TYRES RECOVERY PLANT

CURTI

End of Life Tyres (ELTs) recovery is a worldwide problem as 12 million tons are produced every year. As disposal in landfills is being banned across the world ELTs end up mostly as fuel in cement kilns as CO_2 emission is not yet fairly priced.

At present ELTs disposal is still mainly occurring through traditional shredding and combustion but environmental concerns encourage finding alternative solutions.

Over the years several attempts at tyre pyrolysis have emerged and disappeared from time to time. The time might have come for a viable commercial plant learning from past mistakes.

Curti has patented an innovative solution for processing whole ELTs into secondary raw materials and energy.

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The European Union commitment towards a circular economy requires solutions to transform what was once waste into new intermediary and secondary raw materials from End of Life Tyres (ELTs).

Curti's patented pyrolysis technology can recover more than 70% in weight of the ELTs to yield:

- steelworks-grade steel
- pyro-oil for chemistry and energy
- pyro-char for rubber compounding and other added value applications
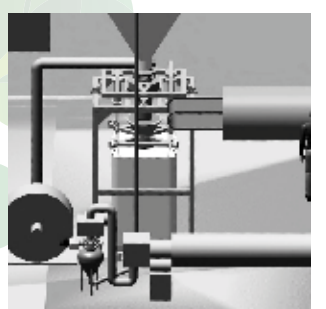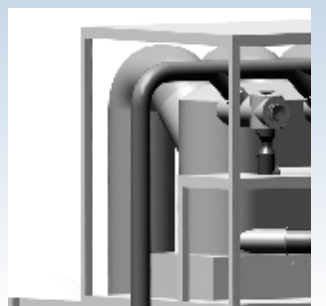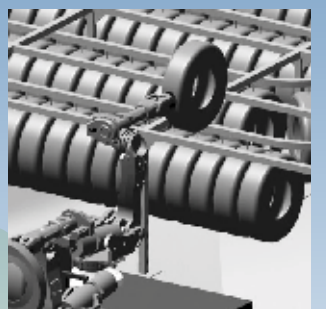
-**18,000**
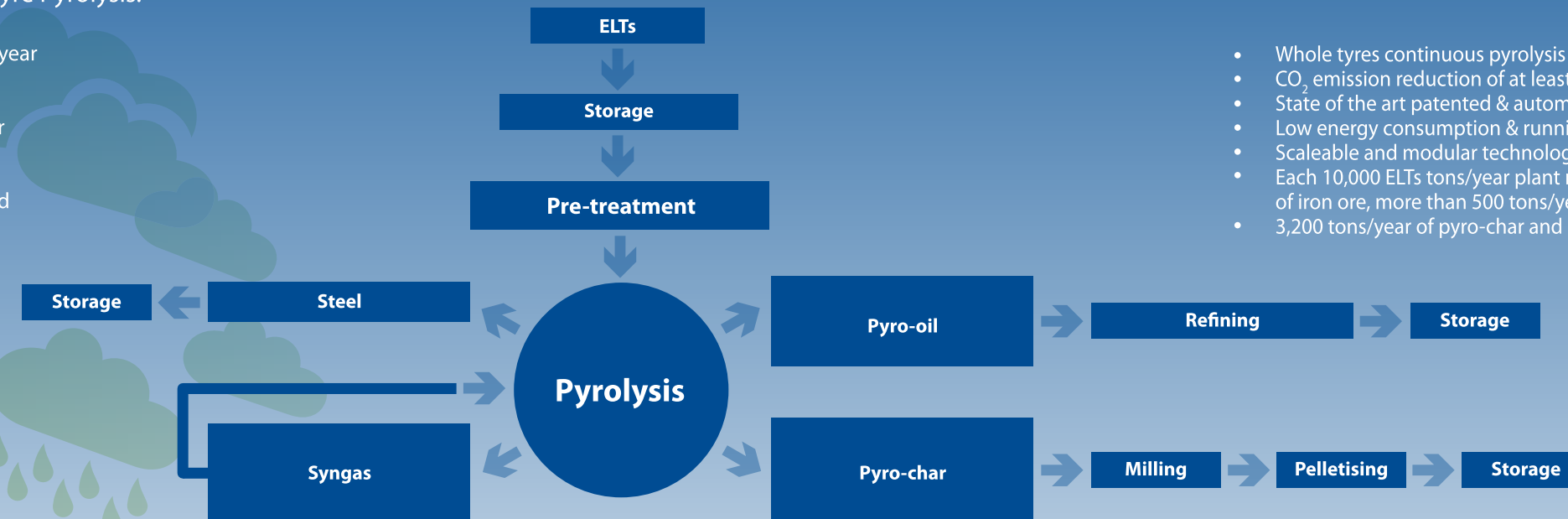CO_2 tons/year

-**1,800** tons iron ore/year

-**500**
tons coal/year

10,000 tons/year ELTs

TRP 1500

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Best-on-market solution for **whole** Tyre Pyrolysis.

- Plant capacity: 10.000 tons whole ELTs/year
  (10-22.5" size range)
- Production of pyro-char in powder or
  pellet form in big bags (1 m^3) for rubber
  compounding and other added value
  applications.
- Production of pyro-oil for chemistry and
  energy
- Steelwork-grade steel recovered
- Energy self-sufficiency

- Whole tyres continuous pyrolysis plant.
- CO_2 emission reduction of at least 18,000 tons/year.
- State of the art patented & automated solution.
- Low energy consumption & running costs.
- Scaleable and modular technology that can be adapted to local conditions.
- Each 10,000 ELTs tons/year plant recovers 1,300 tons/year of steel saving 1,800 tons/year
  of iron ore, more than 500 tons/year of coal and more than 70 tons/year of limestone.
- 3,200 tons/year of pyro-char and 2,700 tons/year of pyro-oil produced.

ELTs → Storage → Pre-treatment → Pyrolysis

Pyrolysis → Steel → Storage

Pyrolysis → Pyro-oil → Refining → Storage

Pyrolysis → Syngas

Pyrolysis → Pyro-char → Milling → Pelletising → Storage

Gasometer
Pyro-oil Storage
Pyro-char Storage
Pyrolysis Reactors
Steel Storage
Condensation
and Burner

Storage
Feeding System
Treatment
Power Generation

The technology

ELTs recovery through pyrolysis involves thermal
degradation in an inert atmosphere of the polymer
component (natural and synthetic rubber, fibres) leaving
practically unchanged the metal and carbon black fraction.

Two streams of products exit the reactor, a solid residue and a synthesis
gas (syngas) with a condensable fraction. The solid residue is made of steel
wires and pyro-char. The gaseous fraction is partly condensable into pyro-oil
and the rest is syngas. The syngas is burnt to power the process while the steel,
pyro-oil and pyro-char are destined to the market.

>70%
RECOVERED FRACTION

13 % **STEEL**
32 % **PYRO-CHAR**
27 % **PYRO-OIL**

<30%
**IN WEIGHT TO POWER
THE PROCESS**

100%
TO GOOD USE

A 60 year company history with an increasing focus on environmental sustainability.

Curti has built and operates an industrial pilot plant and has designed a continuous version for ELTs and CFRP recovery.

energy recovery

SUSTAINABLE

flue treatment

raw materials

low emissions

CURTI