

January 19, 2021
Mitsui Chemicals, Inc.

Mitsui Chemicals Verifies Effects of NeoContrast™ Wavelength-Controlling Lenses

- Enhances contrast for clearer vision in more vivid color -

Mitsui Chemicals, Inc. (Tokyo: 4183; President & CEO: HASHIMOTO Osamu) today announced its undertaking of a baseball study to verify the effects of NeoContrast™^{*1}, an eyeglass lens material that controls wavelength to selectively cut yellow light. Conducted by Professor HANDA Tomoya^{*2} of Kitasato University's School of Allied Health Sciences, the study saw NeoContrast™ used in sports glasses for examination of the lenses' effects on the visibility of a moving ball and their ability to provide a clearer, more vividly colored in-stadium view.

The Mitsui Chemicals Group intends to continue expanding the portfolio of its Vision Care Materials Division and, based on the concept of Quality of View (QoV)^{*3}, will continue to pursue its commitment to product development aimed at vision correction and improving the health and comfort of the eyes.

Selectively cutting yellow light has been found to improve contrast, as perceived from the vividness of colors in the visual range. Mitsui Chemicals is pleased to report that these effects were borne out in a questionnaire and tests using NeoContrast™.

1. Ease of Viewing a Moving Ball

Testing saw a 38 members of the Tohoku Rakuten Golden Eagles (Rakuten Eagles) – including the players, manager and coaches – use sports glasses fitted with NeoContrast™ lenses. Asked then about how they found the lenses, the Rakuten Eagles offered feedback very much indicative of NeoContrast™ use as enhancing contrast and improving the visibility of moving objects:

- “It was easier in outfield to spot the ball early on, so I was able to move into position more smoothly for any fly balls.”
- “Playing a night game, the white of the fly balls seemed brighter against the dark night sky, making them easier to spot.”
- “Out there catching, it was easier to make judgments about the direction and speed of the ball right off the bat, which helped in alerting our fielders.”
- “Out on third, it was easier to judge the distance from the ball hit by the batter than with the naked eye.”
- “When I was up to bat, I found visibility was so good that I could see the stitching on the ball coming in, making it easier to determine my swing.”



©Rakuten Eagles



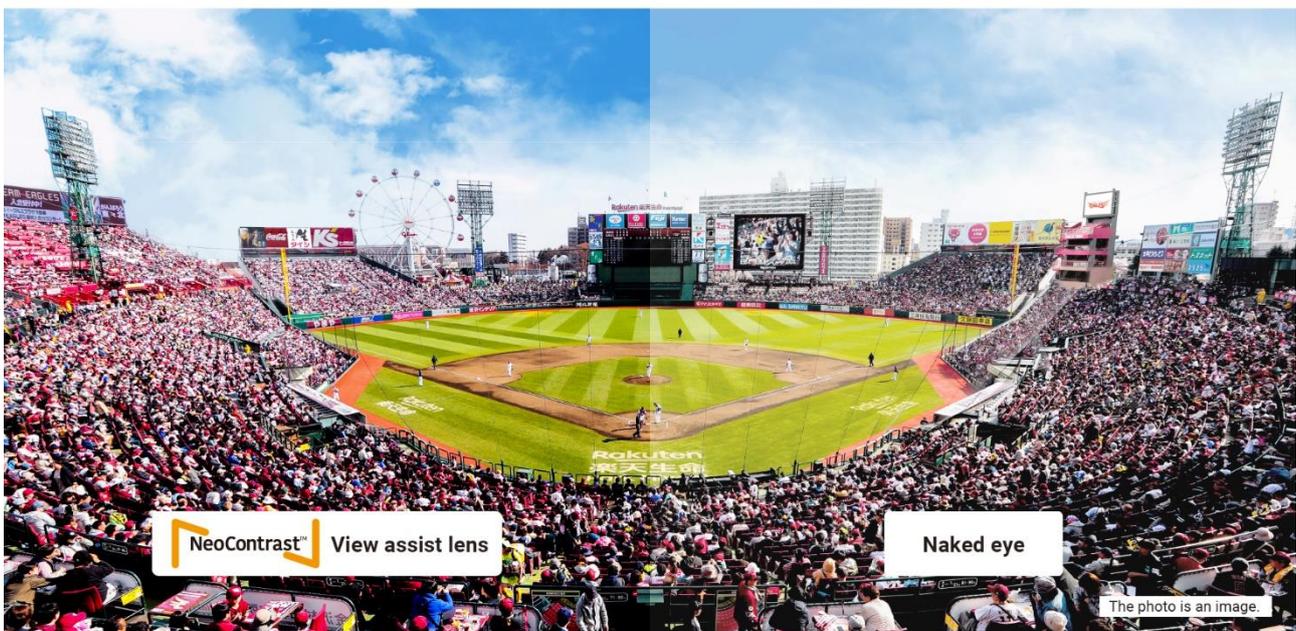
©Rakuten Eagles

Infielder UCHIDA Yasuhito (Left) and catcher OHTA Hikaru (Right) using sports glasses fitted with NeoContrast™ lenses

2. Ability to Provide a Clearer, More Vivid In-Stadium View

In a survey of baseball spectators^{*4} who trialed sports glasses fitted with NeoContrast™ lenses at a night game held at Rakuten Seimei Park Miyagi, more than 90 percent of the users responded that they “could see better” due to the effects of the lenses. In response to questions about how things looked through the lenses, more than 40 percent of the spectators replied that things “looked more vividly colored” or “looked clearer,” or that “pitched balls and fly balls were more visible as they flew through the air.” Some spectators also reported enhanced definition or a greater sense of three-dimensionality.

