"Tires to Polymers"

Zero Footprint

Zero Emissions

presented by

Universal Link Agency Ltd LLC.

(Exclusive International Sales Agent for RTI Cryogenics in multiple countries and regions globally)

rti cryogenics

THE PROBLEM

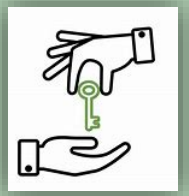
tire waste accumulation

+

plastic waste accumulation

THE SOLUTION

rti cryogenics



“TURNKEY” CRYOGENIC

A patented system that utilizes waste tires and blends the crumb with waste plastics producing a **Thermoplastic Elastomer** (TPE) - a globally in-demand product.

An international leader in the development of leading-edge cryogenic tire recycling technology.

Provides the highest gross margin per dollar invested when compared to any tire recycling system that can produce the same volume and same mix of outputs.

Has the capacity to process 500 car tires per hour or 2.5 million tires per year operating 5 days per week, or 3.5 million tires per year (if operating 7 days per week).

RTI will sell all of the XyCom™ TPE pellets produced by the plant(s) for the next 10 to 15 years via a Take or Pay Agreement backed by an irrevocable Letter or Credit (LC).

TURNKEY SYSTEM - fully installed

RTI Cryogenics owns the **Patented** Technology that *blends* recycled tires into CRYO CRUMB RUBBER with post industrial and post consumer recycled plastics to produce a Thermoplastic Elastomer (TPE) without any additives.

Highlights

- Technology Green 15™ Awards 2011 Deloitte Technology Fast 50™ Program for Canada
- Ranked third in Deloitte's 2011 Technology Fast 500 ™ for North America
- 10 to 15 year global off-take TAKE or PAY AGREEMENT backed by a LETTER OF CREDIT
- Generates cash flow & profits each year, unprecedented returns . . . average 2 ½ years ROI

Requirements

- Feedstock of end-of-life tires and recycled plastics
- Land (preferably near rail and/or port) and minimum 100,000 ft^2 building
- Financing
- Experienced management/operator

GLOBAL TRENDS affecting Tire Recycling

NATURAL RUBBER PRICES

- The price of natural rubber keeps increasing.
- Natural rubber is a key component in making tires.
- Recovering some of that rubber to be reused will be a great cost benefit.
- Recycling some of that rubber and blending it with recycled plastics provides huge environmental benefits, making a used tire increasingly more valuable.

THE THREE R's . . . REDUCE, REUSE, RECYCLE

Maximize the inherent value in recycled products

DON'T

"burn" tires

It takes 140,000 BTU's to make 1lb of tire. You can only regenerate 14,000 BTU's per pound of tire when burning them. What a waste of energy !

DON'T

"bury" tires

This creates toxic environmental hazards.

DON'T

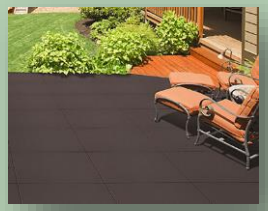
just make "crumb rubber"

Thermoplastic Elastomer is much more profitable and in global demand.

rti cryogenics

EXTRUDED PRODUCT BENEFITS

- Lumber & wood replacement products DO NOT EXPAND or CONTRACT like plastic or wood fibre composite products.
- Decking will outlast the surrounding deck structures
- Testing concludes that there is no migration of nails or screws for 25 years.
- Will NOT Splinter, Warp or Rot.
- UV, Termite and Skid Resistant



TPE APPLICATIONS

Automotive	Truck Bed Liners	Home & Garden
Electronics	Trash & Garbage Cans	Housings
Knobs	Outer Shells	Running Boards
Cowlings	Bins	Toolboxes
Lumber	Marine Decking	Casings
Posts	Pipe	Marine Products
Railroad Ties	Skid Plates	Conduit

