



ECOLOMONDO

**VALUE YOUR
WORLD**

Technology Overview



GLOBAL CHALLENGE: SUSTAINABILITY

Disposal of scrap tires in an environmentally sustainable fashion is still today a daunting challenge.

Demand for resources is at an all-time high. Global economy currently uses resources at a rate 50% faster than they can be regenerated by nature.¹

New tire production expected to reach **2.7B by end of 2022.**² Worldwide demand of 13,000 kilotons of Carbon Black.³

The global economy must make the transition from single use resources to a circular economy or eventually face the consequences associated with supply shortages of resources.



Spiralling consumption along with reduced capacity mostly due to current global geo-political climate are pushing demand and pricing for resources and rCB to all-time highs.

Sources

¹Global Demand for Resources

²The Future of Global Tires to 2024

³Carbon Black Market – Growth, Trends, Covid-19 Impact, and Forecast (2022-2027)

ECOLOMONDO'S TDP TECHNOLOGY



Ecolomondo is a clean tech company, that developed its proprietary Thermal Decomposition technology platform ("TDP") that processes End-of-life tires into high demand commodities:

- Recovered Carbon Black (rCB)
- Oil
- Steel
- Syngas
- Fiber

- ✓ **Over 25 years of experience**
- ✓ **TDP unlocks added value from ELTs**
- ✓ **Produces a high-quality recovered carbon black**
- ✓ **Developed many proprietary advancements**
- ✓ **Energy efficient process**
- ✓ **TDP is totally automated**

TDP's Competitive Edge

Ecolomondo has decades of R&D and optimized the TDP process

At Ecolomondo, we spared no cost and cut no corners to develop a commercially viable technology.

Over the years, our Technical Teams were able to overcome all uncertainties that still plague many competitors especially in these areas:

- ✓ Pre-Filtration
- ✓ Heat Curve Development
- ✓ Reactor Cooling
- ✓ Humidity and Water Removal
- ✓ Reactor Rotation
- ✓ Safety and Efficiency *
- ✓ Reactor Evacuation
- ✓ Systems control
- ✓ Water Recycling
- ✓ Emissions Control and monitoring
- ✓ Air and noise pollution
- ✓ rCB and pyrolysis oil post processing
- ✓ Mass Monitoring
- ✓ Efficient Syngas reuse

*** All of Ecolomondo's TDP turnkey plants are fully certified for lethal operations. It monitors H₂S in real time and the process has been designed to ensure safety.**



A Global Technology

“ It is important to mention that Ecolomondo owns one of the rare pyrolysis technologies in the world which has demonstrated it can operate successfully at an industrial scale.

Jean-Remi Lanteigne, Ph.D., Polytechnique Montreal

TDP - SAFE AND GREEN

SAFETY FEATURES

- + Safety valves
- + Pressure safety discs
- + Low positive pressure
- + Automated process
- + Redundant safety measures
- + Real time monitoring of all process parameters
- + Ground flare for emergency evacuation
- + Continuous H₂S monitoring

DEVELOPED TO BE GREEN

- + Emissions monitoring and control – a capture rate of 99.97% of hydrogen sulfide (H₂S)
- + Very little residue (<1%)
- + Closed loop water recycling / very little water consumption
- + Controlled noise levels
- + Efficient process parameters
- + Reduces carbon footprint by as much as 90%

