

# *Using Dual Instrumentation for Phthalate Analysis*

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# CPSC Phthalate Symposium

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## AGENDA

- Test Method
- Instrumentation
- Results and Interpretation
- Questions & Answers

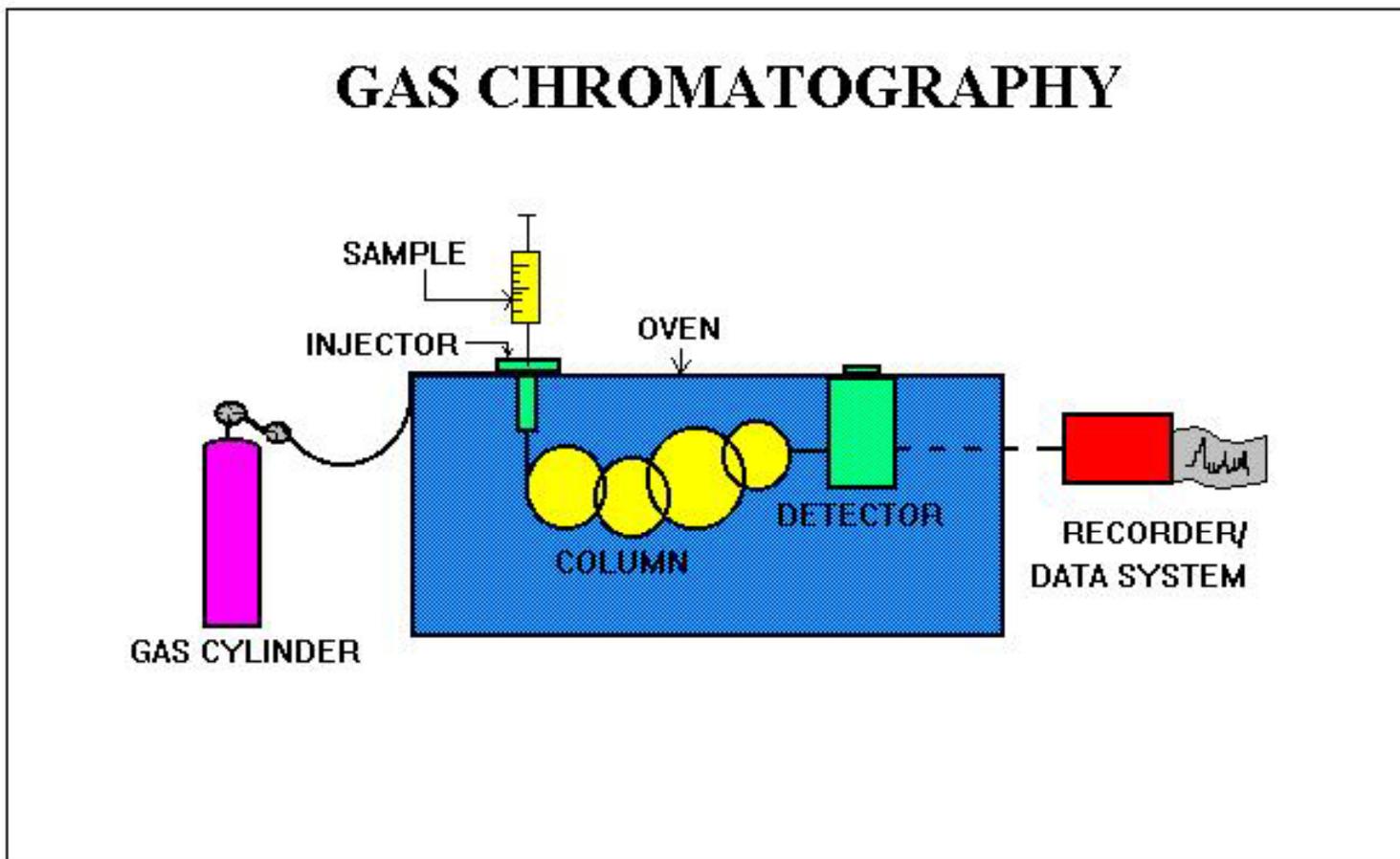
## ▶ Test Method

### • Method Summary

- Cut sample into small pieces (approximately 2mm x 2mm) and place in glass vial
- Add tetrahydrofuran (THF) and sonicate for 30 minutes at 40°C
  - Sonicate an additional 30 minutes if sample does not dissolve
- Acetonitrile (ACN) is added dropwise to precipitate the polymer
  - Olefin polymers may not fully precipitate out of solution using other solvents thereby creating potential interferences
- Allow to stand for 30 minutes
- Add Anthracene d-10 as an internal standard
- Filter and analyze by GCMS and/or LCMS

