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Class - 10

Chapter - 4

Carbon and its Compound

Part-7

Properties Of Carbon Compounds

Disha Didi (DD)

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Combustion

burn → air

heat

light

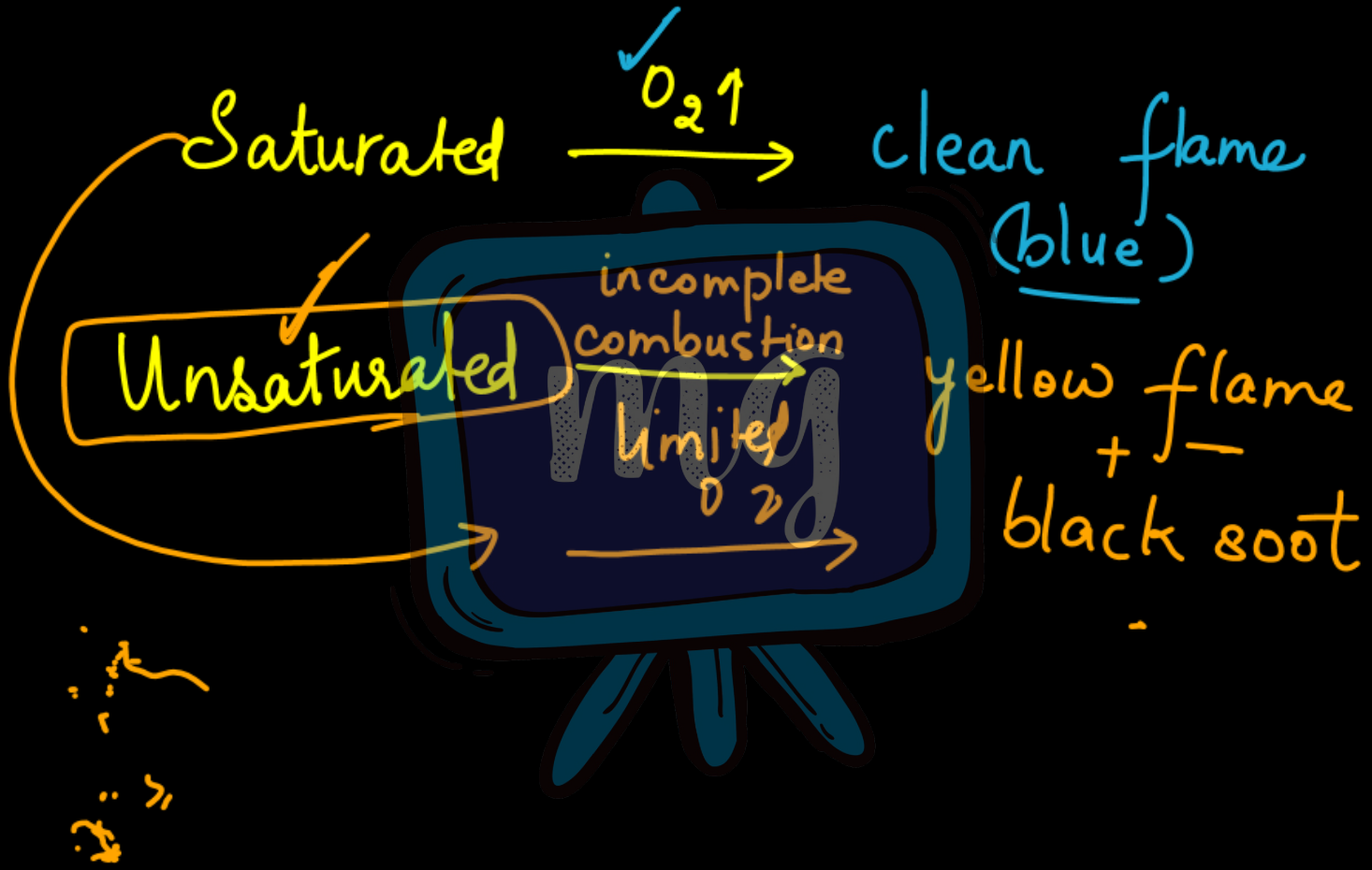


$C + O_2 \rightarrow CO_2 + \Delta$ + light

$CH_4 + O_2 \rightarrow CO_2 + H_2O$ + Δ + light

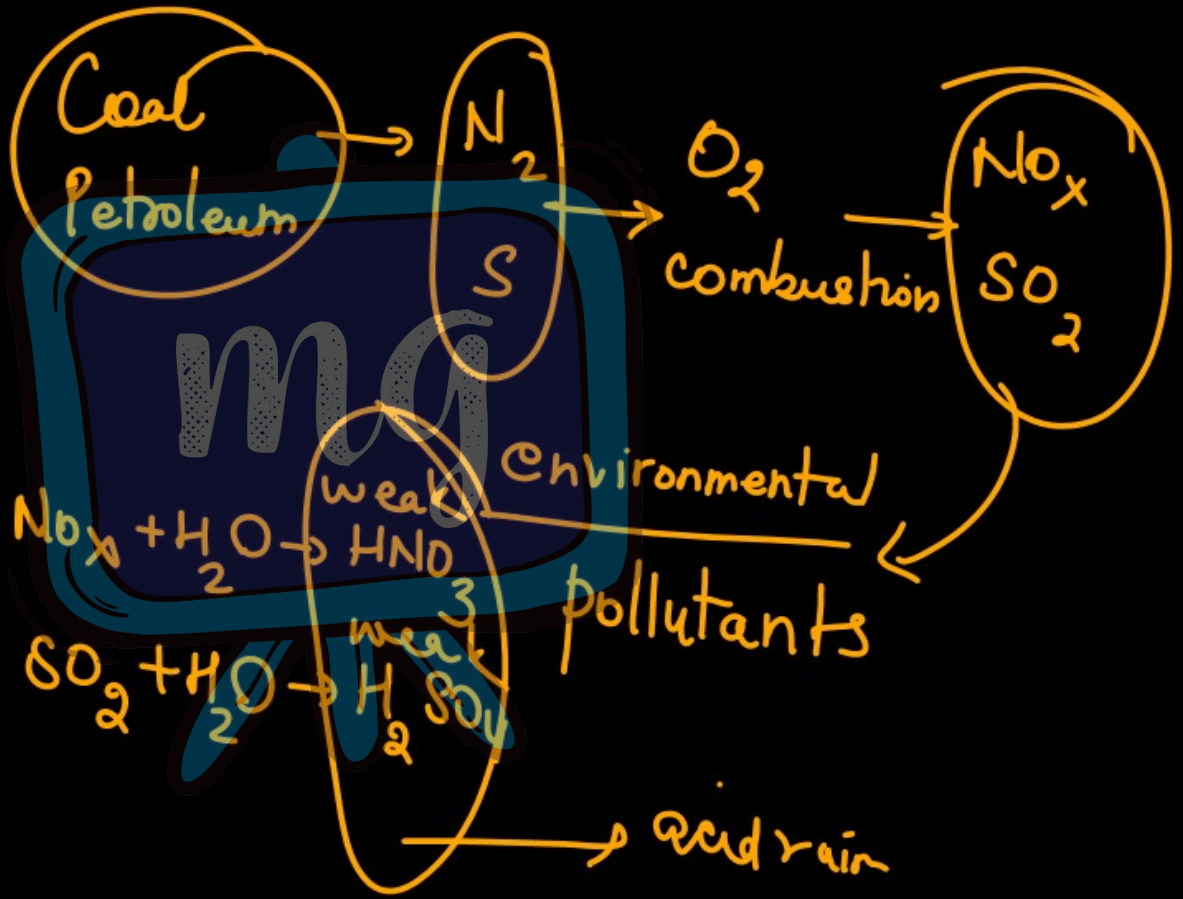
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ii) Oxidation

