

$$\frac{e^2}{\sqrt{2}R_0}$$

$$F = \frac{q_1 \cdot q_2}{4\pi\epsilon_0}$$

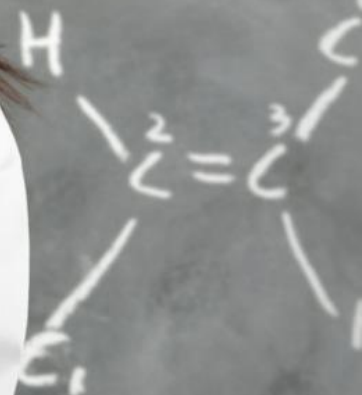
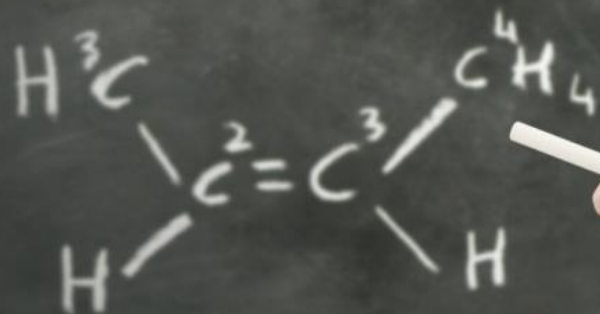
$$R_1 = \sqrt{2}R_0$$

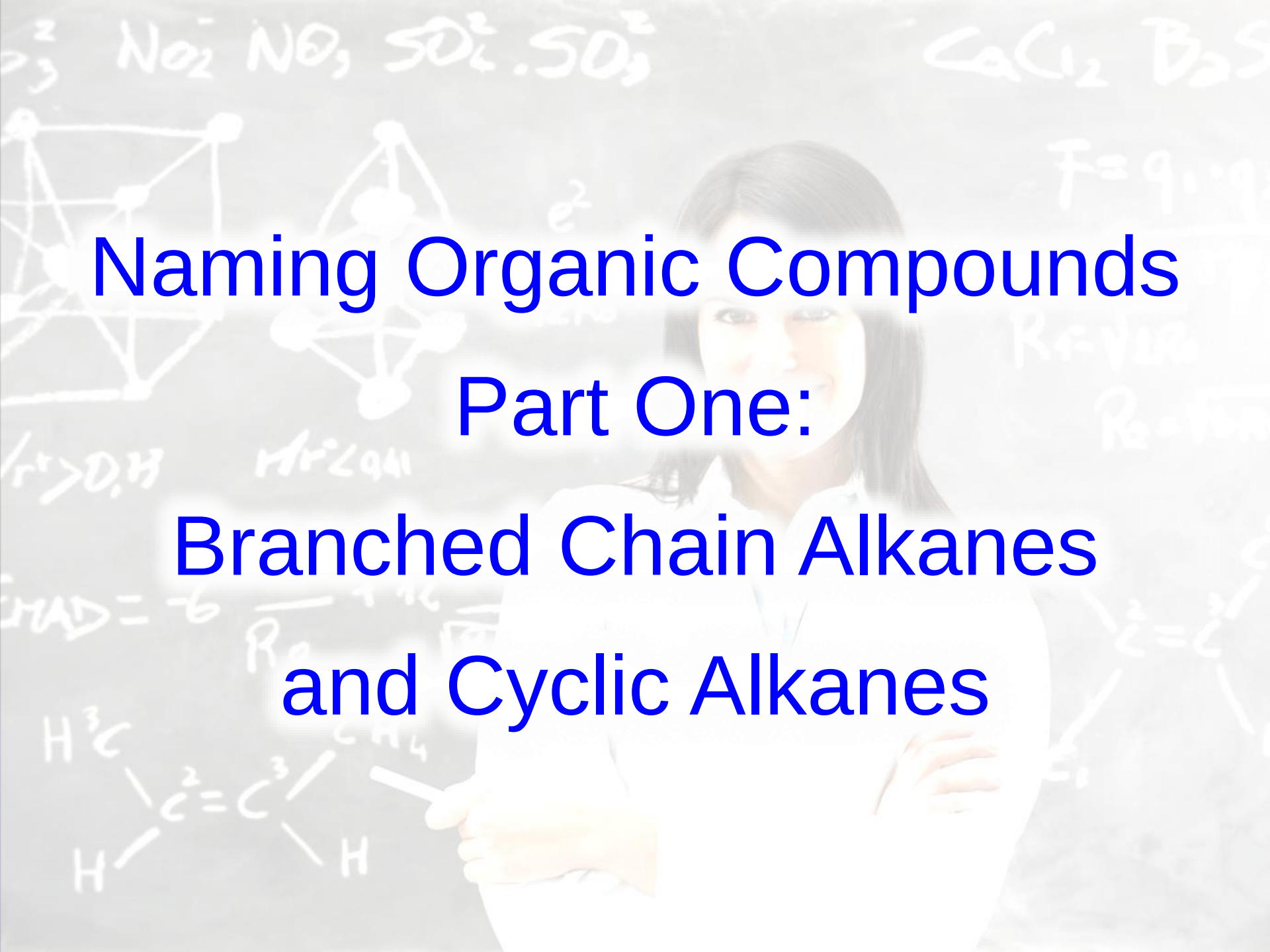
$$R_2 = \sqrt{3}R_0$$

$$r^+ > 0.33$$

$$r^+ < 0.41$$

$$E_{\text{MAD}} = -6 \frac{e^2}{R_0} + 12 \frac{e^2}{\sqrt{2}R_0}$$



A woman with dark hair, wearing a white lab coat, stands in front of a chalkboard. The chalkboard is filled with various chemical diagrams and formulas, including molecular structures, chemical equations, and mathematical expressions. The text is overlaid on the image in a large, blue, sans-serif font.

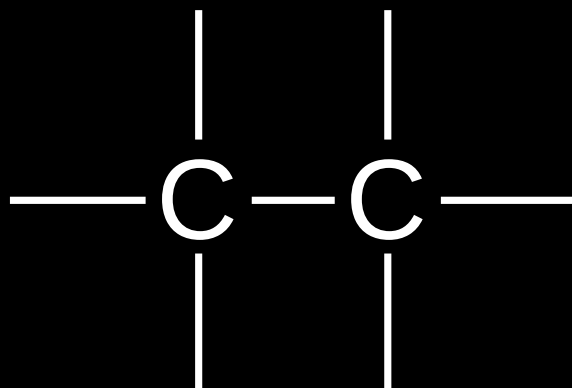
Naming Organic Compounds

Part One:

Branched Chain Alkanes and Cyclic Alkanes

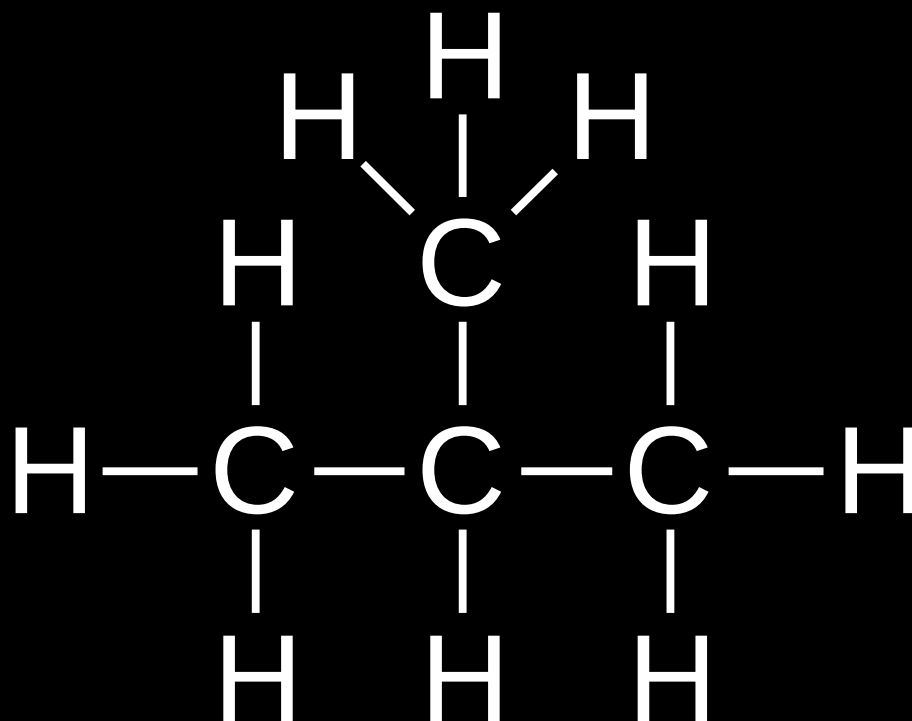
Branched Chain Alkanes

Alkanes are hydrocarbons which only contain carbon-to-carbon **single** covalent bonds:

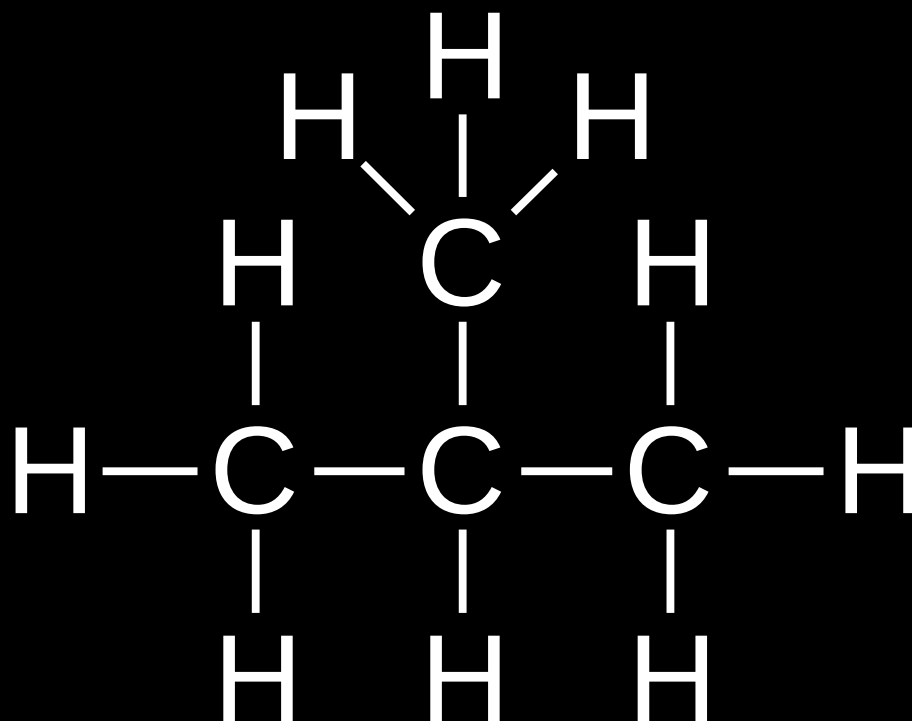


General formula = C_nH_{2n+2}
Names end **-ane**

Branched Chain Alkanes

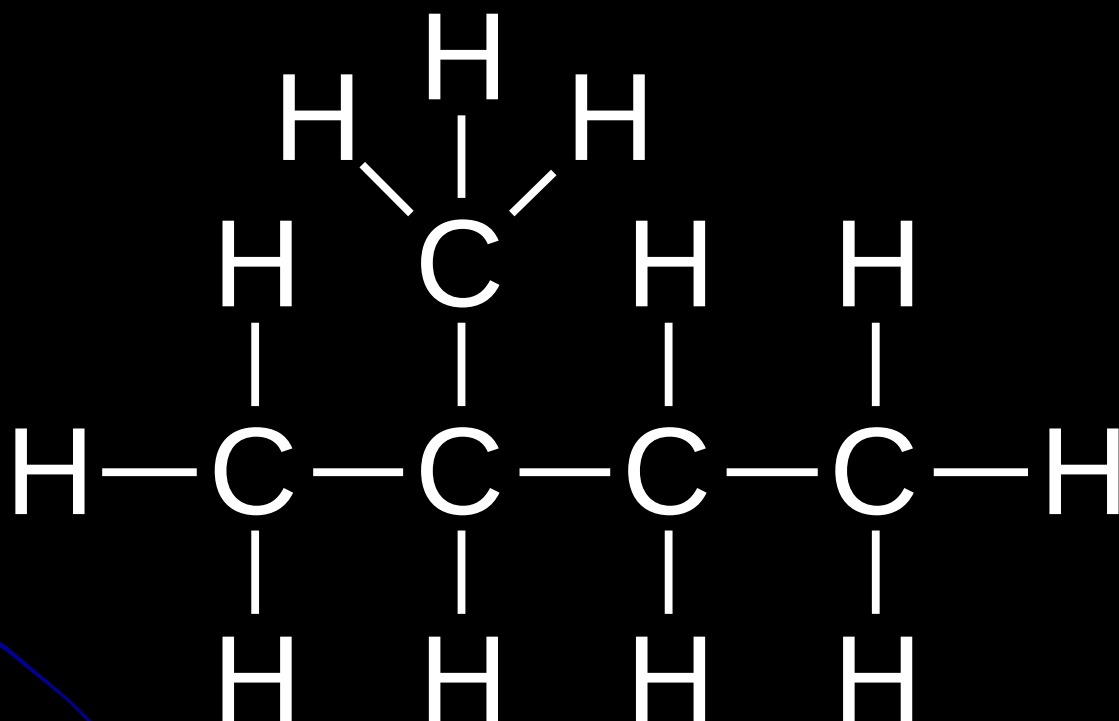


Branched Chain Alkanes

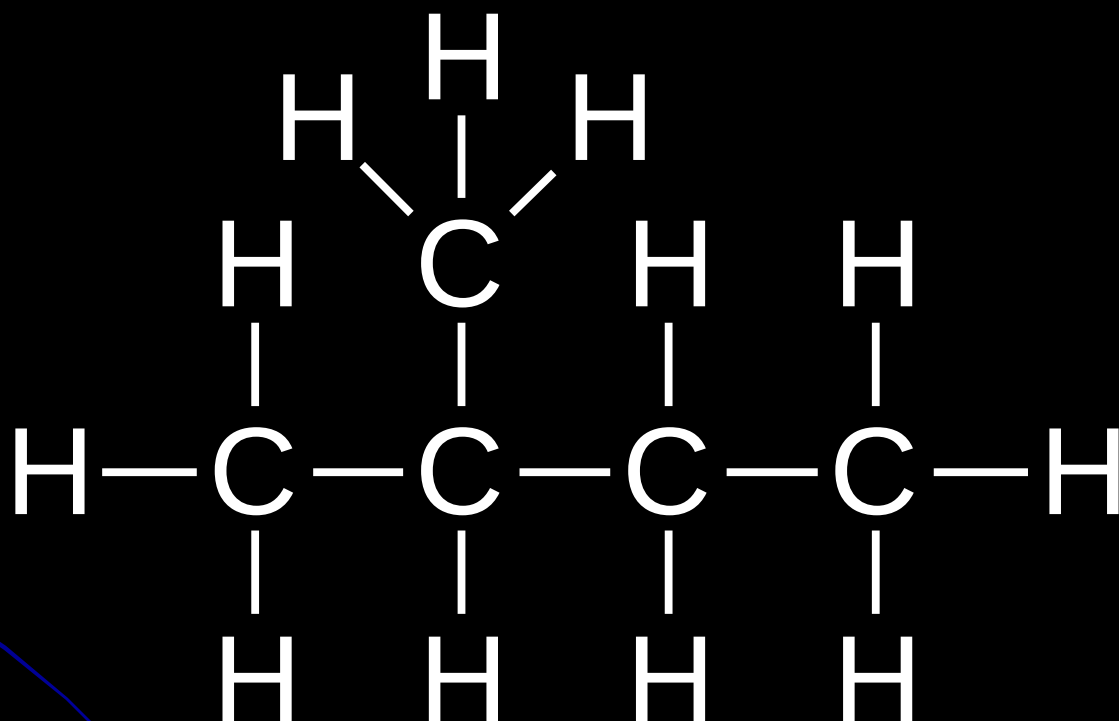


2-methylpropane

Branched Chain Alkanes

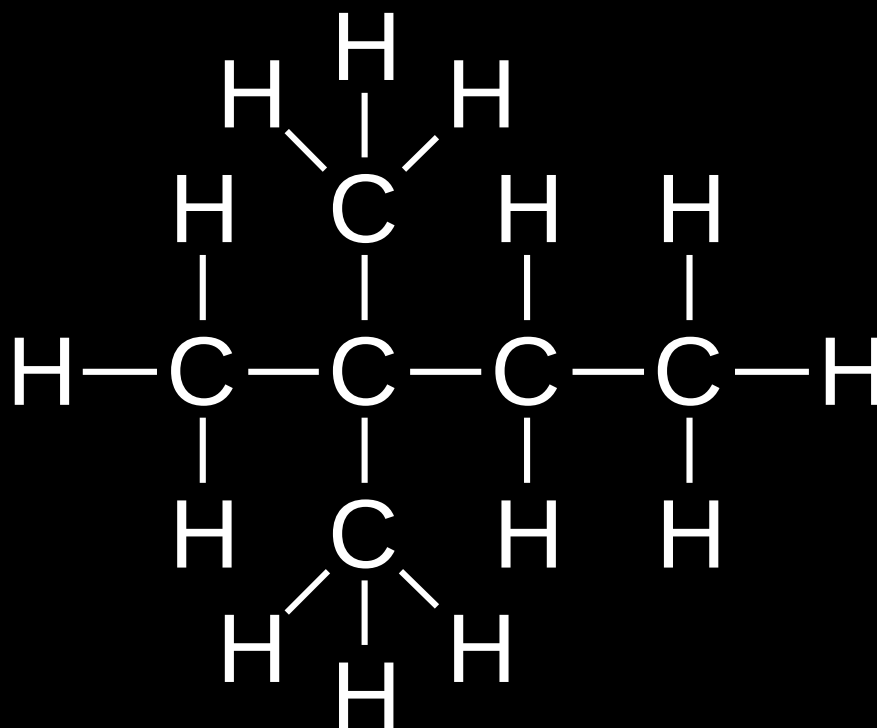


Branched Chain Alkanes

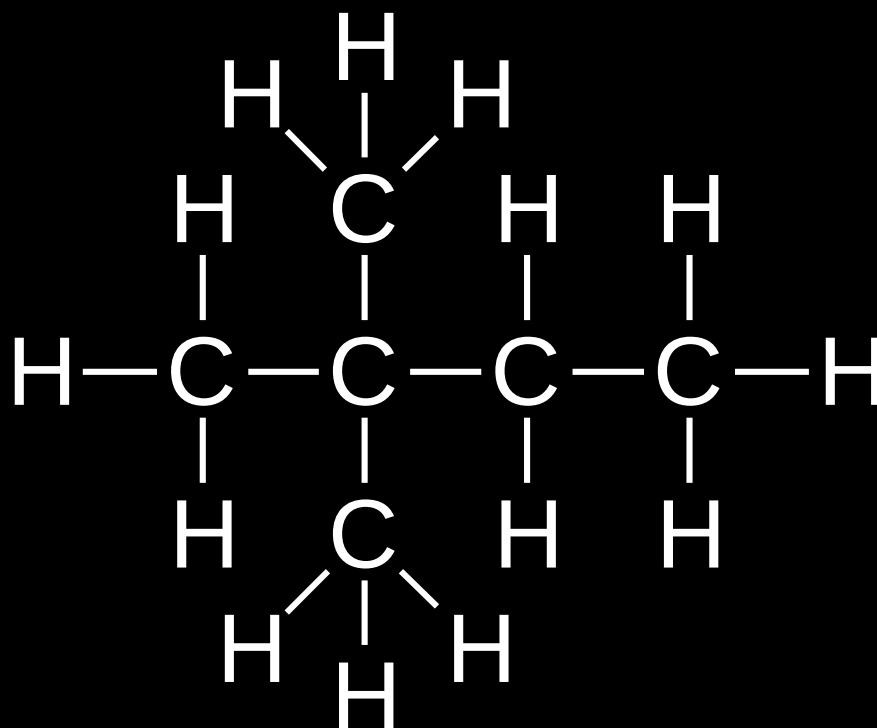


2-methylbutane

Branched Chain Alkanes

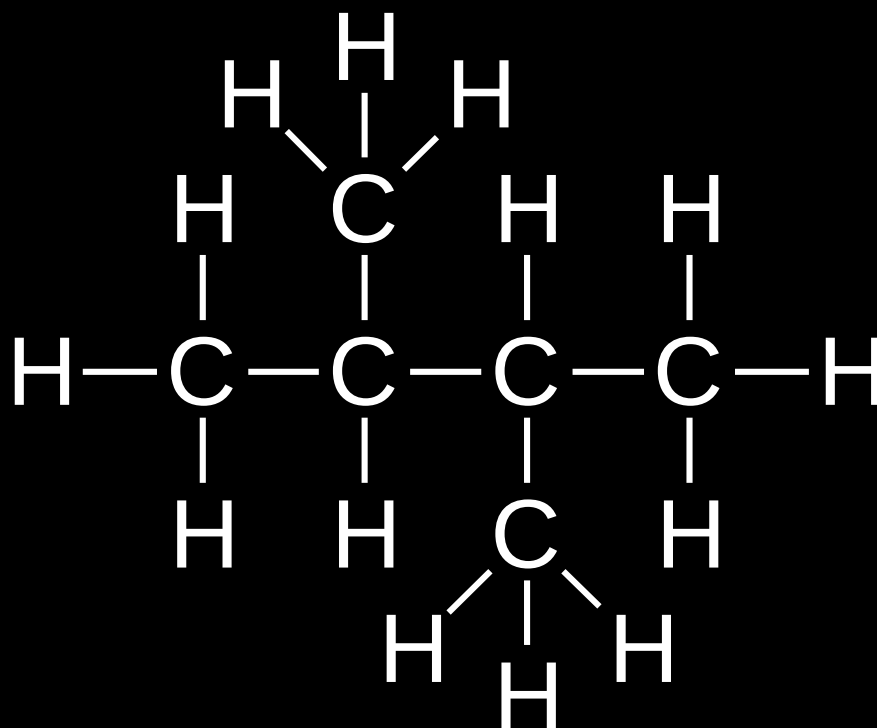


Branched Chain Alkanes

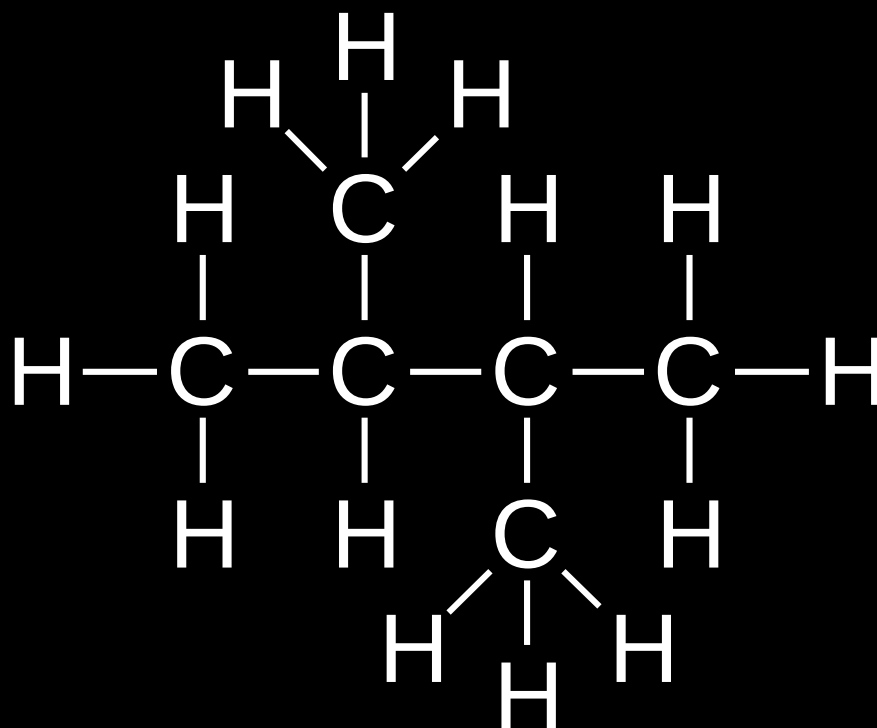


2,2-dimethylbutane

Branched Chain Alkanes

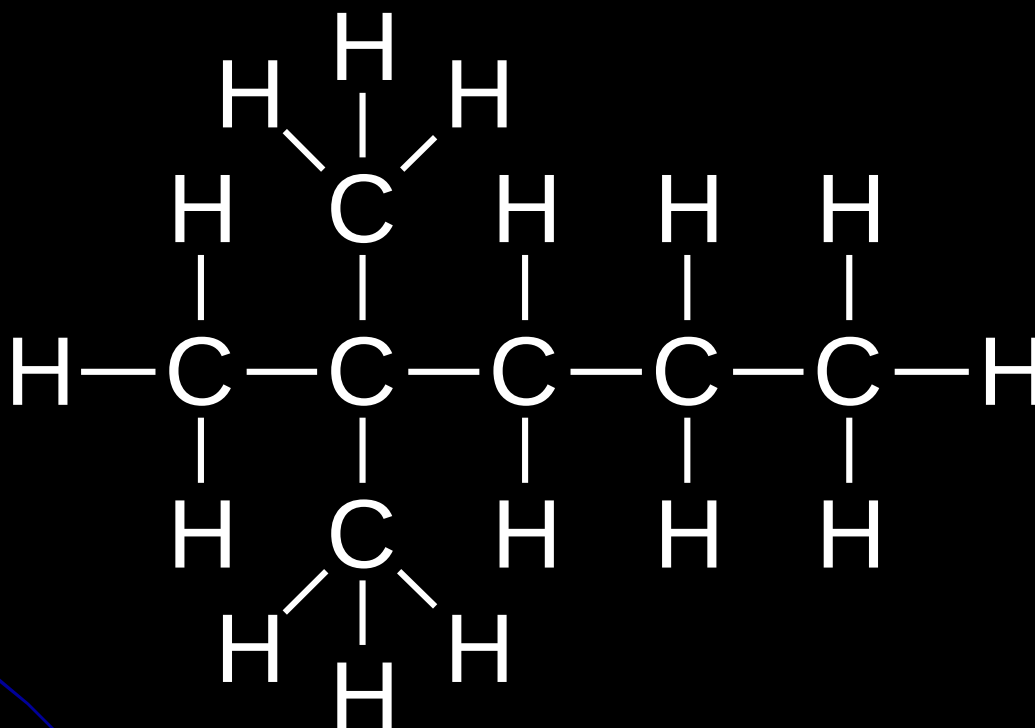


Branched Chain Alkanes

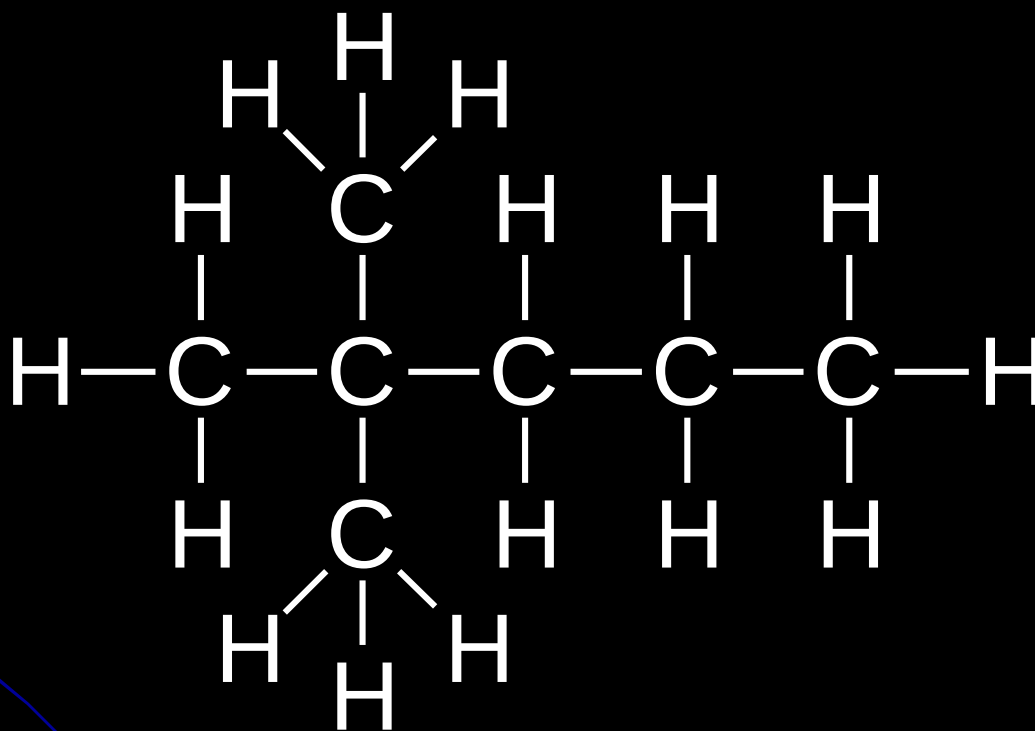


2,3-dimethylbutane

Branched Chain Alkanes

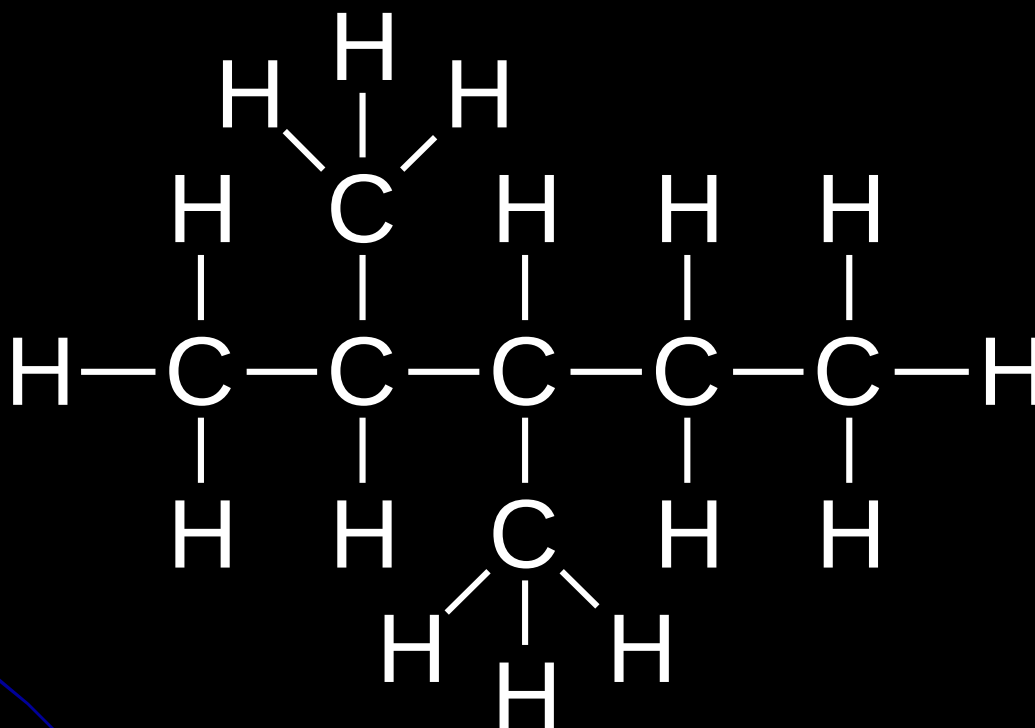


Branched Chain Alkanes

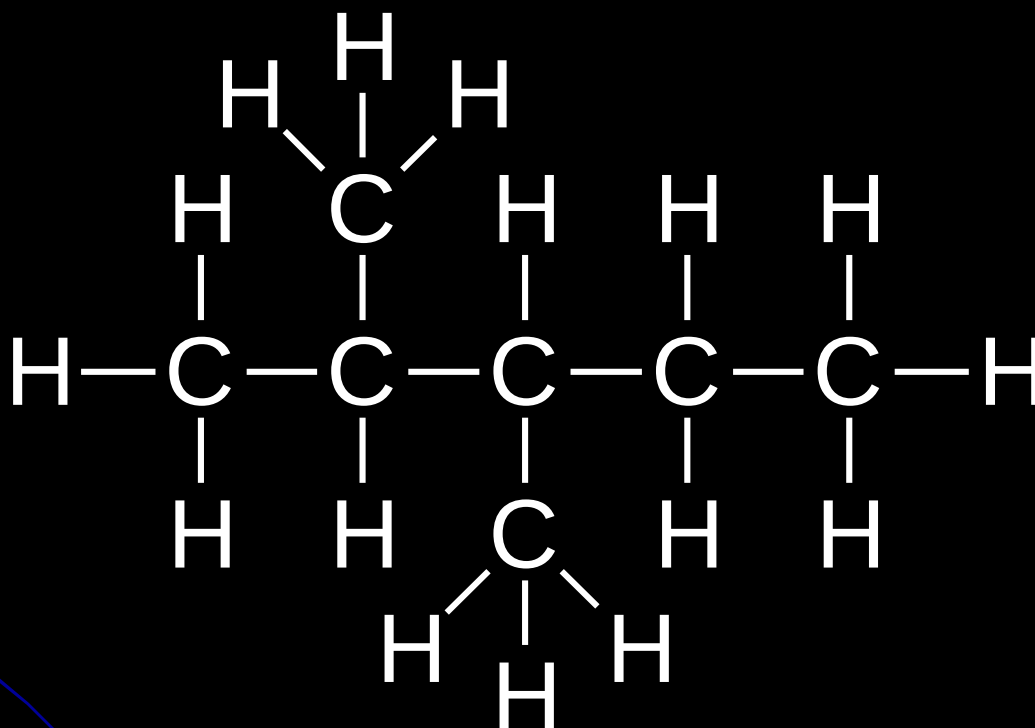


2,2-dimethylpentane

Branched Chain Alkanes

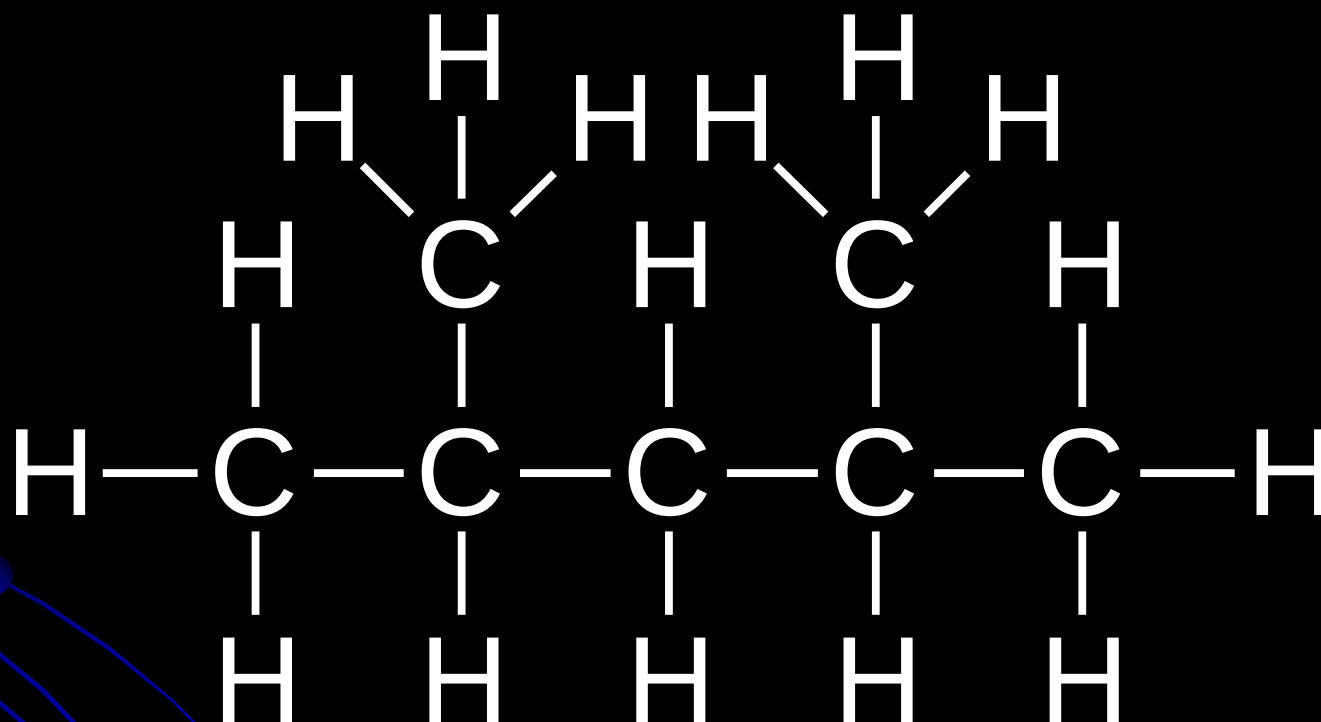


Branched Chain Alkanes

