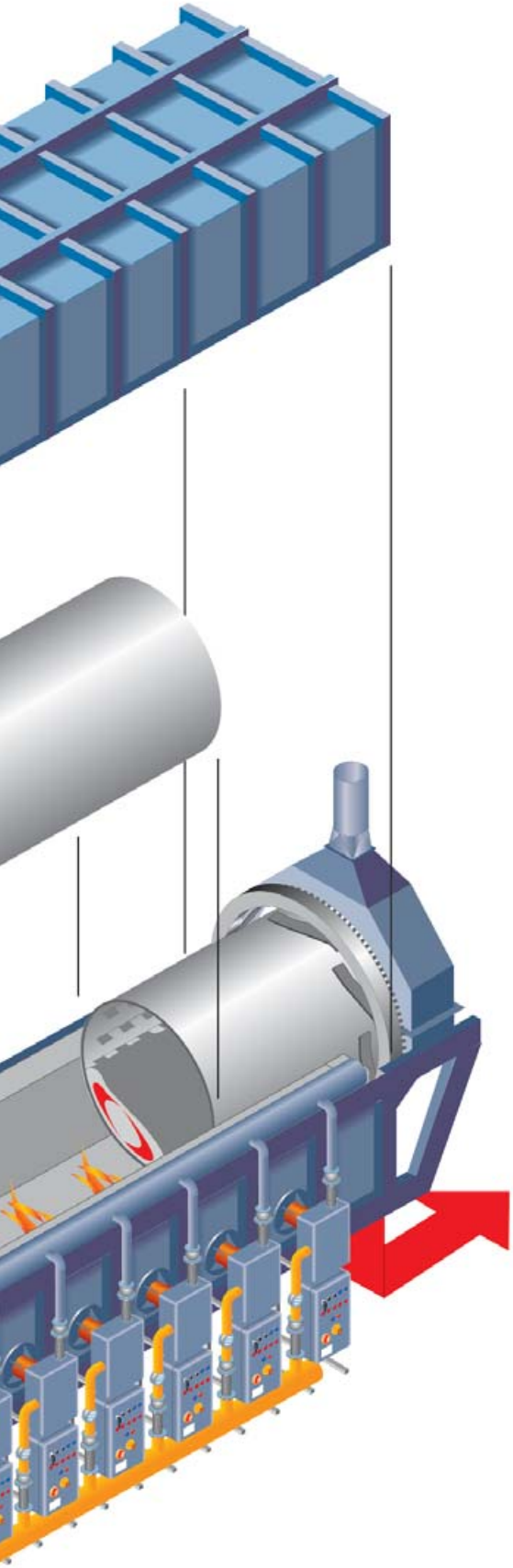
Rotary Tube Furnaces are ideally suited for a variety of continuous thermal processes requiring indirect heating and have fully automated computer controlled operation making a highly cost effective unit, requiring minimum supervision. Applications cover drying, calcination, oxidation, reduction, pyrolysis and regeneration principally for powders and granules requiring thermal treatment up to 1100°C.

Varying temperature zones can be created along the furnace length with automatic temperature control of the gas, oil or electric heating system. An integral cooling system can also be incorporated.

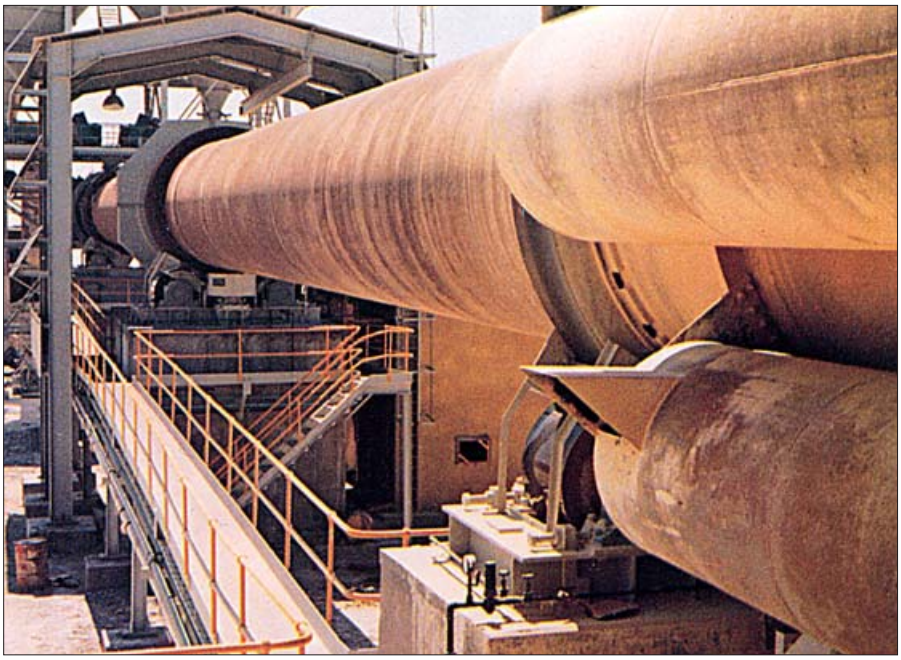
The JND Rotary Tube Furnace may also be supplied with gas-tight seals enabling inert or reacting atmospheres to be employed within the furnace tube, using low venting gas flows minimising dust losses.