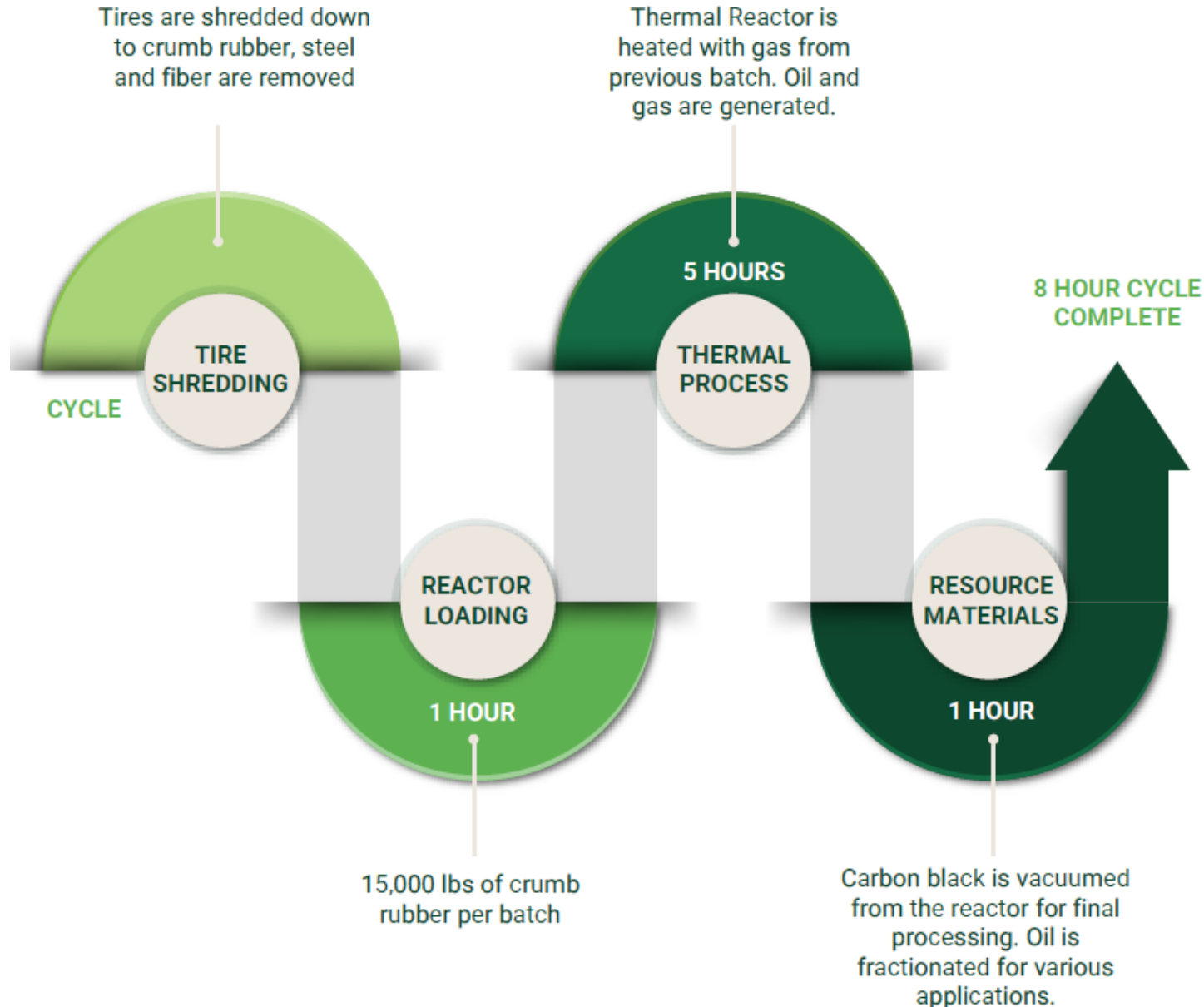


“ The solution developed by the Ecolomondo’s team of scientists and engineers is a green one. Nothing goes to waste! The technology is robust, safe and the products are of high quality.

Dr. Franco Berruti, Ph.D., P.Eng
Director, Institute for Chemicals and Fuels from Alternative Resources at Western University