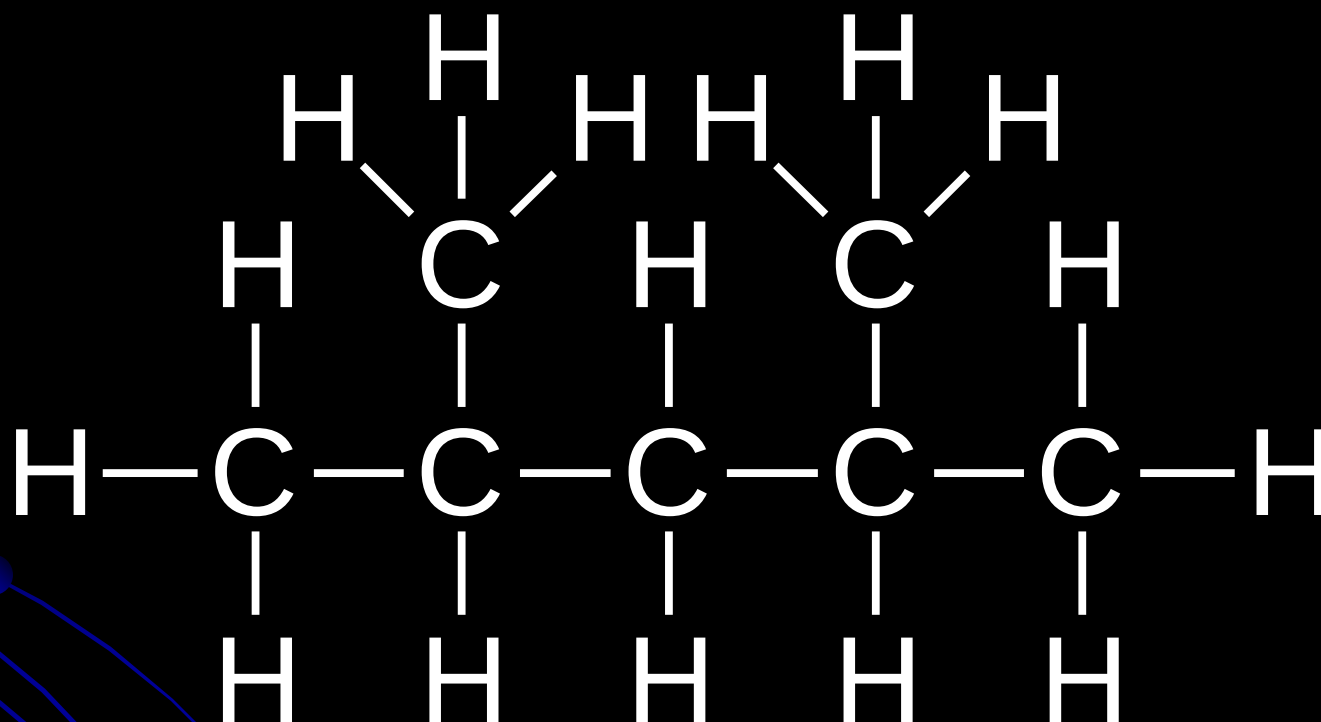


2,3-dimethylpentane

Branched Chain Alkanes

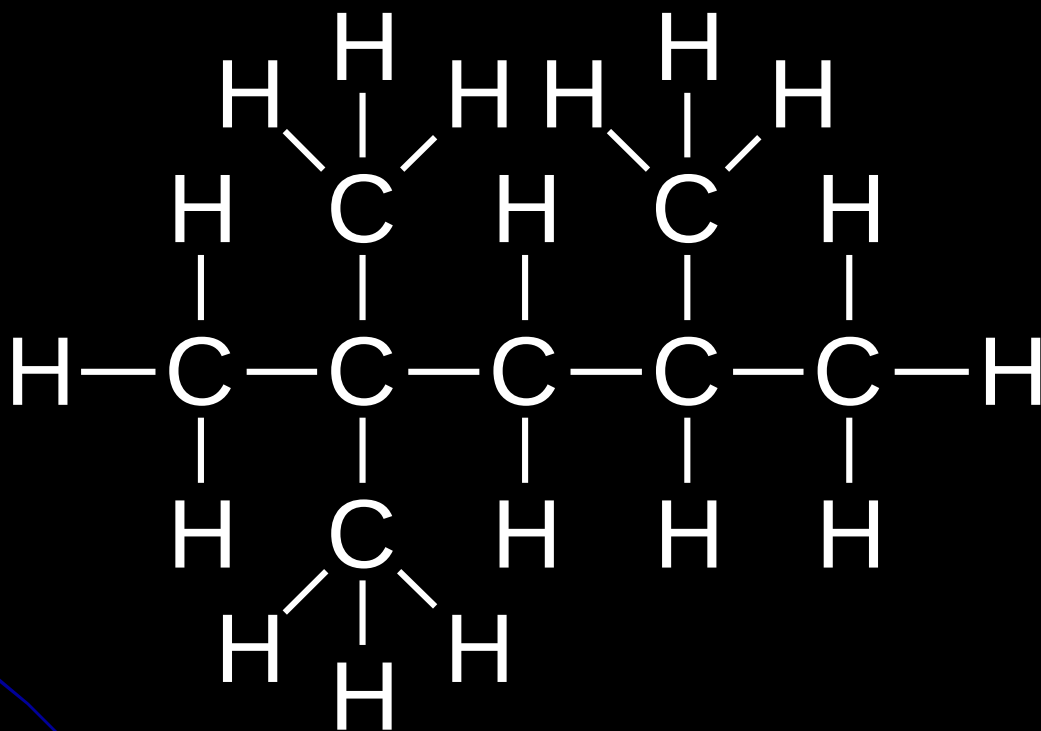


Branched Chain Alkanes

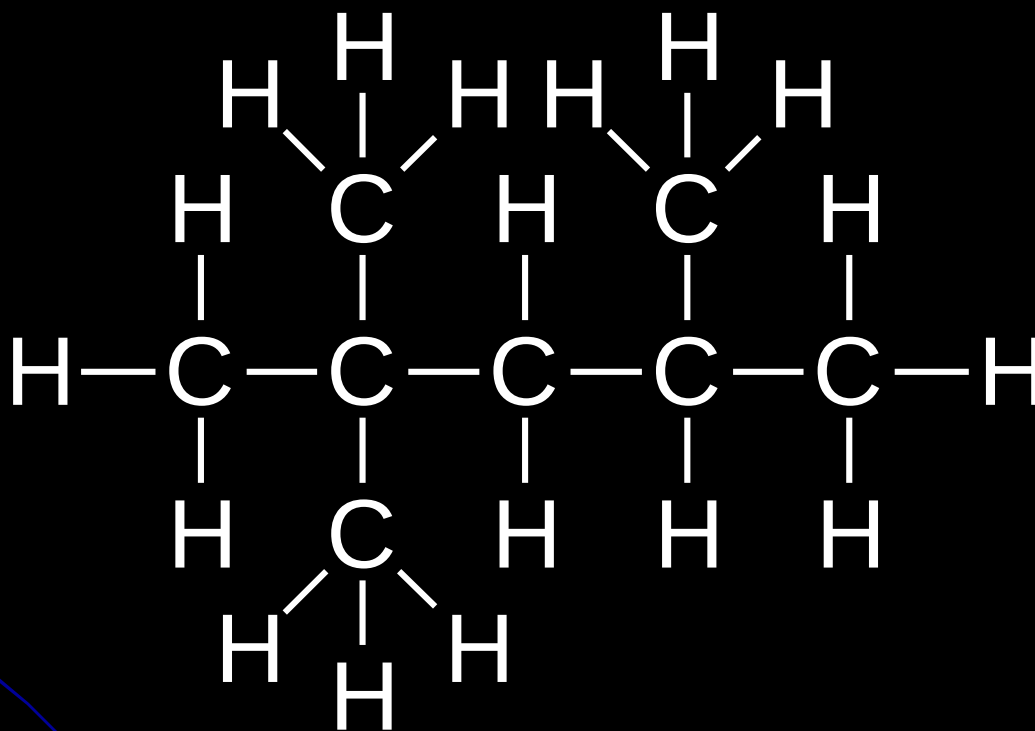


2,4-dimethylpentane

Branched Chain Alkanes

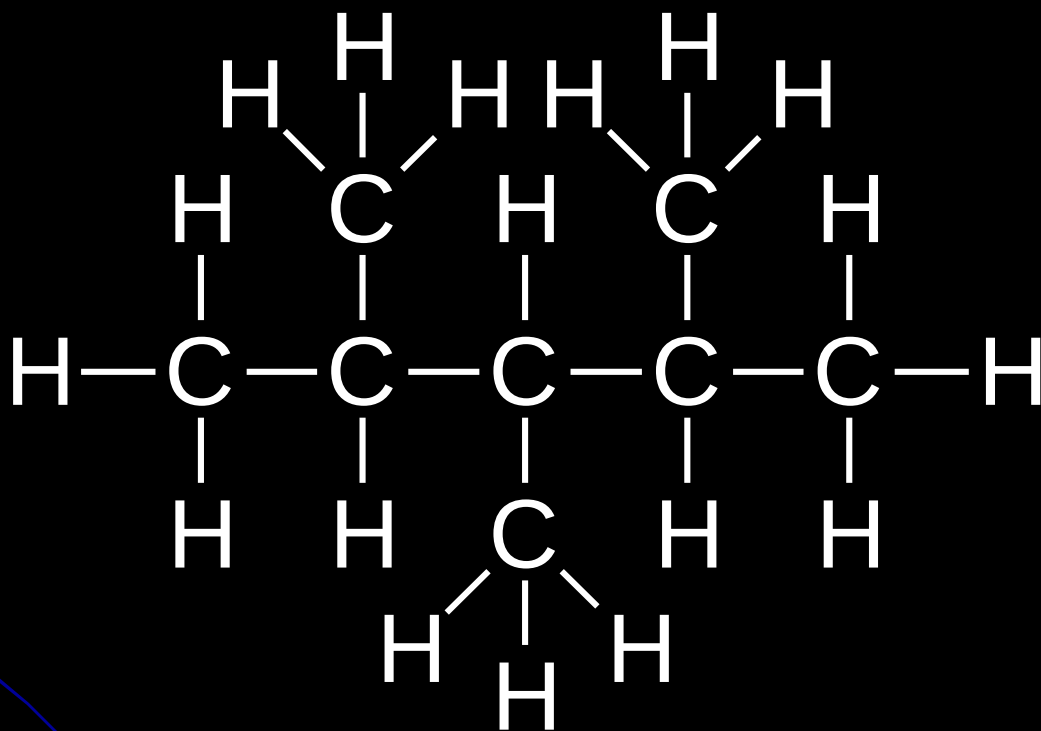


Branched Chain Alkanes

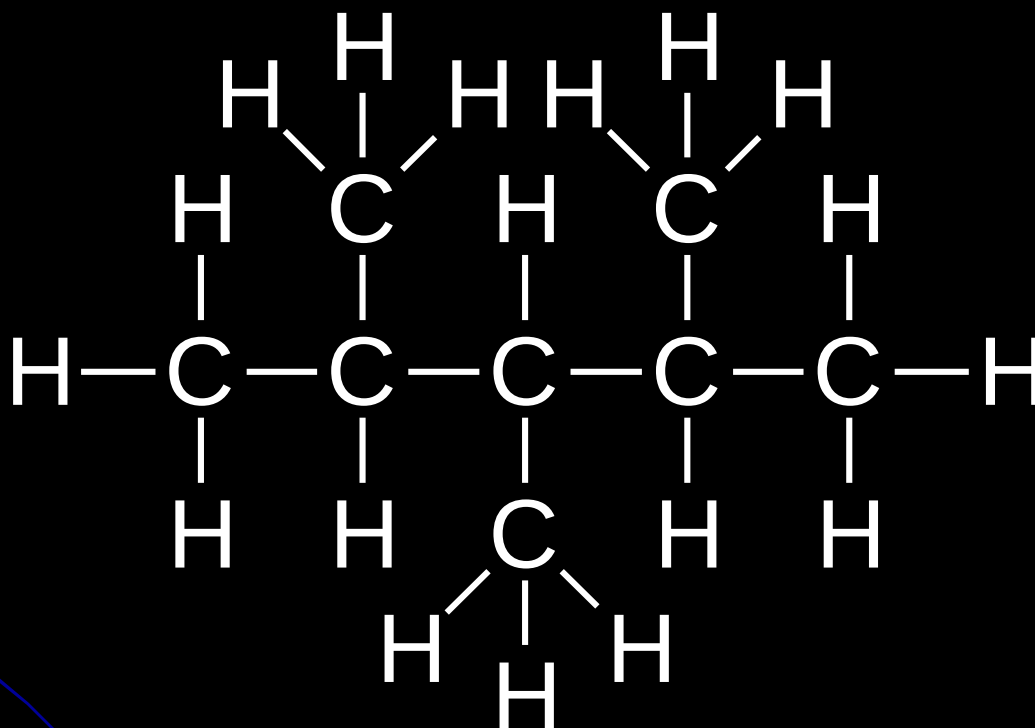


2,2,4-trimethylpentane

Branched Chain Alkanes

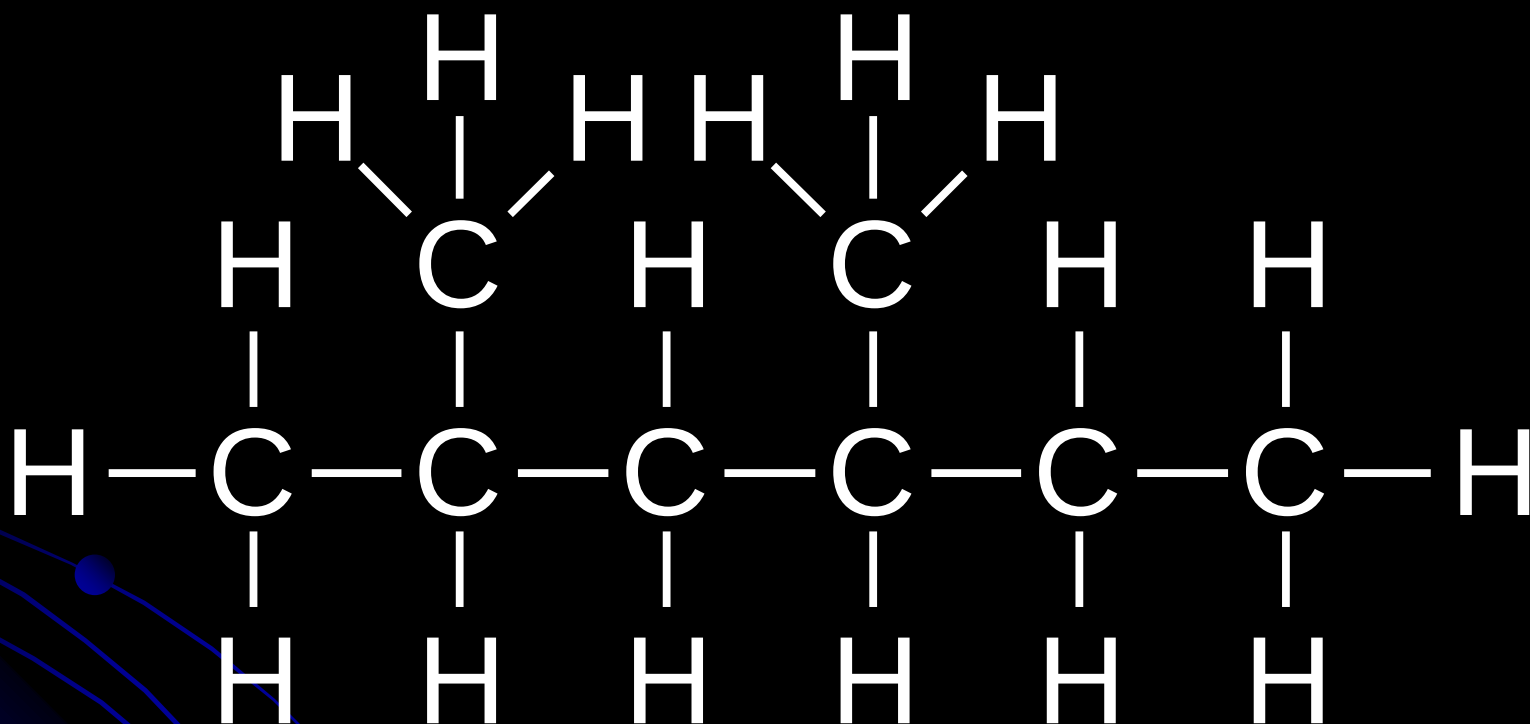


Branched Chain Alkanes

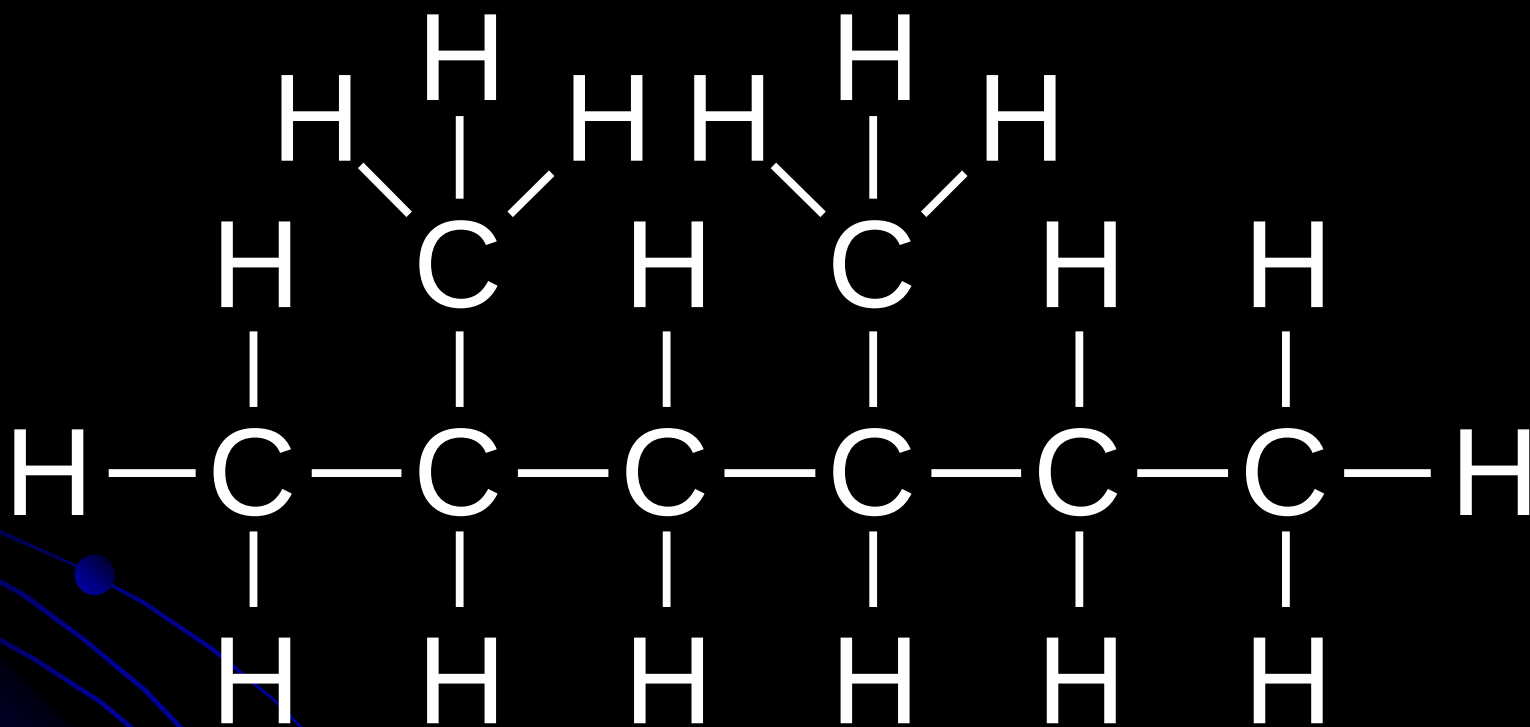


2,3,4-trimethylpentane

Branched Chain Alkanes

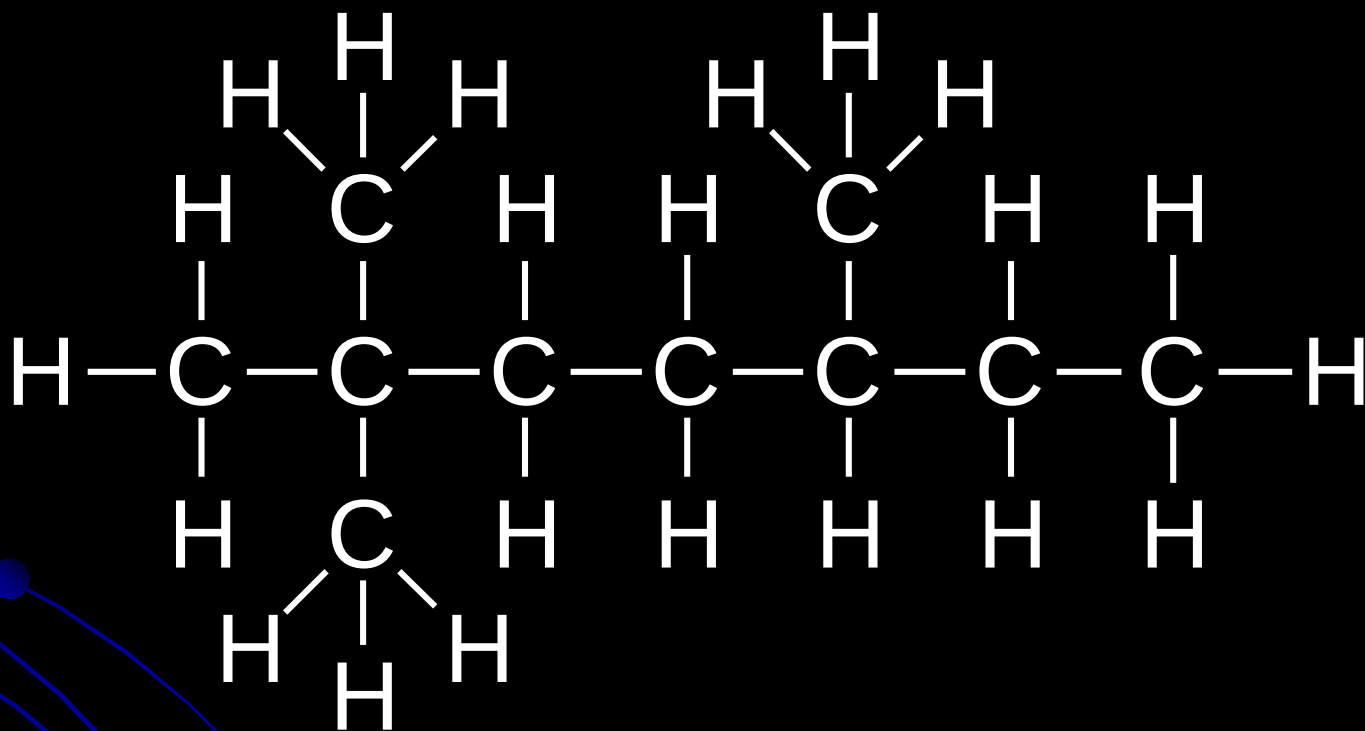


Branched Chain Alkanes

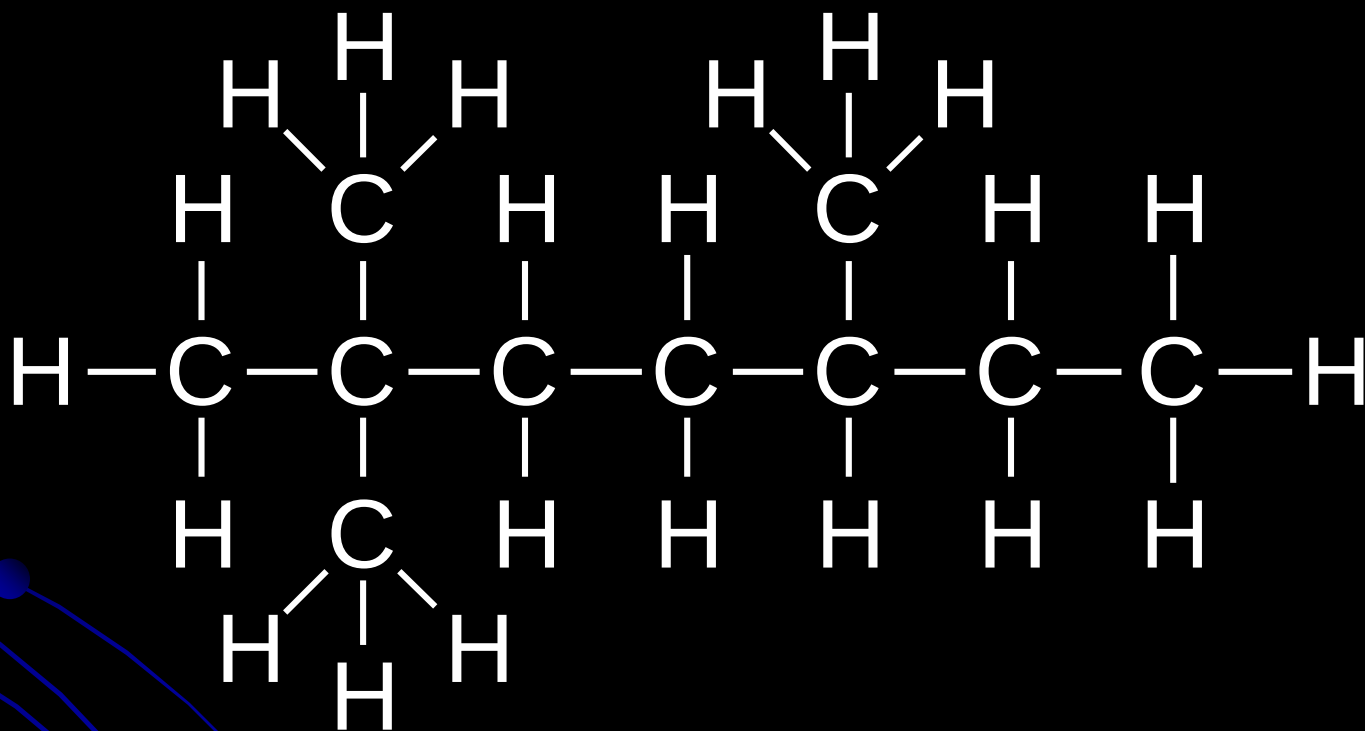


2,4-dimethylhexane

Branched Chain Alkanes

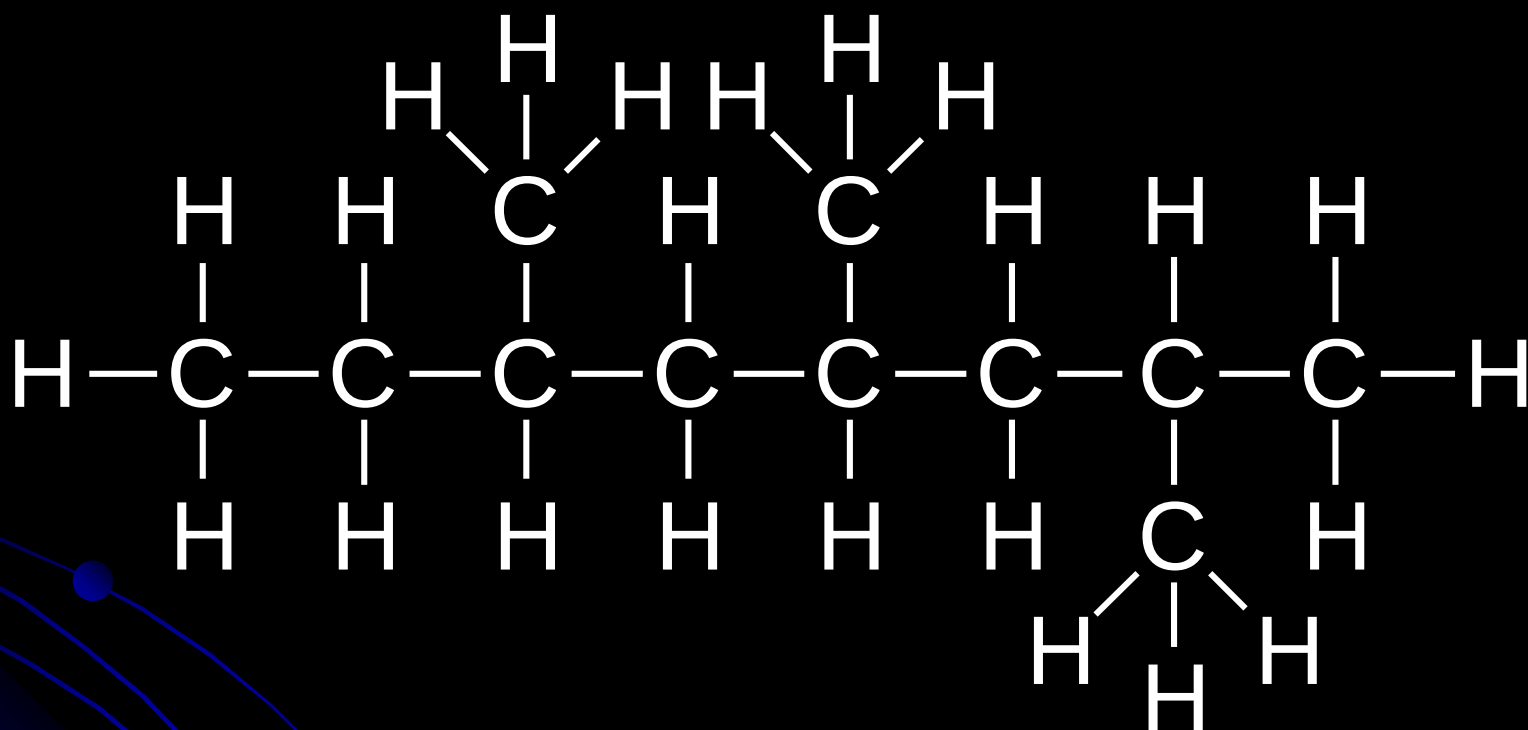


Branched Chain Alkanes

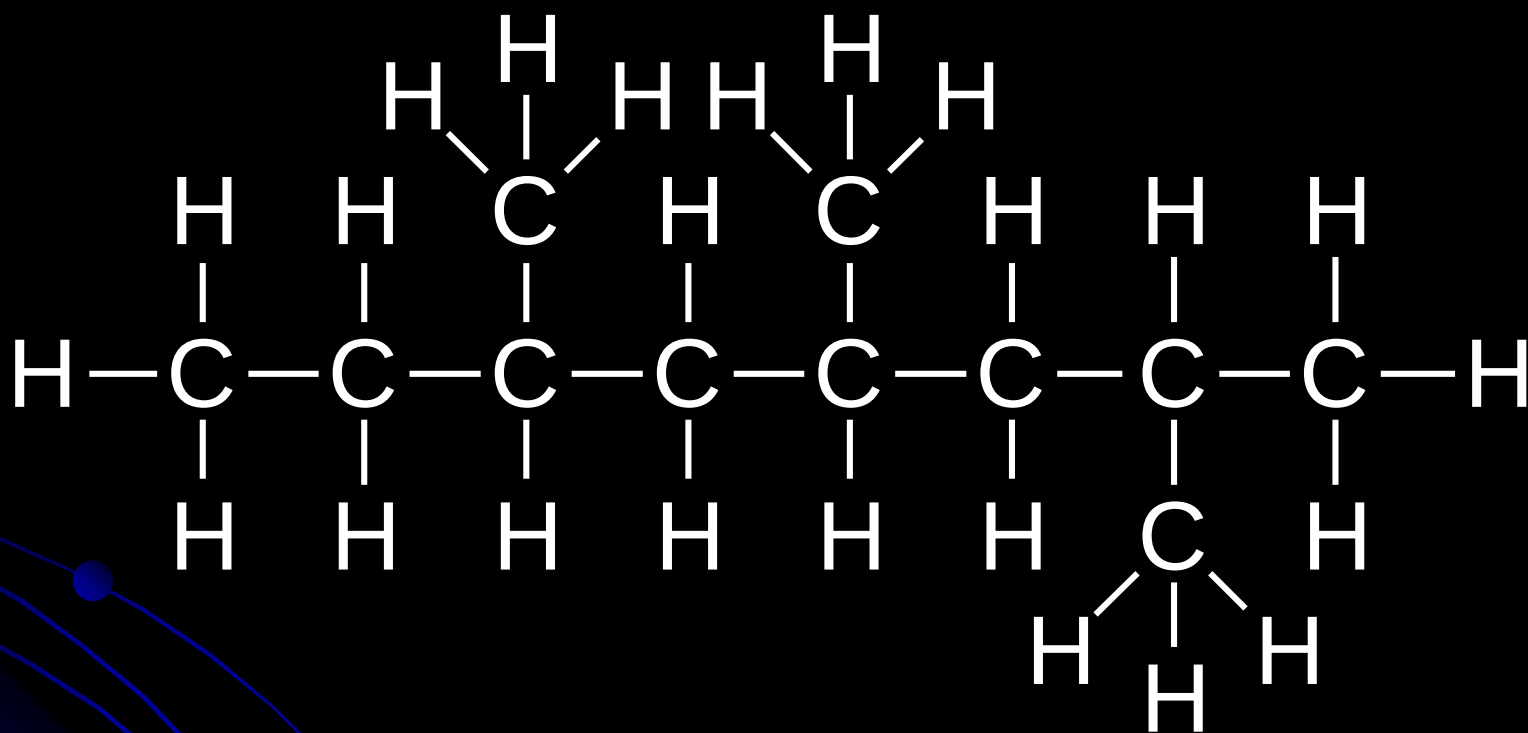


2,2,5-trimethylheptane

Branched Chain Alkanes

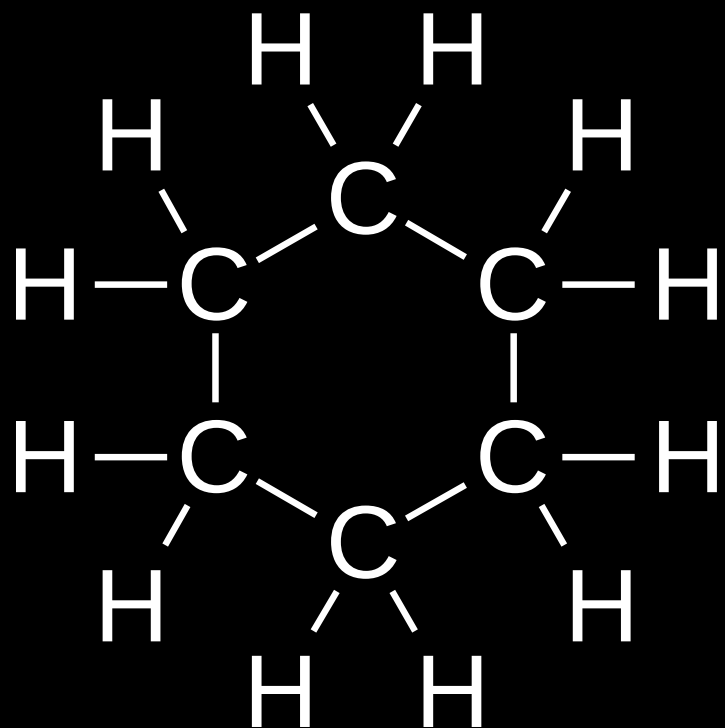


Branched Chain Alkanes