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## ► Instrumentation



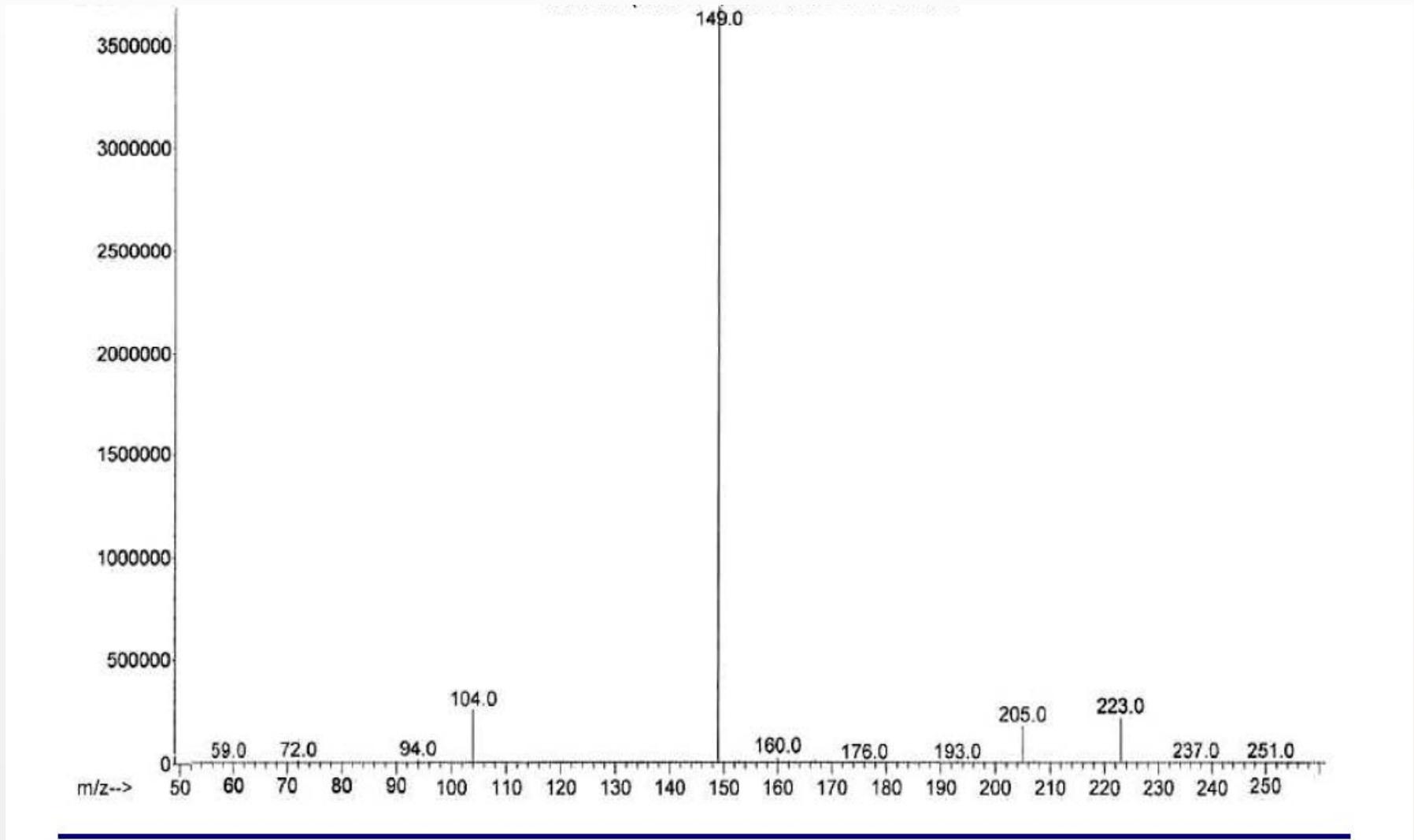
Source: Environmental Sampling & Monitoring Primer Gas Chromatography by Warangkana Punrattanasin and Christine Spada  
<http://www.cee.vt.edu/ewr/environmental/teach/smprimer/gc/gc.html>