TDP PROCESS CYCLE

Gas generated by the process is used as the energy source for the reactors

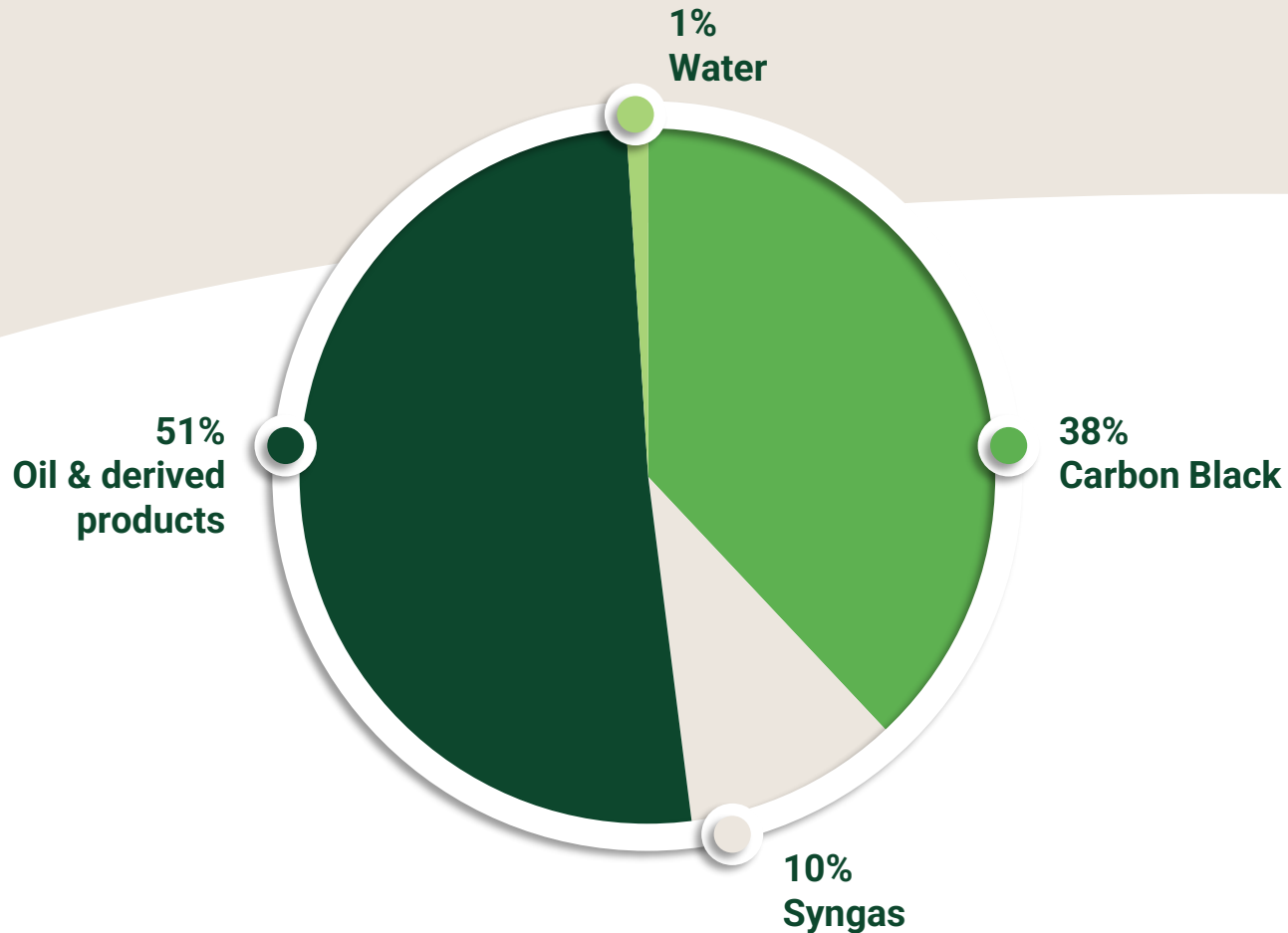


Pyrolysis Industry

The pyrolytic platform, that is the base of the TDP technology, uses heat to thermally alter matter (waste) in the absence of oxygen. It allows end-of-life products (that in most cases would be disposed by landfilling or burned as an energy source) to be recycled for reuse. Expanding consumption and the need to reuse resources create many new opportunities for the pyrolysis industry and companies such as Ecolomondo.

TDP is a closed loop, pyrolysis technology that operates in an oxygen-free environment, using positive pressure, a batch rotary reactor and is mostly energy self-sufficient. TDP's proprietary automation system allows it to have better control of the process parameters assuring consistency of its production yields. The results are recycled resources that have higher commercial value and readily accepted by industry.

WASTE TO VALUABLE RESOURCES



Steel is recovered from shredding. It is not loaded in the reactor to maximize crumb rubber payload.

TDP has a 99.99% resource recovery rate.

Waste to resources technologies such as Ecolomondo's Thermal Decomposition Process (TDP) are essential to the expansion of the circular economy.

Because companies are looking to stabilize their supply chain, global demand for rCB will continue to expand for the foreseeable future.

Oil is sold to be converted into chemicals, lubricants, polymers and asphalt.

TDP RECOVERED CARBON BLACK

TDP produces a high-quality recovered carbon black, a must for profitability.

Currently, the recycling industry has little rCB production capacity.

End-product with the highest commercial value

TDP ensures the quality and consistency of rCB production

Efficient process parameters maximize its output

Reduces CO₂ by replacing virgin carbon black with recycled carbon black

Similar properties to virgin carbon black

Consistent and high-quality particles



Excellent dispersion characteristics

Free of the often-present hydrocarbon odors

Low in ash content



ECOLOMONDO'S TDP REDUCES GHG EMISSIONS BY 90%

<u>PRODUCTION OF 1 TON :</u>		<u>GENERATION OF CO₂ :</u>
VIRGIN CARBON BLACK		4,000LB
RECOVERED CARBON BLACK		400LB

EACH REACTOR SAVES THE ENVIRONMENT 11,200 TONS OF CO₂ EMISSIONS PER YEAR.

TDP is eligible to carbon credits.

Ecolomondo Is Reinventing Pyrolysis of Scrap Tires

- Pyrolysis processes have been theoretically appealing for decades, but their practical viability has been negatively impacted by recurring challenges. Ecolomondo has overcome these challenges and is today setting industry standards in safety, emissions control, efficiency and end-product quality.
- Ecolomondo's Thermal Decomposition Process (TDP) is by far one of the pyrolysis technologies that has one of the longest history, 25 years. During this time, working with industrial scaled reactors, Ecolomondo's technical teams were able to acquire extensive hands-on experience more so than its peers that allowed them to develop proprietary process parameters that today places TDP technologically ahead of many competitors.
- Ecolomondo understood that decomposing tire waste was not the only factor to consider, it understood early on that it had to be done efficiently, economically and in a fashion that is socially responsible. It understood that commercial viability came with producing quality products that were acceptable to the market.





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