Alcohol —oxidation→ Carboxylic Acid

→ addition of O_2

→ removal of H_2

Oxidation → OXIDISING AGENTS

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OXIDISING AGENTS

1) $KMNO_4$ – Potassium Permanganate

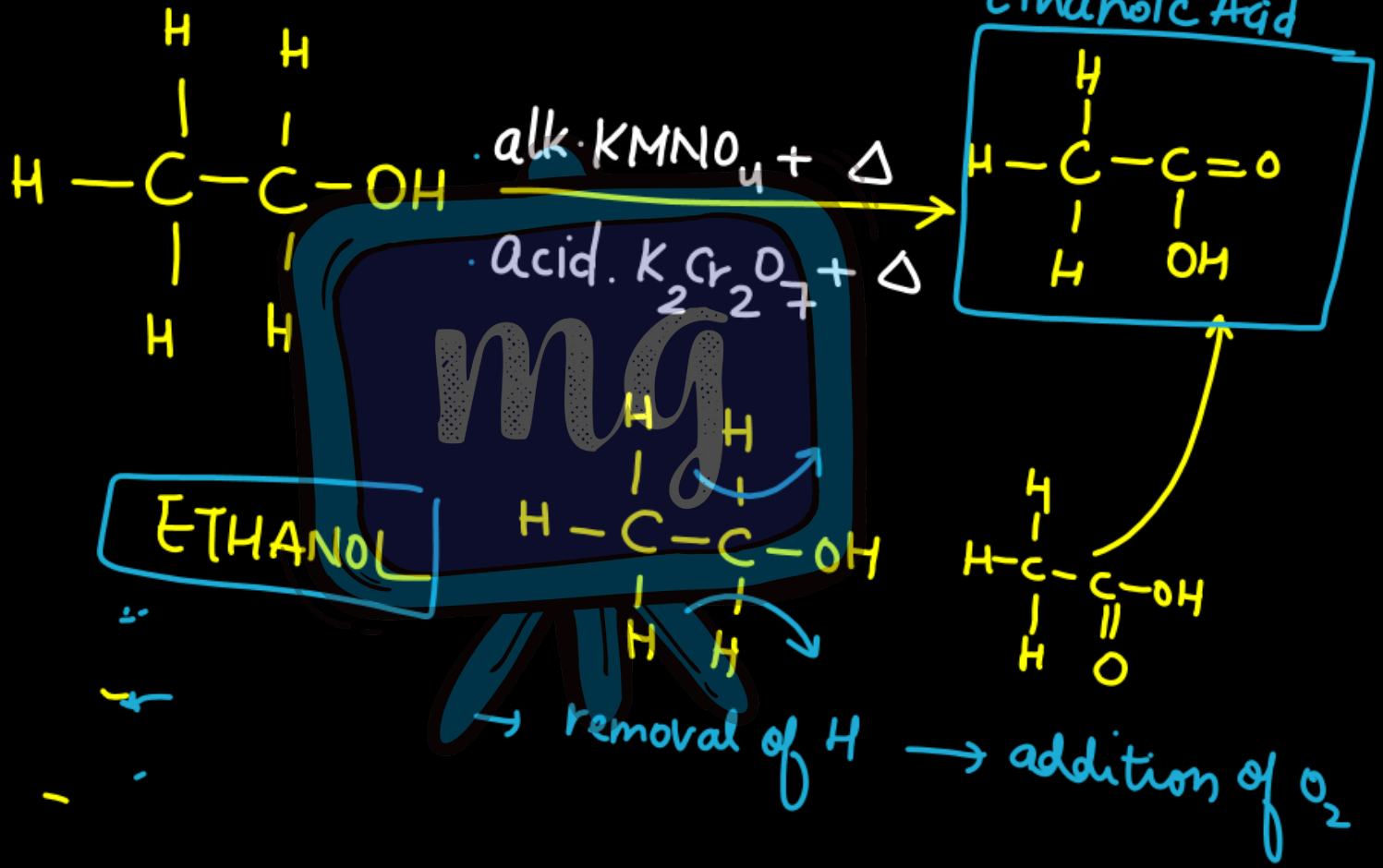
2) $K_2Cr_2O_7$ – Potassium Dichromate

→ addition of O_2

→ removal of H_2

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II. Oxidation

Alcohols $\xrightarrow{\text{oxidizing agent}}$ Carboxylic acid

$CH_3-CH_2OH \xrightarrow[\text{Acidified } K_2Cr_2O_7 + \text{heat}]{\text{Alkaline } KMnO_4 + \text{heat}} CH_3COOH$

