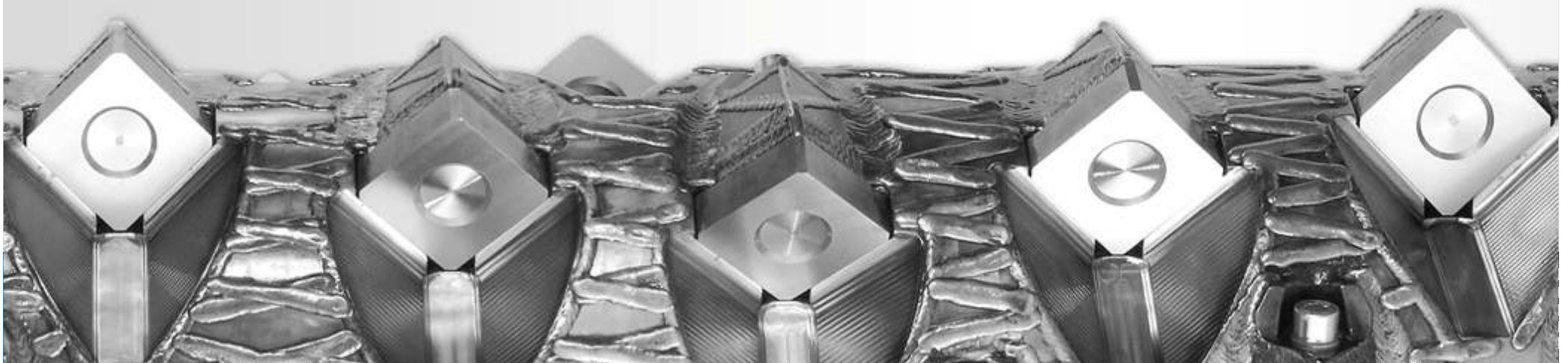




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The ART of innovative SHREDDING!



The company

Founding year	1948
Legal form	GmbH (family-owned)
CEO	DI Manuel Lindner
Headquarters & factory	Spittal/Drau (Austria)
Second factory	Feistritz/Drau (Austria)
Associated companies	Lindner reSource (Germany) Lindner E-Tech (Austria) Lindner America (USA) Lindner Mobile Shredder (Germany) Lindner Wood Shredders (Austria)
Employees	approx. 200
Range of products	shredding technology, RDF processing systems, separation- and conveyor technology for Lindner RDF-compact plants
Turnover	approx. 40 Mio. €
Capacity / year	approx. 90 - 100 pcs. of heavy duty machines approx. 80 - 90 pcs. of other types of smaller series



Headquarters & production center



WASTE TO ENERGY

- Waste management companies
- Cement industry
- Power plants

RECYCLING

- Plastics industry
- Paper industry
- Other

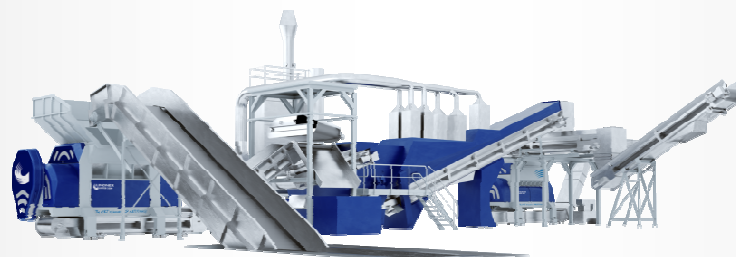


What type of waste?



What type of fuel?

INPUT



OUTPUT

RDF specification:

- High caloric
- Mid caloric
- Low caloric

Plant Equipment?

Required quality:

- Cement plants
- Power plants
- Co-incineration plants



Types of waste suitable for RDF-production

- **Industrial Waste - IW**

- Generated by factories from industrial production
- Clearly defined waste, separated from other materials

- **Commercial Waste - CW**

- Waste from premises for the purposes of a trade or business
- Waste from commercial operations

