

# Fueling the Future

**Decarbonizing industrial heat  
with Iron Fuel Technology.**





# RIFT's Iron Fuel Boiler

## Fact sheet

### Feedstock usage & emissions

95%

#### Energy efficiency

The Iron Fuel Boiler system ensures optimal utilization of energy, and boasts an energy efficiency of up to 95%.

0.52  
t/MWh<sub>th</sub>

#### Iron fuel usage

A boiler consumes 0.52 tonnes of iron fuel per MWh of thermic energy.

43

kWh/  
MWh<sub>th</sub>

#### Electricity usage

To run the boiler system 43 kWh is needed to produce a MWh of thermic energy.

10

KgCO<sub>2</sub>/  
MWh<sub>th</sub>

#### CO<sub>2</sub> emissions

Iron fuel combustion is carbon free. The pilot safety flame results in 10 kgCO<sub>2</sub>/MWh<sub>th</sub>.

<5

Mg/MJ

#### NO<sub>x</sub> emissions

Iron fuel has the lowest NO<sub>x</sub> emissions of any fuel.



RIFT's Megawatt-sized industrial Iron Fuel Boiler Demo in Helmond, the Netherlands (TRL7).

### Costs

0.5

ME/MWh<sub>th</sub>

#### System investment

The system investment is €0.5 million per MW<sub>th</sub>.

140

€/t

#### Iron fuel price

RIFT's iron fuel production delivers iron fuel for a price of 140 €/t .

2.5

%/Inv

#### O&M

The O&M costs are 2.5% of investment.



# RIFT's Iron Fuel Production

## Fact sheet

### Feedstock usage & emissions

86%

#### Energy efficiency

The Iron Fuel Production system has a hydrogen to iron fuel energy efficiency of 86%.

46.1  
kgH<sub>2</sub>/t

#### Hydrogen usage

The Iron Fuel production system consumes just 46.1 kg of hydrogen to produce a ton of iron fuel.

282  
kWh/t

#### Electricity usage

To run the production system just 282 kWh of electricity is used to produce a ton of iron fuel.

0  
KgCO<sub>2</sub>/t

#### CO<sub>2</sub> emissions

No carbon emissions are emitted during iron fuel production.

0  
Mg/t

#### NO<sub>x</sub> emissions

No nitrogen oxide emissions are emitted during production of the iron fuel.

0.55  
tCO<sub>2</sub>eq/t

#### CO<sub>2</sub> reduction in chain

Based on low-carbon H<sub>2</sub> cf. EU definitions and the EU Innovation Fund GHG methodology, incl. transport

### Costs

2.7  
M€/t\*h

#### System investment

The system costs 60M€ for 186kt/y (22.33 t/h) of iron fuel which is approximately 2.7M€/t\*h.

140  
€/t

#### Iron fuel price

RIFT's iron fuel production delivers iron fuel for a price of 140 €/t .

3  
%/Invest

#### O&M

The O&M costs are 3% of investment.



RIFT's Industrial Demo of Iron Fuel Production in Arnhem, the Netherlands (TRL7).