Ethanol — Ethanoic acid

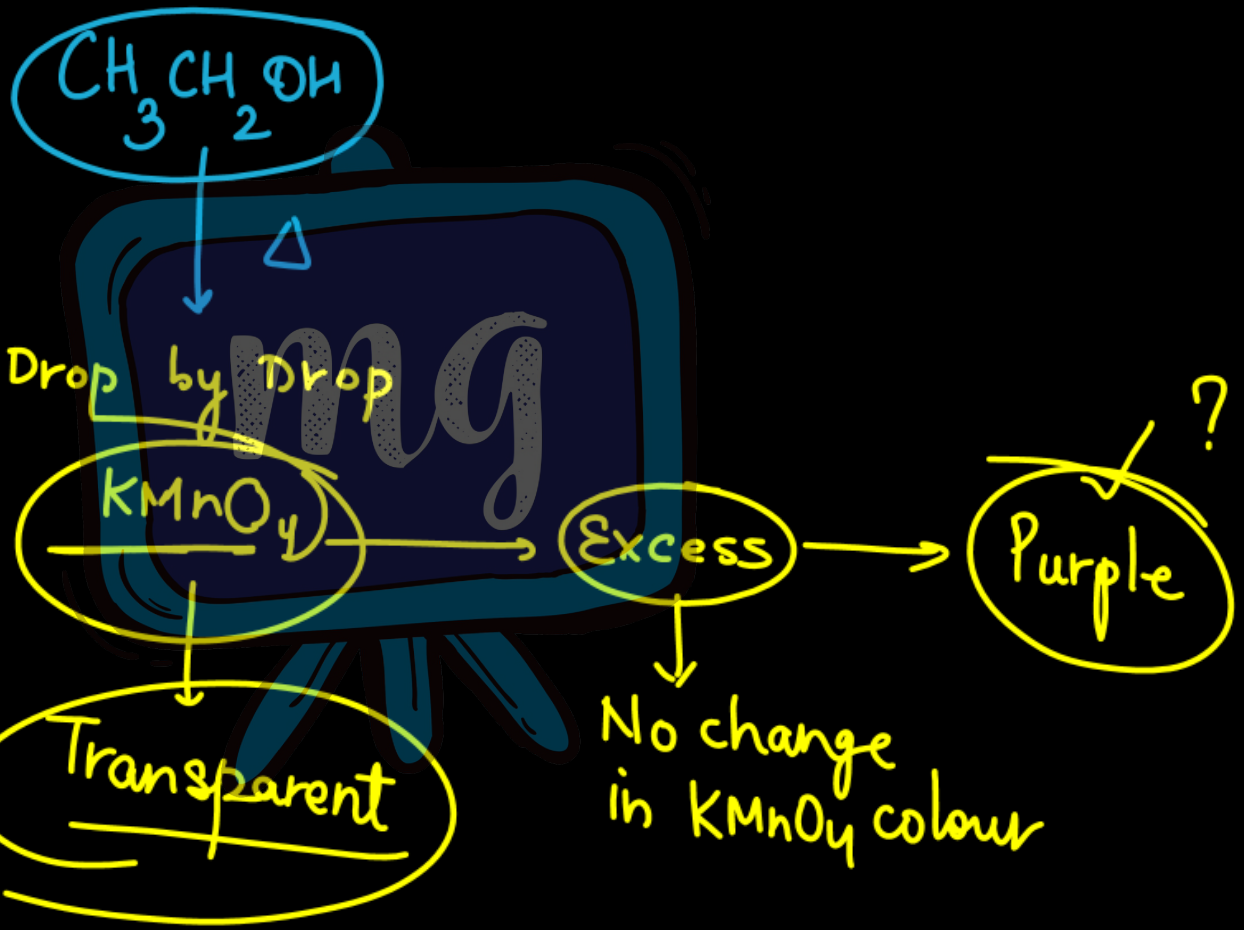
O_2, H_2

(सिरका) acetic acid — vinegar

Oxidising Agent : Substances which are