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'Setting the Standard'

Quality Assurance in the Analytical Laboratory

# Spectrophotometer UV Resolution (Bandwidth) Qualification for Derivative Spectroscopy

## Toluene in Methanol Reference

### Purpose

A resolution test for use in derivative spectroscopy.

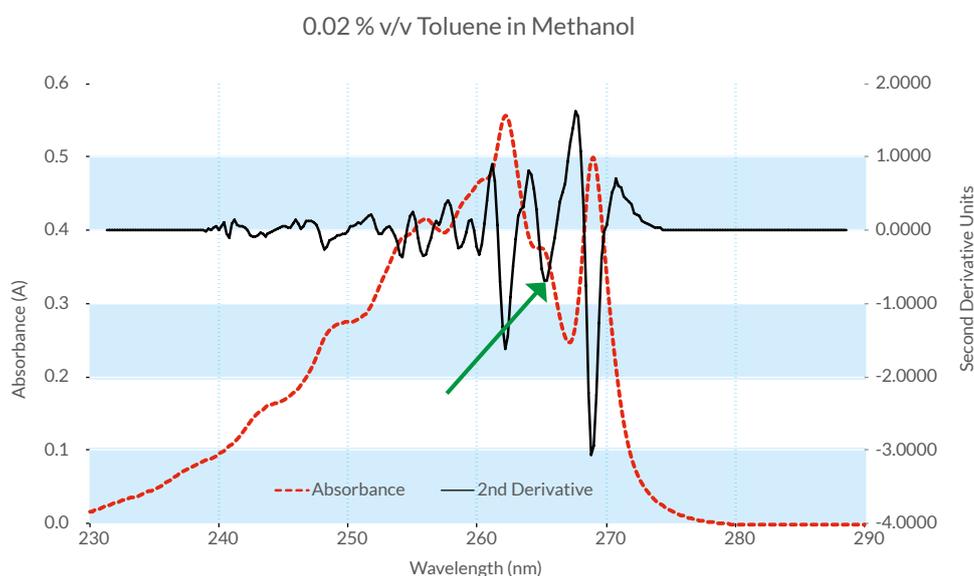
### Description and Discussion

0.020% v/v solution of toluene in methanol, permanently sealed by heat fusion into a far UV quartz cell. Supplied with a methanol blank.

In derivative spectroscopy, absorption spectra are transformed into first-, second- or higher-order derivatives. This technique facilitates the resolution of two or more peaks that overlap and become merged into a composite curve, and are represented by shoulders on that curve rather than as individual peaks. By calculating the derivative, the underlying individual spectra can be more readily identified. Probably the most used is the second order, i.e.  $d^2 A/d\lambda^2$ .

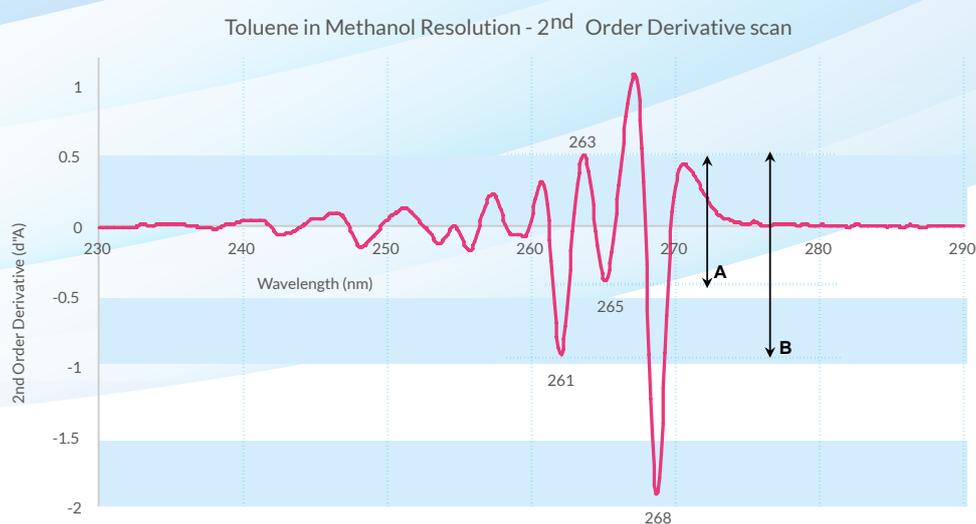
When this reference material is scanned in 2nd derivative mode against the methanol blank, the resulting spectrum should be similar to that shown, with a small negative extremum. (→) at 285 nm between two larger negative extrema at 261 nm and 268 nm.

To meet the requirements of the Pharmacopoeia, the ratio A/B should be greater than 0.2:



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### Certification and Documentation

A Certificate of Calibration and Traceability and full instructions for use are provided with each Reference Material. The certificate is supplied in electronic format, on a USB drive in the same box as the references, allowing hard copy to be produced on demand and giving easy interface to the user's own IT systems. Certification measurements are made on a reference spectrophotometer that has been qualified using Standard Reference Materials certified by the National Institute of Standards and Technology (NIST) in the USA, or against primary physical references such as elemental emission lines.

### Warranty

STARNA offers a Lifetime Guarantee on all Starna Certified Reference Materials, unless otherwise stated, such that any reference material that moves outside its published uncertainty budget will be replaced free of charge. This guarantee is subject to the reference materials being re-certified at least every two years and that the references have not been physically, thermally or optically abused. The STARNA UKAS accredited calibration laboratory aims to re-certify and despatch references within five working days from receipt.

### Accreditation

Starna Scientific is accredited to both ISO 17034 as a Reference Material producer, and ISO/IEC 17025 as a Calibration Laboratory for optical reference measurements. Starna Scientific's manufacturing facility is accredited to the ISO 9001 Quality Management System with BSI. For details see [www.starna.com/accreditations](http://www.starna.com/accreditations).

### How to Order

|                                                   | CATALOGUE<br>NUMBER |
|---------------------------------------------------|---------------------|
| Toluene in methanol cell with methanol blank cell | RM-TM               |



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