

Atmospheric Pressure Chemical Ionization (APCI)

APCI

- Desolvation by gentle heating.
- CI from ionized solvent.
- Mostly singly charged, protonated ions of small polar molecules are formed.
- It is less energetic than thermospray, more energetic than ESI.

APCI

- Can analyze small (<1000) molecules
- Suitable for steroids, pesticides, drugs, metabolites (works for non-polar too)
- Can take up to 2 mL/min flow rates
- Forms H_3O^+ , $[\text{Solv}+\text{H}]^+$, *etc.*
- Example:
 - $\text{N}_2^{+\bullet} + \text{H}_2\text{O} \rightarrow \text{H}_2\text{O}^{+\bullet} + \text{N}_2$
 - $\text{H}_2\text{O}^{+\bullet} + \text{H}_2\text{O} \rightarrow \text{H}_3\text{O}^+ + \text{OH}^\bullet$
 - $\text{H}_3\text{O}^+ + \text{M} \rightarrow [\text{M}+\text{H}]^+$