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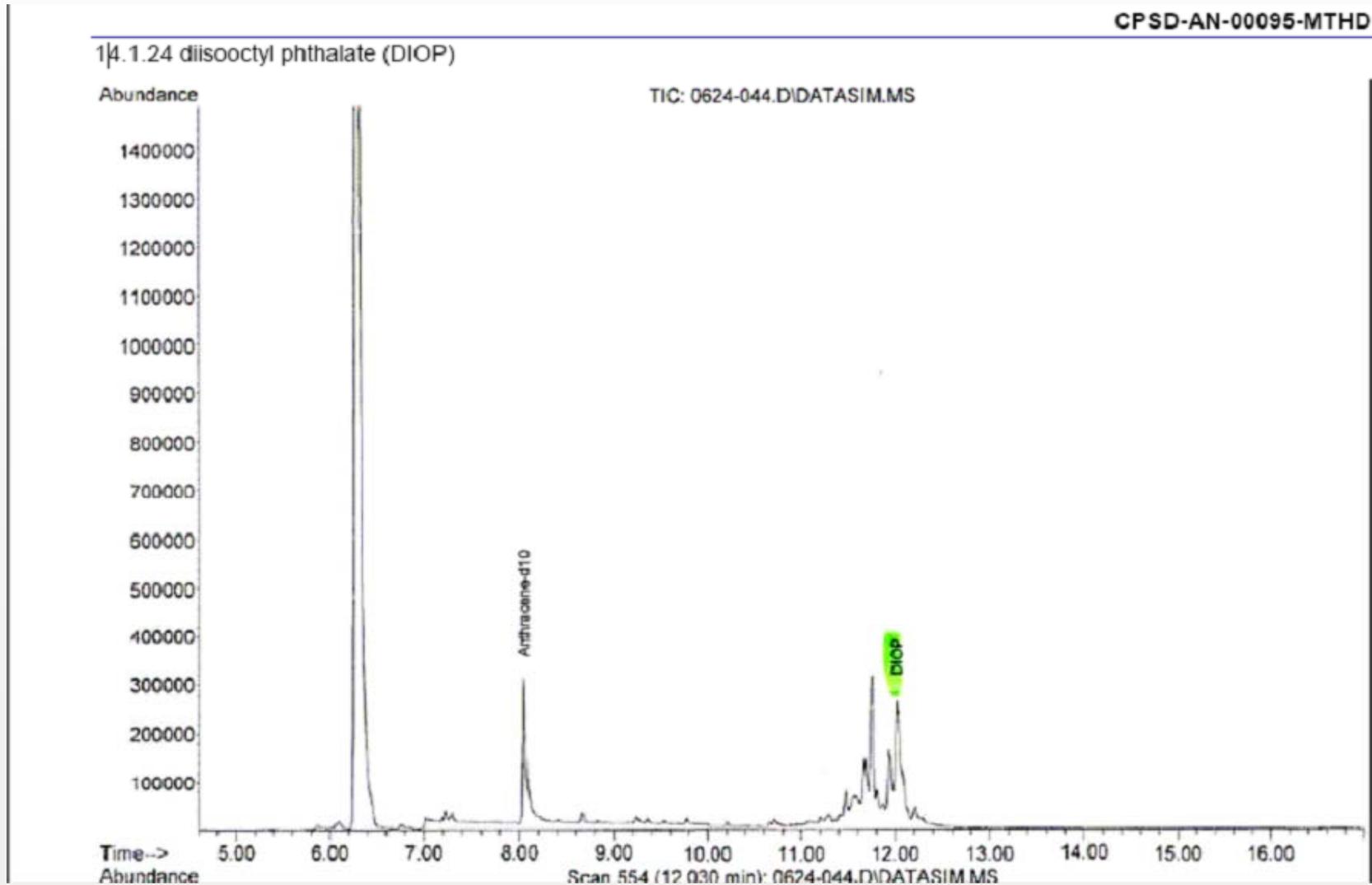
## ► Results and Interpretations