- **Commercial and Industrial waste – C&I**

- **Municipal Solid Waste – MSW**

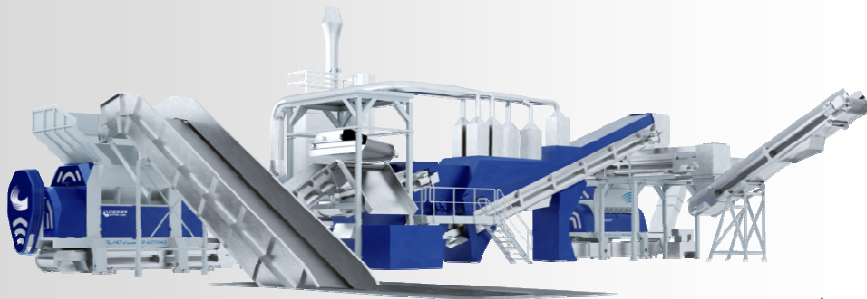
- Consisting of daily items that are discarded by the public such as households, institutions and light industries
- Composition varies from country to country
- Mainly called trash, garbage or black bins



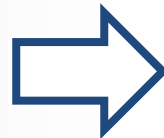
From waste to engineered Energy



Sourcing & Identification



Processing



**Power
Plant**

8-12 MJ/kg



< 150mm



Calciner

14-18 MJ/kg



< 80mm



**Cement
kiln**

20-24 MJ/kg



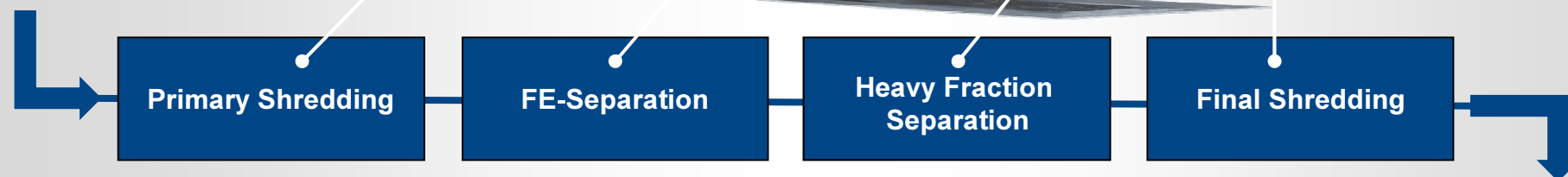
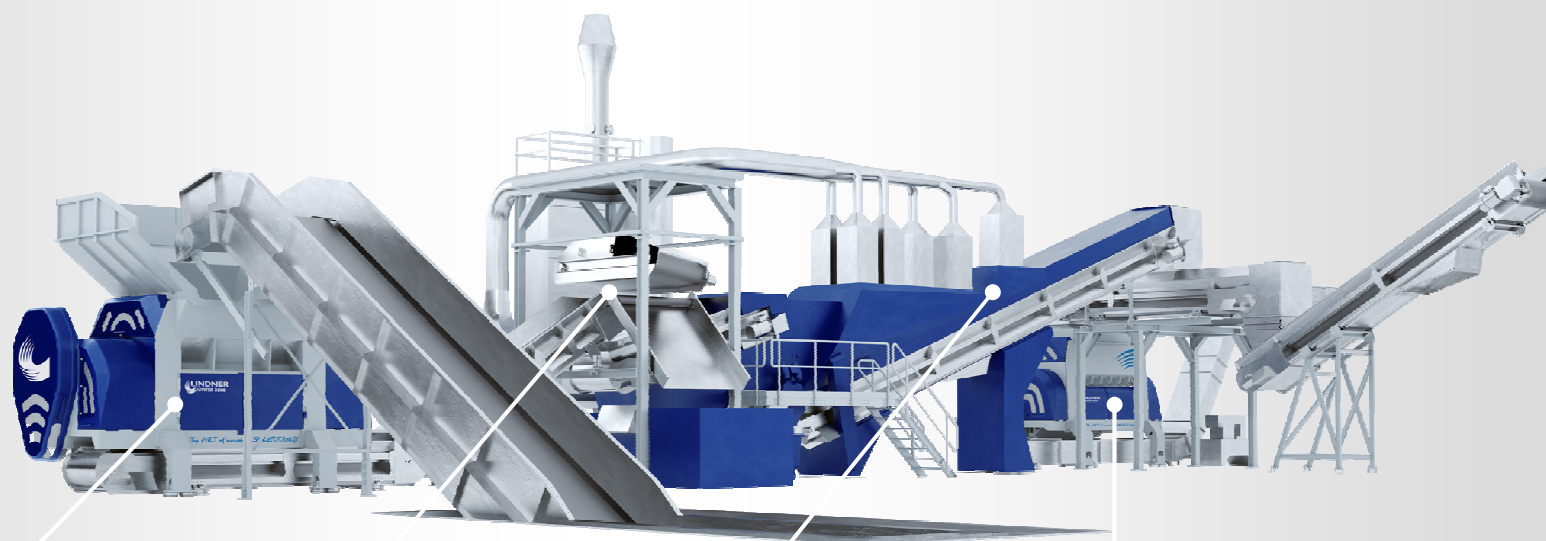
3D < 15mm
2D < 30mm



