

Frequently Asked Questions



2018

Turnkey Project

A turnkey operation is provided including training to the point where it is no longer required. It is in the best interest of all . . . and essentially our responsibility to ensure a functioning system. . . a system that runs effectively and efficiently as the desire from FCL for finished product, as per the Pay option of the “Take or Pay” (if that is what you choose) is for up to 15 years (and potentially even longer).

Questions & Answers

1) **What are the annual maintenance costs for the plant processing 5000 tires per day?**

Usually within the Maintenance Operations: the In-Country Ownership Group handles with NO Issue(s) after Training Operations any type of Ongoing Parts Maintenance/Replacements etc. – but if it's Unusual, similar to Mining Group Operations etc. – we can Reference back to FCL's own Construction Group Ops. and/or Manufacturers etc. (There is nothing beyond regular manufacturing maintenance . . . i.e., conveyor belt, lubricants etc. . .). We are there to help whenever required. Approximate Costs for Maintenance and Repairs for 5 tons per hour of tires processed - at about 3.2% of sales, or about \$2M per year, operating 24/7 for the blending, and 4.3 days per week for the cryo part of the system. If only 5000 tires per day are processed, the maintenance costs remain the same, as maintenance costs are a direct variable of the amount of production. The Total Annual Costs then would drop to about \$990,000 USD.



. . . continued

2) What kind of warranty is there on the equipment?

Typically: Each Manufacturer ex-Factory(s) will do Warranty(s) – that is Typically for One (1) Year. Components come from 3 separate countries. The majority are from USA & Canada and some from Europe. We have access to all and quickly.

3) Where can spare parts be purchased from?

For the Replacement Parts – FCL, similar to Mining Equipment Operations may have @Inventory-Basis, but if not; we can Order-Up and Supply the Replacements.



. . . continued

4) How is the recycling of wires and fiber handled?

Wires and Fibres are Disposed of @Standard Pick-Up-Basis: which the Local/Regional Disposal and/or Recycling Operations will Dictate. *N.B. Fibres are Probably then Designated as Garbage, but Wires Disposal Bins can be also Recycled depending on In-Country Operations/Region etc. (if not...then it's Garbage for Weekly/Bi-Weekly/Monthly, or On-Demand-Pick-Ups.) As an added financial benefit, it may be sold separately.

5) To what temperature does the rubber freeze?

The Mean Freezing Temperature in order to embrittle the rubber is between minus 80°C and minus 90°C. This is why we use Liquid Nitrogen, which boils at minus 196°C.

6. What does TPE stand for?

TPE is a short-form for Thermoplastic Elastomer. They are a class of copolymers or a physical mix of polymers (usually plastic and a rubber). TPE's are widely used to modify the properties of rigid thermoplastics, usually improving impact strength.

7. How does one determine the thickness of foundation required for the building?

The floor of a typical building should be reinforced concrete of 6 to 7 inches thick (15 – 18 cm) for the whole floor.

At the location of the Hammermill Pit, the concrete in the bottom of that will need to be reinforced concrete of 1 foot thick (30 cm) or 12” of reinforced concrete, with I-beams laid in the concrete in order to attach the Hammermill’s to them. In addition, 10” minimum for the slab 45-50 MPa. Note: Concrete strengths are customarily denominated in psi (pounds per square inch) in the imperial system and in MPa's (megapascals) in metric. These are units of pressure.

Note: Detailed plans for this pit which would be about 15 feet by 15 feet and about 10 feet deep are available upon request.

IMPORTANT: Although 80,000 sq. ft. will work, the building should be closer to 100,000 square feet in order to accommodate all of the raw material inventory and the finished goods.



Questions re: Off-Take Operations, and as follows for Applications at Site Operations:

#1 TPE is Co-Polymer with Mixes of Rubber Polymers

#2 Properties: Thermo-Plastic and Elastomeric

#3 Applications: Can Be Shaped for Fabrications

#4 Advantages: Easily Re-Processed and Re-Molded versus ThermoSet Rubbers

#5 Usages: Wire Coatings where Thermal Stress Cracking is Reduced, Food Applications per FDA

Approvals...and/or @In-Country-Approval-Basis, Piping, Dental Applications, Bottle Seals, Bottle Cap

