

SUMMARY TABLE OF TYPICAL IONS OBSERVED IN VARIOUS IONISATION MODES USED IN MASS SPECTROMETRY

Ionisation mode	Polarity	Common Abbreviation	Is Solvent necessary?	Common Matrix / reagent*	Typical ions	Memory effects?
Electron ionisation	+	EI	No	-	M^+ (radical cation); $[M-H]^+$	Not usually
Chemical ionisation	+	CI	No	Ammonia	$[M+H]^+$, $[M+NH_4]^+$, $[M+NH_4-H_2O]^+$	Not usually
	+	CI+	No	Methane	$[M+H]^+$, $[M-H]^+$, $[M+C_2H_5]^+$, $[M+C_2H_5]^+$, ($[M+C_3H_5]^+$, M^+)	Not usually
	-	CI-	No	(as above)	$[M-H]^-$, $[M+X]^-$, M^-	Not usually
Atmospheric Pressure CI	+	APCI / AP+	Yes	(Air / N ₂)	$[M+H]^+$, $2MH^+$	Yes
	-	APCI / AP-	Yes		$[M-H]^-$	Yes
Electrospray	+	ESI / ES+	Yes	Solvent	$[M+H]^+$, $[M+Na]^+$, ($[M+A]^+$), $[2M+H]^+$, $[2M+Na]^+$ etc., $[(M+nH)/n]^{n+}$, $[M-nX]^{n+}$, $[M-(n+1)X-nH]^{n+}$ etc.	Yes
	+	ESI / ES+	Yes	Solvent + AX*		Yes
	-	ESI / ES-	Yes	Solvent	$[M-H]^-$	Yes
	-	ESI / ES-	Yes	Solvent + AX*	$[M-H]^-$, $[M+X]^-$, $[M-nA]^{n-}$	Yes
Liquid secondary ion MS ("FAB")	+	LSIMS / FAB	Yes	Solvent + matrix(mx)	M^+ , $[M+H]^+$, $[M-H]^+$, $[M+Na]^+$, $[M+A]^+$, ($[M+mx]^+$), $[2M+H]^+$, $[2M+Na]^+$, etc.	Not usually
	-	LSIMS / FAB	Yes	Solvent + matrix(mx)	$[M-H]^-$	Not usually
Matrix-assisted laser desorption/ionisation	+	MALDI	Usually	Solvent + matrix(mx)	M^+ , $[M+H]^+$, $[M+Na]^+$, $[M+A]^+$, ($[M+mx]^+$), $[(M+nH)/n]^{n+}$	Not usually
	-	MALDI	Usually	Solvent + matrix(mx)	$[M-H]^-$, $[M+X]^-$, (rarely: $[M-A]^-$)	Not usually

*AX = salt: $A^+ X^-$ (A may be a metal)