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Triboluminescence Instrumentation for Rapid Detection of Homochiral Crystallinity in Pharmaceutical Formulations

A simple, inexpensive method utilizes triboluminescence to quickly and accurately detect trace crystallinity in pharmaceutical formulations, streamlining drug stability studies and reducing time-to-market.

Many of today's modern pharmaceuticals utilize Amorphous Solid Dispersions (ASDs) in an attempt to increase the overall effectiveness of a drug. Unfortunately, compounds using ASDs have the potential to crystallize, changing from an amorphous solid to a crystalline solid over an indeterminate time. Before such a drug can be released, stability studies must be performed to determine the viability of the drug after extended time. This normally requires the compound to be subjected to months of elevated temperature and humidity. This expensive, time-consuming process often leads to major backups in the drug development process.

Researchers at Purdue University have developed a simple, inexpensive method for the detection of trace crystallinity in pharmaceutical formulations. This new method uses the inherent ability of crystalline compounds to support triboluminescence. By transferring kinetic energy to the sample, trace amounts of crystals can be detected by measuring the optical radiation caused by the triboluminescence of the compound. This new method allows for trace crystallinity in new drugs to be quickly and accurately identified by a simple and relatively inexpensive test.

To view a video related to this technology, click on this link: https://youtu.be/em4n0Q6mWjI

Advantages:

-Improved drug to market time

-Simple process

-Low material cost

Technology ID

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Category

Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation

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Potential Applications:

-Crystallinity detection

-Optical testing

-Pharmaceutical stability studies

TRL: 3

Intellectual Property:

Provisional-Patent, 2015-09-27, United States | PCT-Patent, 2016-09-27, WO | NATL-Patent, 2018-04-25, United States | NATL-Patent, 2018-04-28, European Patent

Keywords: Amorphous Solid Dispersions, ASD, trace crystallinity detection, pharmaceutical formulations, triboluminescence, kinetic energy transfer, optical radiation, drug stability studies, drug development process, crystallinity identification