Furnaces are of solid well proven construction, generally delivered as a complete frame-mounted unit for ease of site installation.

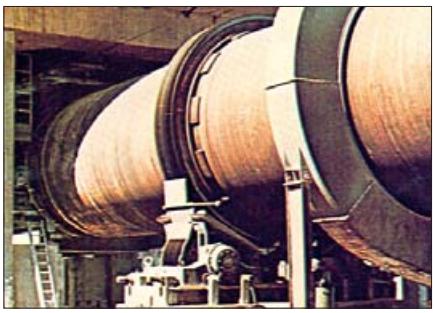




Direct Fired Rotary Kilns



Used extensively in the cement, minerals, metals and chemical industries. Direct Fired Kilns are particularly suitable for calcination, sintering, oxidation, reduction and incineration.
The Direct Fired Kiln burners can operate on a range of fuels such as gas, oil, coal or biomass. The installation of a refractory lining in the shell allows operation at temperatures of up to 1900°C.



'...allows operation at temperatures of up to 1900°C...'

Thermal technology...

'...flexible design enables a range of drying and roasting menus to be run...'

Cocoa Roasters & Conditioners

Cocoa has long been one of the most versatile and useful ingredients in food products. Indeed, JND's involvement with the 'bean' dates back to 1930. Today, the company's expertise enables producers to alkalise, condition, dry, roast and cool up to 8 tonnes of cocoa nibs per hour in one continuous process line, even with moisture in excess of 30%.

The JND system incorporates the Rotary Conditioning Drum allowing sterilising, alkalising, oxidising and conditioning in one continuous processor and the Rotary Louvre Dryer/Roaster with multi-zone operation for varying process conditions. This unique flexible design enables a range of drying and roasting menus to be run.

Indirect drying and roasting of the Cocoa nibs is also possible in an Indirect Rotary Roaster which is a machine derived from the Rotary Tube Furnace described earlier. This has the advantage of reduced exhaust gas flows minimising clean up and deodorising.

JND
TECHNOLOGIES

Intal Swarf Dryer

Many people regard swarf as merely the waste product from machining operations.The industry regards it as a valuable commodity that ensures the most efficient use of metal by re-cycling.

Before swarf can be re-melted and re-used, it must first be pre-treated to remove all contamination - typically oil and water - ensuring a clean, unoxidised material. The Intal Swarf Dryer, in operation in over 100 installations worldwide, is acknow-ledged as the most effective treatment process for swarf and the system's unique design is accepted by the most stringent European environmental standards.

- Clean, dry, cool swarf
- Reduced melt loss – higher furnace output
- Reduced furnace flux use
- Safe, automatically controlled plant
- Oil in swarf used to reduce fuel consumption
- Environmentally friendly

'...acknowledged as the most effective treatment process for swarf...'

Thermal technology...

'... turn your organic waste into usable energy and reduce your landfill costs...'

Energy from Waste

A process to turn your organic waste into usable energy and reduce your landfill costs

The JND Energy from Waste plant uses a process known as Pyrolysis, which produces a gas formed by thermal decomposition of organic materials in the absence of oxygen. An inert char residue remains.

An airtight version of the Standard JND Rotary Tube Furnace is used for this process.

