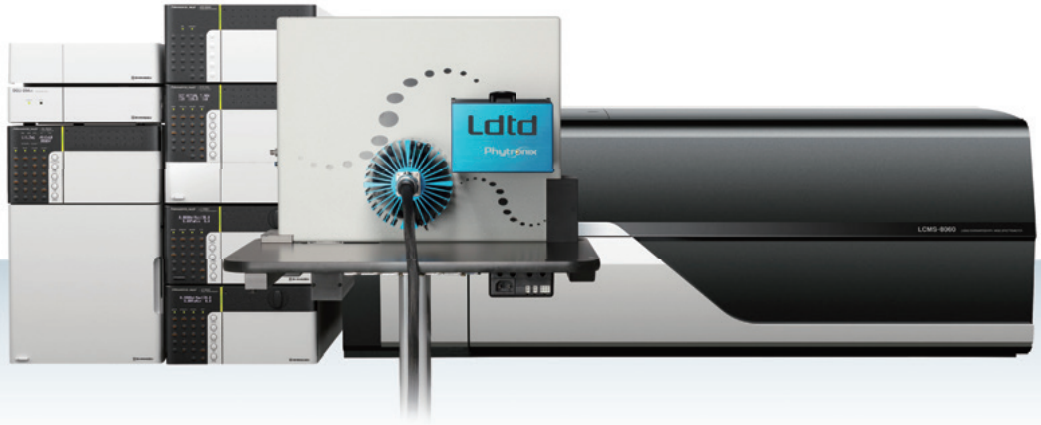
SHIMADZU
Excellence in Science

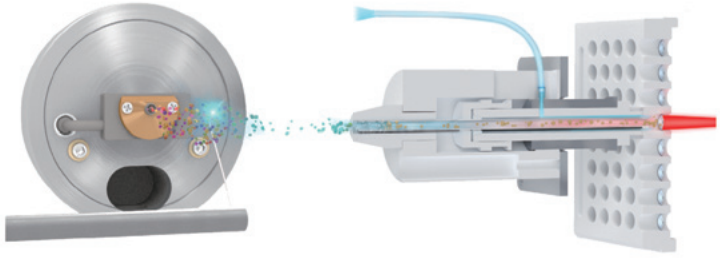
LDTD™ Ion Source Option for LCMS-8050/8060

High-Performance Liquid Chromatograph Mass Spectrometer

The laser diode thermal desorption (LDTD)™ ion source is a direct ion source for mass spectrometers that provides users with exceptional, high-throughput performance. This innovative technology enables ultra-high speed analysis in less than 4 seconds per sample. The LCMS-8060 system, equipped with an LDTD ion source (US Patent 7, 321, 116, Phytronix Technologies Inc.), delivers solutions that complement screening and identification testing in various fields such as medicine, clinical and food safety.



The instrument's outstanding design ensures that laser diode thermal desorption and atmospheric pressure chemical ionization (APCI) are performed rapidly on the sample to be analyzed.



Unlike LC-MS, LDTD requires no mobile phase, enabling reduced background noise during measurements. The sample is heated and desorbed by a laser diode as a neutral molecule in the gas phase. These molecular species are ionized using atmospheric pressure chemical ionization (APCI) by corona discharge. This thermal desorption process produces molecular ions in a very short time.

Basic Features

▸ LDTD Ion Source

- Easily connected to a mass spectrometer
- Analysis in bipolar (positive/negative) mode by APCI
- Supports ten LazWell plates (960 samples)
- Direct sample introduction with no carryover
- No matrix or mobile phase required
- 20 W laser output

▸ Combination with LCMS-8050/8060

- Can be used as LCMS with LDTD connected
- Support for LCMS analysis in ESI, DUIS, or APCI mode

▸ LazWell Plate (dedicated plate)

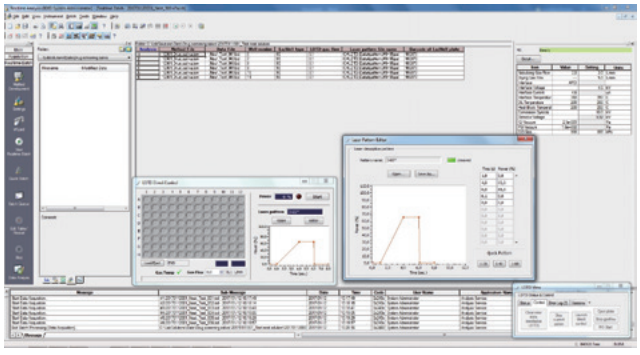
- Supports 96-well plates (Used in LDTD-960 system)
- Barcode managed samples
- Supports low volume (2 to 10 µL)
- LazWell plates are created in a quality-controlled environment
- Can be used in combination with general dispenser

