process and apparatus incudes steps and elements useful for reducing the amount of physical contaminants in the digestate.

[0005] In a process described herein, solid waste is pressed at a high pressure, for example 50 bar or more, to separate the solid waste into a dry fraction and a wet fraction. The wet fraction is diluted and floatables (i.e. pieces of plastic and/or paper) in the wet fraction are comminuted. The wet fraction is then de-gritted before being sent to an anaerobic digester. Digestate is withdrawn from the digester, including at least some withdrawal from a free liquid surface of the digester. The digestate is filtered to extract comminuted floatables. The floatables can be disposed of. Optionally, the resulting filtrate is then dewatered to produce a cake, for example with over 18% solids content, which then can be composted or directly applied to land.

[0006] A system described herein comprises a press, a grinder, a hydrocyclone, an anaerobic digester, a filter screw press and a dewaterer. These units can be configured and/or arranged to perform the process described above.

SUMMARY

[0006a] In one aspect, the present disclosure refers to a process comprising steps of, pressing solid waste to produce a wet fraction; comminuting floatables in the wet fraction; degritting the wet fraction; treating the wet fraction in an anaerobic digester; withdrawing digestate including floatables from the digester; and, separating comminuted floatables from digestate.

[0006b] In another aspect, the present disclosure refers to a system comprising, a press; a grinder; a hydrocyclone; an anaerobic digester; and, a filter, wherein the grinder is downstream of the press and upstream of the anaerobic digester.

BRIEF DESCRIPTION OF THE FIGURES

[0007] Figure 1 is a process flow diagram of a process for treating solid waste.

[0008] Figure 2 is an isometric drawing of a press.

[0009] Figure 3 is a process flow diagram for the grit removal unit in Figure 1.

[0010] Figure 4 shows an anaerobic digester and downstream units for the process of Figure 1.

CLAIMS:

We claim:

1. A process comprising steps of,
pressing solid waste to produce a wet fraction;
comminuting floatables in the wet fraction;
degritting the wet fraction;
treating the wet fraction in an anaerobic digester;
withdrawing digestate including floatables from the digester; and,
separating comminuted floatables from digestate,

2. The process of claim 1 further comprising diluting the wet fraction before degritting the wet fraction.

3. The process of claim 2 wherein the wet fraction is diluted with digestate.

4. The process of any of claims 1 to 3 wherein the solid waste is pressed at a pressure of 50 bar or more.

5. The process of any of claims 1 to 4 comprising removing digestate from at or near a free liquid surface of the digester.

6. The process of any of claims 1 to 5 comprising dewatering the filtered digestate.

7. The process of any of claims 1 to 6 wherein the digester is operated at a solids content in the digester of about 4% DS or less or 3% DS or less.

8. The process of any of claims 1 to 7 wherein the wet fraction is diluted or co-digested with wastewater treatment plant sludge.

9. The process of any of claims 1 to 8 wherein the wet fraction is diluted to 10-15%, or 14-15% solids.

10. The process of any of claims 1 to 9 wherein degritting is performed with a hydrocyclone.

11. A system comprising,
a press;
a grinder;
a hydrocyclone;
an anaerobic digester; and,
a filter,
wherein the grinder is downstream of the press and upstream of the anaerobic digester.

12. The system of claim 11 further comprising a dewaterer.

13. The system of claim 11 or 12 further comprising a PC pump.

14. The system of claim 13 wherein the PC pump has a discharge outlet connected to the grinder.

15. The process of any one of claims 1 to 10 wherein the floatables are communited to sizes of from 3 mm to 6 mm.