Compact two-stage shredding system

INPUT

C&I waste



Primary shredding
of untreated waste
JUPITER



FE separation
by overbelt magnet



Heavy fraction
air separator



Final shredding
of pre-shredded
material
Power Komet

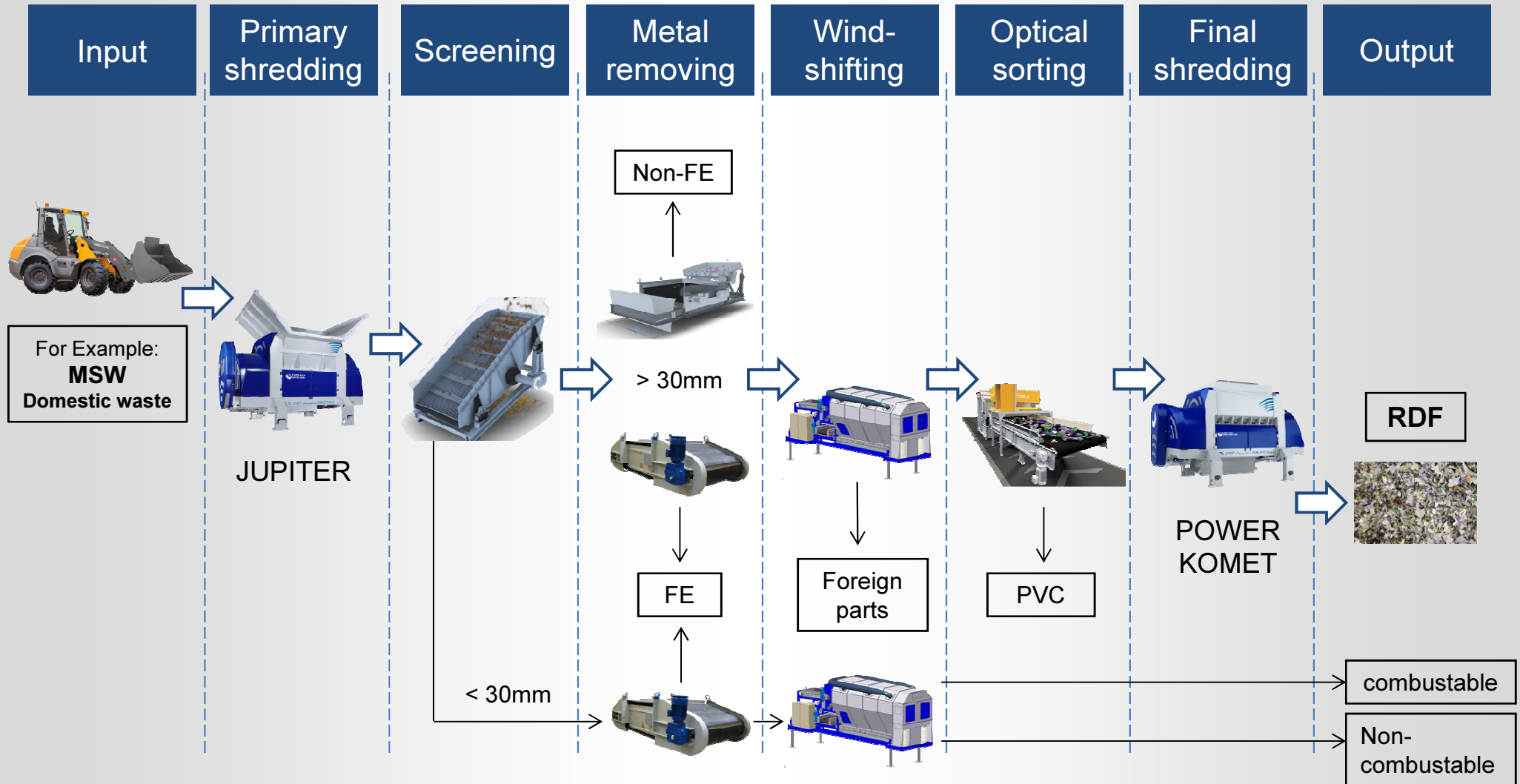


RDF 15-40 mm

OUTPUT



Complex two-stage shredding system



INPUT ➡



- Textiles & carpets
- Pressed paper
- Leather
- Plastics

Density approx. 0,2 t/m³



Plant Equipment

- JUPITER 3200
- Belt conveyors
- Ferrous separator

Single step system

➡ OUTPUT



- RDF < 80mm
- Capacity: 11 t/h
- Calciner fuel

watch movie



INPUT ➡



- Car interior trims
- Carpets (automotive)
- Compound papers
- Mixed plastics
- Textiles



