

Enhanced Bio-Mass (EBM) Complex Turnkey Solutions for Recycling Post-Consumer Plastics per TPE Productions & also Power/Feedstock Operations @Optionable-Basis

EBM Cryogenic Systems with the Blending Systems and Now Further Combined as well with Plastics Recyclings at Same-Plant/Site-Basis for Optionable FCL Programmes: will incorporate the Current State-of-Art Production Systems and also with Processing Improvements to Supply a Meaningful Environmental Impacting Service for Community Operations.

These will also Combine the Latest Management Information Services (i.e. MIS) within the Turnkey Systems which are also managed in-part by Touch Screen Systems.

Standard Equipment Packages also includes a complete Dust Control System with a Spark Suppression System.

At the same time as TPE Operations are Underway: the various Operators' Trainings and also Manager Training Programmes are also Supplied for Plastics' EBM Optionable Programmes - and Applied with Full Analysis by FCL prior to Final Punch List Operations being Completed, which is Subject to Owner/Operator Sign-Offs.

Also for the Design-Build Plastics EBM Optionable Programmes for the Cryogenic Systems' Turn-Keys: there are Now for 2018 Operations a Implementation Requirement(s) for Thirty-One (31) Systems-Variables to Be-Also-Factored whilst Specific Plant Operations are Underway.

These are Requisite Inputs when designing the Primary Cryogenic Systems Applications for 2018.

Monitoring MIS and Applications produce a Superior cryogenically ground crumb rubber for both the rubber and also the Plastics Blending Operations.

Typically within EBM Operations for TPE Manufacturings: very low priced crumb rubber is Now within EBM Technologies Re-Manufactured into a much higher priced commodity i.e. TPE.

Additionally TPE has a much broader Market Application(s) than crumb rubber by itself.

Also, the Process of Blending Recycled Tire Rubbers with Plastics also requires for Feedstocks the Recycled Plastic: which Dovetails into Current Events that Have-Been-Highlighted/Prioritized with Governments requiring Plastics Disposal Solutions.

The EBM Complex Operations combining TPE Manufacturing with Take-or-Pay Benefits/Profitabilities with the Plastics' Re-Manufacturings for Renewables supply a Current Solution by Governments/Private Citizens/Ongoing Business Operations etc.

Complete Turnkey Plastic Recycling System

The various Technologies Turn-Keys as Combined now allows for a Complete Turn-Key System Complex as Complement to the TPE Productions for taking the Postconsumer Plastics from Municipal Solid Waste (i.e. MSW) which separates, washes, and sorts the plastics into 99.99% pure PolyPropylene (PP), High Density PolyEthylene (HDPE), Low Density PolyEthylene (LDPE), and the other plastics; which also have Additional Re-Sale Values combined with Feedstocks for TPE Manufacturing that Lowers the Production Costs and Increases the TPE Operations Margins/Profits accordingly.

There is Additional Optionable Programmes for Solar Power with Roof-Top Applications for Each Plant @100,000 sq. ft. per combined with Nitrogen Production if Required and also Bio-Mass Power Plant Operations at Same-Site-Basis for Additional Power Production combined with Site Disposals for Scrap Plastics that can Not-Be-Utilized within TPE or Re-Sale Operations.

Using the Composition of MSW as follows from MRF Municipal Recycling Facilities (MRF) and Plastic Recycling Facilities (PRF) - the Scrap Plastics usually have The Following Componets/Analysis @Baled-Basis:

PET – 5%

HDPE – 33%

PP – 32%

LDPE – 16%

Poly Vinyl Chloride (PVC) – 5%

Other Wastes – 9%

Total – 100%

These additional Plastics Recycling Technologies Systems now allows to sort from MSW for HDPE and PP resins which are used in manufacturing TPE Pellets.

These TPE Pellets are then blended with rubber powder and Provide the Productions for Take-or-Pay Operations for the TPE Operations with a Ten (10) or Fifteen (15) Year Optionable-Term as Also-Available.

Optionable Plastics Production Process for TPE Operations:

Sorting - Separation phase is as follows:

- 1. The Plastic bales from PRF or MRF are de-wired.**
- 2. They are then shredded into sizes from 25mm - 350mm.**
- 3. Screening Operations are Then Further Analyzed.**
- 4. Overbelt Magnet removes all of the metals found in the bales.**
- 5. Ballistic Separation is then Underway where sand, pieces of wood, glass, other impurities that are not plastic are removed.**
- 6. NIR (near infrared) is used to be the First (#1) Separation of all Plastics Operations from LDPE.**
- 7. NIR also separates the other PolyOlefins (PO's) (i.e. HDPE & Poly Ethylene (i.e. PE), Poly Propylene (i.e. PP), Poly Styrene (i.e. PS), PolyEthylene Terephthalate (PET). Separated olefins are each then stored in separate containers and wait to be baled again or individually conveyed to washing lines (depending on the Logistics Lay-Outs per Design-Build Ops. via FCL Construction Group Ops. for Each Site unless @Templated-Basis within GreenField Design-Ops.).**
- 8. PolyStyrene (PS) and PET packed and sold/Disposed together - with wire.**

Washing lines for Hard Packaging (HDPE, PP) and Flexible Films (LDPE, PP):

- 1. Sorted and separated olefins from hard packaging are debaled, unless directly conveyed from sorting to removal of any residual metal left behind in the sorting and separation process. The Overbelt Magnet will also Further Operationalize.**
- 2. All olefins (hard and flexible) are thereafter wet granulated, washed, rinsed, and hot washed.**
- 3. After washing all olefins undergo ultimate - Final High Density Separation effected in HydroCyclone Density Separator.**

4. Mechanical drying is the next step for all olefins. Olefins from flexible packaging and films undergoes thermal drying.
5. Flakes from hard plastics are then sorted with Flake Sorting Device as well as the flakes from flexible packaging films.
6. Sorted flakes from the hard packaging line is conveyed into storage bins to be blended with the Cryogenically processed scrap tire rubber.
7. The sorted flakes from the flexible packaging and films are then compacted and densified, and packed for the customers that are purchasing the recycled LDPE. The sorted flakes from PP film are extruded into pellets and then conveyed to blending in the Blending Operations.

Blending-Feedstock Operations with Scrap Tire Rubber:

From the Plastic Recycling System, the usable PP and HDPE is transferred to storage silos, where it is then fed to the Blending Systems for the Blending Operations with the Recycled Rubber generated by the Cryogenic Tire Recycling Plant Operations – which is Why the Location-Placements are Important for EBM Complex Operations – which May Further Also Include for Nitrogen Plant Operations, Roof Top Solar Power Turn-Keys @1MW per – and also Bio-Mass Power Plant Modular Operations also @1MW as Optionables.

At this point, all of the Scrap Tires, and Scrap Plastics have been processed, and made usable to produce a new 100% recycled TPE (Thermoplastic Elastomer) that can then be used in a number of end products, and in a number of industries.

These EBM Complex Process Operations have Now Provided for Significant Renewables via Re-Using the Plastics and also by Re-Using the rubbers.

Additionally for Land Management combined with Environmentals this has saved Landfill Sites from being overburdened with Reusable Materials.

As importantly there is significant reductions in Carbon by these Renewables Operations: which is also Available then for Carbon Banking Operations by FCL.