As Dioxins cannot be generated without the presence of oxygen this is an environmentally friendly process

- Volume of waste is typically reduced by around 95%
- Self sufficient in energy consumption
- Fully automatic requiring little supervision
- Any heavy metals in the feed are retained in the char
- The gas generated can be used to drive a turbine, spark engine or to produce process steam
- Equipment frame mounted for ease of installation

- The rotating tube is heated to it's operating temperature by a series of burners located below the rotating tube and inside the furnace casing. The burners are grouped into zones each having independent control in order to control the temperature profile along the reactor's length.

'...purpose designed to meet clients' individual requirements, which often means testing...'

Test Centre – Technikum

JND continue to remain at the forefront of processing technology by maintaining a vigorous research, development and test programme. JND has built up a vast experience and knowledge in the way many materials react to thermal processing. JND designs are unique and customised to meet clients' individual requirements, which often means testing the characteristics of the specific materials to be processed. This is carried out at the Langley group's Technikum in Hamburg, Germany, regarded as one of the most comprehensive facilities of its kind. Trial and testing facilities ensure that every new application is fully evaluated before proceeding to a full-scale dryer or kiln. Application problems, engineering data, risk analysis and quality controls are all part of the programme undertaken.

The Technikum, Hamburg, Germany.

Service – for life

All JND thermal processing products are designed and manufactured to the highest standards. However, the company is also committed to supporting its equipment throughout its operational life through similarly high levels of client service.

JND undertake a wide range of on-site mechanical, electrical and fabrication activities which include:

- Plant Erection and Installation
- Commissioning
- Repair & Refurbishment
- Relocation
- Plant Upgrade
- Process Audit
- Comprehensive range of spare parts

World Class Quality

Central to Langley Companies are extensive in-house manufacturing facilities in the UK and Europe. Our capability is one of the most comprehensive of it's kind, from design and project management, to manufacture, installation and through-life support.

JND equipment is manufactured to BS EN ISO 9001: 2000 and other recognised international standards.

Some of the materials processed

ABS Polymer
Abrasives
Activated Carbon
Alfalfa
Alginate
Aluminium Slag
Aluminium Swarf
Amino Thiazole
Ammonium Chloride
Ammonium Nitrate
Ammonium Sulphate
Ammonium Vanadate
Aspirin
BHS Polymer
Bagasse
Bark
Bentonite
Biscuit Rusk
Bisto
Blast Furnace Slag
Blast Furnace Sludge
Bone Char
Borax Acid
Brass Swarf
Brazil Nuts
Breadcrumbs
Calcium Alginate
Calcium Nitrate
Carbon Black
Catalyst
Cellulose
Cellulose Acetate
Cement Clinker
Cereals
Chalk
Chocolate Crumbs
Citrus Fruit Waste
Clay
Coal
Cocoa Nibs
Coconuts
Coke
Cooked Maize
Copper Concentrate
Copper Powder
Copper/Chrome Oxide
Cotton
Cous Cous
Cryolite
Degreased Bones
Diatomaceous Earth
Extruded Catalyst
Ferro-Silica
Fertilizer
Flour
Fullers Earth
Fluorspar
Gari
Granular Resin
Gypsum
Herbs
Hydrogen Fluoride
Ilmenite
Iron Oxide
JPS & Acetate 33,
Kaolin
Kieselguhr
Lead Concentrates
Lemonade Crystals,
Limestone,
Liver Residue
Magnesia
Maize
Metal Grindings
Mica Flake
Milk Powder
Milk Sugar
Moulding Sand
Municipal Solid Waste
Nepheline Syenite
Nickel Carbonate
Nickel/Copper Sludge
Nuts
Organic Compound
Organic Dyestuff
Oxide Catalyst
Oxo
Pea Pods
Peanut Kernels
Peat
Petroleum Coke
Polystyrene Beads
Potash
Potassium Nitrate
Potato Starch
Pumice
Pyrites
Riboflavin
Rubber Crumb
Sago Flour
Salt
Sand
Sawdust
Sawmill Refuse
Seaweed
Semolina
Sesame Seed
Silver Powder
Soap Flakes
Sodium Bicarbonate
Sphagnum Moss
Sugar
Terephthalic Acid
Terylene
Terylene Chip
Titanium Dioxide
TNT
Tobacco
Urea Formaldehyde
Vanadium Trioxide
Vegetable Refuse
Wood Chips
Zeolite

CALCINING
CONVEYING
COOLING
CRUSHING
DRYING
FEEDING
GASIFICATION
GRINDING
SCREENING
RECYCLING

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