

4.7: Self-Test #2

? Exercise 4.7.1

Self-Test #2: Which mass analyzer is appropriate for the following analysis:

1. Routine analysis of drug testing samples
2. Analysis of small, 2000 dalton, peptides
3. Analysis of 50,000 dalton polymers
4. High sensitivity for detecting chemical warfare agents
5. High resolution analysis.

Answer

Self-Test #2: Which mass analyzer would be appropriate for the following analysis:

- 1) Routine analysis of drug testing samples. A quadrupole mass analyzer would provide the necessary mass range and resolution. It is also fast enough for use with high resolution chromatography.
- 2) Analysis of small, 2000 dalton, proteins. This will push the limits of a quadrupole (unless electrospray ionization is used to create multiply charged ions). A sector instrument with FAB ionization would work well.
- 3) Analysis of polymers up to 50,000 dalton. The value of singly charged ions is probably too high for a sector instrument (It might work with electrospray ionization to form multiply charged ions). A TOF analyzer does not have any mass limit so it would be ideal for this analysis.
- 4) High sensitivity testing for chemical warfare agents. For this experiment the high sensitivity of a QUISTOR would be beneficial.
- 5) High resolution analysis. This is usually done with a double focusing sector instrument, although even higher resolution is possible with an ICR.

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