▸ Software Supports Serial Analysis Workflows

- Easy installation procedure
- Batch analysis with LabSolutions software
- Barcode reader for sample authentication

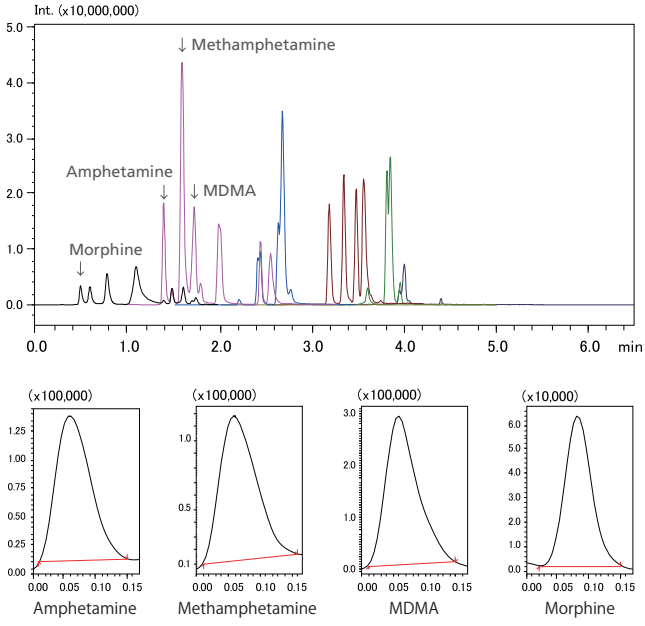
Easy-to-Use Software

Users can specify laser patterns created with LDTD control software when creating batch files on LabSolutions software. Users can easily make settings for batch analyses.



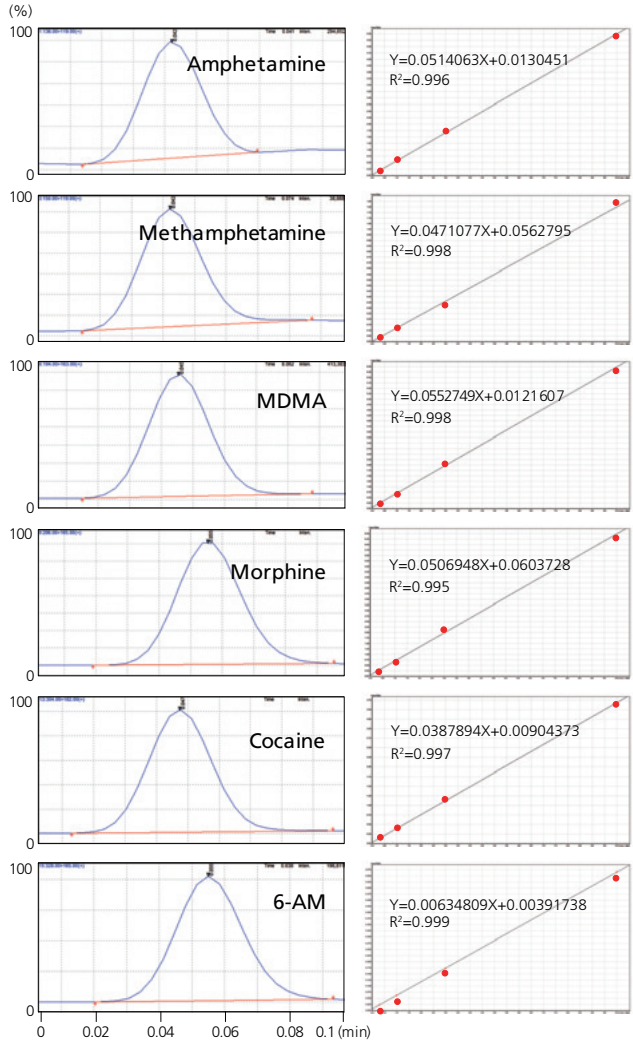
Switching Between LC-MS and LDTD-MS

LC-MS and LDTD-MS can be switched with the LDTD ion source connected. In the following example, ESI analysis by LCMS-8060 (upper figure) and APCI analysis by LDTD-MS (lower figure) were performed using a mixed standard solution that includes the target component for a pain management system.



Screening for Drugs in Saliva

LDTD-MS/MS makes ultra-high-speed quantitative analysis possible. The following example shows the analysis of six drugs in saliva by the LCMS-8060 (6.0 seconds per sample).



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