

Chemistry 3403 Exp: PCI

PCI: Positive Chemical Ionization.

Soft Ionization Method

EI: Electron impact(previous experiment)
is a Hard Ionization method.

Chemical Ionization(CI):

Involves the introduction of methane(CH_4) reagent gas.

Methane is exposed to electron impact(EI).
Creates plasma of reactive ions.

Methane converts analyte to ions from H^+ or H^- transfer.

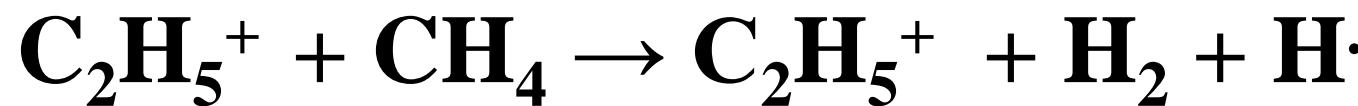
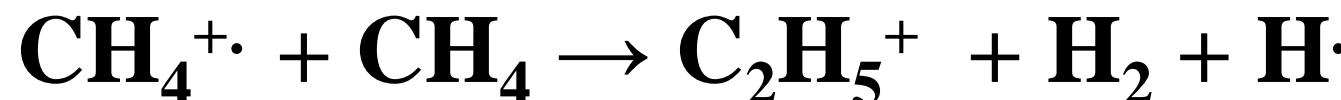
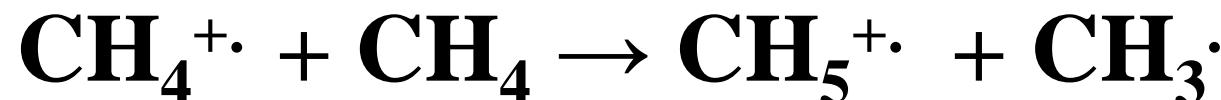
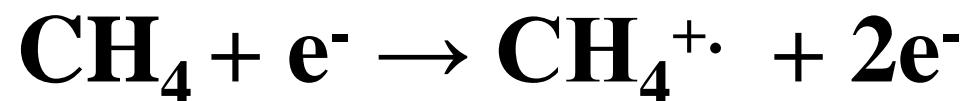
Produces less fragmentation. Good if no molecular ion observed in EI.

Chemical Ionization(CI) cont..:

Produces molecular ions $[M+H]$.

Produces molecular ions $[M+H]^+$ called quasimolecular ions (diff from M^+ ions).

Ionization Gas Methane:



In methane positive ion mode PCI, the relevant peaks observed are:

MH^+ (prominent)	$\text{M}+1$
$[\text{M}+\text{CH}_5]^+$, and	$\text{M}+17$
$[\text{M}+\text{C}_2\text{H}_5]^+$	$\text{M}+29$
$[\text{M}+\text{C}_3\text{H}_5]^+$	$\text{M}+41$

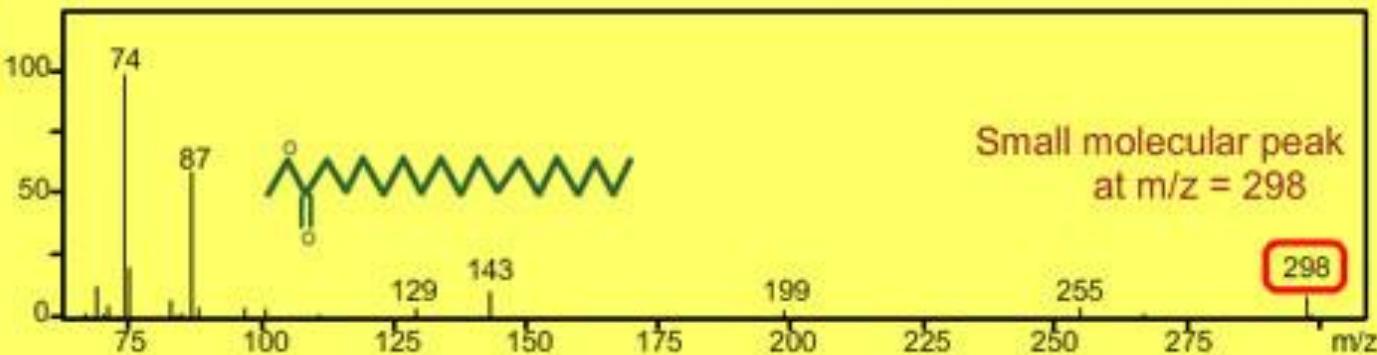
EI vs. PCI Mass Spectrums:



Spectrum of PCI

methylstearate : m.w. 298

EI



Small molecular peak
at m/z = 298

PCI

