

## Mass Analysis Using TLC-MS Interface

The common procedure for confirming the mass spectral information for components separated by Thin Layer Chromatography (TLC) involves the following manual steps: (1) removing the spot from the plate, (2) extraction, and (3) analysis by a mass analyzer. It is a time consuming operation. The CAMAG® TLC-MS Interface 2 (CAMAG) enables automation of these procedures by using online solvent extraction, so the extraction and introduction to the mass analyzer can be simplified.

In this report, the TLC-MS Interface 2 is used in combination with the 5610 MSD. A target spot was directly extracted from a TLC plate and analyzed by the MS Detector, and example is shown.



5610 MS Detector

### Abstract of TLC-MS Analysis

#### Analytical Conditions

Table 1 MS Detector Settings

Ionization method	ESI
Ionization mode	Positive
Ionization voltage	2600 V
Measurement mode	Scan

Table 2 Conditions for LC Pump Setting

Mobile phase	CH <sub>3</sub> OH
Flow rate	0.1 mL/min (Split ratio = 1:50)

Table 3 Conditions for TLC-MS Interface 2 Setting

N <sub>2</sub> gas	400 kPa
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#### Analysis Procedure

2 μL of caffeine and lidocaine in methanol are each spotted on TLC plates. The CAMAG elution head is placed in close contact to the spots, and the extraction is performed by the delivery of a solvent. The extract is quickly delivered to a MS Detector and the MS signal can be obtained. When the analysis of a spot is complete, the solvents, etc. are removed from the extraction flow channel with N<sub>2</sub> gas.

#### TLC-MS Analysis

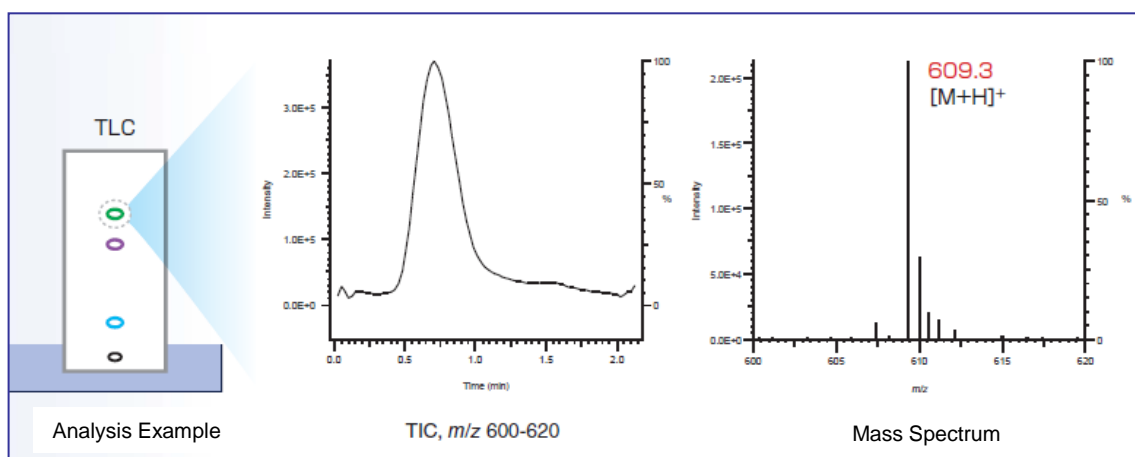
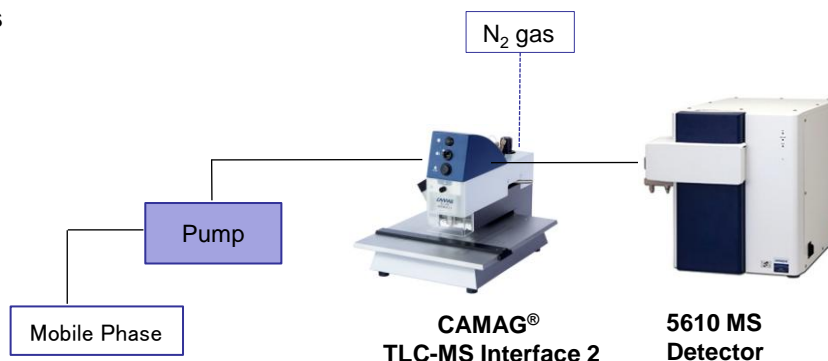