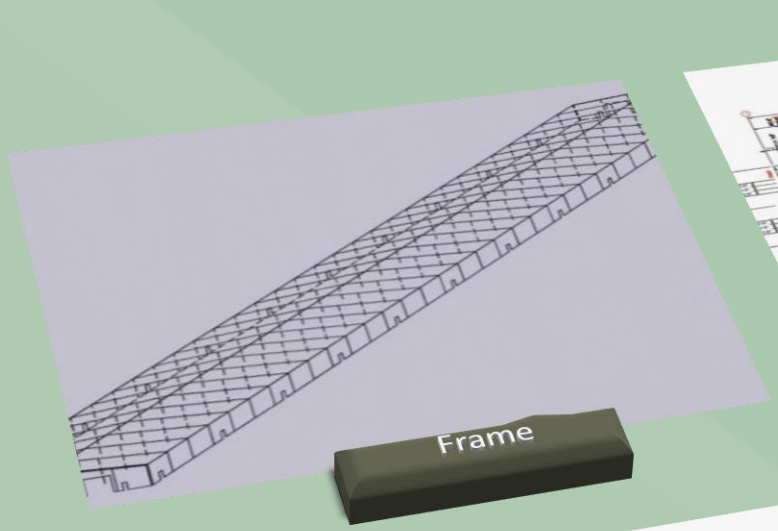
1. TPE is well established in consumer electronics applications such as mobile phones, computer mice, and controllers.

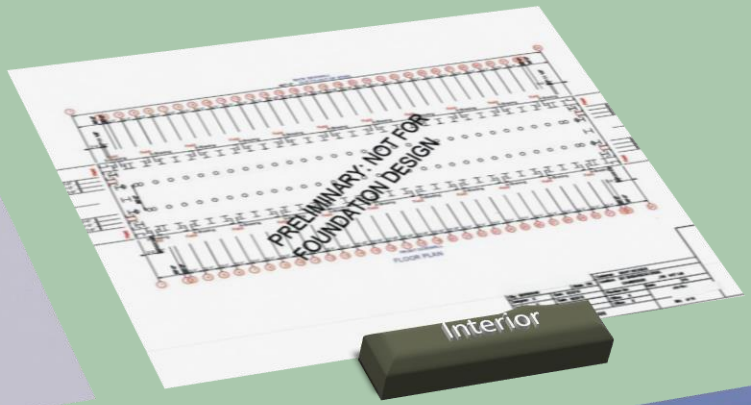
2. In automobiles, TPEs are contributing to lighter vehicle weight for better fuel efficiency & replace virgin material.

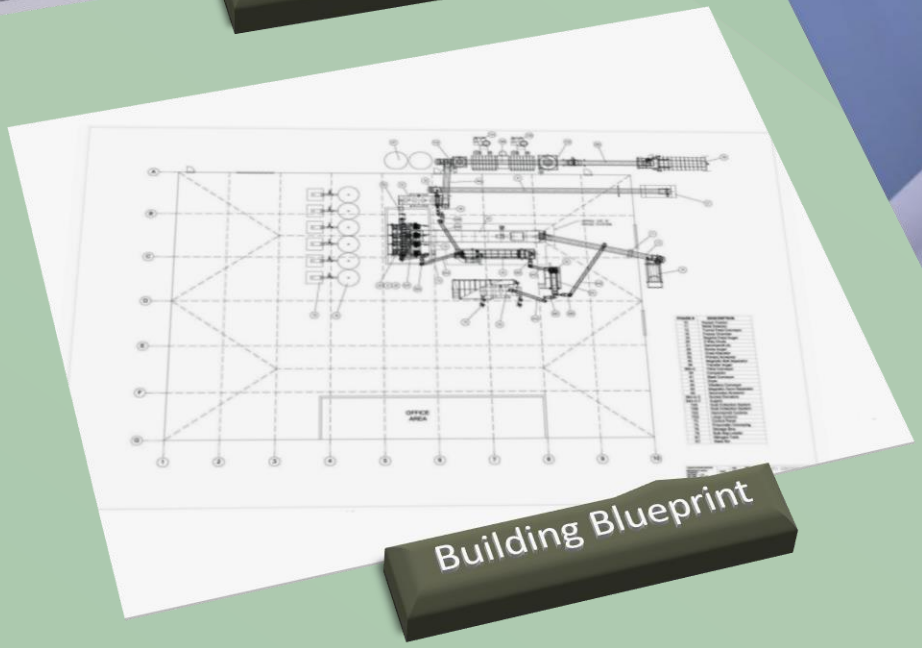
3. Thermoplastic elastomers are widely used for the soles of sports shoes.