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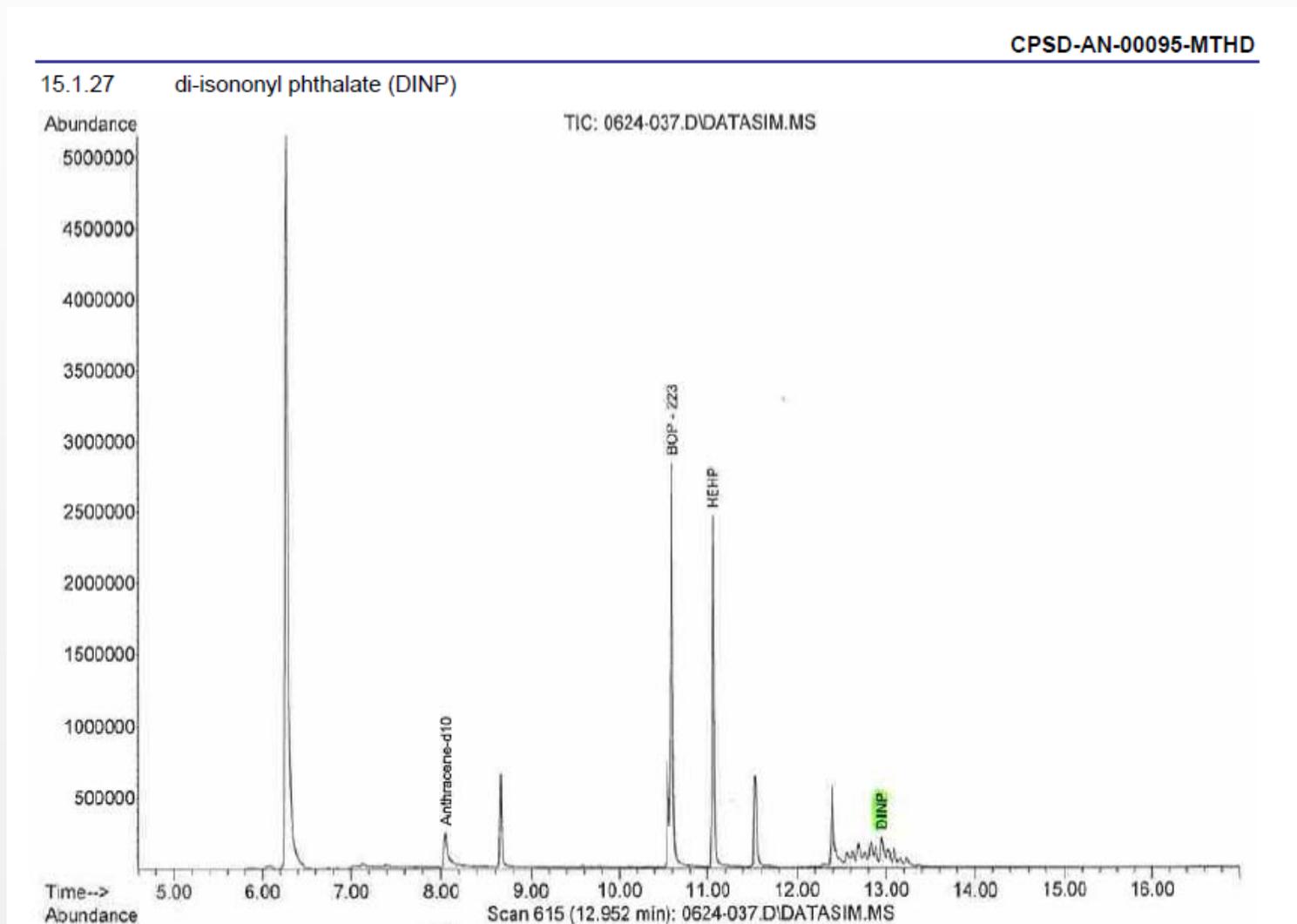
## ► Results and Interpretations - DIOP



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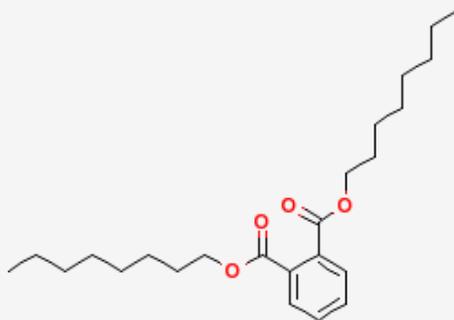
## ► Results and Interpretations - DINP



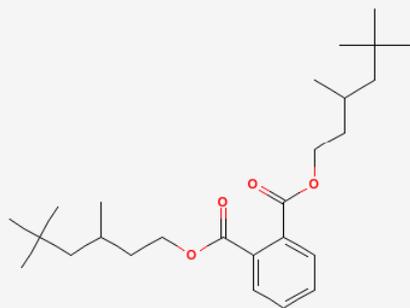
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## ▶ Results and Interpretations - Typical Interferences

