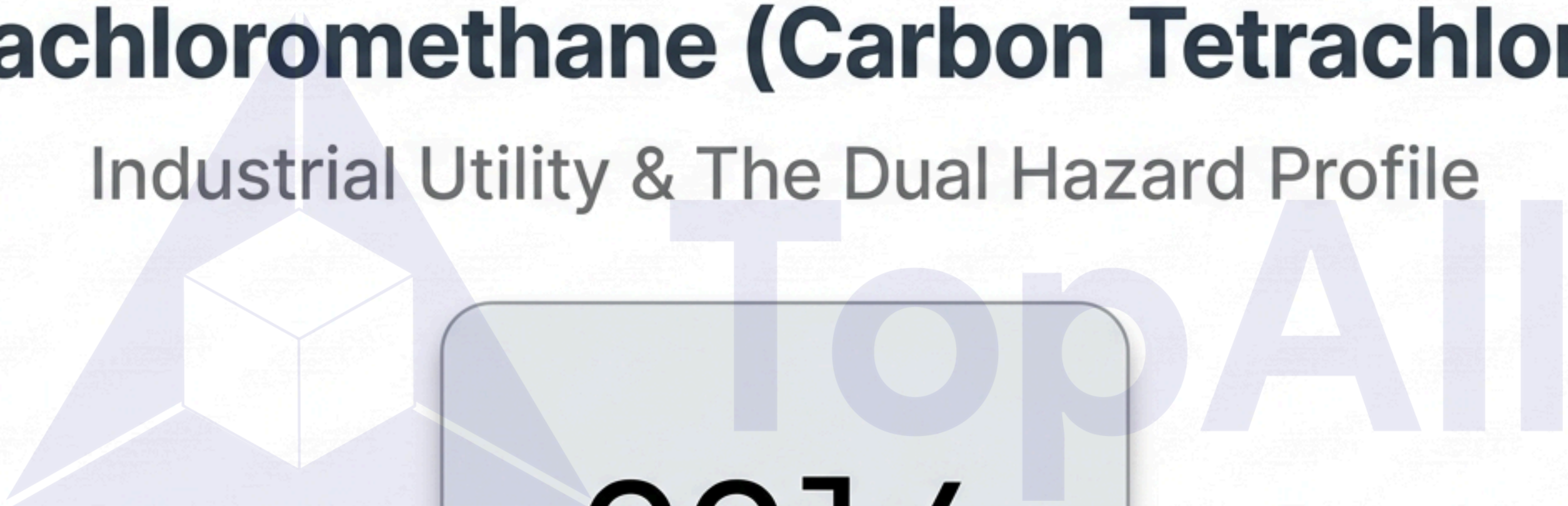


UNIT 6 • HALOALKANES AND HALOARENES

Tetrachloromethane (Carbon Tetrachloride)

Industrial Utility & The Dual Hazard Profile



CCl₄

Core Terminology

Degreasing Agent

A solvent highly effective at removing heavy oils and greases in industrial and household settings.

Ozone Layer Depletion

The chemical thinning of the stratospheric ozone layer, allowing harmful ultraviolet (UV) radiation to reach the Earth's surface.

Industrial & Historical Applications

Propellant & Refrigerant Feedstock

Large-scale synthesis of aerosol propellants and refrigerants.

CFC Precursor

Essential raw material used in the synthesis of Chlorofluorocarbons (e.g., Freon-12 via the Swarts reaction).

Former Degreasing Agent

Widely used until the mid-1960s as an industrial cleaning fluid, household spot remover, and fire extinguisher.