Enhances contrast for clearer vision in more vivid color



Tests on healthy subjects conducted by Professor Handa similarly found that using NeoContrast™ lenses increased contrast sensitivity and speed of visual response.^{*5}

The results of these verification tests and the questionnaire responses showed that increasing color contrast enabled people to recognize hard-to-see objects quickly and provided a clearer view of the scenery as a whole.

“This innovative lens technology even makes writing ‘easier to see.’ Verification tests on 30 subjects showed increases in contrast sensitivity and the speed of visual response. Already possessing outstanding dynamic visual acuity, professional baseball players also stated that they were able to see even better. As ordinary users find that the lenses cut glare, ensuring more comfortable vision, I hope that NeoContrast™ will be used to create a new alternative to ordinary spectacles and sunglasses.”

– Professor HANDA Tomoya

Under Professor Handa’s supervision, Mitsui Chemicals has been providing eye health support to Rakuten Eagles players since 2019, and will continue offering such assistance for further improved performance in play moving forward.

***1 NeoContrast™:**

A lens that uses wavelength-controlling technology to selectively cut the specific yellow light wavelength that causes glare, it protects the eyes from glare and enhances their ability to distinguish brightness and color differences.

https://us.mitsuichemicals.com/sites/default/files/media/document/2020/pr_neocontrast_en.pdf

***2 Professor HANDA Tomoya,**

Orthoptics and Visual Science Course, School of Allied Health Sciences, Kitasato University



Completed a Ph.D. in medicine at the Department of Ophthalmology, Kitasato University Graduate School of Medical Sciences in 2006.

Since 2016, Handa has been a professor on the Orthoptics and Visual Science Course at Kitasato University’s School of Allied Health Sciences.

He is a certified orthoptist.

***3 QoV:**

A measure of quality and satisfaction in all areas related to eyes and eyesight in our lives.

The term encompasses vision optimization and comfort, ocular health and measures to prevent optical diseases.

***4 Survey of baseball spectators:**

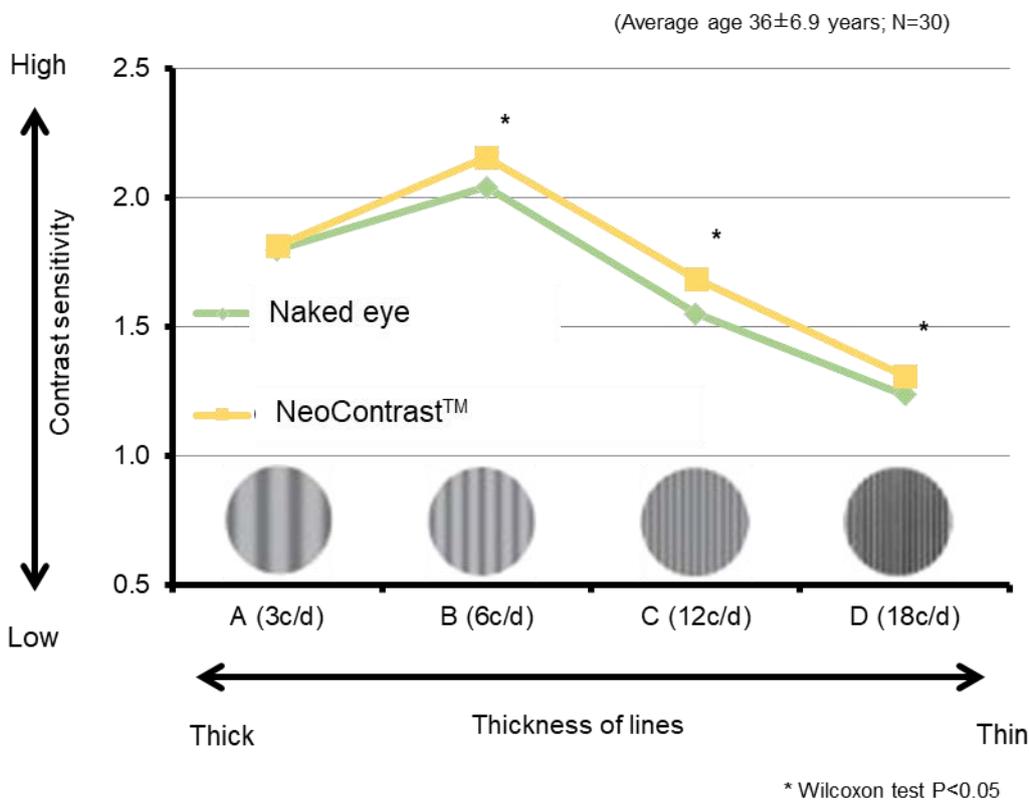
Conducted among 102 spectators at a night game held at Rakuten Seimei Park Miyagi on August 27, 2019.

***5 Contrast sensitivity and visual response speed tests:**

(1) Contrast sensitivity test (measuring the ability to make out low-contrast objects)

Objects with low contrast sensitivity look blurry, making it hard to read what is written on them.

Tests on healthy subjects found that contrast sensitivity improved when using NeoContrast™ lenses.



(2) Visual response speed test (measuring how fast the subject perceived what they were looking at)

Tests of visual response speed (speed of response when stating the position of the gap in the Landolt C used in vision tests) in healthy subjects found that subjects were able to perceive smaller, thinner objects more quickly when using NeoContrast™ lenses.