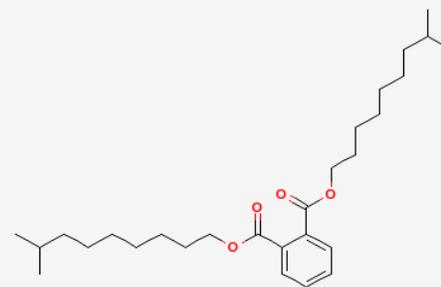
### ▶ DNOP 390.55612



### ▶ DINP 418.60928



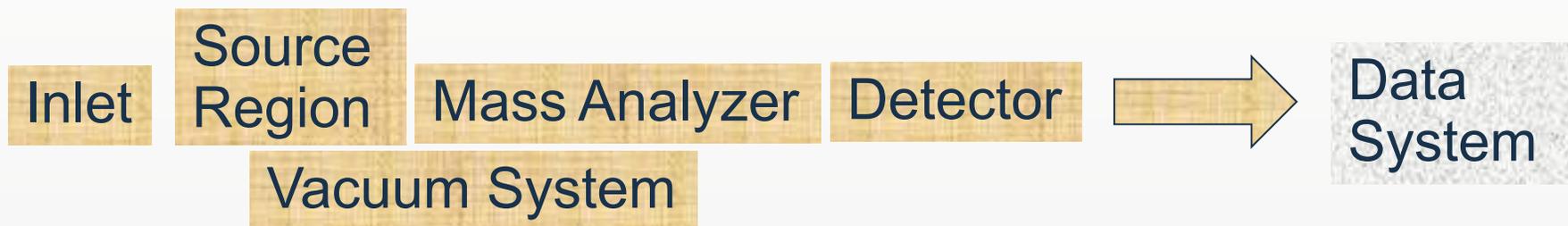
### ▶ DIDP 446.66244



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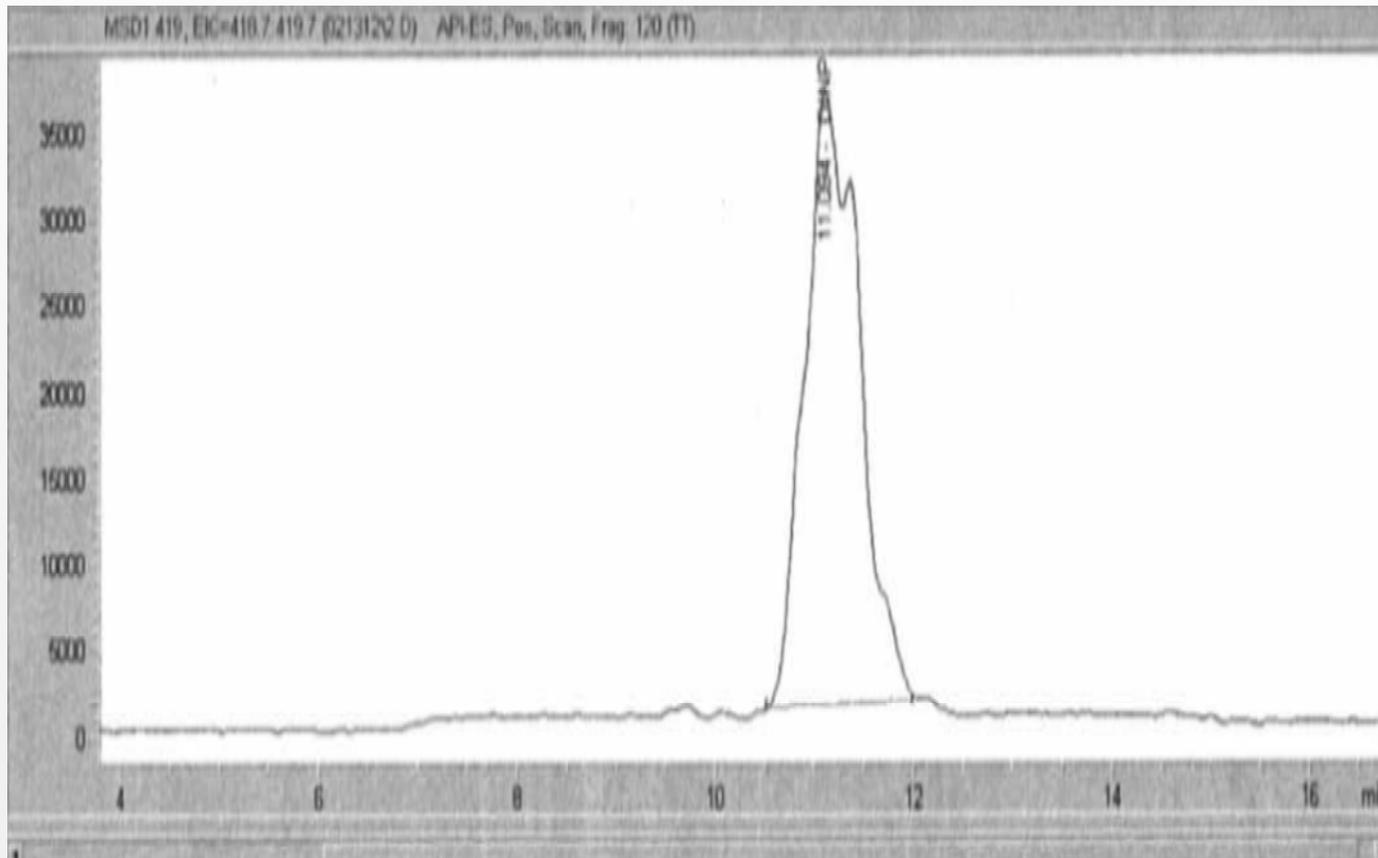
## ► Instrumentation – LC/MS