capable of adding oxygen to others

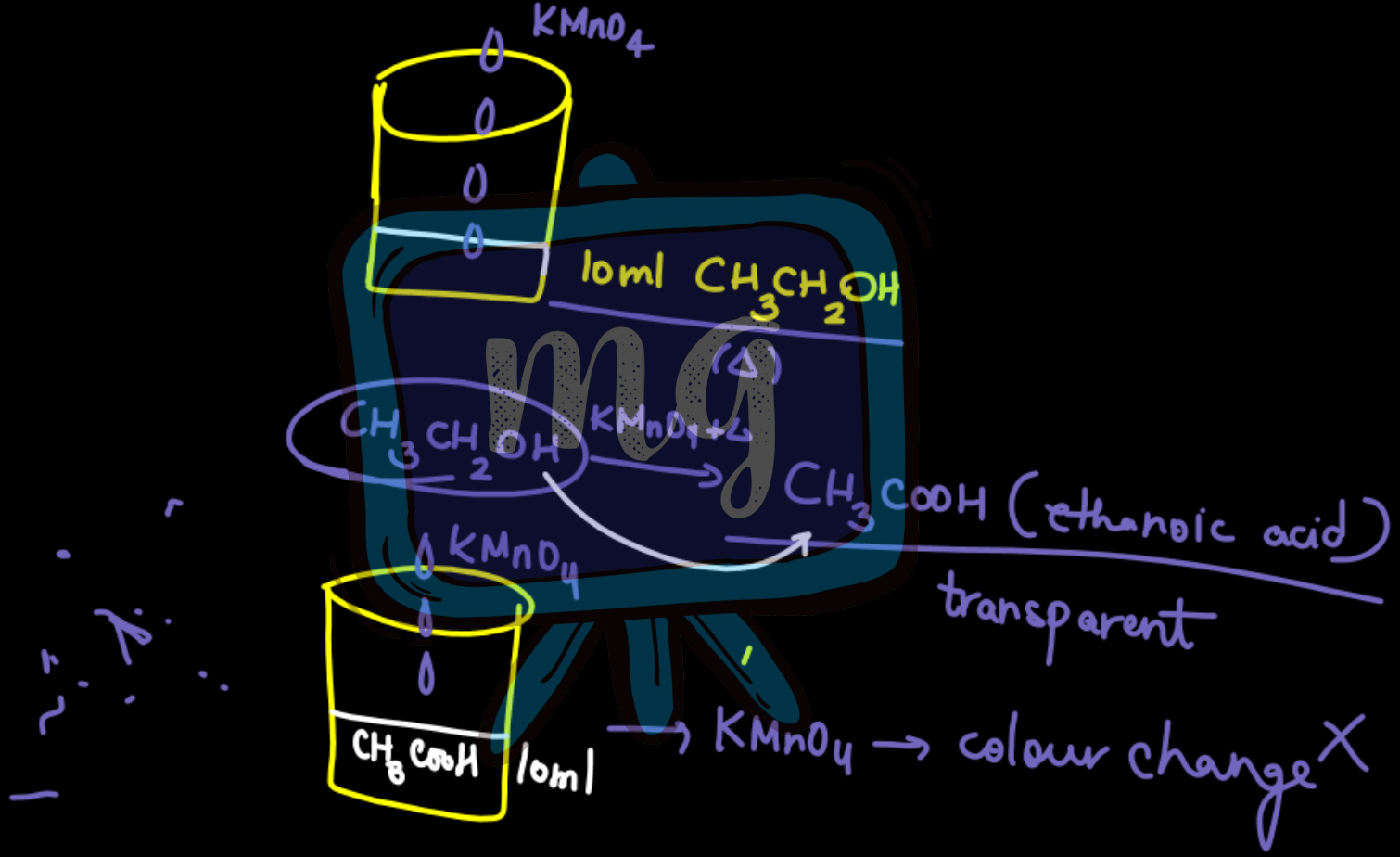
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iii) ADDITION :