Liners, Toiletry and Tool Items/Productions i.e. Toothbrushes/HairBrushes/Cleaning Brushes, Health

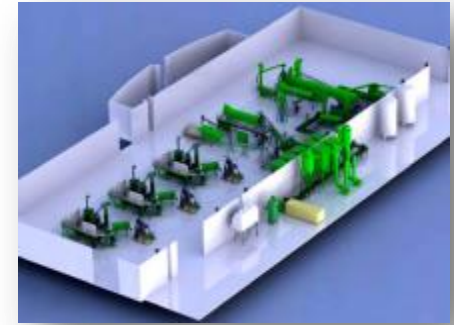
Appliance(s) Applications

#6 Multiple Customized Applications

General Information

- Approximate Costs for Maintenance and Repairs for 5 tons per hour of tires processed - at about 3.2% of sales, or about \$2M per year, operating 24/7 for the blending, and 4.3 days per week for the cryo part of the system.
- If only 5000 tires per day are processed, the maintenance costs remain the same, as maintenance costs are a direct variable of the amount of production. The Total Annual Costs then would drop to about \$990,000 USD.
- The Mean Freezing Temperature in order to embrittle the rubber is between minus 80C and minus 90C.
- This is why we use Liquid Nitrogen, which boils at -196C.

General Information . . . cont'd



#1

Reference the Attachment – Production Flows (subject to Final Design/Current Building-Use, as May-Be-Applicable; etc.) – Go from Tire Storages @Right to Manufacturing Operations towards Left, Plastic then Inputs the Systems – where Blenders are Located.

#2

Cryogenic Units are Near the Side-Wall of Building(s) – so They are Near to Nitrogen Storage Tanks, Dust Collectors, plus Steel and Fibre Waste Bins. Etc.

#3

Primary System is: Whole End-of-Life Used Tire for Feedstock(s), into Shredders for 2" Shred, and Then to/for Granulator: for ½" Shred.

#4

The ½" Shred is Inserted into Fifty-Three (53') Foot Long Freeze Chamber, with Flights, to Move the Manufacturing Operations along the Conveyors to Far End.

General Information . . . cont'd

#5

At the Far End of Freeze Chamber, or Out-Putted Unit: Liquid Nitrogen is Sprayed for -80C Product – which is Now @Glass-like for Transition State.

#6

Rubber is Dropped into Hammer Mills – which then Pulverizes the Glassed Rubber Product(s) – the Product is Then Scalped for Removal of Fibres, also Wire is Removed; and a Rare Earth Magnet produces 99.9% Pure Rubber – which is Now Sized @Table Salt.

#7

Outputs from Primary are Now Inputted to Fine Mesh Systems: which Re-Freezes, and Makes the Product to Table Flour size(s).



#8

In the Blending Systems: Rubber now Sized @Flour for Consistencies/Production Flows – to a Post-Industrial Plastic – on/via a Twin-Screw Extruder – which then Produces Thermoplastic Elastomer (TPE).

#9

The requirement for both the primary and fine mesh cryogenic units would be approximately 101 MT/day. The size of plant that would give you the most safety margin then would be the 120 MT/day plant.

General Information . . . cont'd

As well:

Certain Assumptions for Manufacturing and Off-Take Operations, and as follows...

- A)** Primary Cryo Unit is Operating @Twenty (20) Hours @Per-Day-Basis and/or Processing @4,500KG/Hour.
- B)** Fine Mesh System is Operating @24 hrs per day/5 days per week.
- C)** Car Tires produce 70% Rubber approximately: the rest is Fibre/Steel.
- D)** Typically for Blending: 20% of Tire Chips will qualify as “Crumb Rubber” – which is fine enough for Blending Process – with Residual or 80% requiring then further Fine Mesh processings.



Please remember: that there is approximately 68 to 70% rubber in a tire.

1. What is the Annual Outputs of Rubber Powder? Rubber Powder output is approximately 15,000 MT (Metric tons) on 3 shifts/day, 5 days/week. Output capacity of **Rubber Crumb** would be about 21,000 MT operating 7 days/week, 3 shifts/day. This would require approximately 30,000 MT of car and truck tires per year.