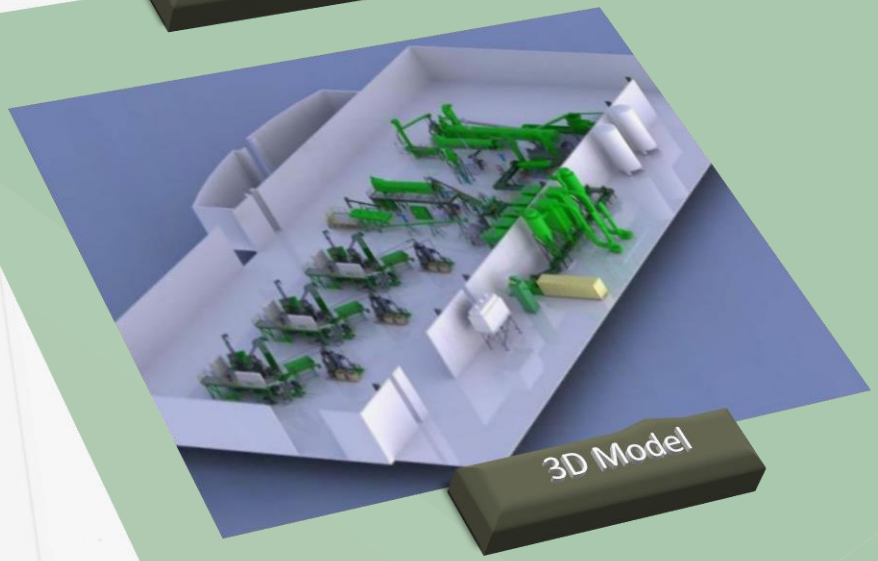
THE BUILDING*

Min. 100,000 ft^2 (10,000 m^2)









*Details available upon request

rti cryogenics

LOADING SHREDDER

SHREDDER & GRANULATOR

SHREDDER - infeed Conveyor

FINAL SCREENING

PRIMARY SYSTEM

THE HAMMER MILL ROOM

FREEZE TUNNEL

DOES NOT EMIT ANY POLLUTANTS . . . into the environment

ZERO FOOTPRINT

1. Diverts rubber from TIRE DERIVED FUEL due to the higher value stream.
2. Reduces pollution by using more recycled rubber & recycled plastic.
3. Uses 30-mesh and finer cryogenic rubber tire crumb as an input. (along with recycled post industrial plastic)
4. Can be customized to produce any size crumb from any size of tire.
5. The only outputs are crumb rubber, steel, fibre and gaseous nitrogen which escapes to the air resulting in a “Zero Environmental Footprint”.
6. Exhibits the same properties of rubber and plastic but with broader application and versatility.
7. RTI’s value-added manufacturing processes of XyCom™ TPE can create a more valuable, marketable product and increase your ROI.

THE FACTS

- Processes five hundred (500) car tires per hour.
- 10 to 15 yr. global off-take Agreement called “Take or Pay” - backed by an irrevocable Letter of Credit.
- Colour can be added at the injection molding stage to get most colours except white.
- A typical North American tire consists of approximately: 70% rubber, 22% fiber and 8% steel (by weight). All materials are considered to be “non-hazardous” by North American Standards.
- Products produced with recycled crumb rubber use less materials and often outperform the conventional or standard solutions.
- Ground rubber from whole tire recycling provides reduced production costs compared to higher cost virgin materials.
- Recommended Building Size: 100,000 sq. ft. (to accommodate the machinery, storage of raw materials and finished product).