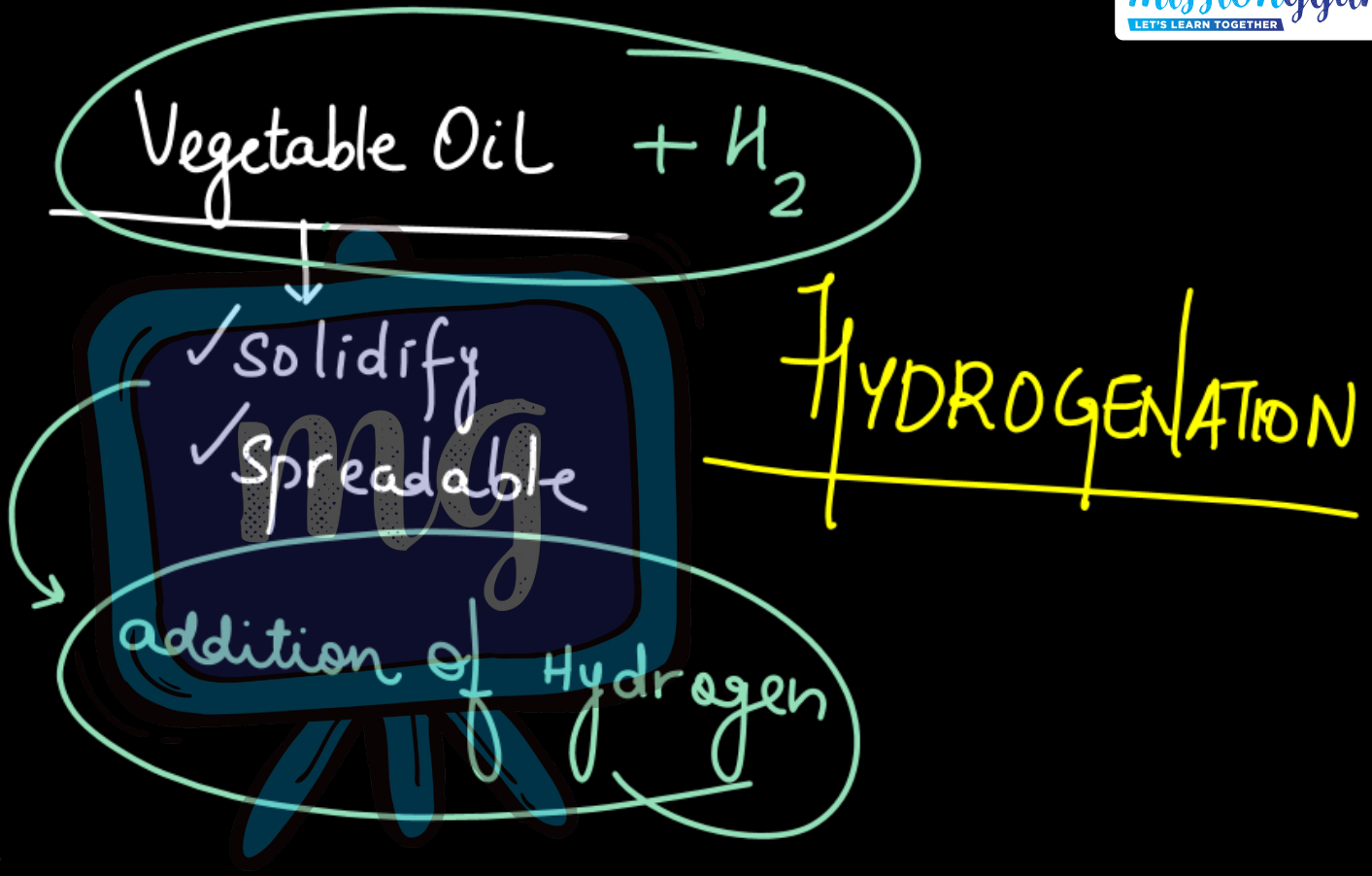
Carbon Compound → add (atom / group of atoms)