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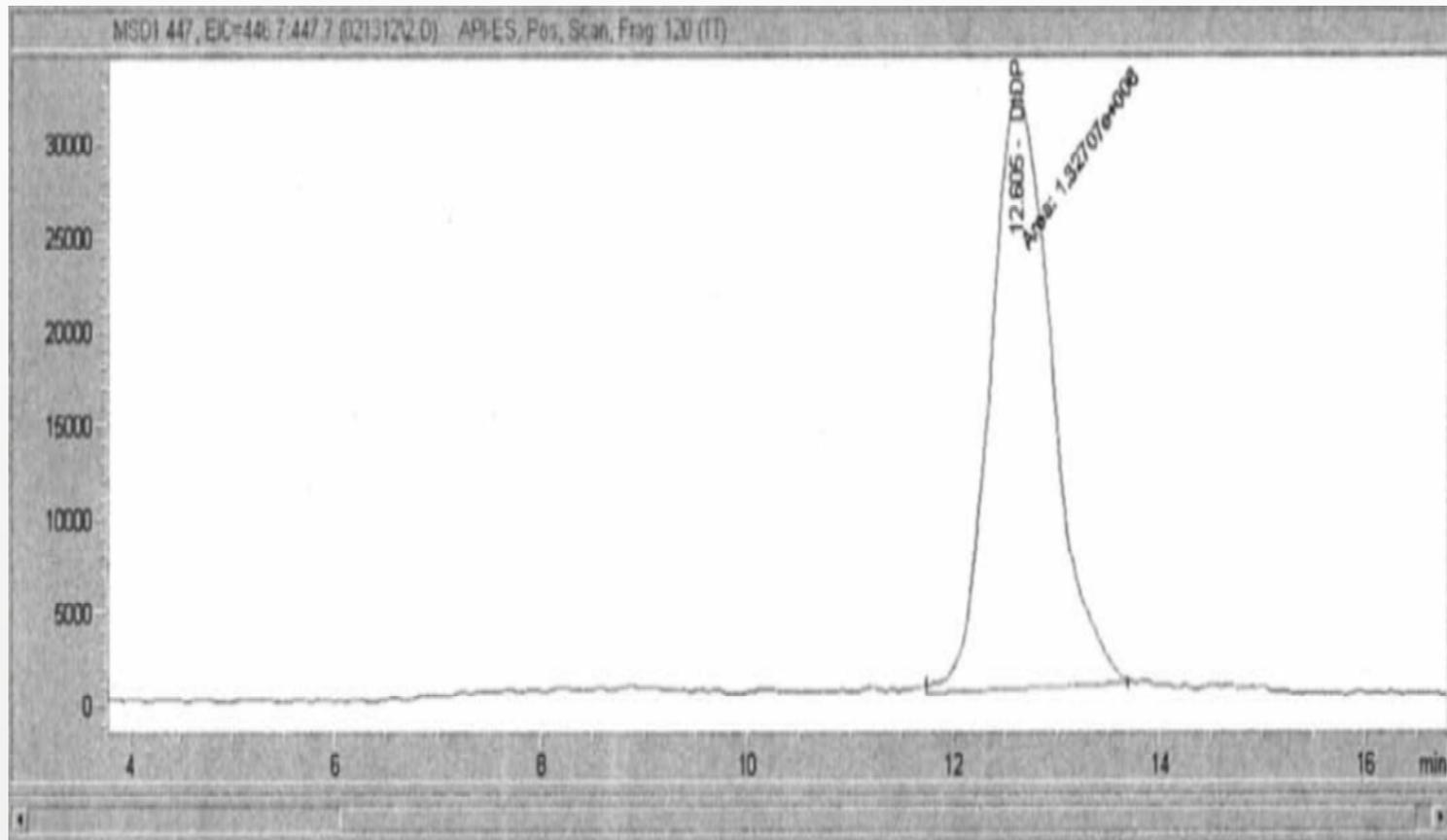
DINP at 1ppm by LCMS