2. What is the Annual Output of a production line that processes plastics. The annual throughput of plastics would be about 65,000 to 70,000 MT, depending on the “quality” of the input plastics collected by the municipality. We are assuming that about 55% of the plastics can be used by our TPE blending process. The balance of the plastic will not be usable by us, but can be sold to others who have a use for PET, LDPE, and other fractions. A small portion of the output will be unusable and will need to be landfilled and/or @Bio-Mass Power Plant Basis which has been Advised/Authorized @1MW per EBM Complex Site @No-Charge-Basis, which includes Hazardous/Medical Wastes for Inputs/Tipping Fees’ Calculations.

3. What is the Annual Production of TPE for Off-Takes with Different and Various Shifts' Options please? Our various Combined Systems will Process and Generate approximately 15,000 MT of blended 100% recycled TPE per shift per year, so if we operated only 1 shift per year, we could generate about 15,000 MT of TPE. However, there are many in-efficiencies in the Operations if only Operated @1 shift per day, especially within the Blending Units' Productions. For their Operations, they need to be heated to about 400 degrees F, and this takes some time (approximately 30 minutes). Also, at the end of a shift that is shutting down, the machine has to be run "dry" so that all of the material is cleaned out, which takes another 15 to 20 minutes. This is why we recommend operating the blending system 24/7.

4、 The Returns on Investments (ROI's) for TPE versus Plastics as Optionable please. Fyi - the Internal Rate of Return for TPE without plastic recycling (purchasing plastics on the open market) is about 51.5% with about \$20MUSD of pretax profit @Per-Annum-Basis.

Optionable EBM Ops. as Authorized for 2018 Operations: includes processing all of our own plastics, and with the sourcing of plastics being a reasonable price, the Internal Rate of Return is 52.0% with a pretax profit of about \$35MUSD.

USA EBM Complex Turn-Keys with the Employees' Requirements and numbers – which in some States in the USA have State Programmes for both Training and also Contributing for New Hires.

For the Plastics Recycling part(s) of the EBM Operations, you will need for EACH Shift:

Plastic Sorting Section:

- **1 sorting (employee)**
- **1 bale handler**
- **2 plant supervisors/shift foreman**
- **1 electrician**
- **1 mechanic**
- **7 cleaning and maintenance**

Hard Plastic washing Processing:

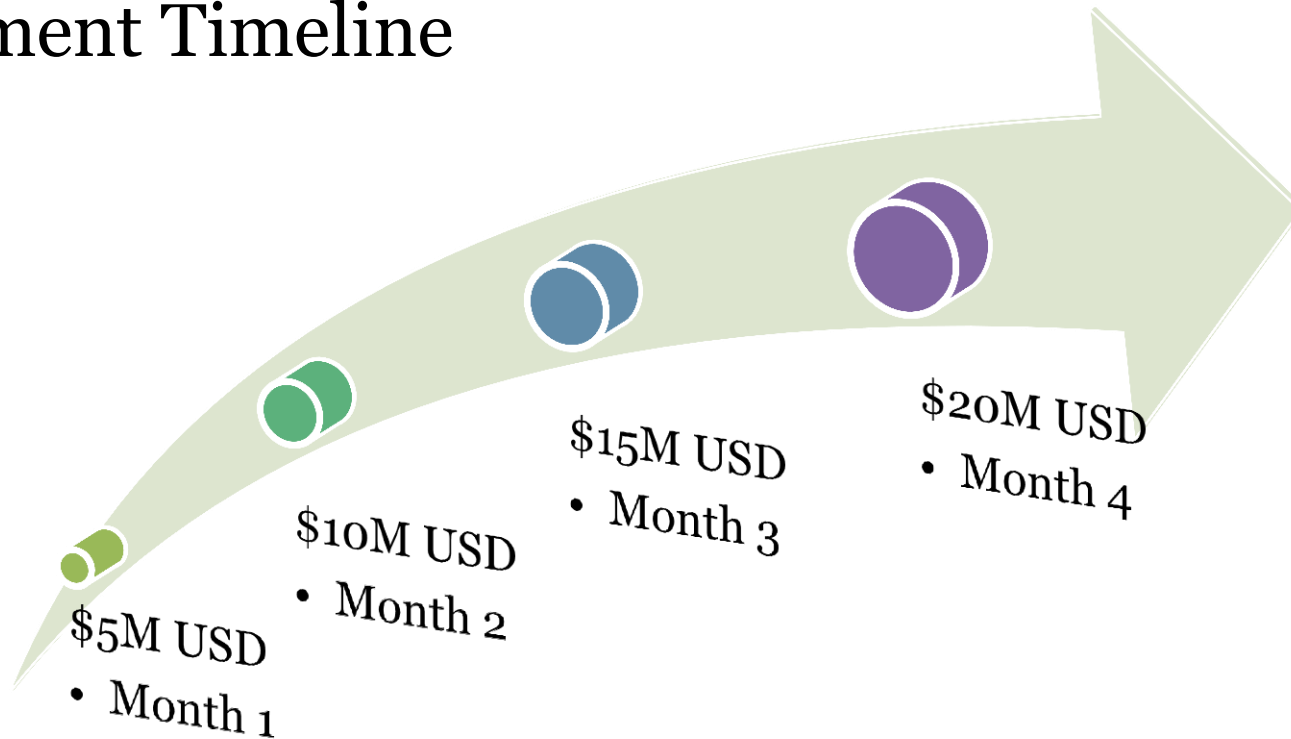
- **2 shift foremen**
- **4 Plastic handlers**
- **1 shift supervisor for flexible plastic**
- **2 handling and cleaning**
- **2 shift foreman for flexible plastic**