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Let's Test Them Now.**

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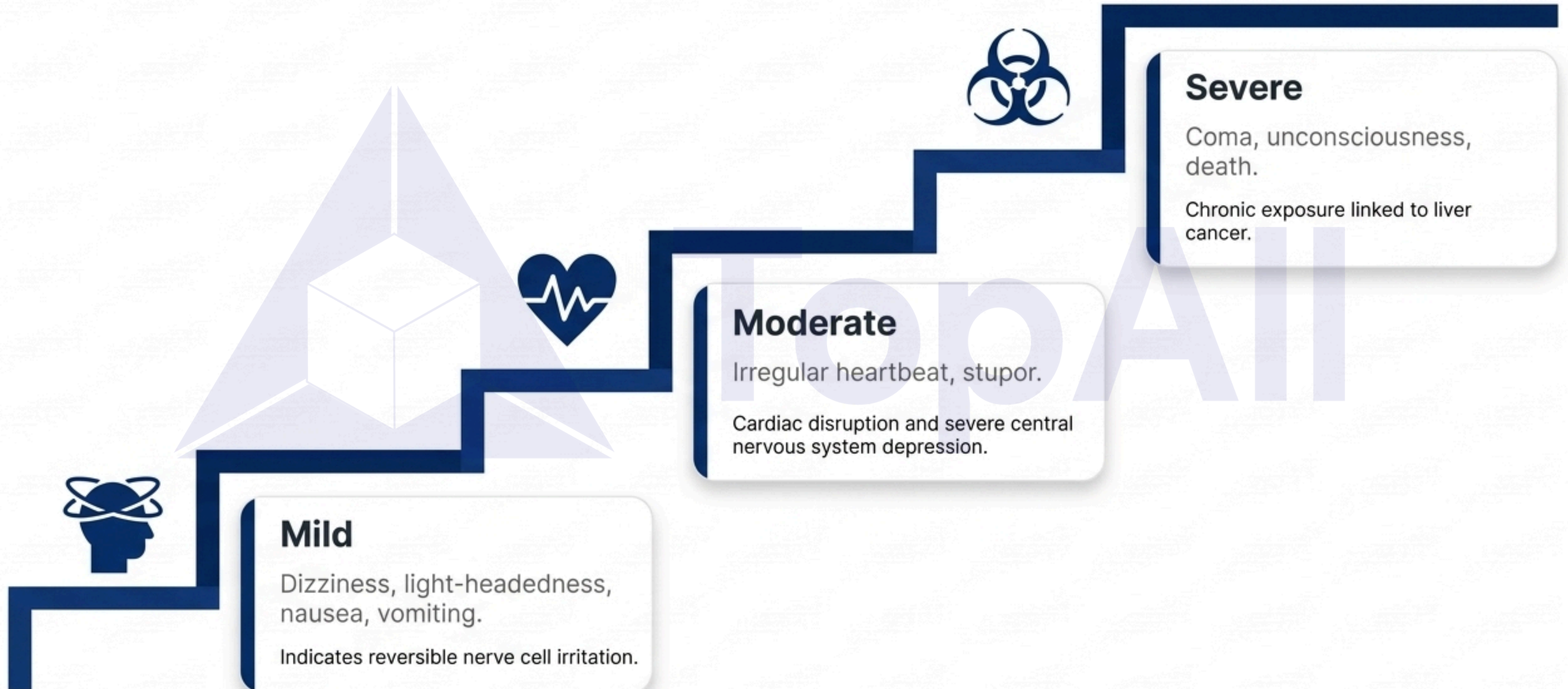
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Key Highlights