OPERATING DATA

Capacity:	Primary System	5.0 Tons (4.5 MT) per hour of 1” car tire chips (500 Tires/Hour*) as input
	Fine Mesh System	3.0 Tons (2.7 MT) per hour of 4 through 30 mesh as input
Annual Tire Input Capacity:		35,000 tons/year (31,250 MT/Year) (Based on 20 hours/day, 7 days a week, 50 weeks/year)
Nitrogen Consumption:		Primary Freezing Chamber: 0.50 lb. (kg) Liquid N^2/lb. (kg) Tire Input Secondary Freezing Chamber: up to 1.10 lb. (kg) Liquid N^2/lb. (kg) crumb input
Electrical Consumption: (Cryo and Blending only)		4531 kW/Hour (Based on 6713 Hp (5035 kW) and approximately a 90% utilization factor)
Operating Personnel: (blending works 4 shifts/week)		1 Foreman per shift 9 Cryo personnel 13 Blending personnel.

Space Requirements (excluding shredder & granulator):

Recommended Building Size: Min. 100,000 ft^2 (10,000 m^2)

Process Machinery Floor Space: 30,000 ft^2 (3,000 m^2) 30 ft. (9.2 m) Height

*Capacity in tires/hour is based upon car tires used in North America, and North American ambient temperature ranges. Based on clean, dry chip input from passenger car tires

INJECTION MOLDING BENEFITS

- **LOWER RAW MATERIAL COST due to the lower cost of recycled rubber compared to the cost of virgin rubber in other Thermoplastic Elastomers.**
- **MORE PARTS PRODUCED PER HOUR with the same number of machines.**
- **CAN BE PAINTED with oil, latex or epoxy paints.**
- **LOWER UTILITY COSTS and LESS FLOOR SPACE over time.**
- **Mold Cycle Times can be consistently be reduced by 15% to 25% for the Injection Molder**
- **Lower Processing Temperatures than virgin plastic resins, saving on electricity costs**
- **Cools rapidly and evenly throughout the molded part**

INJECTION MOLDING OUTPUTS – feature a Pelletizer and a Dryer

STEEL COLLECTION FOR RECYCLING

NITROGEN STORAGE SYSTEM (optional)

DUST COLLECTION SYSTEM

rti cryogenics

Green Energy Technology re-Cap

What Is Cryogenic Tire Recycling

Cryogenic tire recycling is an innovative process that transforms discarded tires into valuable raw materials using extreme cold temperatures.
Liquid nitrogen or other commercial refrigerants are employed to expose the rubber materials (such as used tires) to temperatures nearing minus 80°C.
Once subjected to this intense cold, the rubber becomes extremely brittle and can be easily crushed and broken.

The Process:

Primary Tire Recycling: The initial step involves collecting and processing scrap tires. These tires are then frozen using liquid nitrogen.
Cryogenic Fine Mesh: The frozen tires are shattered into smaller pieces using a hammer mill. This process breaks down the rubber into fine particles.
TPE Blending: The cryogenically treated rubber crumb is blended with post-industrial recycled plastic. The result is a 100% recycled thermoplastic elastomer (TPE) pellet called XyCom TPE.

Zero Environmental Impact: Unlike traditional tire recycling methods, cryogenic recycling produces no pollution or effluents. It's a green and sustainable approach.

Why Is Cryogenic Tire Recycling Important?
Traditional tire recycling methods are often dirty, inefficient, and outdated. Many tires end up being burned as fuel, buried in landfills, or shredded using ineffective equipment. Cryogenic recycling offers a solution to this problem by recovering 100% of the tire material without causing any harm to the environment. A standard cryogenic tire recycling plant can process millions of tires annually, converting them into valuable TPE pellets.

Environmental Impact:
Massive stockpiles of discarded tires pose risks to safety and the environment. Cryogenic recycling helps address this issue by turning scrap tires into reusable resources. By preventing tire fires and minimizing energy waste, this technology contributes to a cleaner and greener planet.
Fun Fact: Did you know that it takes 140,000 BTUs of energy to create 1 pound of tire, but burning that same 1 pound of tire generates only 14,000 BTUs of energy? Cryogenic recycling ensures a more sustainable approach by maximizing energy recovery.

Worldwide opportunities
available through
Universal Link Agency (ULA)

www.universallinkagency.com

2024