CLAIMS

What is claimed is:

1. A biodegradable sheet comprising a gas barrier material.

2. The biodegradable sheet according to claim 1, wherein the gas barrier material is a nanoclay.

3. The biodegradable sheet according to claim 1, wherein the gas barrier material is polyvinyl alcohol (PVOH).

4. The biodegradable sheet according to claim 1, wherein the gas barrier material is a nanoclay and PVOH.

5. The biodegradable sheet according to claim 2, wherein the nanoclay is based on montmorrilonite, vermiculite, nano-kaolin, bentonite, Cloisite® or any combination thereof.

6. The biodegradable sheet according to claim 2, wherein the nanoclay is dispersed in the bulk of the biodegradable composition.

7. The biodegradable sheet according to claim 2, wherein the nanoclay is added to the biodegradable sheet as a separate nanocomposite layer comprising a biodegradable polymer and the nanoclay.

8. The biodegradable sheet according to claim 7, wherein the separate nanocomposite layer is an internal layer.

9. The biodegradable sheet according to claim 3, wherein the PVOH is added to the biodegradable sheet as an internal layer.

10. The biodegradable sheet according to claim 3, further comprising a compatibilizer.

11. The biodegradable sheet according to claim 10, wherein the compatibilizer is maleic anhydride, benzoyl peroxide or 2,2-azobis(isobutyronitrile).

12. The biodegradable sheet according to claim 10, wherein the amount of the compatibilizer is about 2-4% w/w of the layer to which it is added.

13. The biodegradable sheet according to claim 1, having a water vapor transmittance lower than 60 g/(m2•d)].

14. The biodegradable sheet according to claim 1, having an oxygen transmittance lower than 3.0 cm3/(m2•d•bar)].

15. The biodegradable sheet according to claim 1, consisting of the following three layers:
Layer 1: consisting about 20-80% w/w PLA and about 80-20% w/w PBSA;
Layer 2: consisting about 100% w/w PBSA; and
Layer 3: consisting about 20-80% w/w PLA and about 80-20% w/w PBSA.

16. The biodegradable sheet according to claim 1, consisting of the following five layers:
Layer 1: consisting about 20-80% w/w PLA and about 80-20% w/w PBSA;
Layer 2: consisting about 100% w/w PBSA;
Layer 3: consisting about 100% w/w PVOH;
Layer 4: consisting about 100% w/w PBSA; and
Layer 5: consisting about 20-80% w/w PLA and about 80-20% w/w PBSA.

17. The biodegradable sheet according to claim 1, consisting of the following five layers:
Layer 1: consisting about 20-80% w/w PLA and about 80-20% w/w PBSA;
Layer 2: consisting of about 90-85% PBSA and about 10-15% w/w nanoclays;
Layer 3: consisting about 100% w/w PVOH;
Layer 4: consisting of about 90-85% PBSA and about 10-15% w/w nanoclays; and
Layer 5: consisting about 20-80% w/w PLA and about 80-20% w/w PBSA.

18. The biodegradable sheet according to claim 1, wherein the degree of degradation after 30 days at a temperature of 58°C is lower than 60%.

19. A receptacle unit prepared from the biodegradable sheet according to claim 1, comprising a compartment for storing liquids and a means by which the liquids are removed therefrom.

20. The receptacle unit according to claim 19, further comprising a hanger.

CLAIMS

What is claimed is:

1. A biodegradable sheet comprising a nanoclay and polyvinyl alcohol (PVOH).

2. A biodegradable sheet comprising an inner layer, wherein said inner layer comprises PVOH.

3. The biodegradable sheet according to claim 1, wherein the nanoclay is based on montmorrilonite, vermiculite, nano-kaolin, bentonite, Cloisite® or any combination thereof.

4. The biodegradable sheet according to claim 1, wherein the nanoclay is dispersed in the bulk of the biodegradable composition.

5. The biodegradable sheet according to claim 1, wherein the nanoclay is added to the biodegradable sheet as a separate nanocomposite layer comprising a biodegradable polymer and the nanoclay.

6. The biodegradable sheet according to claim 5, wherein the separate nanocomposite layer is an internal layer.

7. The biodegradable sheet according to claim 2, further comprising a compatibilizer.

8. The biodegradable sheet according to claim 7, wherein the compatibilizer is maleic anhydride, benzoyl peroxide or 2,2-azobis(isobutyronitrile).

9. The biodegradable sheet according to claim 2, consisting of the following five layers:
Layer 1: consisting about 20-80% w/w PLA and about 80-20% w/w PBSA;
Layer 2: consisting about 100% w/w PBSA;
Layer 3: consisting about 100% w/w PVOH;
Layer 4: consisting about 100% w/w PBSA; and
Layer 5: consisting about 20-80% w/w PLA and about 80-20% w/w PBSA.

10. The biodegradable sheet according to claim 2, consisting of the following five layers:
Layer 1: consisting about 20-80% w/w PLA and about 80-20% w/w PBSA;
Layer 2: consisting of about 90-85% PBSA and about 10-15% w/w nanoclays;
Layer 3: consisting about 100% w/w PVOH;
Layer 4: consisting of about 90-85% PBSA and about 10-15% w/w nanoclays; and
Layer 5: consisting about 20-80% w/w PLA and about 80-20% w/w PBSA.

11. A receptacle unit prepared from the biodegradable sheet according to any one of claims 1 or 2, comprising a compartment for storing liquids and a means by which the liquids are removed therefrom.

12. The biodegradable sheet according to any one of claims 1 or 2, wherein the biodegradable sheet further comprises an external laminate layer.