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DIDP at 1ppm by LCMS

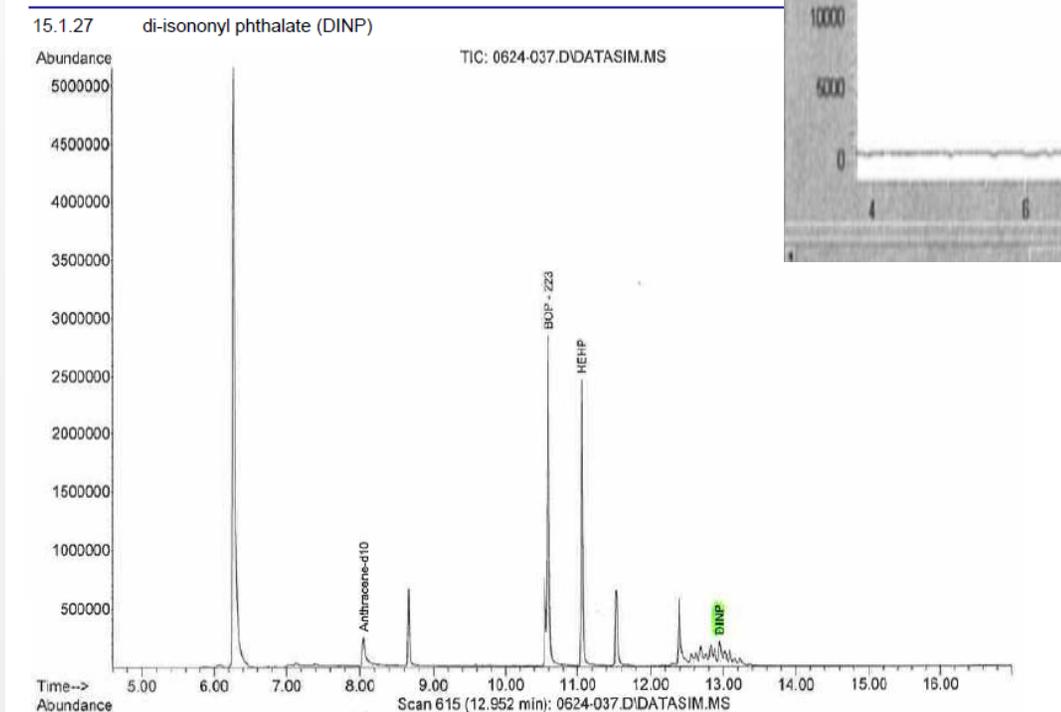
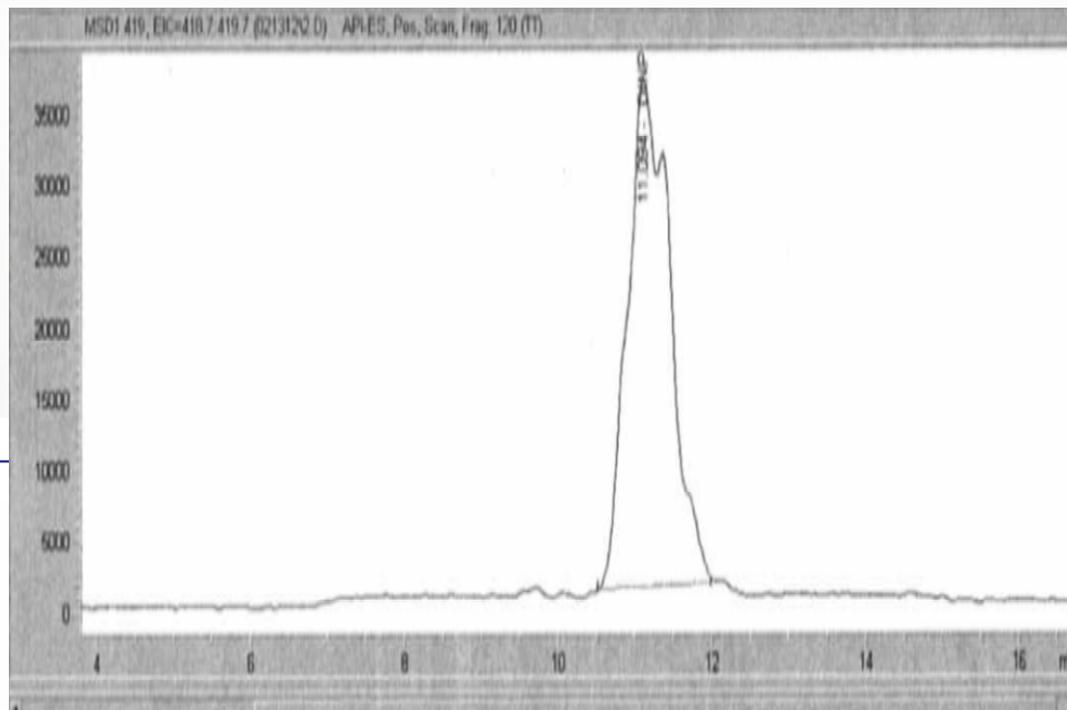