Vegetable Oil → unsaturated → C=C / C≡C

Animal fat | Ghee | Butter → Saturated → C-C

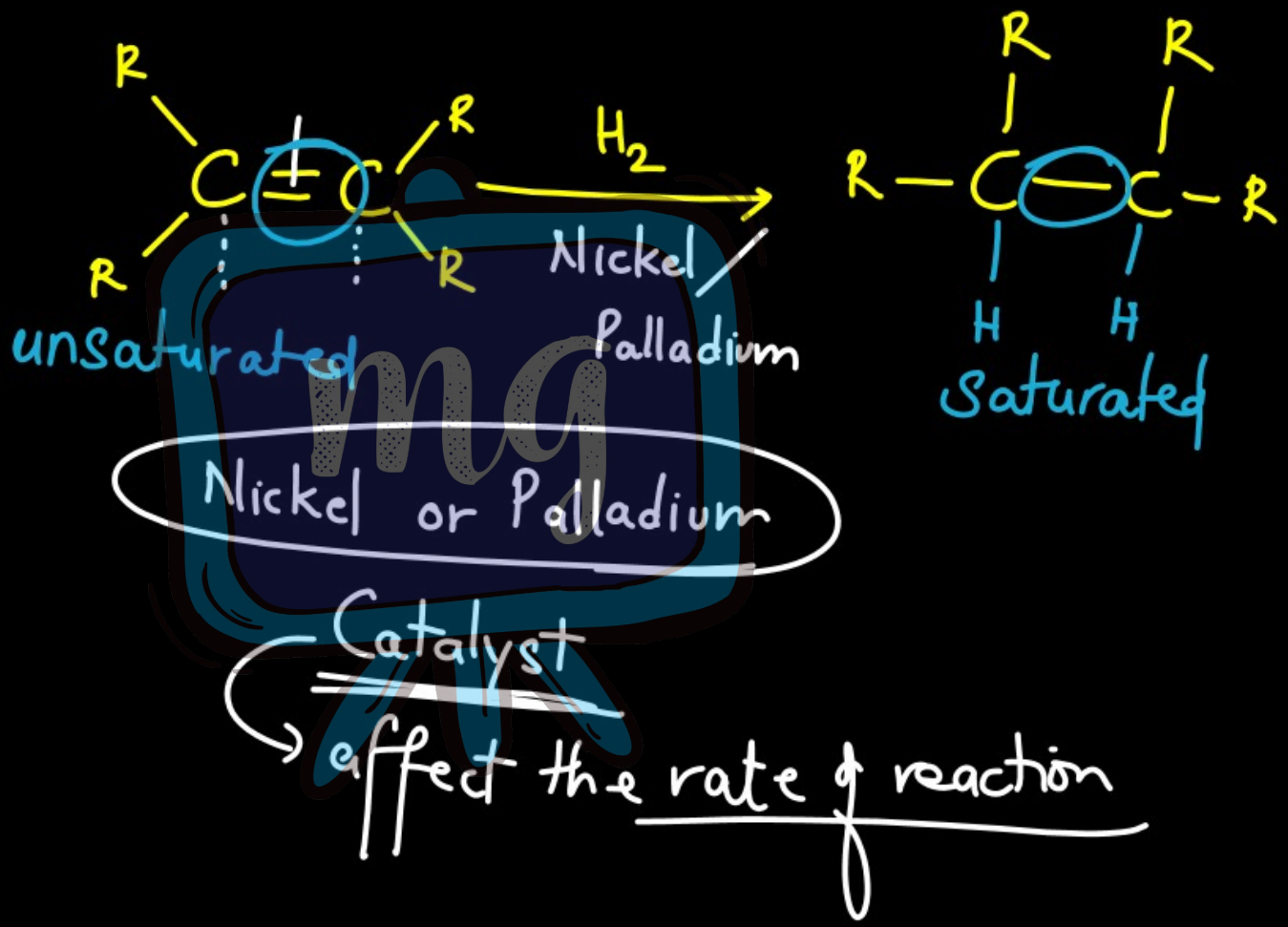
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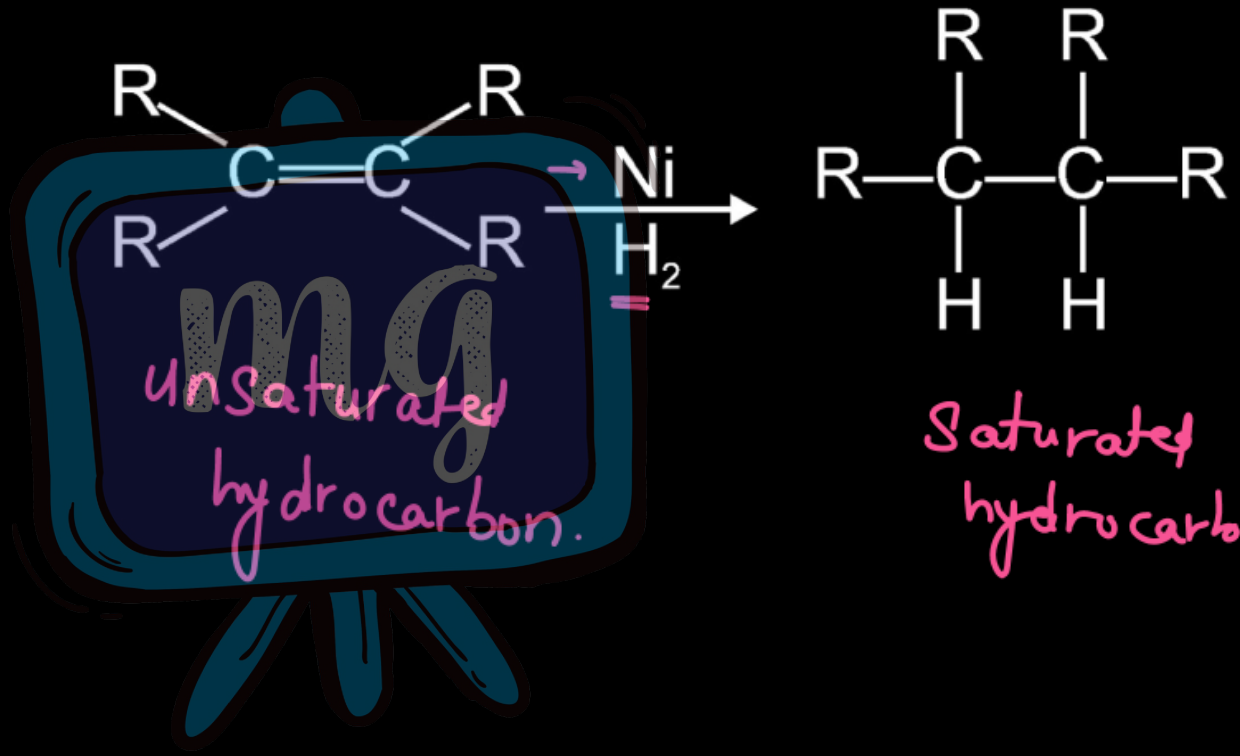
III. Addition reaction

