Materials China

NTU Reports Aryl Diazirine Photoinitiators with Low Cytotoxicity

An NTU team has reported aryl diazirine photoinitiators designed for water-based resins and reduced curing shrinkage in a peer-reviewed study.

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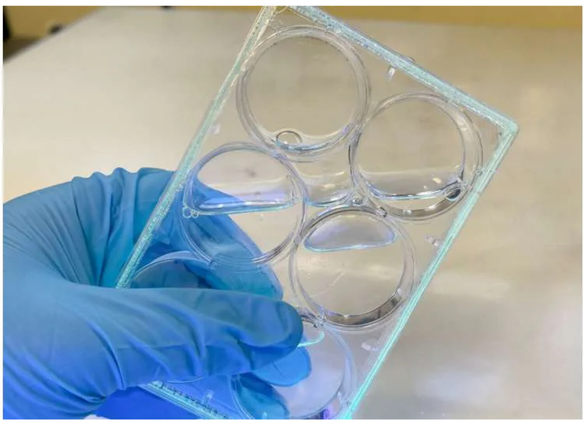

Image: NTU Singapore via 南極熊

SOURCE 南极熊

Researchers at Nanyang Technological University, Singapore have reported the use of aryl diazirines as photoinitiators in NPG Asia Materials. The paper was published on October 16, 2026. For the compounds and human-cell tests used in the study, the team reported low cytotoxicity and positioned the chemistry as a candidate response to the toxicity and poor water solubility associated with established photoinitiators.

According to the researchers, several compounds are liquid and water-soluble at room temperature, making them easier to incorporate into aqueous systems. The nitrogen released during curing can also be tuned to offset polymerization shrinkage. Demonstrations included 3D-printed microfluidic channels made with a soybean-oil-based resin and a watertight form-in-place gasket cured with a handheld UV light.

The work remains at the materials-research stage and does not establish the overall safety of commercial resins or finished products. Skin safety of complete uncured formulations, long-term exposure, production-scale quality, storage stability and compatibility with existing printers are not established by the announcement. The team identifies the move from laboratory results to industrial manufacturing as its next step.

Key facts

- The peer-reviewed paper was published in NPG Asia Materials on October 16, 2026
- The study evaluates aryl diazirine photoinitiators
- It reports water-soluble variants and tunable nitrogen release to address curing shrinkage
- Microfluidic channels were 3D printed using a soybean-oil-based resin

Context

The chemistry could broaden options for water-based and biomaterial photocuring, but commercialization will require full-formulation safety and scale-up validation.

Suggest a correction

NTU科学家研发出用于更安全树脂3D打印的无毒光引发剂

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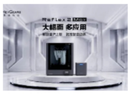

3D printing CHINA

HeyGears Introduces Large-Format Reflex 2 Max Resin Printer

The large-format resin printer lists a 353.3 × 198.7 × 400 mm build volume and support for more than 30 resins; productivity and cost reductions are manufacturer claims.

南极熊 30/10/2026



3D printing

Formlabs Launches Form Studio 1 MSLA Printer Starting at $699

The 200 × 125 × 235 mm system uses 35 µm pixels and automated resin feeding and heating, with shipments scheduled for November 16.

3DPrint.com 22/10/2026



Materials CHINA

Xenia introduces flexible PEBA filament with 15% chopped carbon fiber

Xenia Materials has introduced XECARB PEBA-CF, a 1.75 mm FFF/FDM filament combining a PEBA matrix with 15% chopped carbon fiber, for Formnext 2026.

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