CLAIMS

1. A method of identifying a counterfeit item comprising a polymer film multilayer substrate, the method comprising: locating the polymer film multilayer substrate between a first polariser having a first polarising orientation and a second polariser having a second polarising orientation; illuminating the polymer film multilayer substrate with light through said first polariser; measuring the intensity of light transmitted through said second polariser, via said first polariser and said polymer film multilayer substrate, for a plurality of different orientations of said polymer film multilayer substrate relative to polarising orientations of said first and second polarisers; determining a birefringence value for said polymer film multilayer substrate based upon measured values of the intensity of said transmitted light at said plurality of different orientations; comparing a determined birefringence value with a predefined birefringence value indicative of a designated genuine film; and determining if said item comprising said polymer film multilayer substrate is counterfeit or otherwise based upon said comparison.

2. A method according to any claim 1 additionally comprising measuring the thickness of a layer therein by white light interferometry.

3. A method according to claim 2 wherein the measurement of thickness by white light interferometry is made on a core layer of the film.

4. A method as claimed in any preceding claim wherein measurement is carried out using a pulsed light source.

5. A method as claimed in any preceding claim wherein measurement is carried out using a detuned light source.

6. A method as claimed in any preceding claim wherein measurement is carried out using an LED light source.

7. A method as claimed in any preceding claim wherein the film comprises at least one clarifying agent.

8. A method as claimed in any preceding claim wherein the film is prepared by a bubble process.

9. A method as claimed in any preceding claim wherein the film comprises a layer of biaxially oriented polypropylene (BOPP).

10. A method as claimed in any preceding claim wherein the film comprises a monoweb of three or more polymeric layers, or a double web of five or more polymeric layers.

11. A method as claimed in any preceding claim, wherein the item is:

a bank note;
a governmental document;
a non-governmental document;
an identity document;
a passport;
a security thread;
an Optical Variable Device (OVD); or
a wrapper of or an attachment to an item.

12. A method as claimed in any preceding claim of identifying a counterfeit film on the basis of the film not meeting a specified pre-defined criterion of birefringence and optionally of thickness.

CLAIMS

1. A method of authenticating a polymer film comprising measuring the thickness of a layer therein by white light interferometry.

2. A method according to claim 1 wherein the measurement is made on a core layer of the film.

3. A method of authenticating a polymer film comprising measuring the birefringence of a core layer therein.

4. A method of authenticating a polymer film comprising measuring the thickness of a layer therein by white light interferometry and/or measuring the birefringence of a core layer therein.

5. A method according to claim 4 wherein the measurement of thickness is made on a core layer of the film.

6. A method as claimed in any preceding claim wherein measurement is carried out on more than one layer.

7. A method as claimed in any preceding claim wherein measurement is carried out using a pulsed light source.

8. A method as claimed in any preceding claim wherein measurement is carried out using a detuned light source.

9. A method as claimed in any preceding claim wherein measurement is carried out using an LED light source.

10. A method as claimed in any preceding claim wherein the film comprises at least one clarifying agent.

11. A method as claimed in any preceding claim wherein the film is prepared by a bubble process.

12. A method as claimed in any preceding claim wherein the film comprises a layer of biaxially oriented polypropylene (BOPP).

13. A method as claimed in any preceding claim wherein the film is a monoweb of three or more polymeric layers.

14. A method as claimed in any preceding claim wherein the film is a double web of five or more polymeric layers.

15. A method as claimed in any preceding claim wherein the method differentiates between films made a bubble process and films made by a different process.

16. A method of authenticating an object comprising a polymer film, wherein authentication is carried out by authenticating the polymer film as claimed in any preceding claim.

17. A method as claimed in claim 16 wherein the object is:

a bank note;
a governmental document;
a non-governmental document;
an identity document;
a passport;
a security thread;
an Optical Variable Device (OVD); or
a wrapper of or an attachment to an item.

18. A method of identifying an authentic film or object on the basis of the film or object meeting a specified pre-defined criterion of thickness and/or birefringence, utilizing a method as claimed in any preceding claim.

19. A method of identifying a non-authentic or counterfeit film or object on the basis of the film or object not meeting a specified pre-defined criterion of thickness and/or birefringence, utilizing a method claimed in any preceding claim.

20. A method according to claim 18 or claim 19 which is a forwards-compatible method suitable for identifying a film or object to be created in the future.

21. A method according to claim 18 or claim 19 which is a backwards-compatible method for identifying a film or object already in existence.

22. A detection unit adapted to carry out the method of any preceding claim.

23. The use of white light interferometry and/or birefringence measurement to determine the authenticity of a secure item comprising a polymer film substrate.