

Common Neutral Losses during the Fragmentation of Organic Compounds*

<i>Compound class</i>	<i>Nominal mass loss</i>	<i>Formula</i>
Aliphatic hydrocarbons	15, 29, 43, 57, etc. 28	$-\text{CH}_3$; $-\text{CH}_3\text{CH}_2$; $-\text{CH}_3(\text{CH}_2)_n$; etc. $-\text{CH}_2=\text{CH}_2$
Aliphatic alcohols	1, 2, 15, 29, 43 etc. 18 28	$-\text{H}$, $-\text{H}_2$, $-\text{CH}_3$; $-\text{CH}_3\text{CH}_2$; etc. $-\text{H}_2\text{O}$ $-\text{CH}_2=\text{CH}_2$
Phenols	as above, and 28, 29	$-\text{CO}$, $-\text{CHO}^\bullet$
Ethers	31, 45, 59, etc.	$-\text{CH}_3\text{O}^\bullet$; $-\text{CH}_3\text{CH}_2\text{O}^\bullet$; $-\text{CH}_3(\text{CH}_2)_n\text{O}^\bullet$; etc.
Aliphatic amines	17 15, 29, 43, 57, etc.	$-\text{NH}_3$ $-\text{CH}_3$; $-\text{CH}_3\text{CH}_2$; $-\text{CH}_3(\text{CH}_2)_n$; etc.
Aldehydes and ketones	1, 15, 29, 43, 57, etc.	$-\text{H}^\bullet$; $-\text{CH}_3$; $-\text{CH}_3\text{CH}_2$; $-\text{CH}_3(\text{CH}_2)_n$; etc. (adjacent to C=O group)
Carboxylic acids, esters and amides	28, 43, 57, etc. 16 or 17 or 31, 45, 59, etc.	$-\text{CH}_2=\text{CH}_2$; $-\text{R}-\text{CH}_2=\text{CH}_2$; etc. via a McLafferty rearrangement $-\text{OH}$ (acid), $-\text{OR}$ (ester) or $-\text{NH}_2$ (amide)
Alkyl halides	19, 35/37, 79/81, 129 20, 36/38 15, 29, 43, 57, etc.	$-\text{F}^\bullet$, $-\text{Cl}^\bullet$, $-\text{Br}^\bullet$, $-\text{I}^\bullet$ (favoured for Br and I) $-\text{HF}$, $-\text{HCl}$ $-\text{CH}_3$; $-\text{CH}_3\text{CH}_2$; $-\text{CH}_3(\text{CH}_2)_n$; etc. from cleavage α to the halide atom

* Fragmentation processes to be used as a guide for the interpretation of EI mass spectra. Refer to Chapter 5 for more detail