Unsaturated Hydrocarbons + Hydrogen → Saturated Hydrocarbons

- In presence of catalyst palladium or Nickel.
- Used in hydrogenation of vegetable oils.

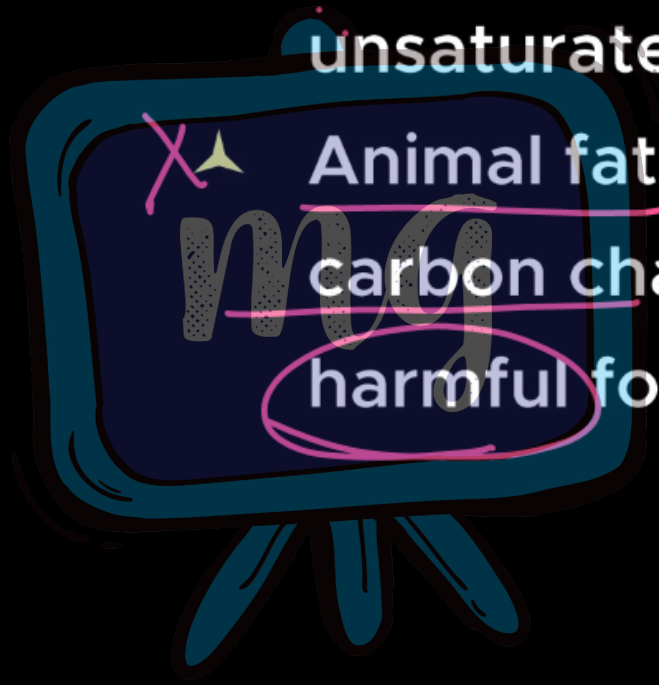
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- ✓ Vegetable oils have long unsaturated carbon chain.
- ✗ Animal fats have saturated carbon chain said to be harmful for health.

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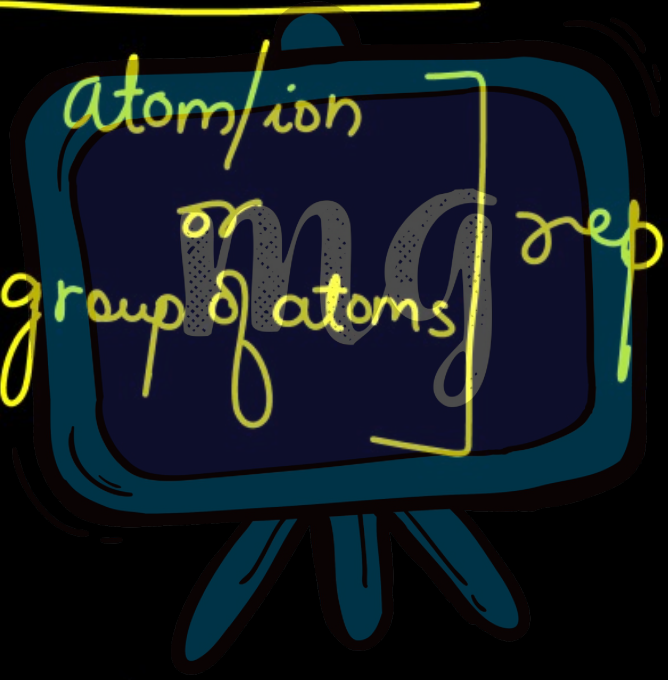