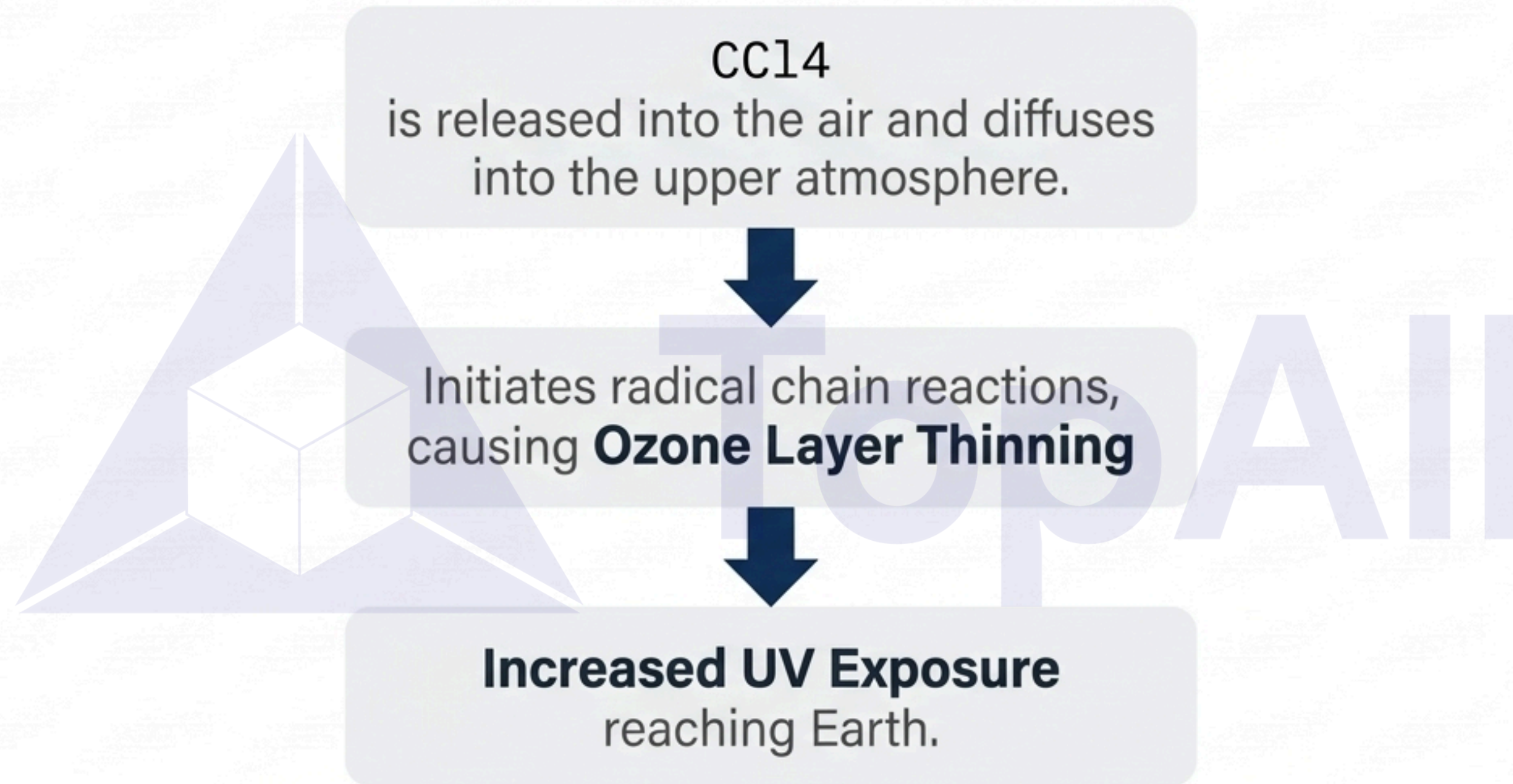
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Direct Toxicity: Physiological Impact



Environmental Hazard: Atmospheric Impact



Leads to secondary effects: increased rates of skin cancer, eye diseases, and immune system disruption.

Exam Focus

Watch for this: The Dual Hazard Trap

Do not merge the hazard chains in multiple-choice questions.

- **Direct Toxicity** = Central Nervous System depression, liver damage, cardiac arrest.
- **Indirect Toxicity** = Stratospheric ozone depletion → UV exposure → skin cancer.

Tip: CCl₄ does **not** directly cause skin cancer upon inhalation; skin cancer is purely a secondary environmental effect of UV exposure.

Synthesis

Core Summary

- CCl4 (Tetrachloromethane) was a highly effective industrial solvent, CFC precursor, and degreasing agent, phased out globally due to extreme toxicity.
- You must **strictly separate** its biological impact (CNS depression, liver damage) from its **environmental impact** (ozone depletion leading to UV-induced skin/eye disease).



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