Total employees per shift for Plastics Recycling = 24 employees, 4 shifts/week = 96 total employees required.

Most of these employees do not require much industrial experience, other than the ability to be at the job, and on time, each day they are required to work.

It would seem reasonable that the Foremen should have some industrial experience as Lead Hands or Foremen in an industrial setting.

Payment Timeline



At this point, delivery of machinery made and to be assembled (typically takes 6 weeks). Therefore time for initiation of project including Order-up, Delivery and Assembly is approximately 6 months in total. Once the above payments are made, the draft of the LC is confirmed and opened. Banks/In-Country then get Benefits of Cash Flows accordingly.

Take or Pay

Letters of Credit (L/C's) for Enhanced Bio-Mass are Issued via HSBC/Barclays'/J.P. Morgan/Bank of America – and for Term @\$1M+USD Weekly for Take-or-Pay which amounts to:

10 YEARS

\$600,000 +
USD

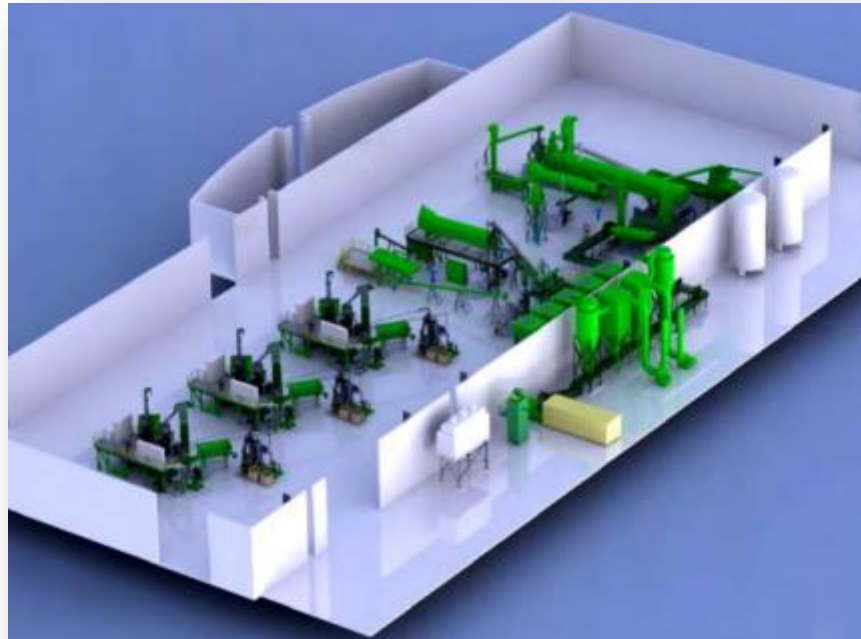
Optionable 15 YEARS

\$900,000 +
USD

Build/Order-up time is about 6 months

Equipment/Build

For the Equipment Order-Ups with Export Bank Operations per USA/Canadian Manufacturing Ops./Patents: it will be Deutsche Bank as Commercial Bank of Record for Construction/Equipment.



Dependencies and Resources

