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CLAIMS

1. A recycling equipment

for recovering materials by recycling products comprising plastic materials, superabsorbent polymers (SAP), and optionally cellulosic fibers,

which are loaded with waste materials including human or animal exudates,

said equipment comprising

- a product receiving unit;
- optionally a pre-washing unit;
- a product shredding unit;
- a plastic separation unit;
- optionally a SAP fiber separation and fiber recovery unit;
- a SAP recovery unit,

further comprising an overall fluid handling system,

adapted to minimize, including eliminating, ingoing or outgoing fluid streams,

whereby said ingoing or outgoing fluid streams are preferably aqueous fluids,

and comprising elements for adjusting salt concentrations of liquids for being selectively supplied to and received from said equipment units.

2. A process

for recovering materials by recycling products comprising plastic materials, superabsorbent polymers (SAP), and optionally cellulosic fibers,

which are loaded with waste materials including human exudates,

said process comprising the product recycling steps of

- receiving used products in a product receiving unit;
- optionally pre-washing said products in a a pre-washing unit;
- shredding said used products in a product shredding unit;
- separating plastic materials in a plastic separation unit;
- optionally recovering cellulosic fibers in a SAP /fiber separation and fiber recovery unit;

recovering SAP in a SAP recovery unit,

further comprising the step of operating an overall fluid handling system comprising the steps of

- receiving incoming fluids, preferably aqueous liquids;
- preparing at least one salt solution from said incoming fluids comprising predetermined salt concentration and optionally salt composition;
- distributing said salt solutions to said recycling steps;
- discharging spent salt solutions from said recycling steps, whereby said spent salt solutions

exhibit differing degree of waste loads;

- treating said spent salt solutions into two or more fractions, whereby one fraction comprising a high waste load is discharged to a waste water treatment preferably a biogas generation unit or a composting unit and at least one further fraction is recycled to said product recycling steps,

whereby optionally the high waste load fraction may be reduced to dryness.

3. A fluid handling system

for providing and receiving fluids to and from processing steps for recovering materials from recycled products,

whereby said products comprise plastic superabsorbent polymers (SAP) and optionally cellulosic fibers,

said fluid handling system comprising

- at least one incoming fluid tank;
- at least one spent process fluid tank;
- at least one separation unit for separating spent process fluids into
  - a clean fluid fraction, adapted to be reused in said processing step, optionally fed into said incoming fluid tank,
  - a loaded fluid fraction for being discharged to a waste water treatment preferably a biogas generation unit or a composting unit, optionally comprising a drying unit for solidifying the loaded fluid fraction.

4. An energy management system

for providing and receiving energy to and from processing steps for recovering materials from recycled products,

whereby said products comprise plastic superabsorbent polymers (SAP) and optionally cellulosic fibers,

said energy management system comprising

- at least one solar thermal energy collector;
- at least one thermal energy storage element;
- distribution and control elements for delivering and receiving energy to and from said processing steps.

5. A process control system

for controlling processing steps for recovering materials from recycled products,

whereby said products comprise plastic superabsorbent polymers (SAP) and optionally cellulosic fibers

whereby said process control system comprises

- process parameter monitoring elements;
- process parameter change element that allow change of parameters of said processing steps;
- process parameter input elements that allow process parameters to be set to predetermined parameter;
- process parameter optimization elements that allow calculation of optimal combination of various process parameter according to predetermined optimization targets.