

## 3.7: Self-Test #1

### ? Exercise 3.7.1

What ionization technique would be appropriate for analyzing the following compounds:

1. gasoline fractions,
2. pesticide residue,
3. ibuprofen and acetaminophen,
4. insulin,
5. tripeptides,
6. heavy metals in water.

#### Answer

- 1) Gasoline fractions. Since these are very volatile, EI would be very easy to use and would provide abundant fragment information. CI may help to identify the molecular ions.
- 2) Pesticide residue. These are usually volatile enough to use with EI. Once again CI may provide some useful information that would compliment the fragmentation in the EI spectrum. If the pesticide is thermally labile it may be appropriate to use electrospray to avoid sample decomposition.
- 3) Ibuprofen and acetaminophen. These pharmaceuticals are often analyzed by liquid chromatography, so electrospray would be an ideal interface for ionization.
- 4) Insulin. This is a large protein molecule. MALDI is probably required.
- 5) Tripeptides. These are generally small enough to be readily ionized by FAB.
- 6) Heavy metals in water. Atmospheric pressure ionization in a ICP torch will provide very low limits of detection.

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