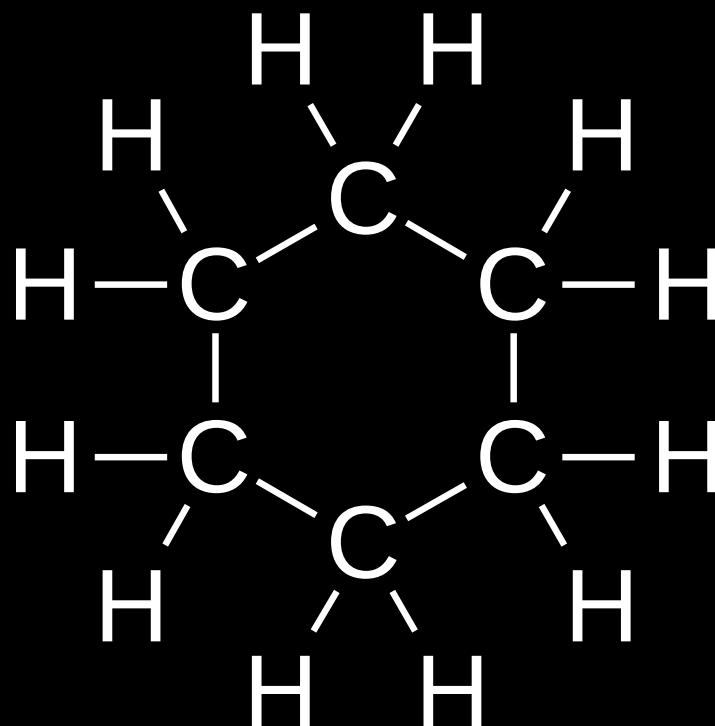


2,4,6-trimethyloctane

Cyclic Alkanes

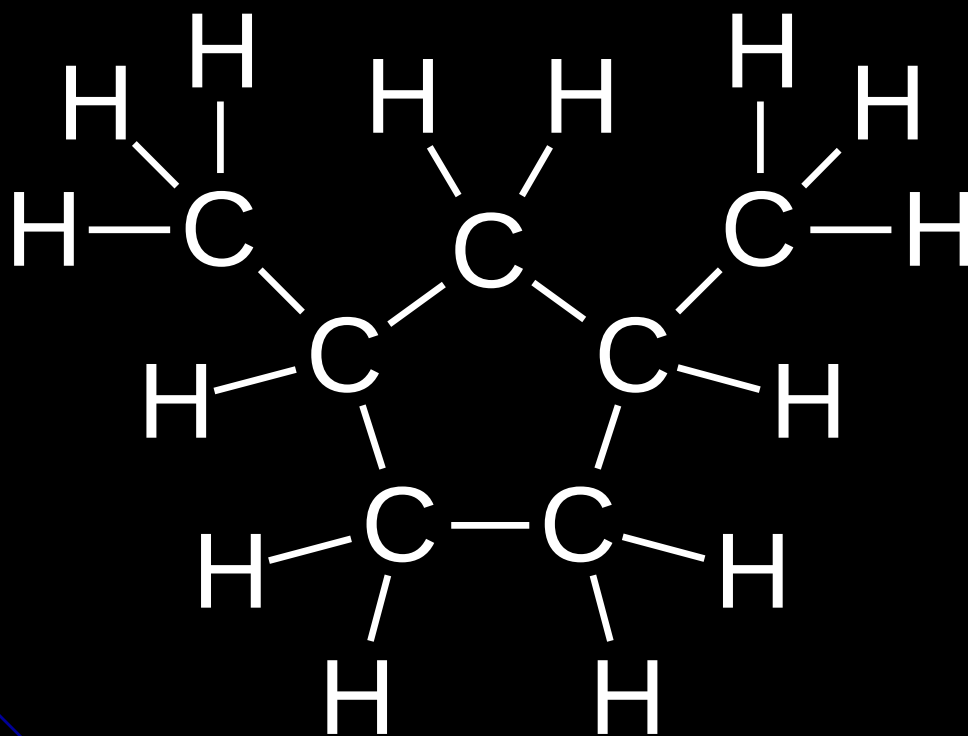


Cyclic Alkanes

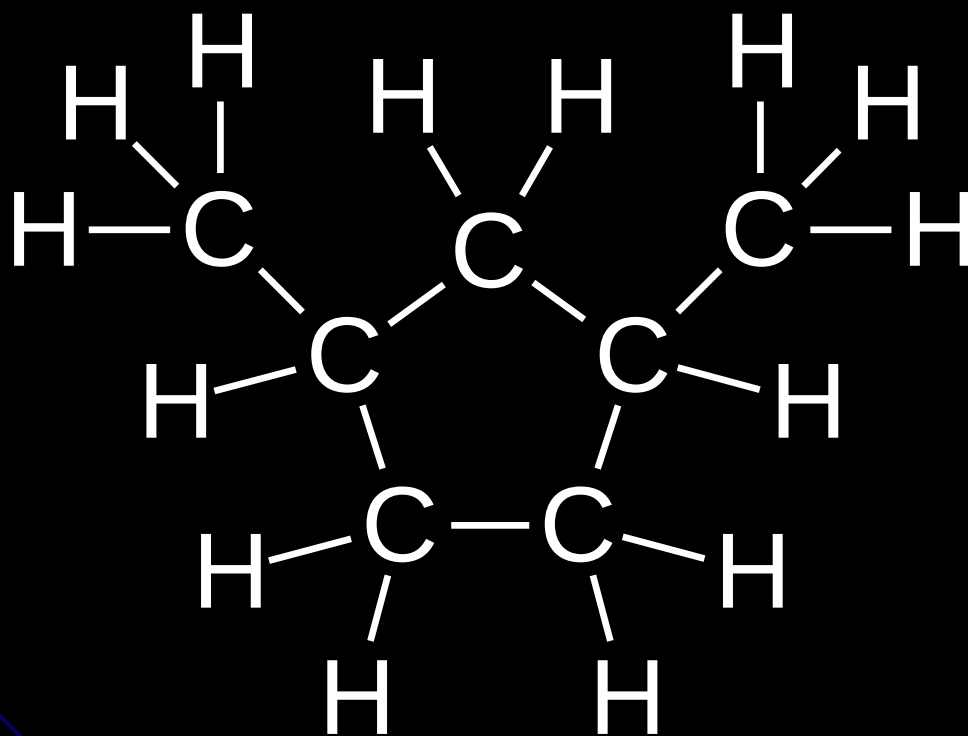


cyclohexane

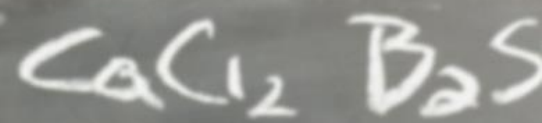
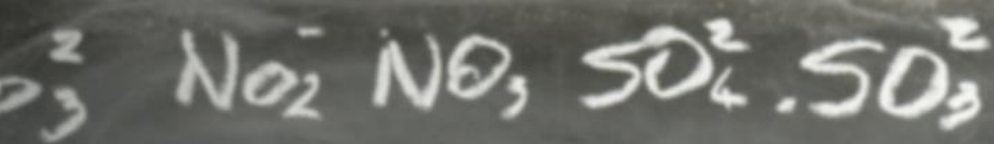
Cyclic Alkanes



Cyclic Alkanes



1,3-dimethylcyclopentane



$$\frac{e^2}{\sqrt{2}R_0}$$

$$F = \frac{q_1 \cdot q_2}{4\pi\epsilon_0}$$

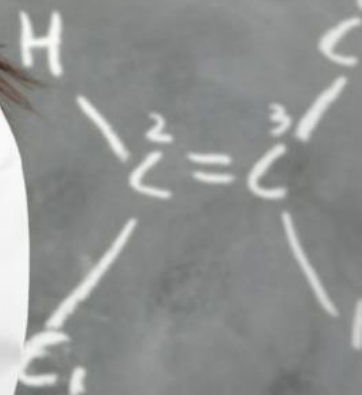
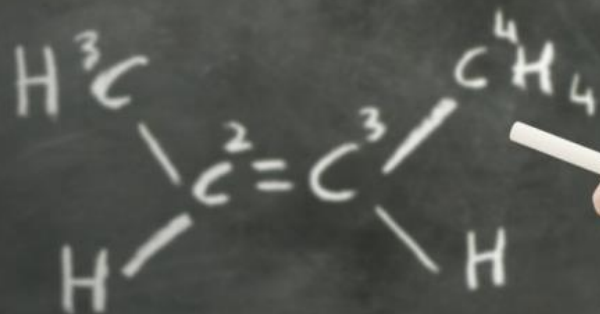
$$R_1 = \sqrt{2}R_0$$

$$R_2 = \sqrt{3}R_0$$

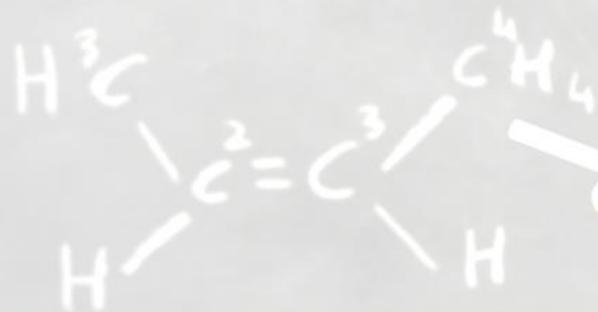
$$r^+ > 0.33$$

$$r^+ < 0.41$$

$$E_{\text{MAD}} = -6 \frac{e^2}{R_0} + 12 \frac{e^2}{\sqrt{2}R_0}$$

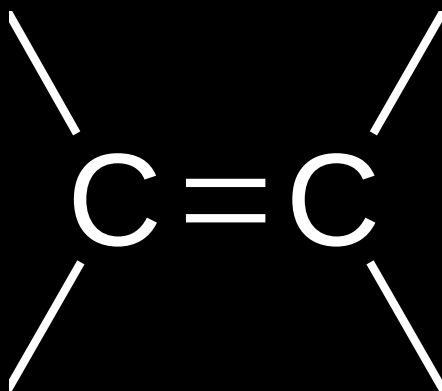


Naming Organic Compounds
Part Two:
Alkenes



Alkenes

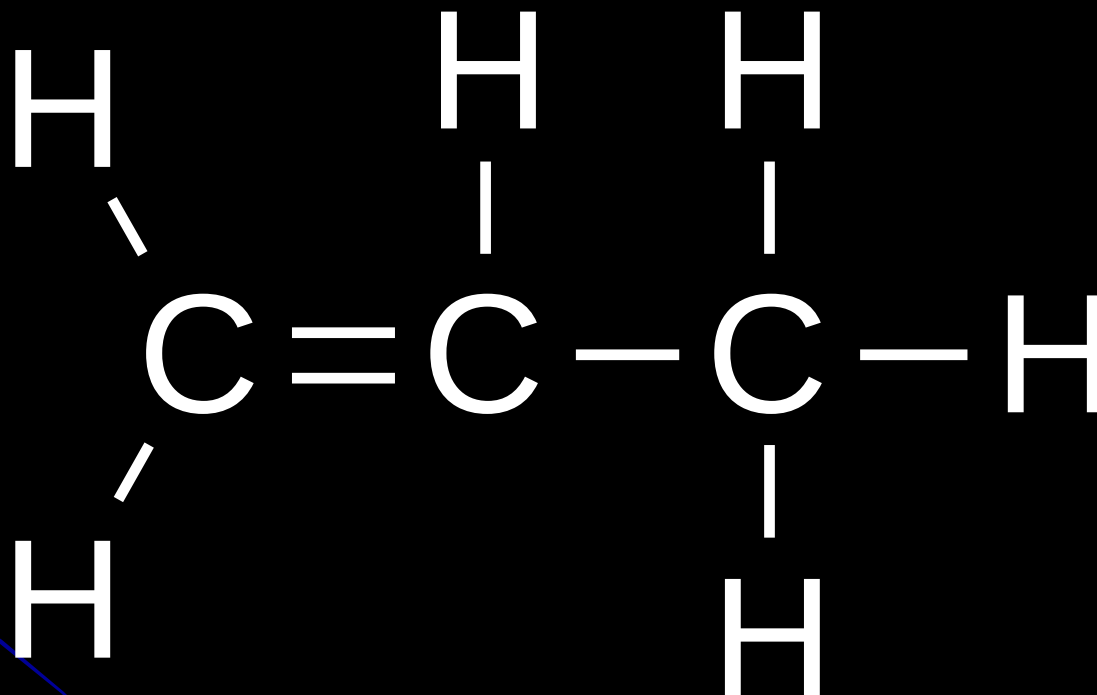
Alkenes are hydrocarbons which contain at least one carbon-to-carbon **double** covalent bond:



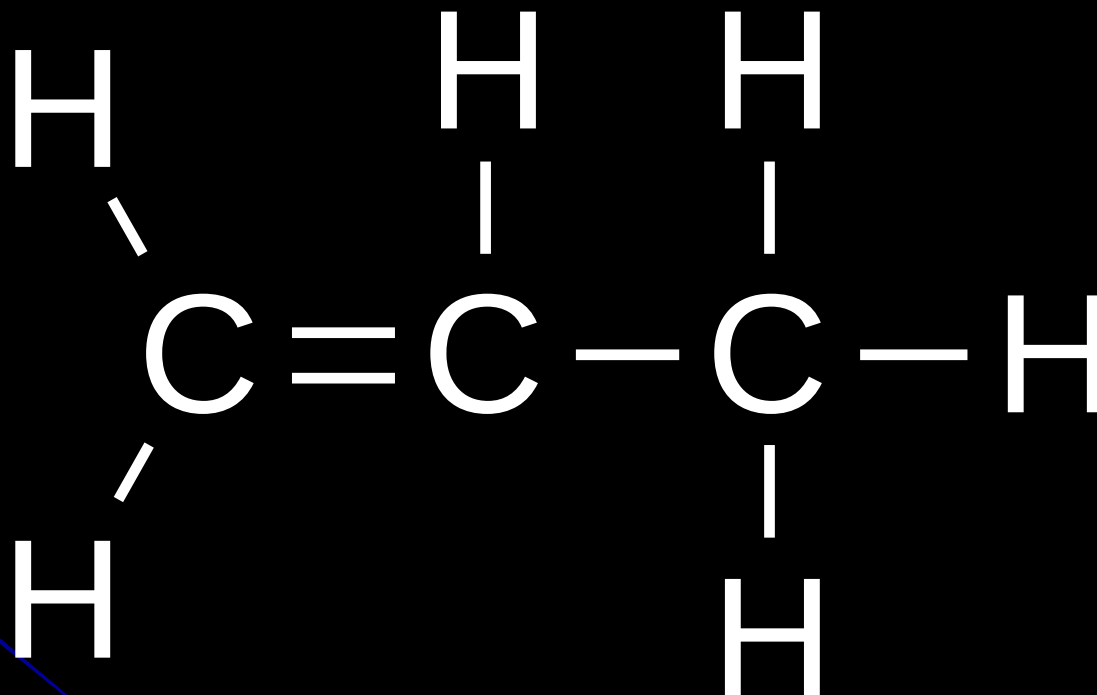
General formula = C_nH_{2n}

Names end **-ene**

Alkenes

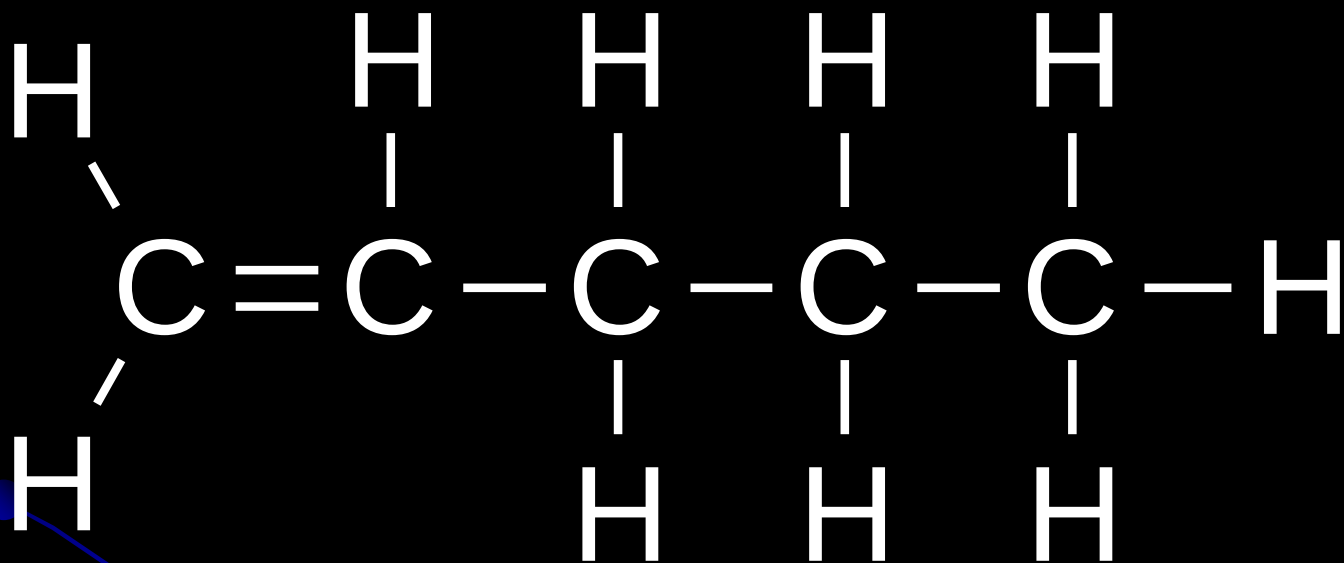


Alkenes

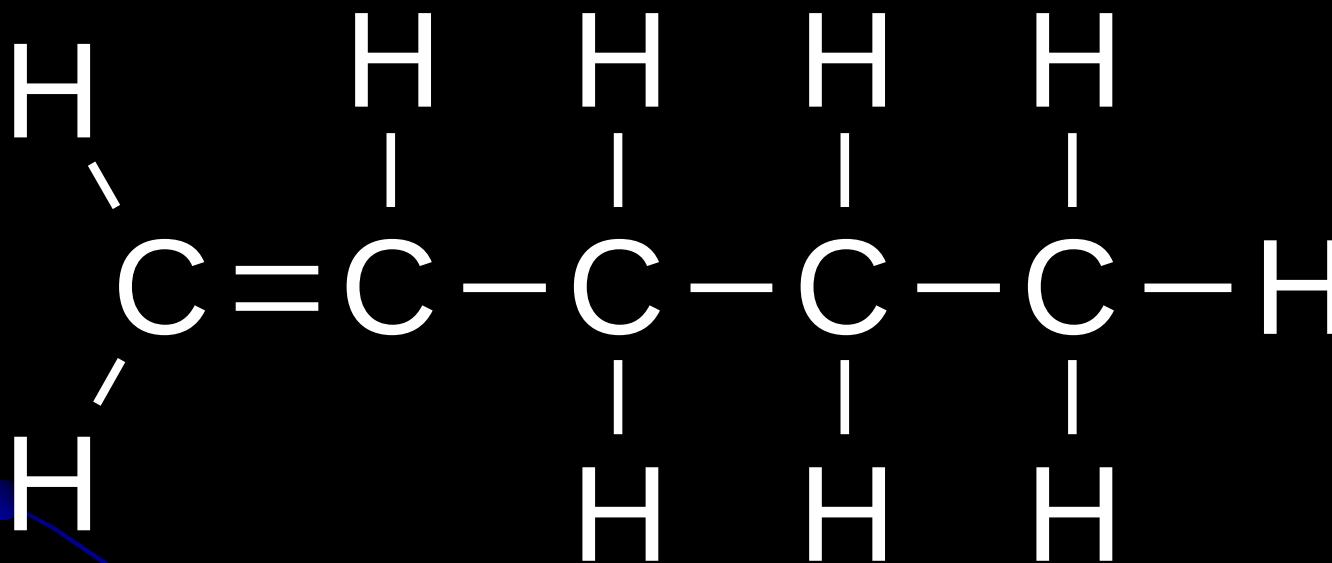


propene

Alkenes

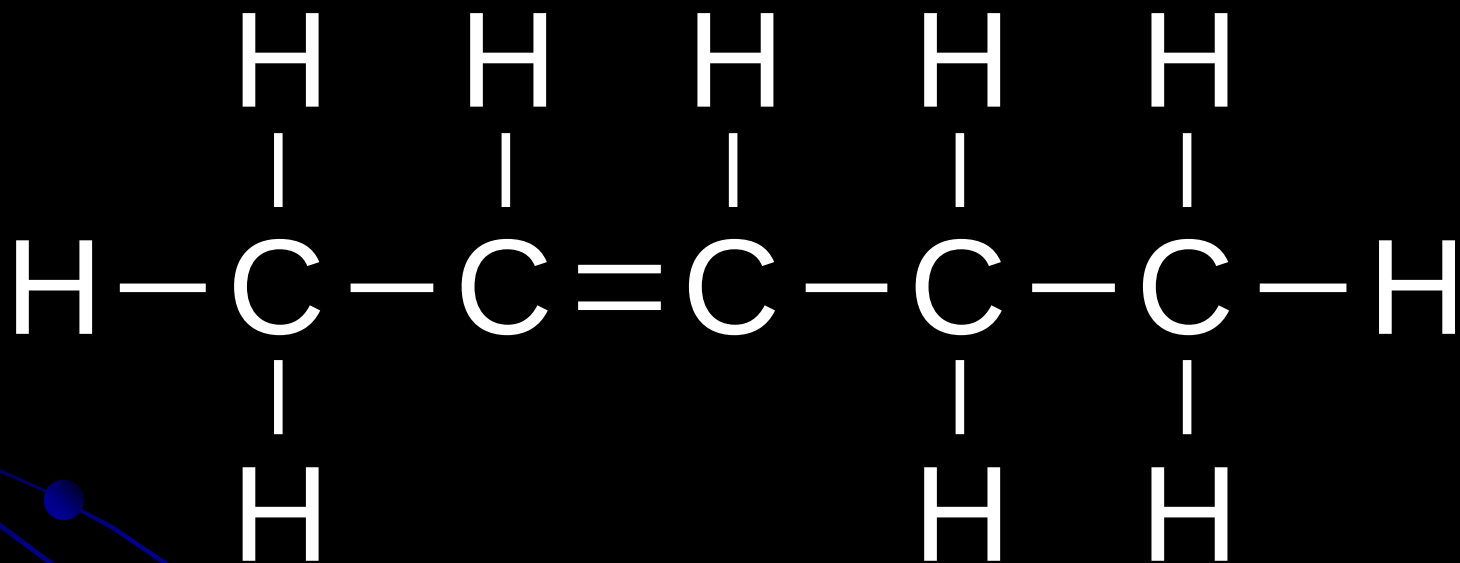


Alkenes

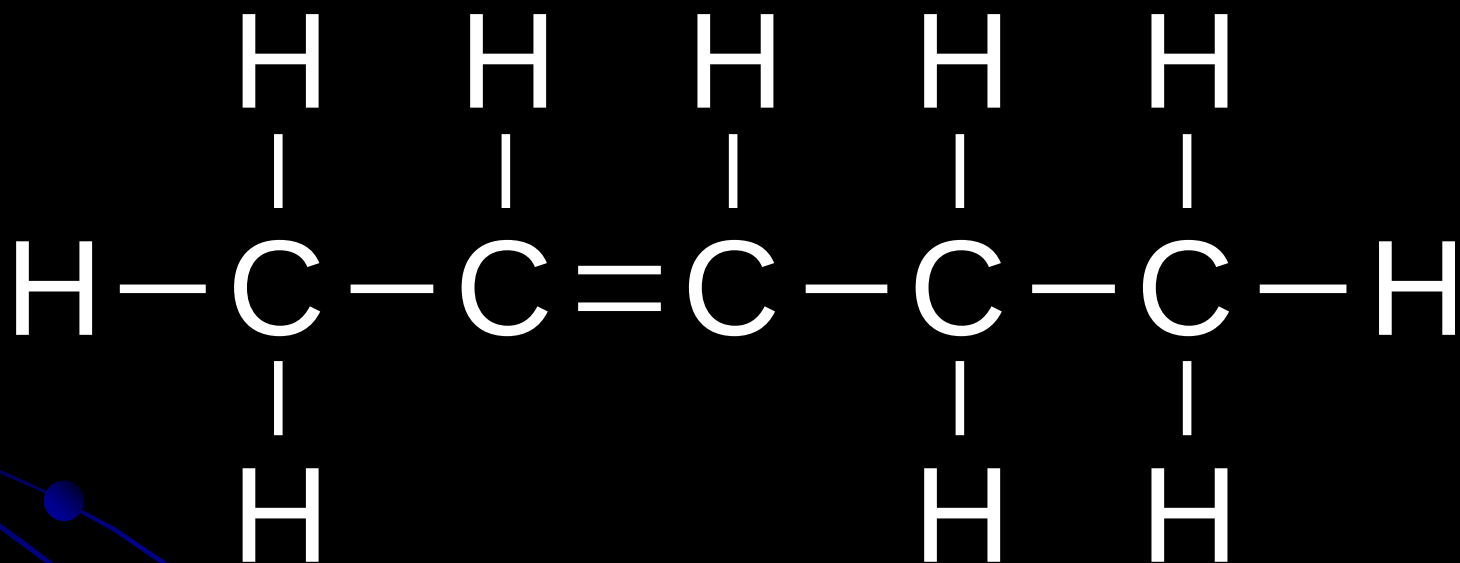


pent-1-ene

Alkenes

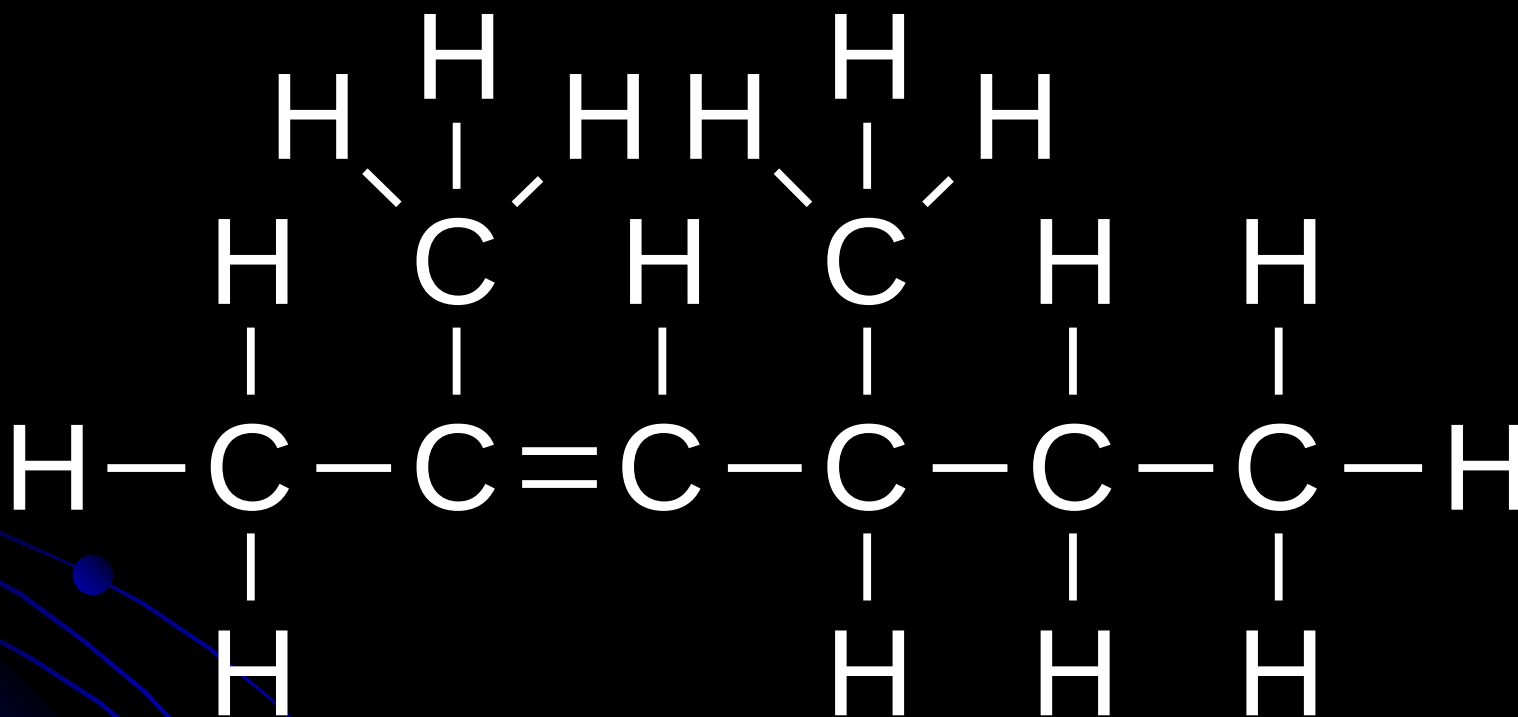


Alkenes

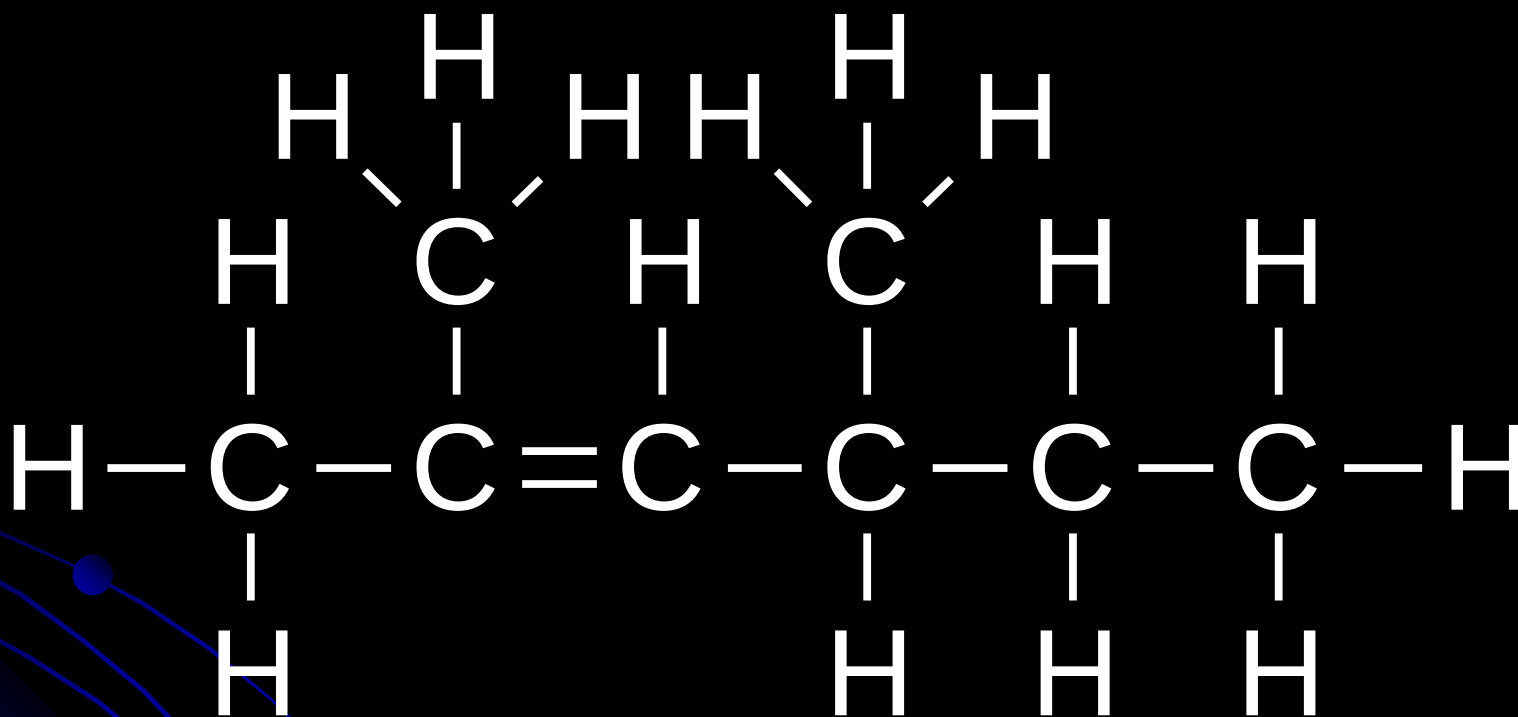


pent-2-ene

Alkenes

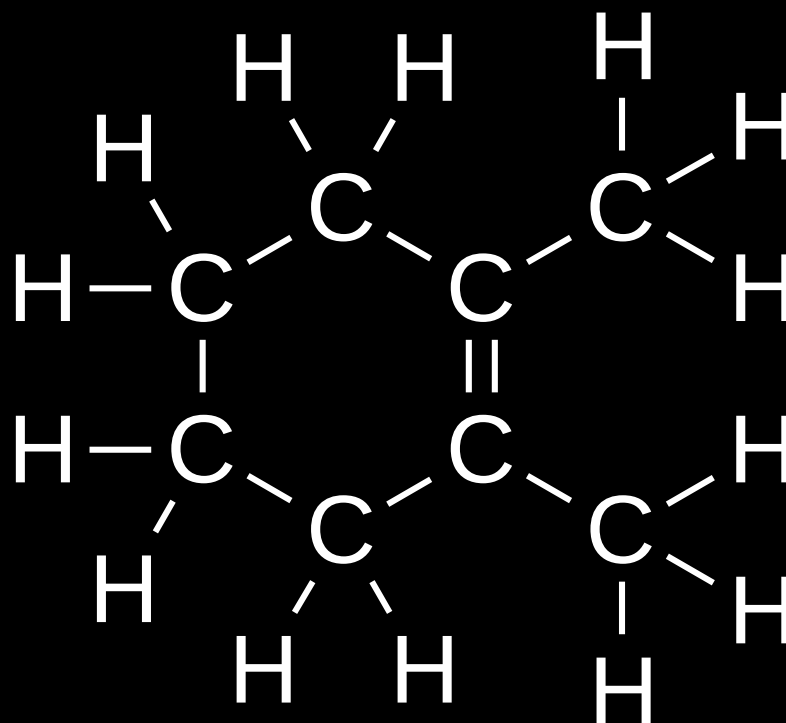


Alkenes

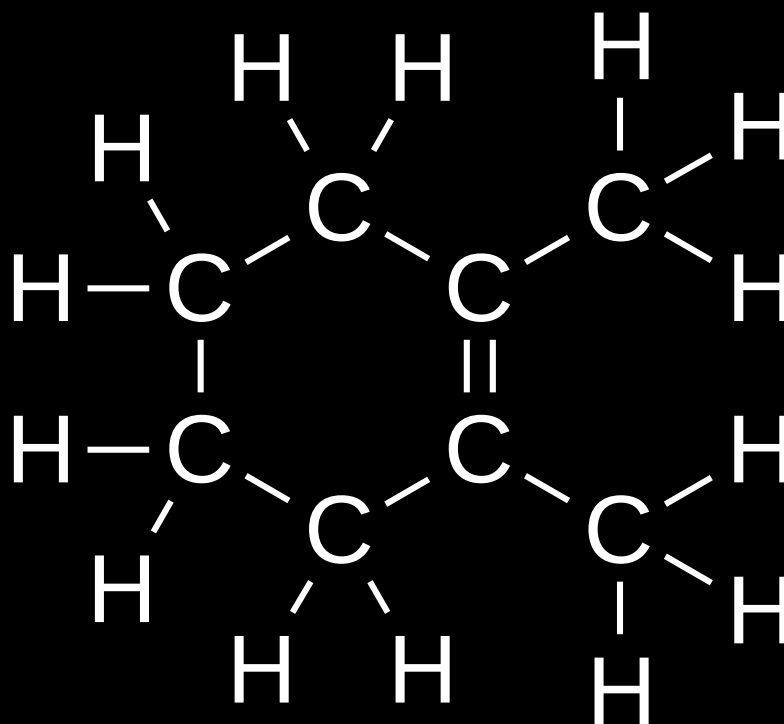


2,4-dimethylhex-2-ene

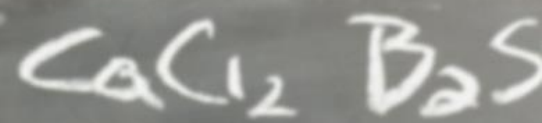
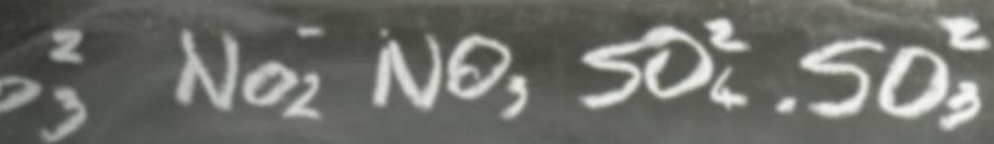
Alkenes



Alkenes



1,2-dimethylcyclohex-1-ene



$$\frac{e^2}{\sqrt{2}R_0}$$

$$F = \frac{q_1 \cdot q_2}{4\pi\epsilon_0}$$

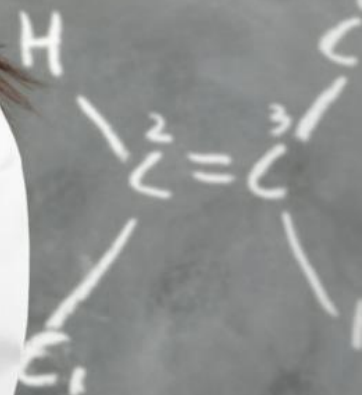
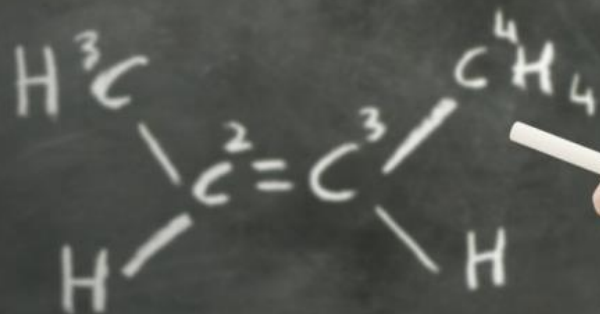
$$R_1 = \sqrt{2}R_0$$

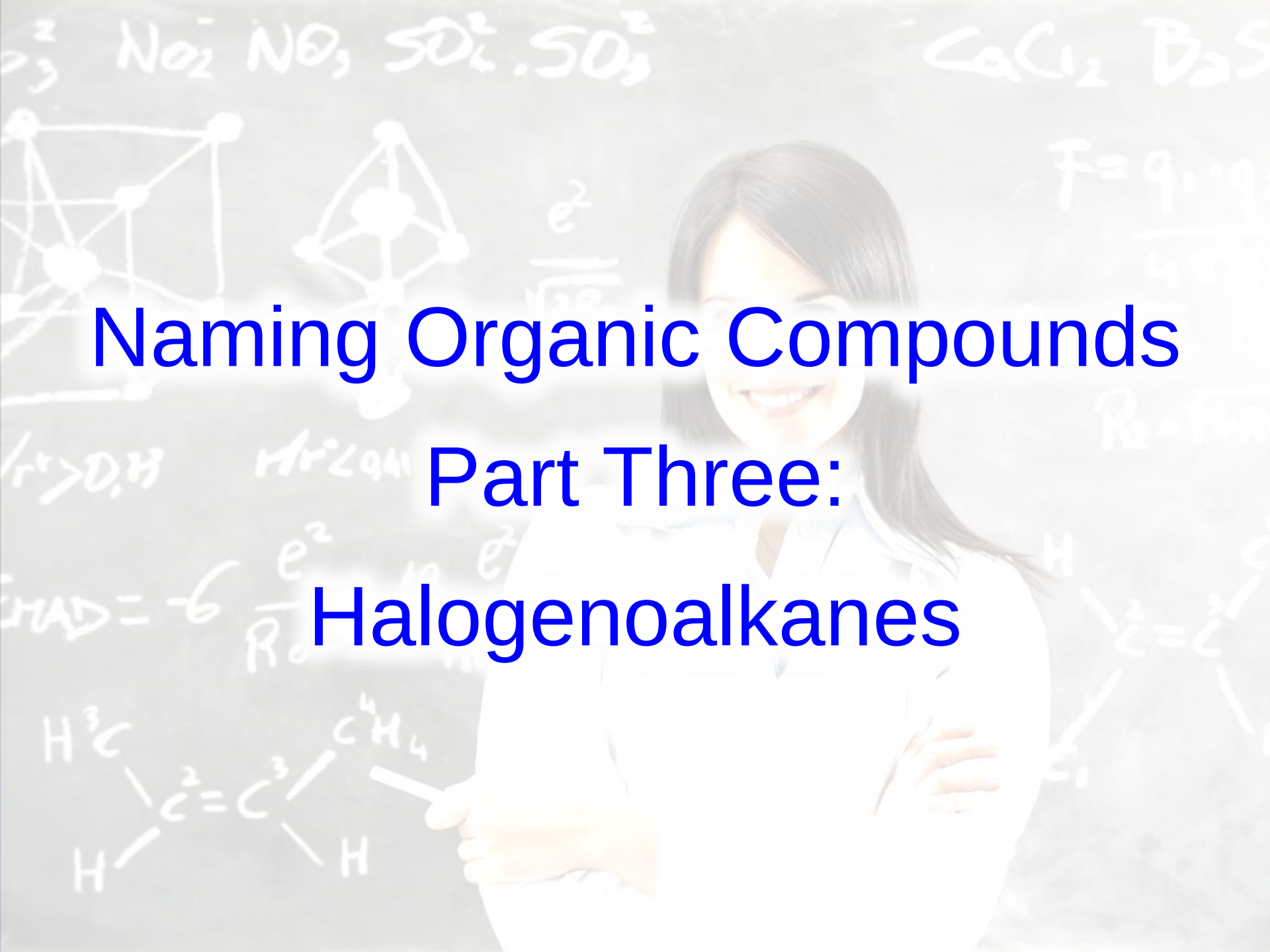
$$R_2 = \sqrt{3}R_0$$

$$r^+ > 0.33$$

$$r^+ < 0.41$$

$$E_{\text{MAD}} = -6 \frac{e^2}{R_0} + 12 \frac{e^2}{\sqrt{2}R_0}$$



A smiling woman with long dark hair, wearing a white lab coat, stands in front of a chalkboard. The chalkboard is filled with various chemistry-related content, including chemical formulas like NO_2 , NO , SO_4^{2-} , SO_3^{2-} , CaCl_2 , B_2S_3 , $F = q_1 \cdot q_2 / 4\pi\epsilon_0 r^2$, $R_0 = \sqrt{m}$, $\Delta H^\circ = -6$, $\frac{e^2}{R_0}$, and structural diagrams of molecules like $\text{H}_3\text{C}-\text{C}^2=\text{C}^3-\text{CH}_3$ and $\text{H}-\text{C}^4\text{H}_4$.

