reflected is perceived, and the color feeling that would really be created outdoors is not produced. Accordingly, such products which have passed inspection made with such a device are often found to be defective after shipment.

OBJECTS AND BRIEF SUMMARY OF THE INVENTION

It is an object of the present invention to provide an integrating sphere type light source device to overcome the aforementioned defects inherent in the conventional inspection devices of this type, the development of which has lagged behind the technique of surface treatment.

It is a further object to provide an innovative standard light source device in which the illuminating conditions under which a person looks at colors of objects in an outdoor environment (or in a relatively bright room) are artifically reproduced by using close to ideal light from a source of light, such that colors can be compared and differences in colors can be distinguished just as by inspection under natural daylight, no matter how complex the reflection characteristics of the surface layers of the products may be, and in which the color rendering and the fluorescent whitening effects can be compared.

These objects are achieved according to the present invention by the provision of an integrating sphere type standard light source, comprising: a spherical shell having the inner surface coated with a white coating having a high reflectivity, said shell having a light source aperture in the top thereof, a viewing aperture in the side thereof and a specimen exposure aperture in the bottom thereof; a light source means mounted in said light source aperture and depending into said said shell and including a source of light and a light shielding plate between said source of light and the remainder of the interior of said shell, said light shielding plate being coated with a white coating having a high reflectivity; a specimen supporting plate beneath said specimen exposure aperture and normally positioned for supporting a specimen at the bottommost point of an imaginary spherical surface which is an extension of the internal surface of said shell into said specimen exposure aperture; and means on which said specimen supporting plate is mounted for moving said specimen plate into and out of the normal position thereof for placing a specimen to be observed on said specimen supporting plate.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described more fully in connection with the accompanying drawings in which:

FIG. **1** is a cross-sectional view of a conventional light source device;

FIG. **2** is a cross-sectional view showing light reflected by a metallic coated layer;

FIG. **3** is a cross-sectional view showing light reflected by an anodically oxidized coating layer of colored aluminum;

FIG. **4** is a front view, partially broken-away of an integrating sphere type light source device according to the present invention;

FIG. **5** is a vertical cross-sectional view of the device of FIG. **4**; and

FIG. **6** is a plan view of the light source of the device of FIGS. **4** and **5** showing light-shielding plates arrayed among and on both sides of the lamps that serve as sources of light.

DETAILED DESCRIPTION OF THE INVENTION

An embodiment of the standard integrating sphere type light source device according to the invention will now be described in detail with reference to FIGS. **4–6**.

Referring to FIGS. **4** and **5**, a cubic housing **31** for the standard integrating sphere type light source device according to the invention has therein an integrating sphere **32** having a diameter such that it almost completely occupies the space within the housing. The integrating sphere **32** is preferably made of plate material of a light metal, such as aluminum, by draw molding. The integrating sphere **32** has the circumferential portion of a circular illumination hole **33** formed at the lowest portion thereof fixed on the top plate **36***a* of an integrating sphere mounting base **36** having a specimen introducing port **34** opening through the lower portion of the surface of the housing **31**. The top plate **36***a* has a light transmission hole **35** therein that matches the hole **33**.

A white coating layer **37** of a material having high reflectivity, such as barium sulfate having a substantially uniform thickness greater than 1 mm, is provided on the inner surface of the integrating sphere **32**.

The top portion **38** of the integrating sphere **32** is a detachable ceiling cover. An annular cover seat **38'** is fitted around the circumference of the cover, which is diametrically opposite the illumination hole **33** in the lowest portion. A circular observation hole **39** is provided on one side of the integrating sphere **32** at a position corresponding to the front inner surface of the housing **31**.

To the ceiling cover **38** is attached a support pole **40** which extends vertically through the center thereof, and the upper end of the support pole **40** has a grip **40'** for lifting the cover. To the lower end of the support pole **40** is attached the central portion of a circular horizontally extending light-shielding plate **41** having a diameter smaller than that of the ceiling cover **38**. On the upper surface of the shielding plate **41** are mounted an ordinary D_{65} lamp **42**, two tungsten incandescent lamps **43** and a black-light lamp **44**. The light-shielding plate **41** blocks direct impingement of light from the sources of light on a specimen placed beneath them. Shields **45** are also provided among the individual sources of light and on both sides of the sources of light, so that when one of the sources of light is selectively turned on by means of a turn-on switch **11'** on the front of the housing **31**, the emitted light will not directly illuminate the other sources of light (refer to FIG. **6**). As is the case with the inner surface of the integrating sphere, a white coating of barium sulfate having a high reflection factor, i.e. nearly 100%, is coated on the entire area of the surfaces of the light-shielding plate **41** and the shields **45**.

Therefore, the light from one of the sources of light is first reflected by the while barium sulfate coated surfaces. Further, since the surfaces are coarse surfaces with no luster, the light from the source of light is irregularly reflected in all directions without being absorbed at all in the integrating sphere and is scattered in the integrating sphere. Consequently, the light is uniform in all the space within the sphere. Even if a rod is placed in the sphere, no shade will be developed because the light illuminates it from all directions.