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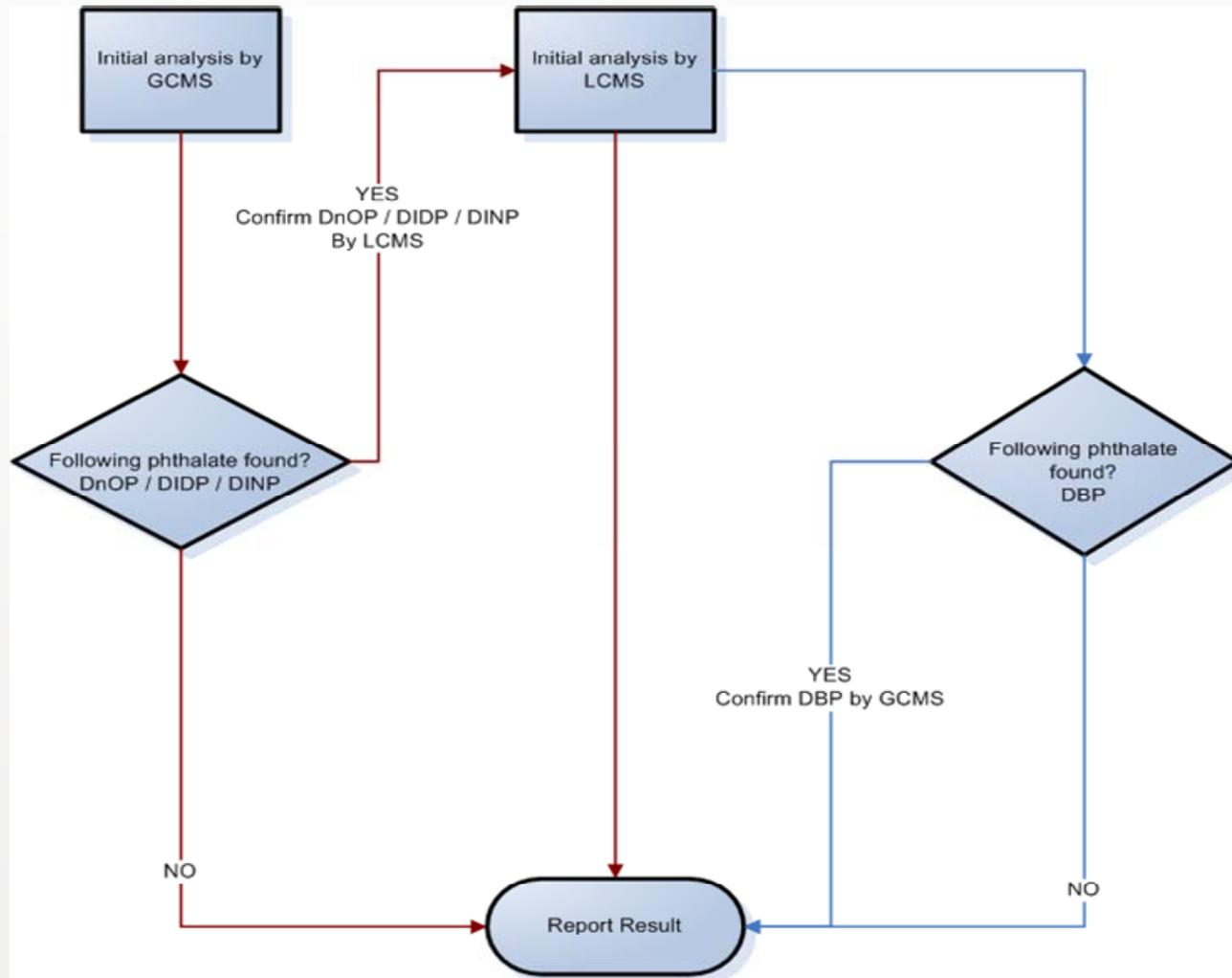


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## ► GCMS vs. LCMS



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