Plant Equipment

- Pre Shredder:
JUPITER 2200
- Chain conveyors
- Final Shredder:
KOMET 1750

➡ OUTPUT



- RDF < 30mm
- Capacity: 6,5 t/h
- Annual Cap.: 50.000 t
- Delivered to the
Cement Industry



INPUT ➡



- Mixed plastics
- Yellow bag
- Sorted commercial waste



Plant Equipment

- 2x JUPITER 2200
- Ferrous separator
- Heavy fraction separator HFS 1200
- Conveying systems
- Drag chain conveyors
- 2x POWER KOMET 2200

➡ OUTPUT



- RDF < 30mm
- Capacity: 15 t/h (1 Jupiter)
- Main burner fuel

watch movie



INPUT ➡



- Mixed plastics
- Sprayers
- Textiles
- Contaminated with oil, petrol, solvent



Plant Equipment

- JUPITER 1800
- Ferrous separator
- Heavy fraction separator HFS 1200
- Conveying systems
- KOMET 2200
- Drag chain conveyor

➡ OUTPUT



- RDF < 30mm
- Capacity: 10 t/h
- Main burner fuel



INPUT ➡



- Mixed paper
- Plastic films
- Separated production waste
- Plastic from domestic waste



Plant Equipment

- JUPITER 2500
- Air separator (2D / 3D)
- Ferrous separator
- Non-ferrous separator
- Heavy fraction separator
- Conveying systems
- KOMET 1x1800 / 2x1100 (2D)
- 2x POWER KOMET 2200 (3D)
- Walking-floor systems

➡ OUTPUT



- RDF < 30mm – 2D
- RDF < 15mm – 3D
- Capacity: 20 t/h
- Annual Cap.: 100.000 t
- Main burner fuel for LAFARGE



INPUT ➡



- Unrecyclable residues
- Packing material
- Mixed plastics
- Paper



Plant Equipment

- JUPITER 1800
- Ferrous separator
- Non-ferrous separator
- Heavy fraction separator
- Conveying systems
- KOMET 2800

➡ OUTPUT



- RDF < 30mm
- Capacity: 12 t/h
- Annual Cap.: 50.000 t
- Main burner fuel

watch movie



INPUT ➡



- 50% MSW
- 50% Industrial waste mainly textiles



Plant Equipment

- JUPITER 2200
- Ferrous separator
- Heavy fraction separator HFS 1200
- Conveying systems
- POWER KOMET 2200

➡ OUTPUT



- RDF < 35mm
- Capacity: 6-8 t/h
- Main burner fuel

watch movie



INPUT ➡



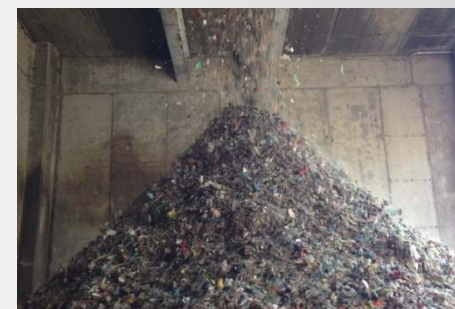
- Undifferentiated municipal waste
moisture < 25%
- Medical waste
- Paper
- Textiles



Plant Equipment

- JUPITER 2200
- Ferrous separator
- Drum separator SDS1200
- Non-ferrous separator
- Conveying systems
- POWER KOMET 2800

➡ OUTPUT



- RDF < 30mm
- Capacity: 10 t/h
- Main burner fuel

watch movie



INPUT ➡



- Mixed household and commercial waste
moisture < 40%



Plant Equipment

- JUPITER 3200
- Ferrous separator
- Heavy fraction separator
- Conveying systems
- 2 x POWER KOMET 2800

