

UNIT 8 • ALDEHYDES, KETONES AND CARBOXYLIC ACIDS

Nomenclature of Carboxylic Acids

-oic acid suffix

Replaces the '-e' ending in the corresponding parent alkane.

dicarboxylic / tricarboxylic acid

Suffixes used when two or more -COOH groups are present.

Multiplicative prefix

'di-', 'tri-', etc., added directly to the parent chain name.



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$$E=mc^2$$



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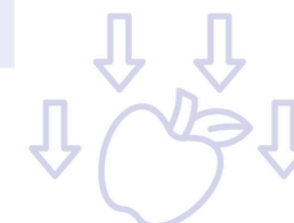
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Structure	Common Name	IUPAC Name
HC00H	Formic acid	Methanoic acid
$\text{CH}_3\text{C00H}$	Acetic acid	Ethanoic acid
$\text{H00C}-\text{C00H}$	Oxalic acid	Ethanedioic acid
$\text{H00C}-\text{CH}_2-\text{C00H}$	Malonic acid	Propanedioic acid
$\text{H00C}-(\text{CH}_2)_2-\text{C00H}$	Succinic acid	Butanedioic acid
$\text{H00C}-(\text{CH}_2)_3-\text{C00H}$	Glutaric acid	Pentanedioic acid
$\text{H00C}-(\text{CH}_2)_4-\text{C00H}$	Adipic acid	Hexanedioic acid

The Structure



The Breakdown

Oxalic Acid → **Ethanedioic acid**

1

Ethane

(Parent alkyl chain remains completely intact;
the '-e' is NOT dropped)

2

+ di

(Multiplicative prefix indicating two groups)

3

+ oic acid

(The functional group suffix)

Watch for this numbering rule!

In an aliphatic chain, the carboxyl carbon is **ALWAYS numbered position 1**. Do not start numbering from the adjacent alkyl carbon.



Key Takeaways

- Mono-carboxylic acids are named by replacing the **parent alkane “-e”** with **-oic acid** (e.g., Ethane → Ethanoic acid).
- Multi-COOH compounds **retain the full parent alkane name** and use **multiplicative prefixes** (e.g., Ethane → Ethanedioic acid).



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