Amphetamine analysis is one of the most common requests for Forensic Laboratories. Here we demonstrate the discriminating power of the DiscovIR system by injecting a standard containing six amphetamines into the GC and identifying each peak in real time. The six compounds are:

- Amphetamine
- Phentermine
- Methamphetamine
- MDA
- N-methyl MDA
- N-ethyl MDA

In this application note we display the spectra and library match for each of the six compounds. It is worth noting the spectra obtained with the automated DiscovIR system match well with standard solid phase libraries created with films on NaCl plates.

**Figure 1:** Peak Chromatogram of the amphetamine mixture.

In a peak chromatogram, the maximum absorbance detected anywhere in the mid-IR spectrum is plotted for every point in time.
Figure 2: FTIR Spectra and Library Match for compound with RT 7.714

**FTIR Spectra** *(Direct deposit, obtained in real time on the DiscovIR)*

![Graph showing FTIR spectra](image)

**Library Match:**
Amphetamine Film NaCl

<table>
<thead>
<tr>
<th>Hit</th>
<th>Quality</th>
<th>Library</th>
<th>Memo</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>0.336635</td>
<td>fdtmtrto.lib</td>
<td>D_AMPHETAMINE FILM NaCl;</td>
</tr>
</tbody>
</table>

Figure 3: FTIR Spectra and Library Match for compound with RT 8.114

**FTIR Spectra** *(Direct deposit, obtained in real time on the DiscovIR)*

![Graph showing FTIR spectra](image)

**Library Match:**
Phentermine Film NaCl

<table>
<thead>
<tr>
<th>Hit</th>
<th>Quality</th>
<th>Library</th>
<th>Memo</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>0.295535</td>
<td>fdtmtrto.lib</td>
<td>PHENTERMINE FILM NaCl; FROM C-144</td>
</tr>
</tbody>
</table>
Figure 4: FTIR Spectra and Library Match for compound with RT 8.298

**FTIR Spectra**

(*Direct deposit, obtained in real time on the DiscovIR*)

**Library Match:**
Methamphetamine Film NaCl

![FTIR Spectra](image1)

<table>
<thead>
<tr>
<th>Hit</th>
<th>Quality</th>
<th>Library</th>
<th>Memo</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>0.198159</td>
<td>fdmtrnto.lib</td>
<td>D,L-Methamphetamine Film NaCl; FROM C-104</td>
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</tbody>
</table>

Figure 5: FTIR Spectra and Library Match for compound with RT 11.12

**FTIR Spectra** (*Direct deposit, obtained in real time on the DiscovIR*)

**Library Match:**
3,4-Methylenedioxyamphetamine; (MDA) Film AgCl

![FTIR Spectra](image2)

<table>
<thead>
<tr>
<th>Hit</th>
<th>Quality</th>
<th>Library</th>
<th>Memo</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>0.148141</td>
<td>fdmtrnto.lib</td>
<td>3,4-METHYLENEDIOXYAMPHETAMINE; (MDA) FILM AGCL</td>
</tr>
</tbody>
</table>

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Tel: +1.508.281.6232 | Email: info@spectra-analysis.com

www.spectra-analysis.com
Figure 6: FTIR Spectra and Library Match for compound with RT 11.55

**FTIR Spectra** *(Direct deposit, obtained in real time on the DiscovIR)*

**Library Match:**
MDMA Film NaCl; Synth JKW 9/86

<table>
<thead>
<tr>
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<th>Quality</th>
<th>Library</th>
<th>Memo</th>
</tr>
</thead>
<tbody>
<tr>
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<td>fdmtrnto.lib</td>
<td>MDMA FILM NACL; SYNTH JKW 9/86</td>
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</tbody>
</table>

Figure 7: FTIR Spectra and Library Match for compound with RT 11.94

**FTIR Spectra** *(Direct deposit, obtained in real time on the DiscovIR)*

**Library Match:**
N-Ethyl-MDA Film NaCl; From 0-775A

<table>
<thead>
<tr>
<th>Hit</th>
<th>Quality</th>
<th>Library</th>
<th>Memo</th>
</tr>
</thead>
<tbody>
<tr>
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<td>fdmtrnto.lib</td>
<td>N-ETHYL-MDA FILM NACL; FROM 0-775A</td>
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