➡ OUTPUT



- RDF < 40mm
- Capacity: 20 t/h
- Main burner fuel



Primary Shredder JUPITER

- **Single-shaft** shredder with driving power up to 320 kW
- **Low rotor speed** of 58 rpm
driven by frequency controlled **electric motor**
- **Counter shaft drive system** - highly efficient
- **Hydraulic pusher** - feeds material to cutting rotor
- **Variable rotor speeds** for different requirements
- **Safety clutch** to prevent damage from foreign objects
- **Patented hydraulic maintenance flap**
to remove foreign objects easily
- **Throughput capacity** up to 50 t/h



Types: 1800 / 2200 / 3200

watch movie



Removing of metal parts



Ferrous Separation:
Over belt magnet
[cross section or inline]

Increasing quality of RDF



Non-Ferrous Separation:
Eddy current separator



Screening

Screening systems [examples]

- Reduction of operating costs
- Specify down stream
- Increasing quality of RDF



Heavy Parts Separation - Windshifting

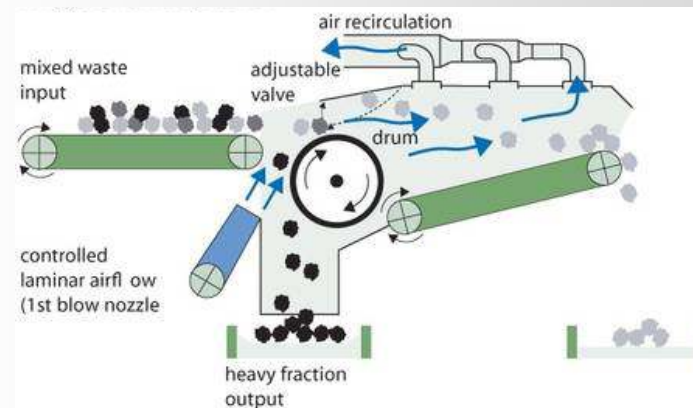
Separation of massive foreign parts

- Reduce downtimes & wear costs
- Increase availability & RDF quality

watch movie



Heavy Fraction Separator
LINDNER HFS 1200



Single Drum Separator
NIHOT SDS



Belt Conveyors - Main Features

- Straight and bent belt conveyors
- Solid, torsion-resistant sheet metal construction
- Lindner intelligent modular design – flexibly adaptable
- continuously adjustable up to 32°



Final Shredder KOMET / POWER KOMET

- **Single-shaft** shredder with driving power up to 320 kW
- **High rotor speed** of 264 and 355 rpm driven by frequency controlled **electric motors**
- **Counter shaft drive system** - Highly efficient [PK]
- **Hydraulic pusher** - feeds material to cutting rotor
- **Variable rotor speeds** for different requirements
- **Safety clutch** to prevent damage from foreign objects
- **Patented hydraulic maintenance flap** to remove foreign objects easily
- **Throughput capacity** up to 18 t/h < 30mm



Types: 1100 / 1800 / 2200 / 2800

watch movie



Abstract of References



- **Pre-treatment** and in particular shredding of waste materials is not only a technical issue: it is also **experience**.
LINDNER-Recyclingtech has been working since more than ten years in the field of RDF treatment.
- LINDNER special RDF equipment has been installed at numerous customers worldwide:
 - **More than 80 RDF compact plants were sold over the past 12 years**
 - **More than 500 shredders are operating within waste treatment plants producing RDF**
- The continuous cooperation with customers - either cement industry directly or RDF-suppliers to this industry - helps us in the development of our technology and so to fulfil our customers' requirements.



24-25 FEBRUARY 2014

Hilton Vienna Danube, Vienna, Austria



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*Legislation
Permits and permitting
Safety and health
Practical considerations
Combustion efficiency
Cost benefits
Community relations
Field trip TBC*

Who should attend?

Cement and lime producers
wishing to reduce their
fuel and energy bills

Legislators and regulators

Alternative fuels equipment
manufacturers

Fuels traders & shippers

Those with an interest in fuel
project financing

Energy and fuel analysts

Academics & researchers

Organized by:
**global
cement**
MAGAZINE

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On the occasion of
8th global cemfuels
 CONFERENCE & EXHIBITION 2014
 This is to certify that
RDF Compact Plant(Lindner)
 has been named
Global CemFuels
 most innovative technology
 for alternative fuel use
 this day, 24 February 2014

Dr Robert McCaffrey
 Dr Robert McCaffrey
 Editorial director

Paul Brown
 Paul Brown
 Commercial director



Any Questions?

Thank you for your attention!

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