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For Immediate Release

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Presentation on AR UV Nanoimprint Resin

at SPIE (The International Society for Optical Engineering)

1. About SPIE AR | VR | MR

SPIE (The International Society for Optical Engineering) is the international society for optics and photonics. It organizes conferences in various fields, including optoelectronics, remote sensing, information communication, and mechanical optics, where researchers, engineers, investors, entrepreneurs, customers, and suppliers from around the world participate.

Toyo Gosei will participate in the AR (Augmented Reality) | VR (Virtual Reality) | MR (Mixed Reality) conference, contributing to a poster session on the research and development of UV nanoimprint resins.

2. Details of the Presentation

Nanoimprint technology is a fine patterning technology allowing the transfer of nano-scale patterns from mold to resin on a substrate. Among the technologies, UV nanoimprint has the advantage of fabrication patterns at angles that were challenging with traditional lithographic pattern techniques.
Furthermore, the processing flow consists of four simple stages: coating, pressing, curing, and releasing the mold, making it cost-effective and easy to mass produce. Nanoimprint technology is expected to witness market expansion against the backdrop of the metaverse, and the potential for application development using nanoimprint technology is expanding beyond the AR glasses market. In this context, using a working stamp replicated from an expensive master mold has become standard practice.

At SPIE, we will present an improved version of our working stamp resins “PAK-TRAD series” which shows a significant reduction of the dimensional changes that occur conventionally when replicating the patterns of the master mold. Additionally, in the next product fabricating process, we found that the improved working stamp can be repeatedly used to fabricate the final products using high refractive index resin, with the results of high processing accuracy.

Title: Dimensional stability in UV imprint resins of working stamp for producing augmented reality waveguides: from a master mold to final products

Presenter*/Author: Taigo Akasaki*, Risa Tanaka, Takeshi Osaki, Toyo Gosei Co., Ltd.

Date: 27 January 2025・5:30 PM – 7:00 PM PST

Venue: Moscone West, Lobby, (Level 3)

Session: Poster 13414-85

Website: https://spie.org/conferences-and-exhibitions/ar-vr-mr

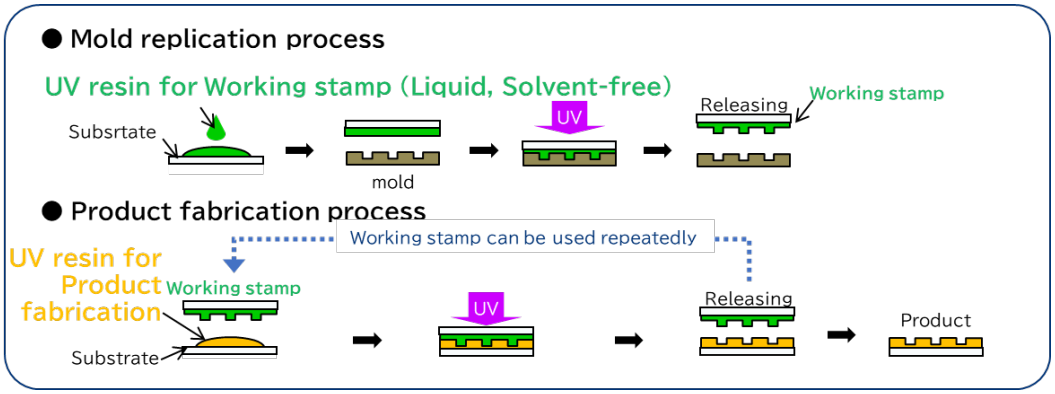
[Features of our UV nanoimprint resins for working stamps】

・High durability for repeat imprinting

・High releasability properties

・Solvent-free, no pre-bake process for solvent removal

・UV cure only, no post-bake process to ensure curing



【About TOYO GOHSEI KOGYO CO.】

Toyo Gosei Kogyo Co., Ltd. is an independent chemical materials manufacturer founded in 1954 and celebrating the 70th anniversary in 2024.

Its core businesses are the photosensitive materials business, which supplies photosensitive materials used in the manufacture of semiconductors and flat panel displays, and the chemical products business, which supplies high-purity solvents used in the manufacture of electronic devices.

The logistics business also includes the storage and management of liquid chemicals.

As a company with high originality, production technology, and stable supply capabilities, the photosensitive materials business was selected by the Ministry of Economy, Trade and Industry as one of the “Top 100 Global Niche Top Companies in 2020”.

In November 2024, plans to expand supply capacity at Chiba Plant (Tonosho-machi, Chiba Prefecture), Ichikawa Plant (Ichikawa City, Ichikawa Prefecture), and Awaji Plant (Awaji City, Hyogo Prefecture), The Minister of Economy, Trade and Industry has approved the plan to expand the supply capacity of the company’s Ichikawa (Ichikawa City) and Awaji (Awaji City, Hyogo) plants as eligible for subsidies under the Act on the Promotion of National Security Assurance. The company is expected to grow as a promising company in the future strategy of Japan’s semiconductor industry.

TOYO GOSEI KOGYO CO. ：https://www.toyogosei.co.jp/english/

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