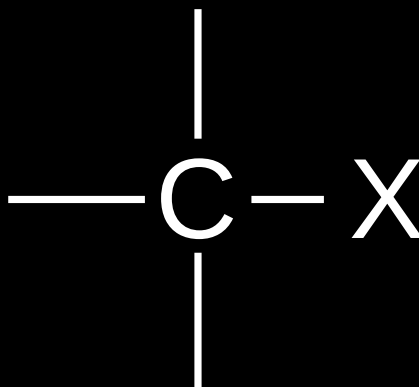
Naming Organic Compounds

Part Three:

Halogenoalkanes

Halogenoalkanes

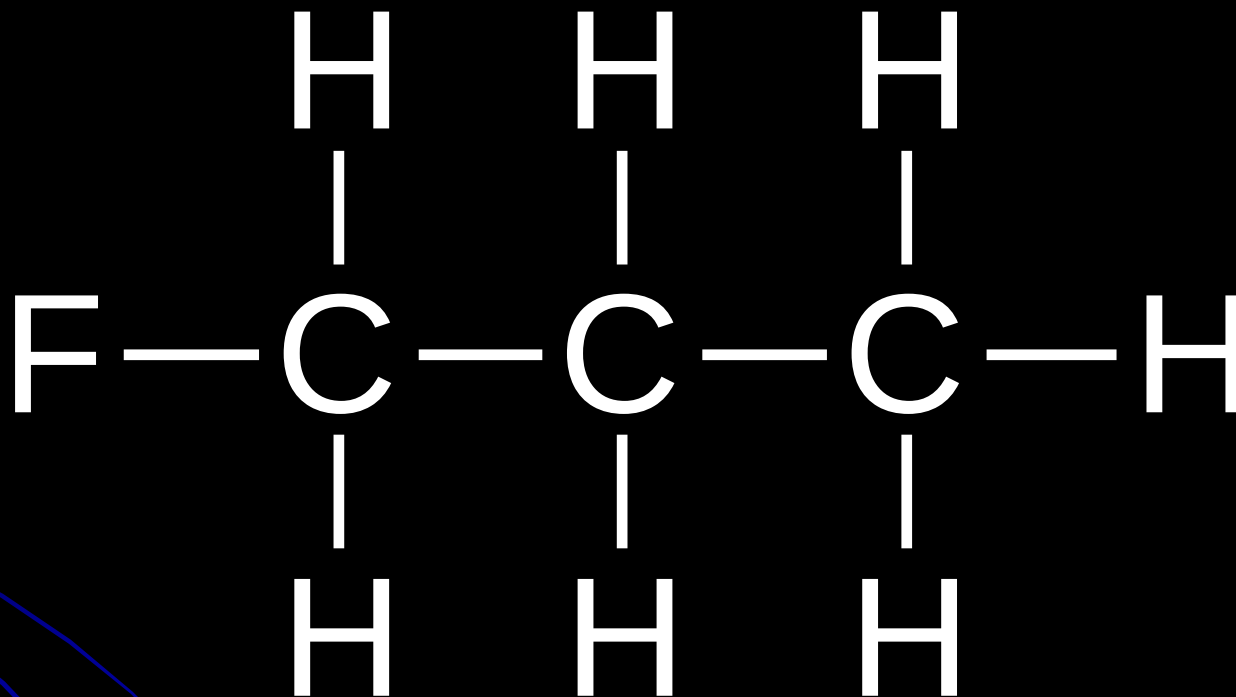
Halogenoalkanes are organic compounds which contain a **Group VII** element as part of their structure:



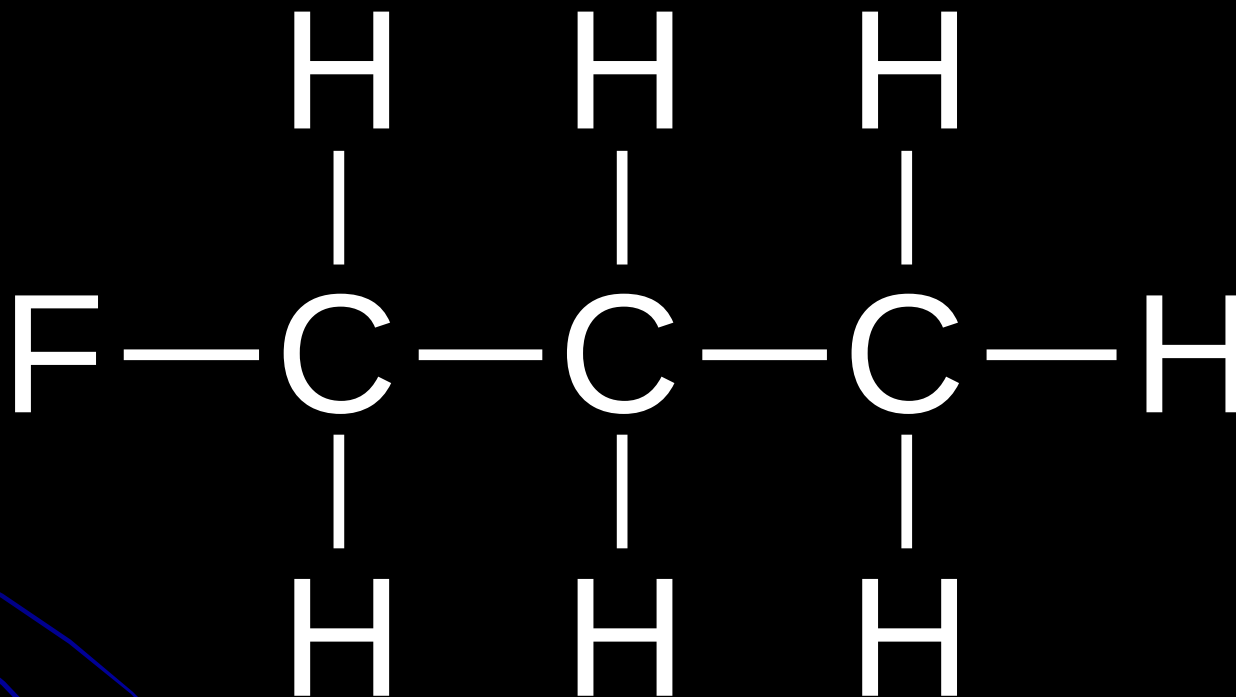
General formula = $\text{C}_n\text{H}_{2n+1}\text{X}$
(where $\text{X} = \text{F}, \text{Cl}, \text{Br}$ or I)