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iv) Substitution :

atom/ion or group of atoms replaced by another atom/group of atoms

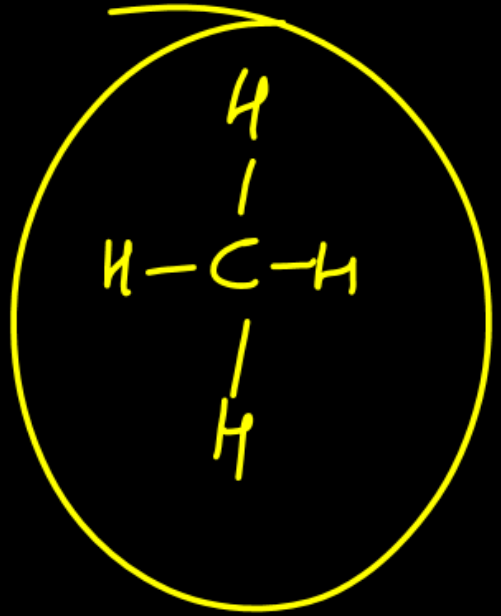


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Methane

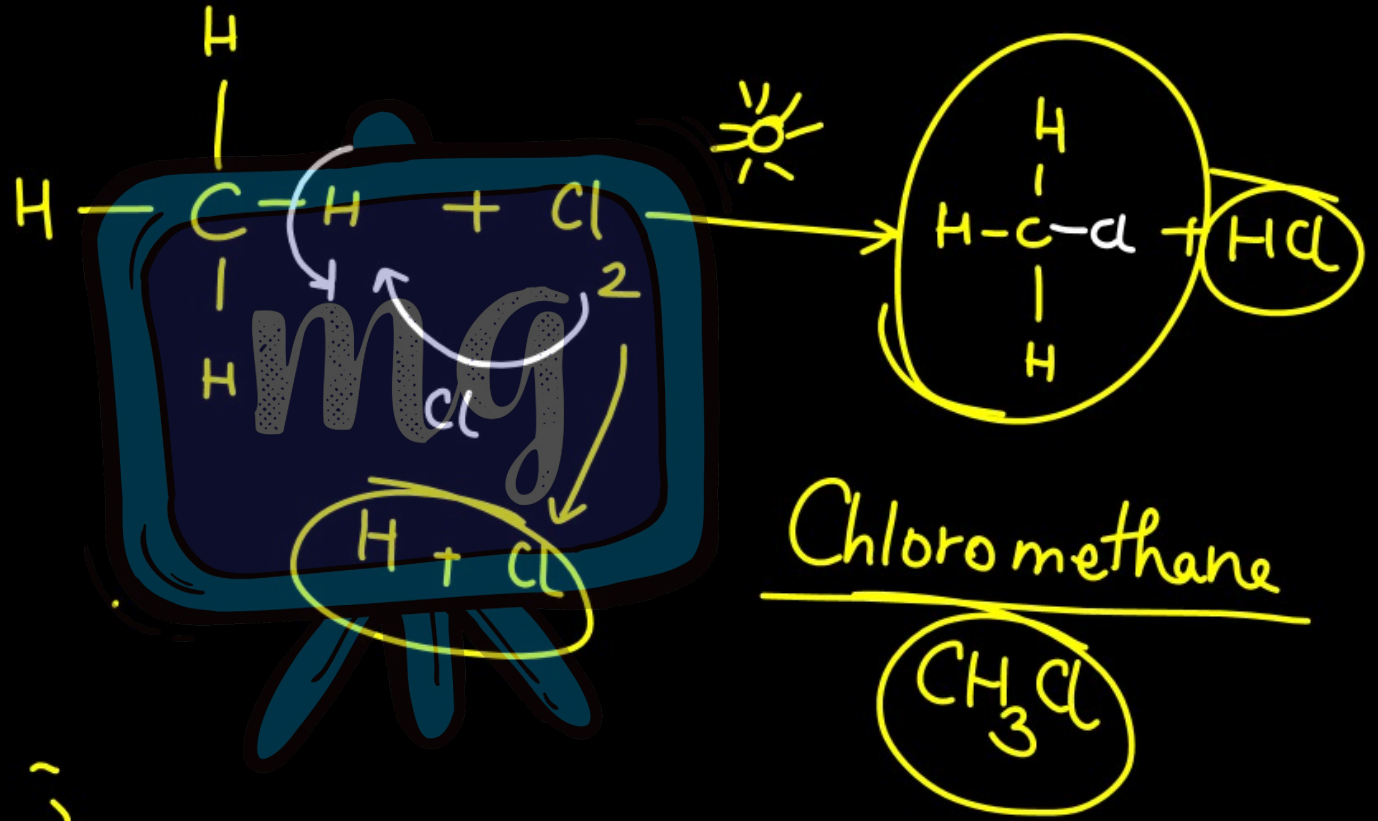
Saturated HC



inert
unreactive

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IV. Substitution Reaction

- Saturated hydrocarbon are fairly unreactive
- Chlorine is added to saturated hydrocarbon
- Presence of Sunlight
- Replace Hydrogen atoms one by one. It is fast reaction.

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