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Menicon Co., Ltd.

President and CEO: Hidenari Tanaka

Securities Code: 7780

TSE, 1st section, NSE, 1st section

Contact:

Motonari Watanabe

Senior Executive Officer,

Corporate Management, CFO

Phone: +81-52-935-1646

**Observation of Sandwich Structure of Circle Lens Using Transmission
Electron Microscopy**

Published in “Microscopy,” a journal specialized in microscopy

Menicon Co., Ltd. (Menicon) hereby announces that Menicon developed a method to observe the position and distribution form of pigment components in circle lenses in a joint study with Nagoya Institute of Technology, and the results of the study were published in “Microscopy,” a journal specialized in microscopy.

For details, please refer to the followings.

End.

Observation of Sandwich Structure of Circle Lens Using Transmission Electron Microscopy Published in “Microscopy,” a journal specialized in microscopy

Menicon Co., Ltd. (Headquarters: 21-19, Aoi 3-chome, Naka-ku, Nagoya City; President & CEO: Hidenari Tanaka) developed a method to observe the position and distribution form of pigment components in circle lenses in a joint study with Nagoya Institute of Technology. The results of the study were published in “Microscopy,” a journal specialized in microscopy, on December 4.

There was widely reported the occurrence of eye disorders due to the use of lenses with iris patterns (such as color contact lenses and circle lenses, hereinafter referred to “circle lenses”) mainly in young adults. (*Press release materials of the National Consumer Affairs Center of Japan: http://www.kokusen.go.jp/pdf/n-20140522_1.pdf). Several factors can induce eye disorders, such as the manufacturing method, burden on the eyes due to the use of conventional contact lens materials, purchase/use of lenses without consulting an ophthalmologist, and low compliance with instructions, for example, negligence of observing the use duration or care method.

In particular, with regard to the manufacturing method, it has been reported that pigment components that are used for printing the iris patterns on lenses are often exposed on the lens surface, thereby posing a risk of damage to the eyelids and corneal surface(Notes). However, it is difficult to objectively evaluate this risk. While it has been established without clear evaluation that the “sandwich structure is safe,” because the color layer is present between two material layers, users continue to use them without much thought, which is a major concern. This study enabled us to identify a method to observe the position and distribution form of pigment components that had been difficult to evaluate, and the study findings are expected to contribute to future product development and quality evaluation.

With the mission of “providing better visual acuity,” Menicon has been attempting to improve the safety awareness of circle lenses among users. Based on the study results, we intend to continue to develop and manufacture high-quality lenses and provide information to users and healthcare professionals involved in the prescription of contact lenses.

“Microscopy” in which the “technical report; TEM observation of inorganic substances distributed in gel materials for medical devices using ultra-thin cryosectioning”(E Ito et al. *Microscopy*, 2020, Vol. 69, No. 6, P408-410) is published is an English journal that rapidly distributes research findings on microscopy worldwide, with the aim of becoming the world’s leading journal in the field of microscopic science.

URL: <http://microscopy.or.jp/microscopy/>

The “technical report” contains information regarding the specifications and technical aspects of innovative devices, brief reports on the evaluation of devices, and protocols for sample preparation.

(Note) Ueda, Journal of the Eye 31(11):1569-1575, 2014, etc.

Excerpts of measurement results

Example of surface observation of a circle lens with exposed pigment

Example of surface observation of a circle lens in which the pigment is not exposed on the surface