Figure 1 Example of System Configuration and Example of Reserpine Analysis



## Example of Analysis by TLC-MS

### ■ Caffeine 200 ng

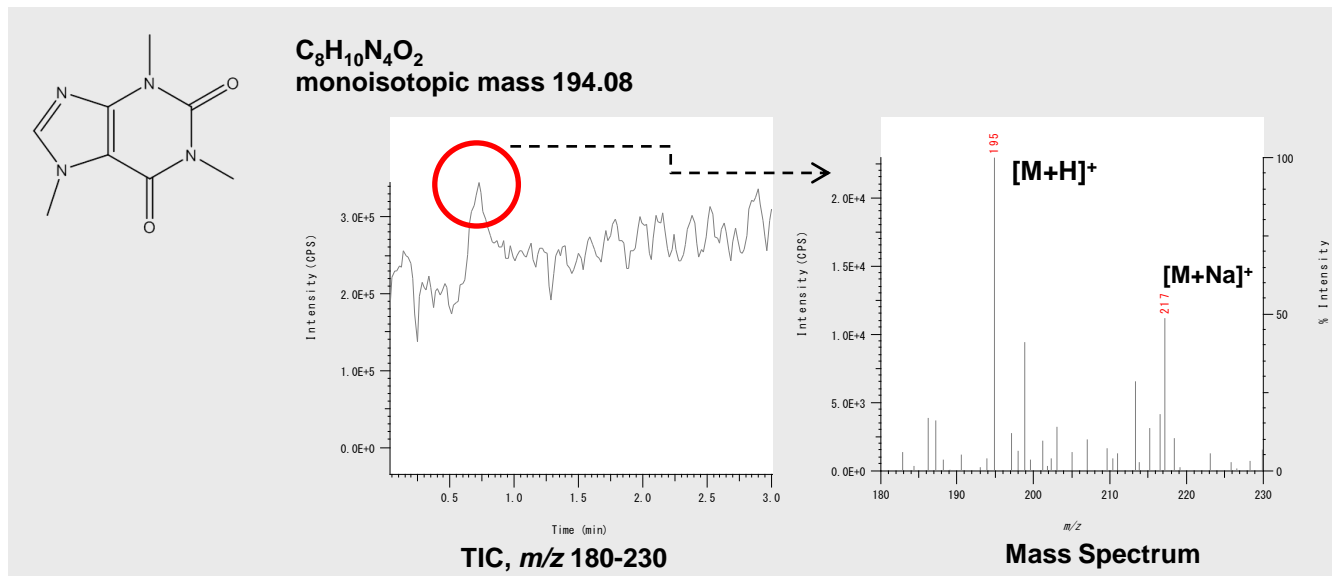


Figure 2 Example of Caffeine Analysis by TLC-MS System

### ■ Lidocaine 200 ng

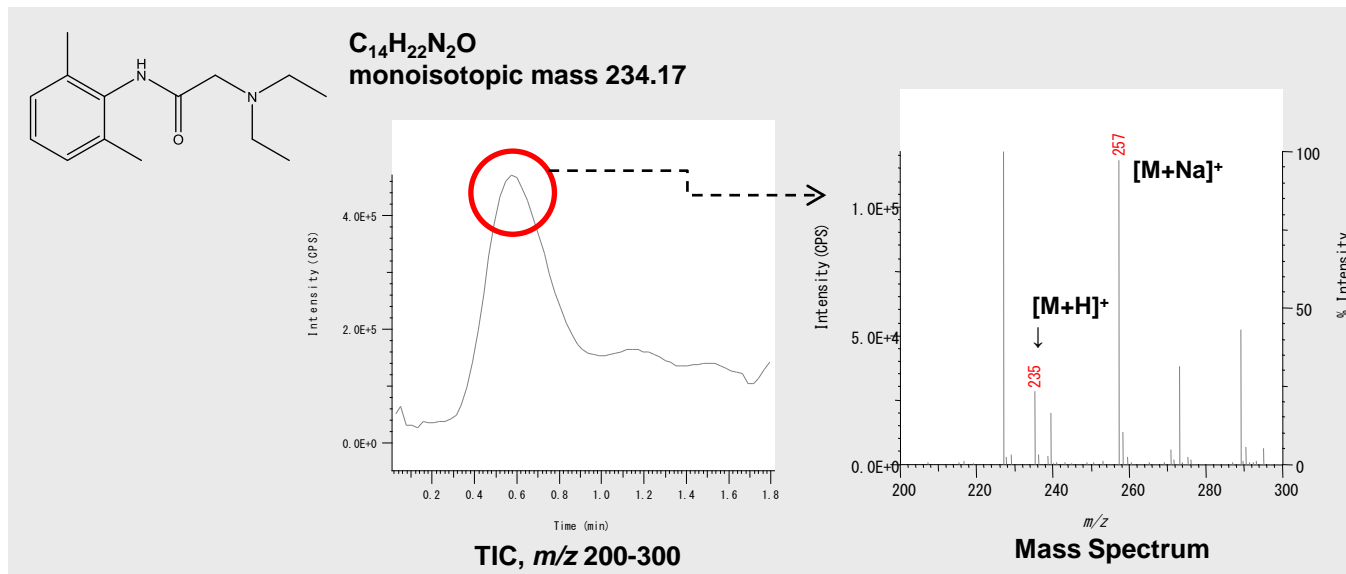


Figure 3 Example of Lidocaine Analysis by TLC-MS System

By using the TLC-MS Interface, a target spot can be directly extracted from the TLC plate, and the mass spectral information can be collected. As a result, it is possible to include the mass information in the TLC analysis report, greatly enhancing the usefulness of TLC.

\*These data were obtained with the support from EIKO Instruments Co., Ltd.

<Main system configuration> Chromaster 5110 Pump, 5610 MS Detector, CAMAG® TLC-MS Interface 2

NOTE: These data are an example of measurement; the individual values cannot be guaranteed.