Names start *fluoro-*, *chloro-*, *bromo-* or *iodo-*

Halogenoalkanes

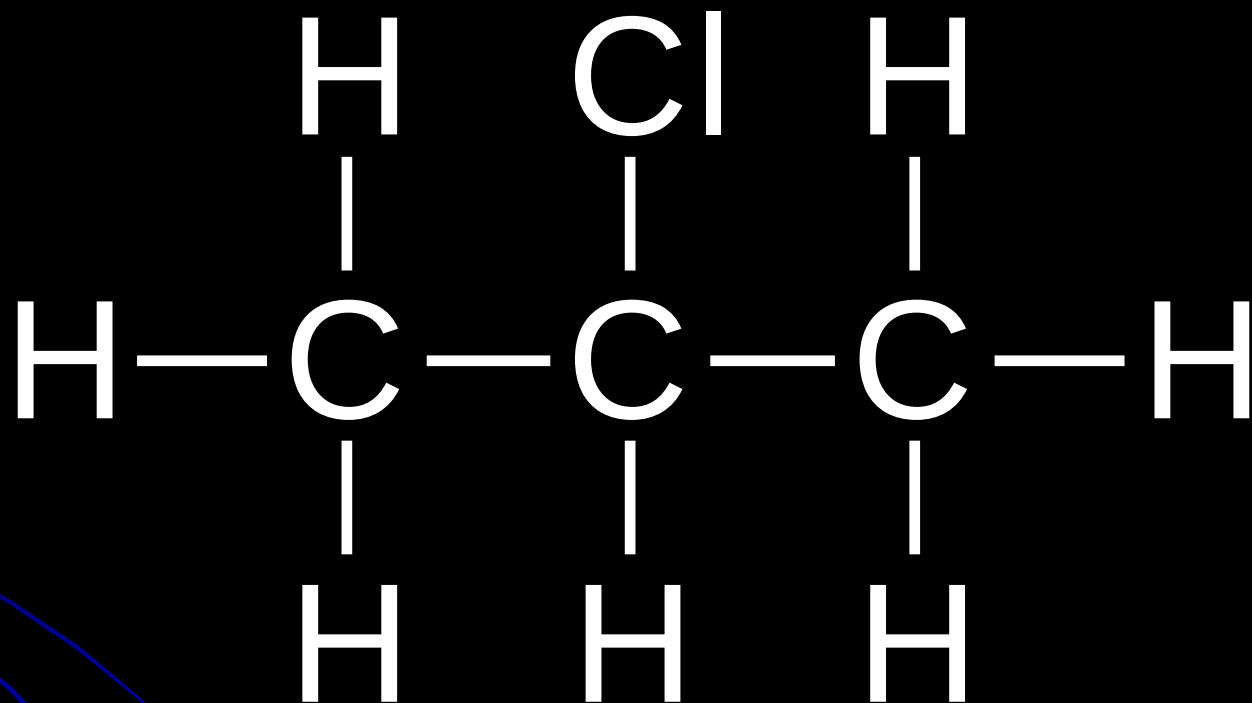


Halogenoalkanes

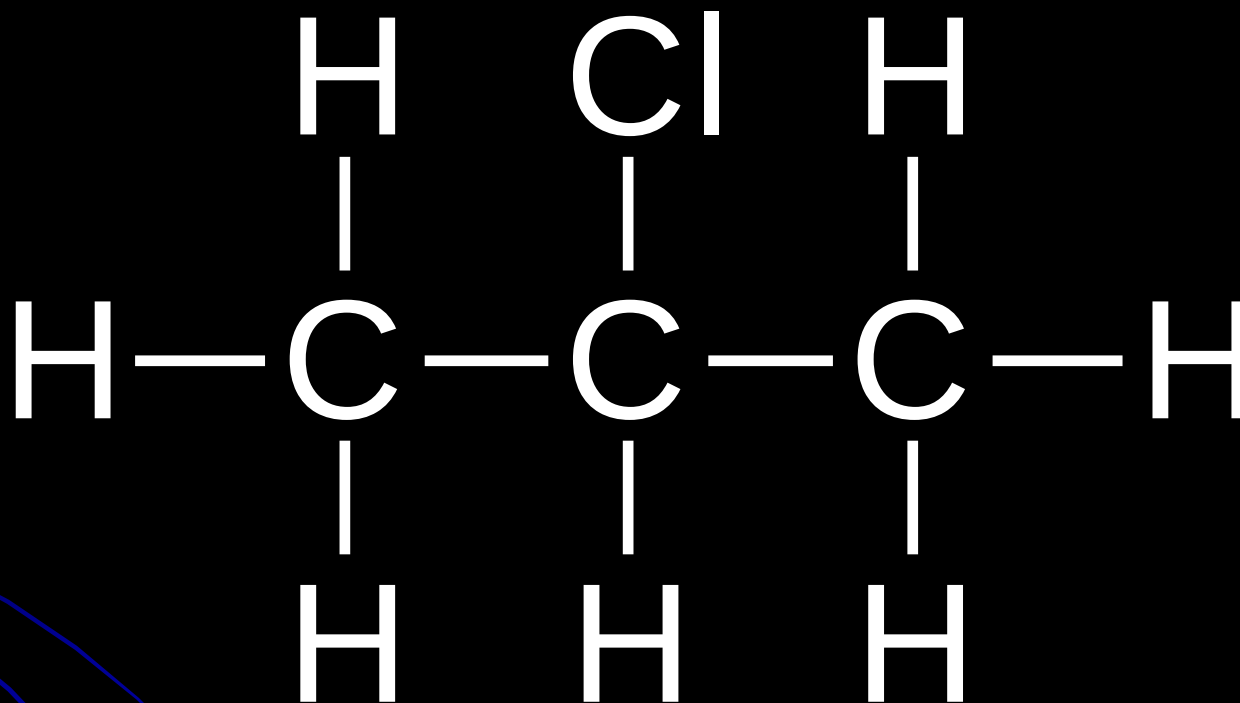


1-fluoropropane

Halogenoalkanes

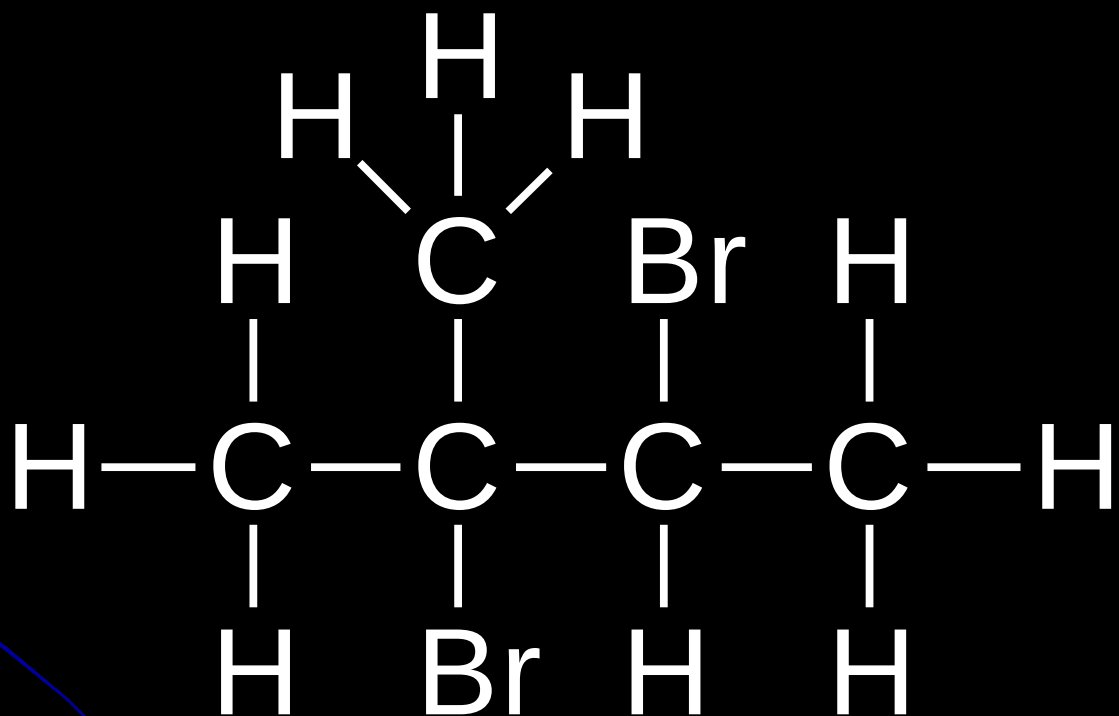


Halogenoalkanes

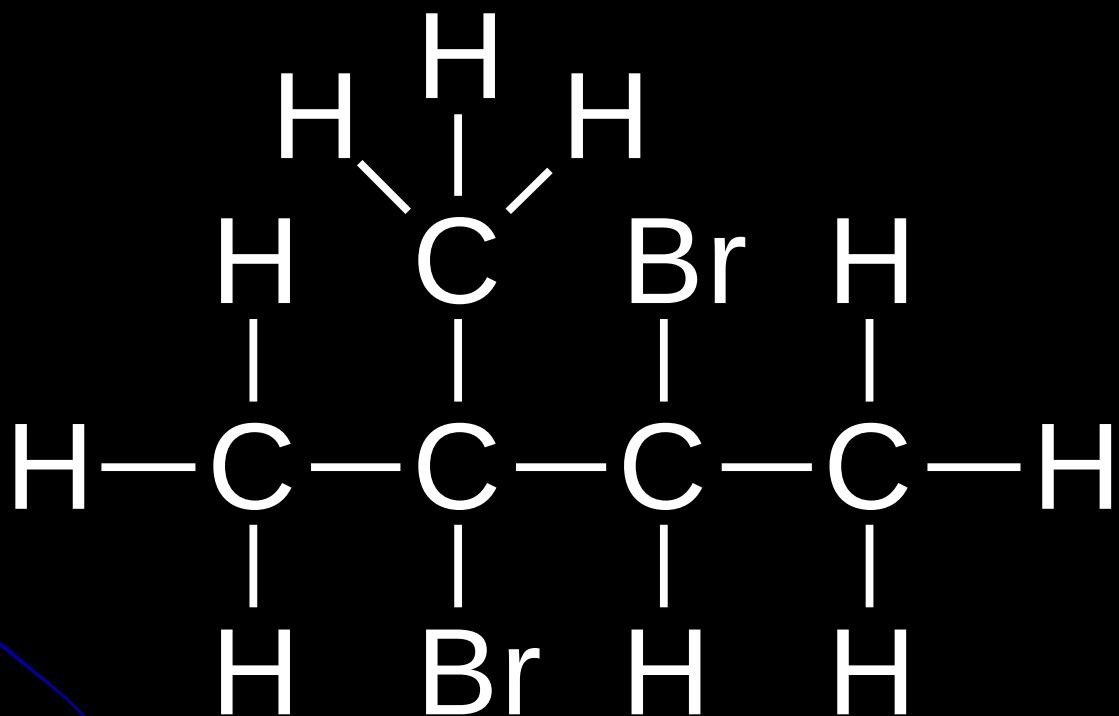


2-chloropropane

Halogenoalkanes

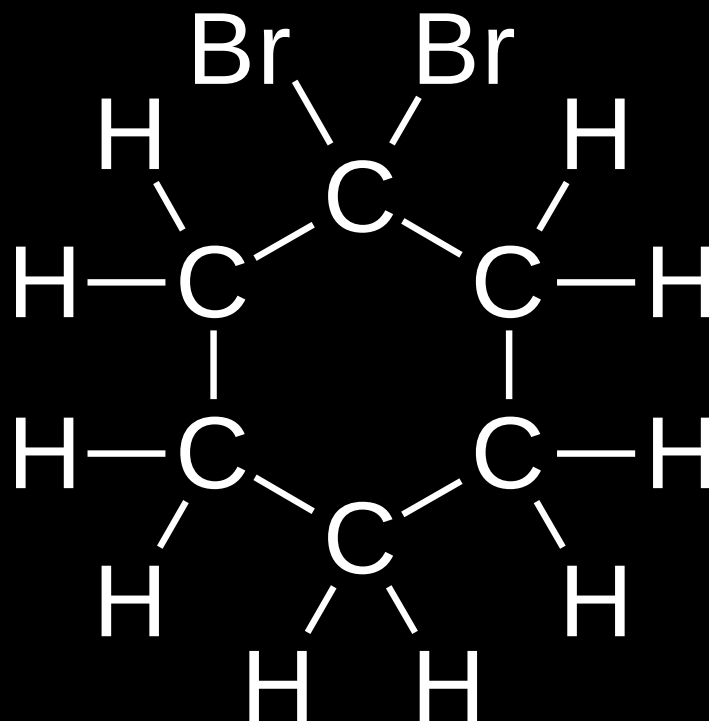


Halogenoalkanes

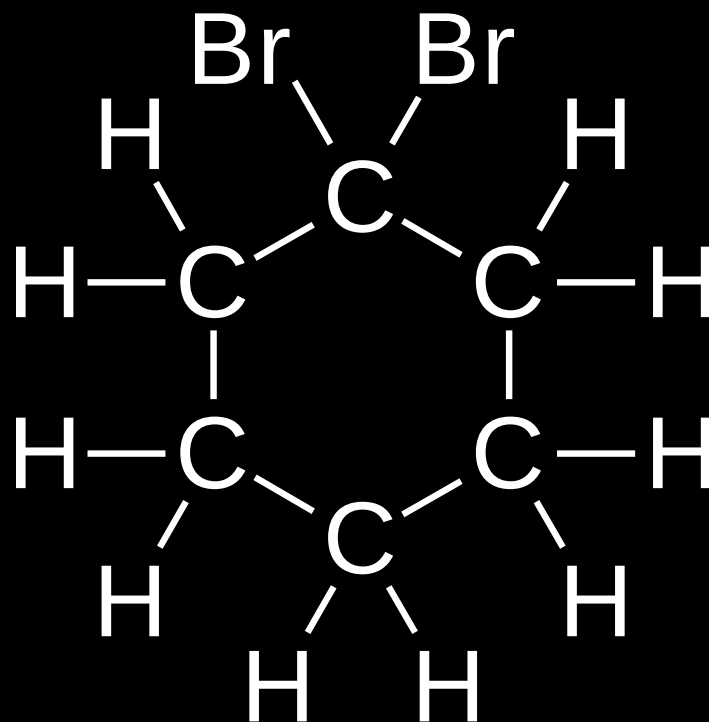


2,3-dibromo-2-methylbutane

Halogenoalkanes

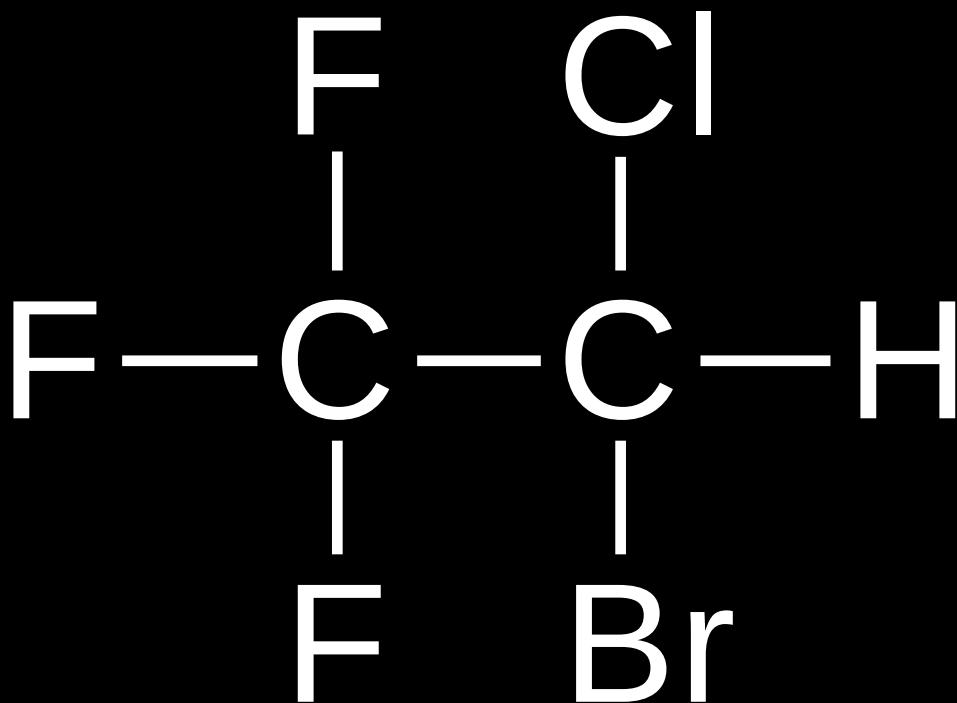


Halogenoalkanes

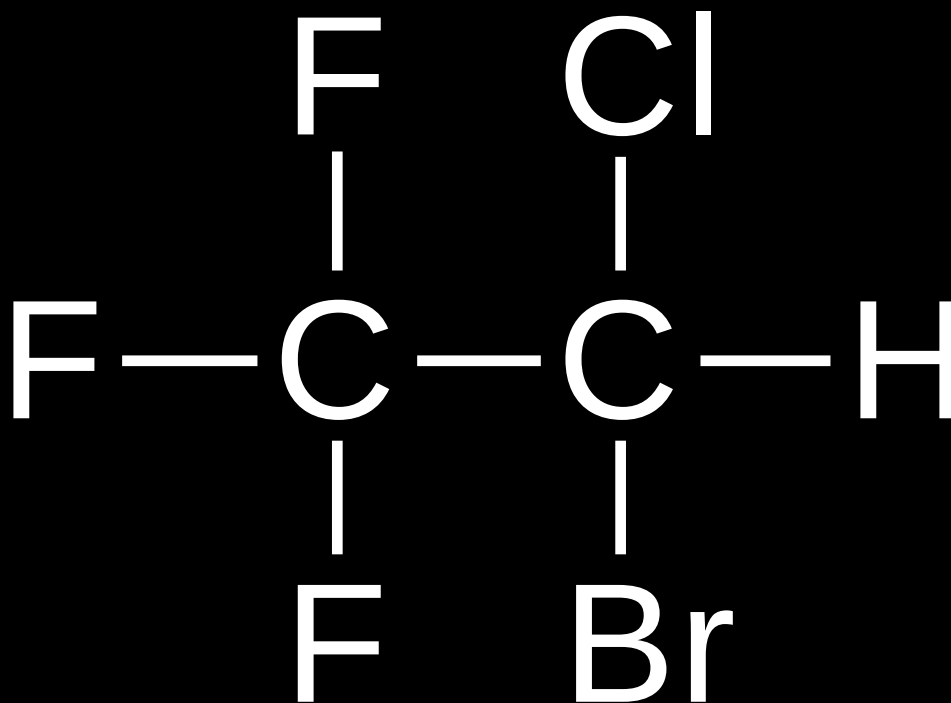


1,1-dibromocyclohexane

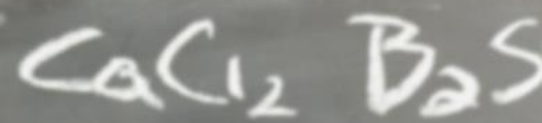
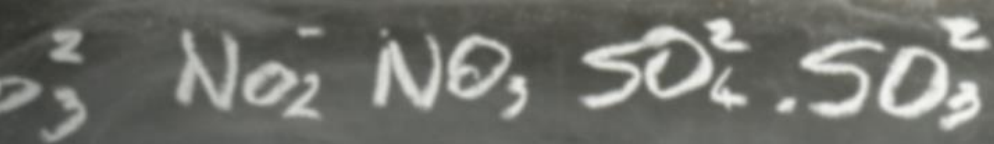
Halogenoalkanes



Halogenoalkanes



2-bromo-2-chloro-1,1,1-trifluoroethane



$$\frac{e^2}{\sqrt{2}R_0}$$

$$F = \frac{q_1 \cdot q_2}{4\pi\epsilon_0}$$

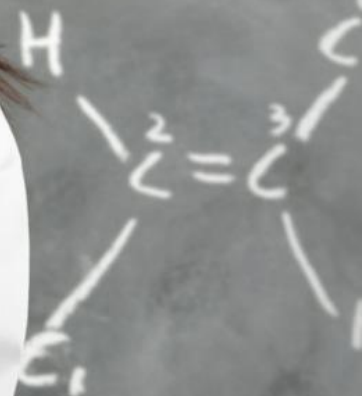
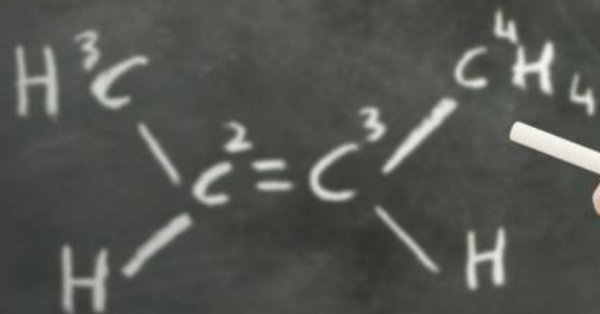
$$R_1 = \sqrt{2}R_0$$

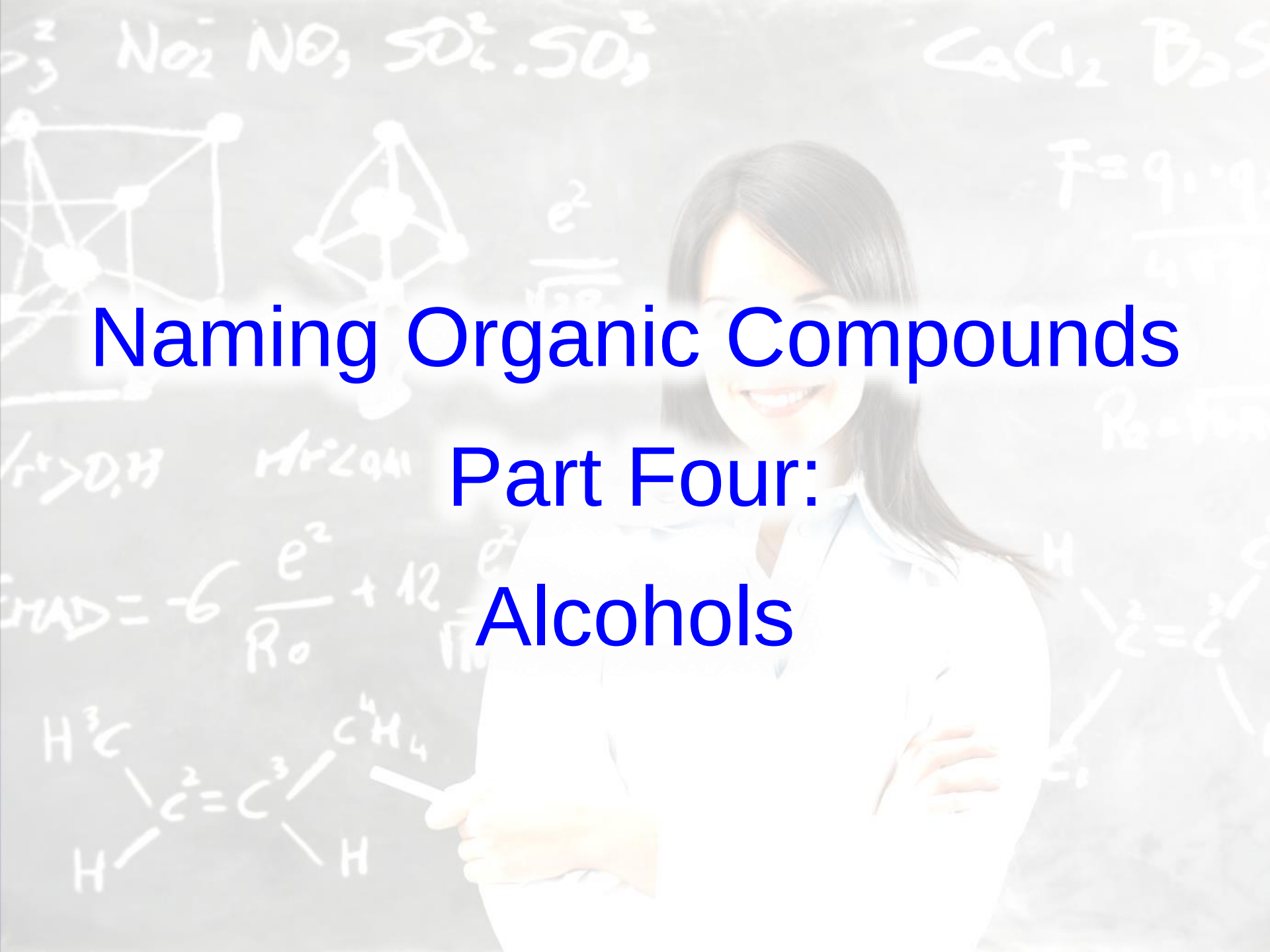
$$R_2 = \sqrt{3}R_0$$

$$r^+ > 0.33$$

$$r^+ < 0.41$$

$$E_{\text{MAD}} = -6 \frac{e^2}{R_0} + 12 \frac{e^2}{\sqrt{2}R_0}$$



A smiling woman with long dark hair, wearing a white lab coat, stands in front of a chalkboard. The chalkboard is filled with various chemistry-related content, including chemical formulas like NO_2 , NO , SO_4^{2-} , SO_3^{2-} , CaCl_2 , B_2S_3 , $F = q_1 \cdot q_2 / 4\pi\epsilon_0 r^2$, $R_2 = \sqrt{a^2 + b^2}$, $\Delta\phi = -6 \frac{e^2}{R_0} + 12 \frac{e^2}{\sqrt{10} R_0}$, and structural diagrams of a cube and a tetrahedron. At the bottom left, a chemical structure of 2-butene is shown with carbons numbered 1 to 4: $\text{H}^3\text{C}-\text{C}^2=\text{C}^3-\text{CH}_4$, with hydrogens attached to the terminal carbons. The woman is holding a piece of chalk in her right hand.

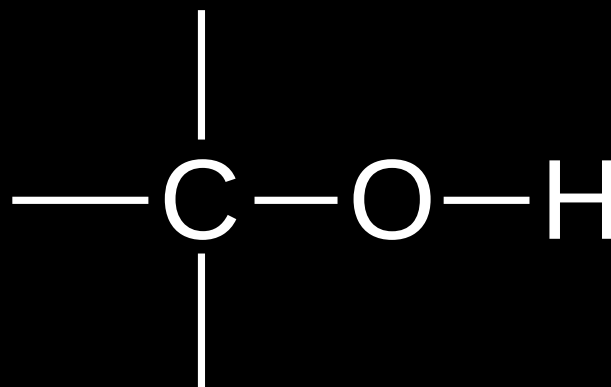
Naming Organic Compounds

Part Four:

Alcohols

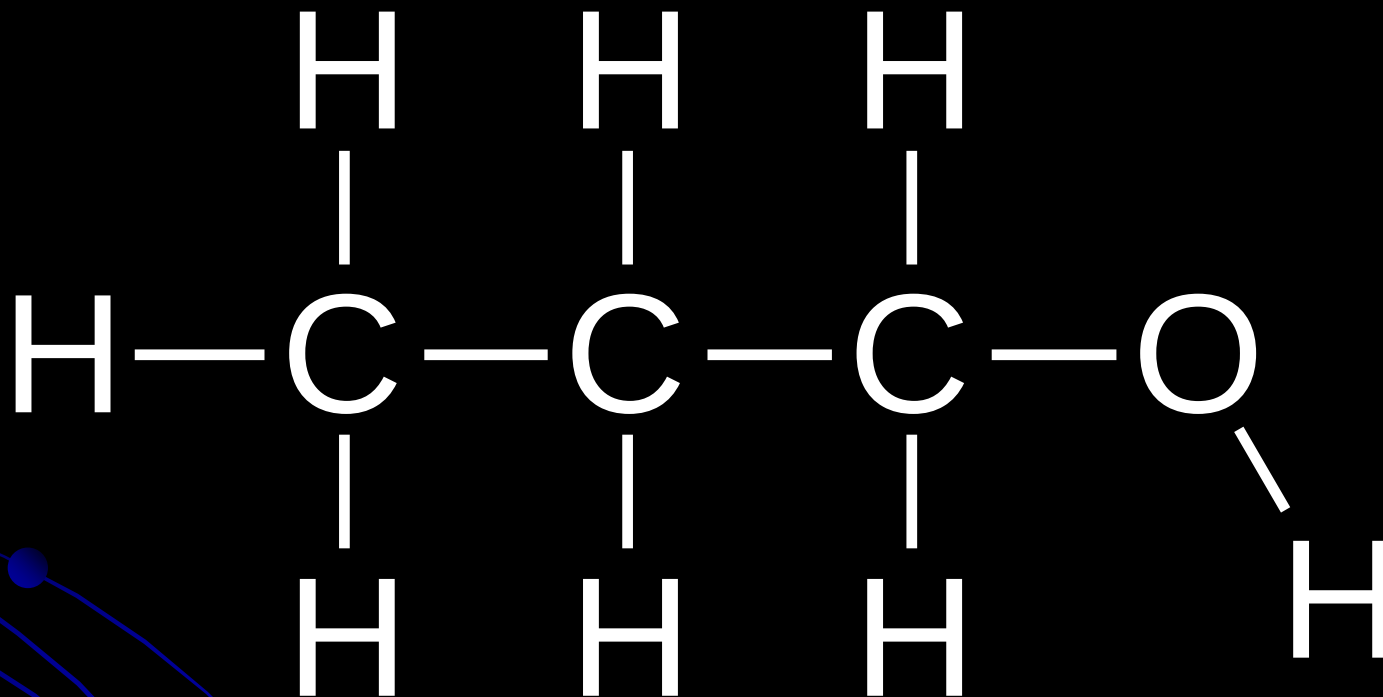
Alcohols

Alcohols are organic compounds which contain an —OH group as part of their structure:

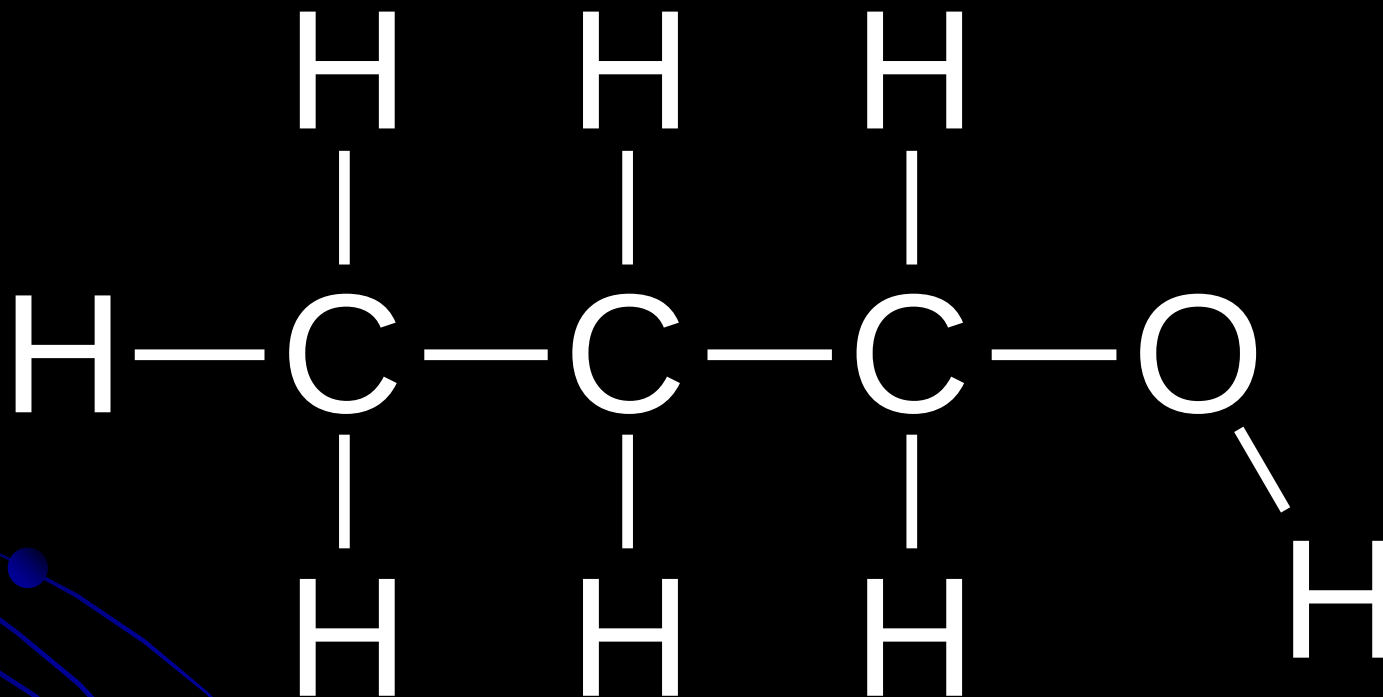


General formula = $\text{C}_n\text{H}_{2n+1}\text{OH}$
Names end *-ol*

Alcohols

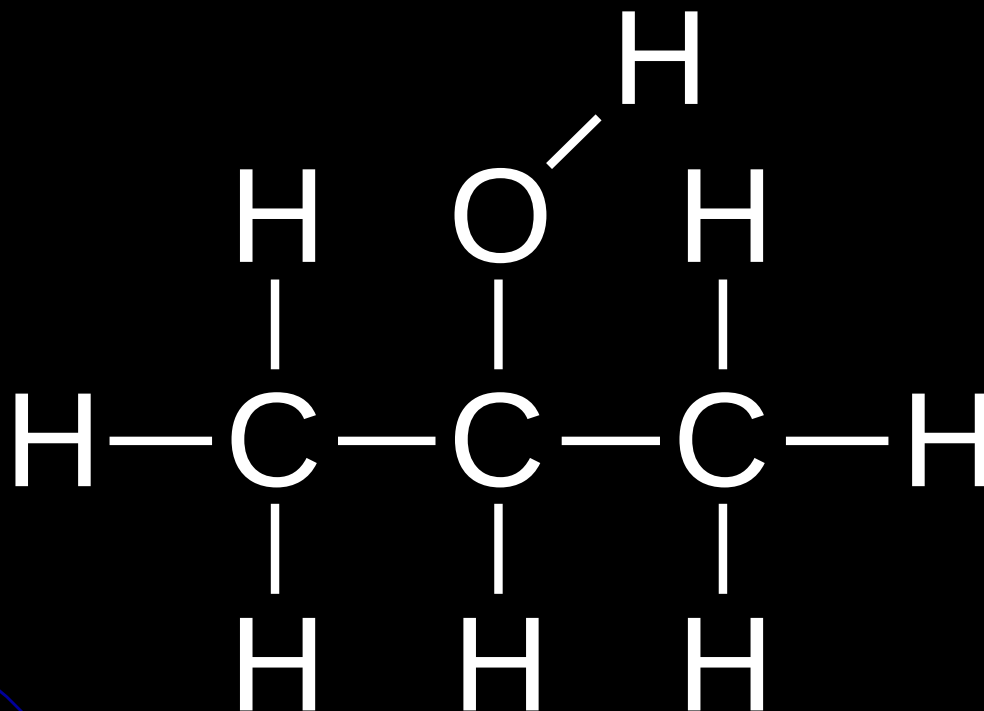


Alcohols

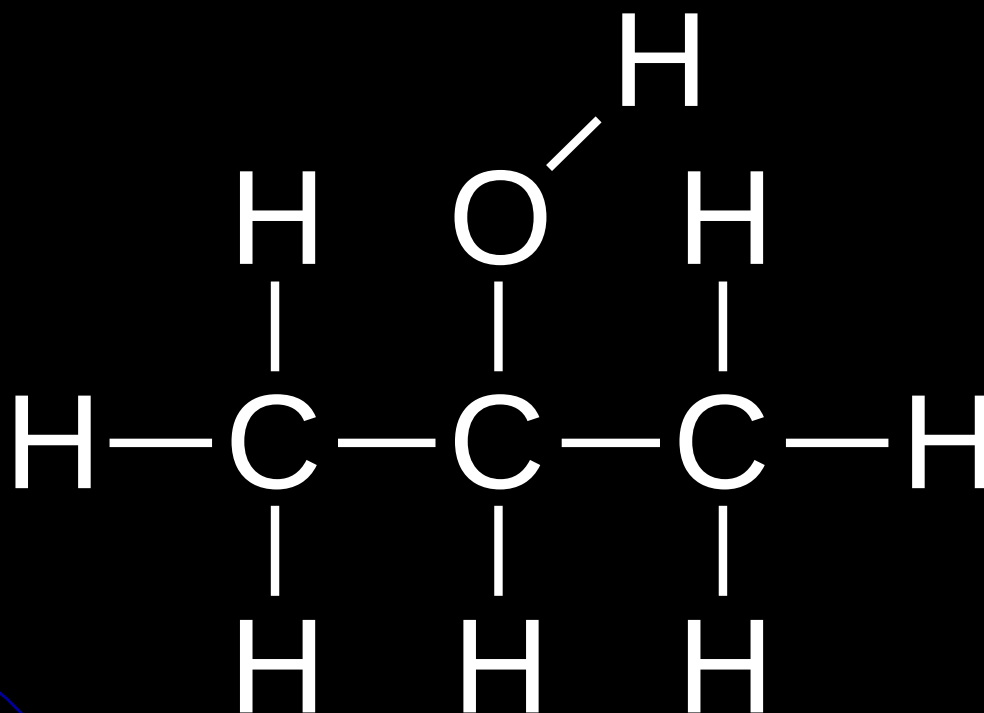


propan-1-ol

Alcohols

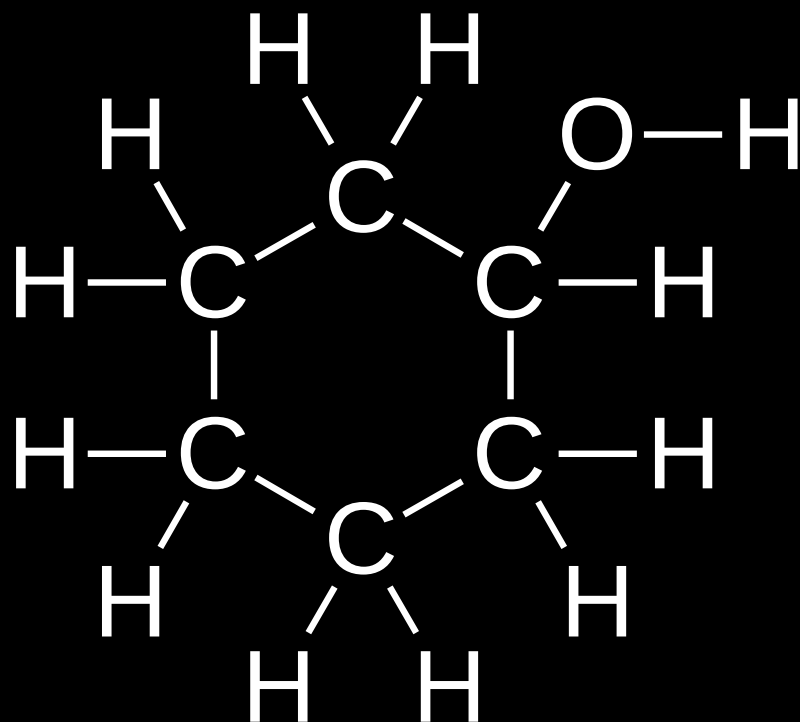


Alcohols

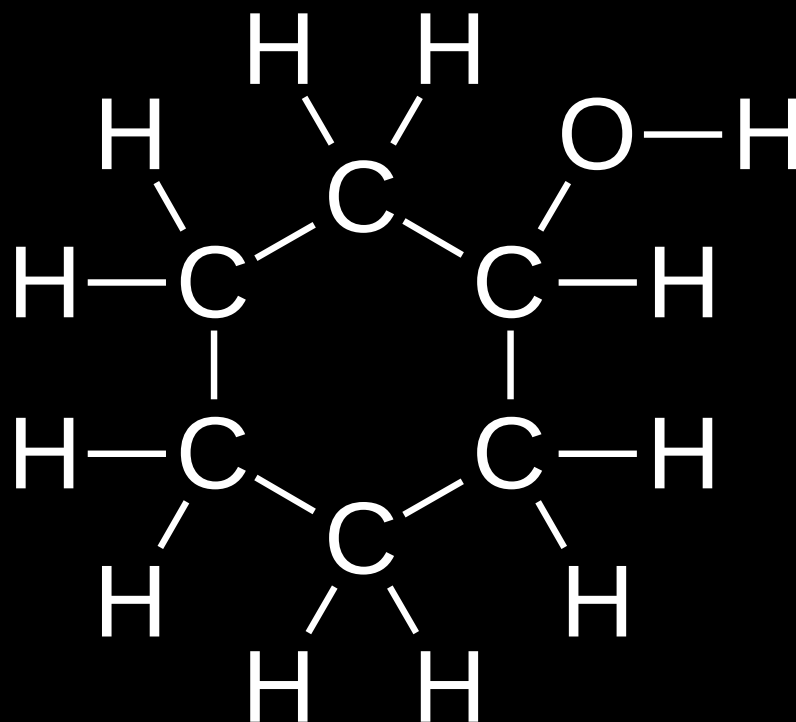


propan-2-ol

Alcohols

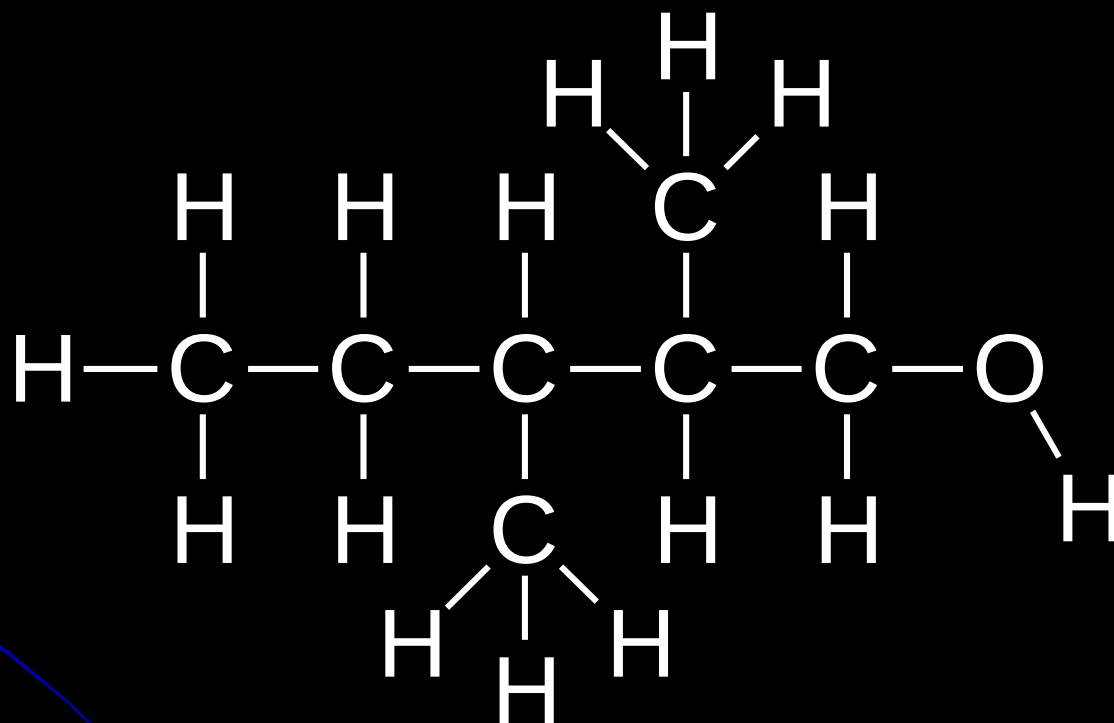


Alcohols

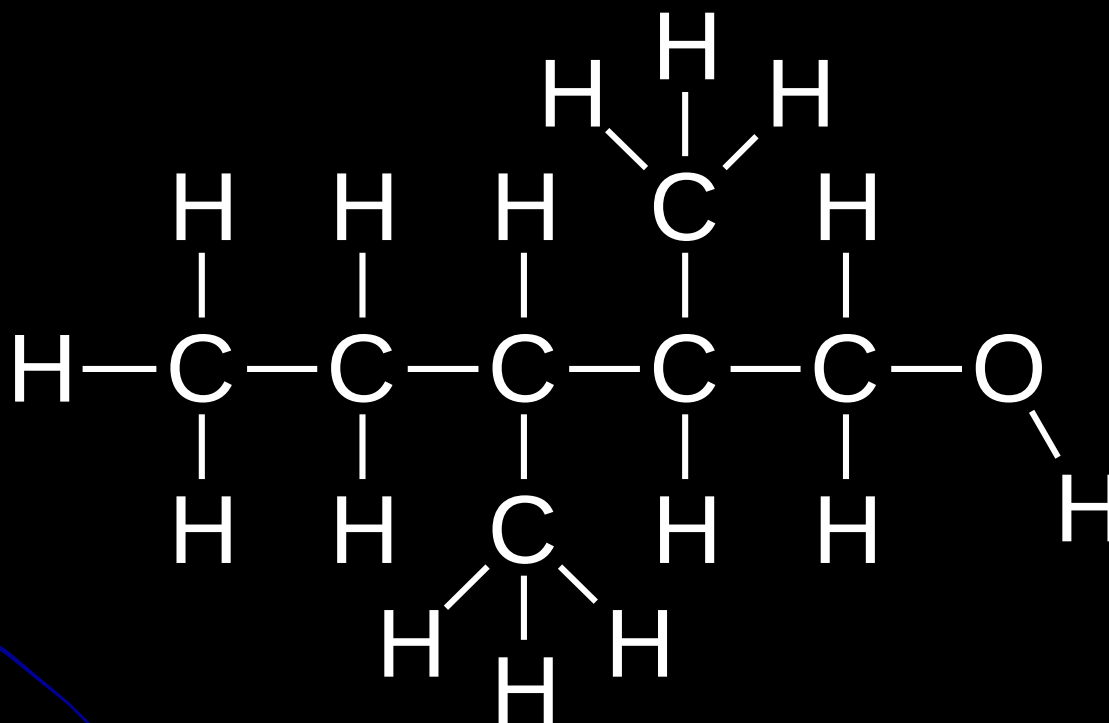


cyclohexanol

Alcohols

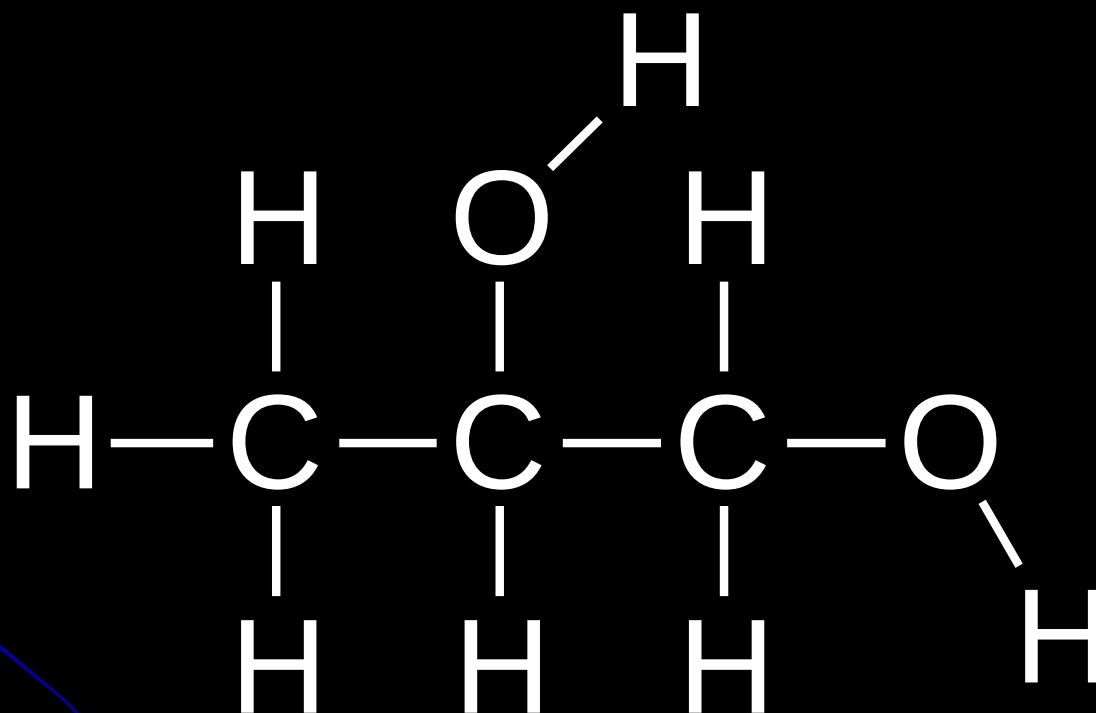


Alcohols

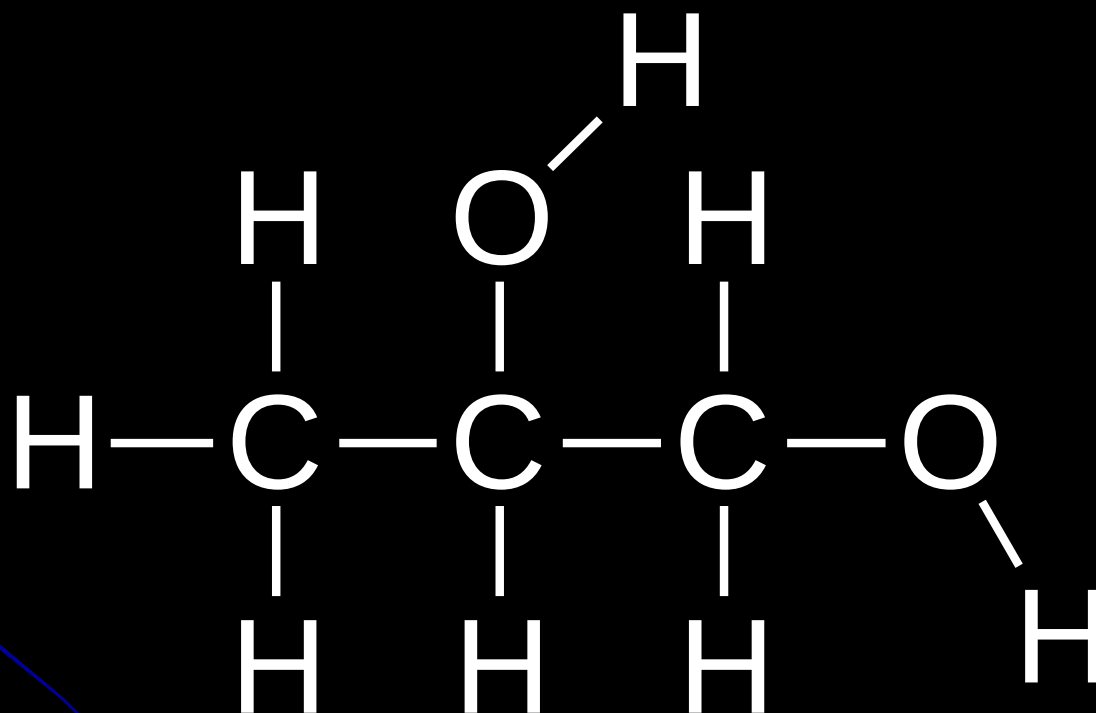


2,3-dimethylpentan-1-ol

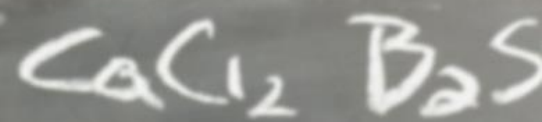
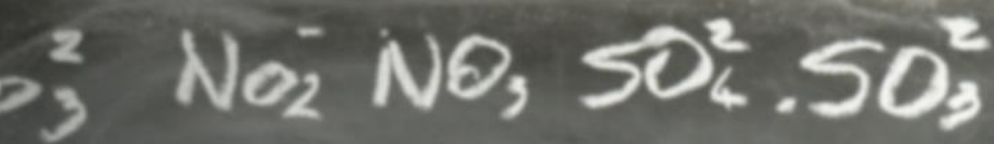
Alcohols



Alcohols



propan-1,2-diol



$$\frac{e^2}{\sqrt{2}R_0}$$

$$F = \frac{q_1 \cdot q_2}{4\pi\epsilon_0}$$

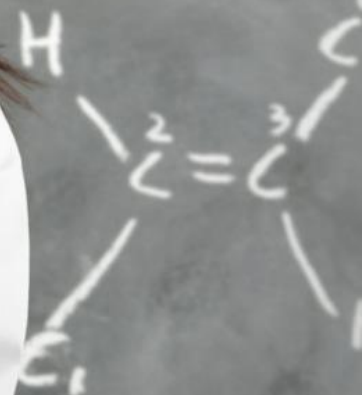
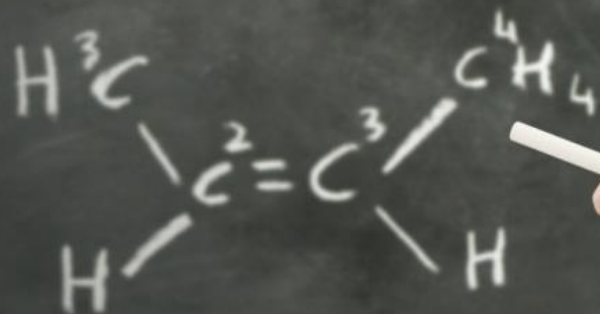
$$R_1 = \sqrt{2}R_0$$

$$R_2 = \sqrt{3}R_0$$

$$r^+ > 0.33$$

$$r^+ < 0.41$$

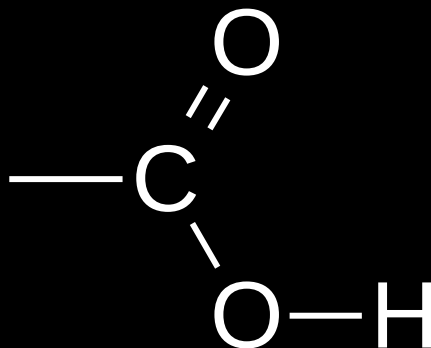
$$E_{\text{MAD}} = -6 \frac{e^2}{R_0} + 12 \frac{e^2}{\sqrt{2}R_0}$$



Naming Organic Compounds
Part Five:
Carboxylic Acids

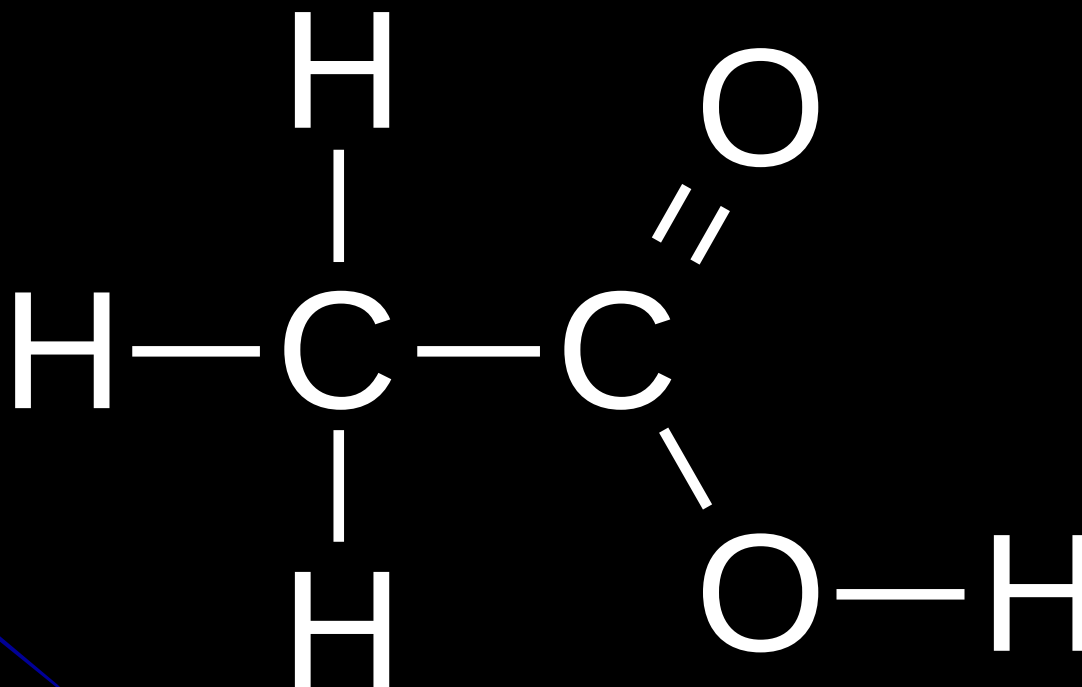
Carboxylic Acids

Carboxylic acids are organic compounds which contain a —COOH group as part of their structure:

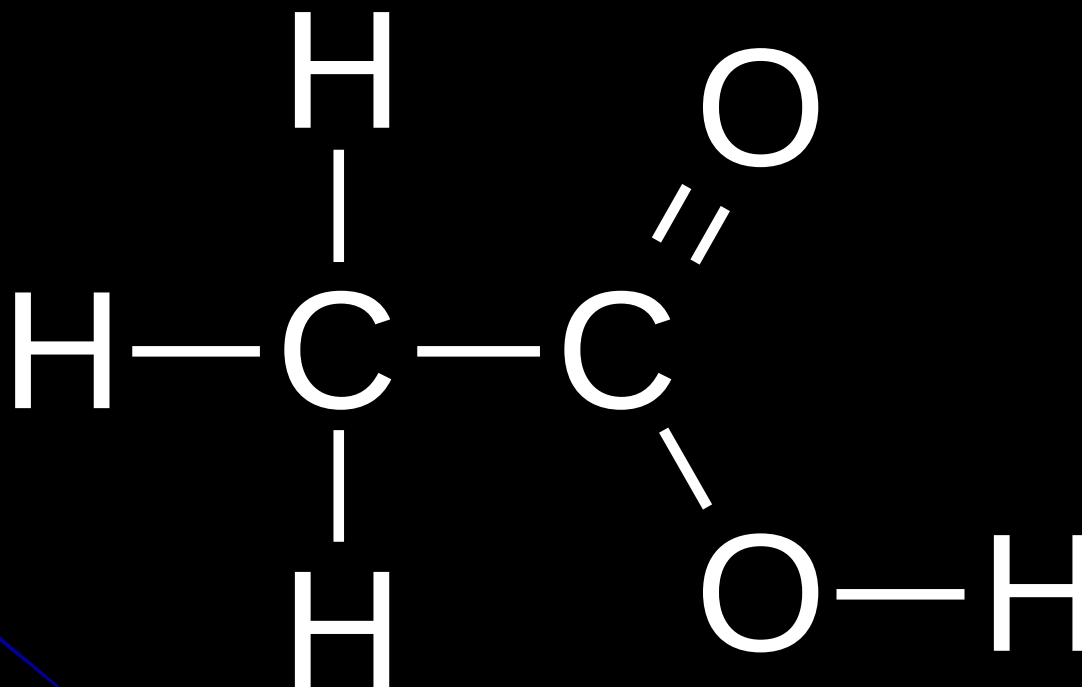


General formula = $\text{C}_n\text{H}_{2n}\text{O}_2$
Names end *—oic acid*

Carboxylic Acids

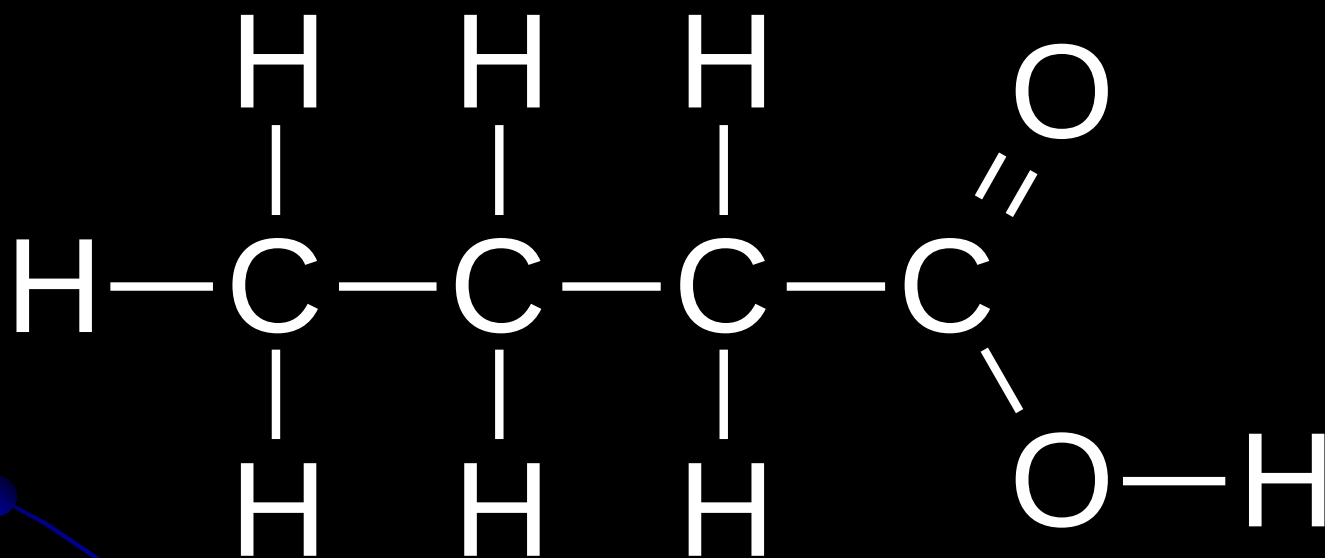


Carboxylic Acids

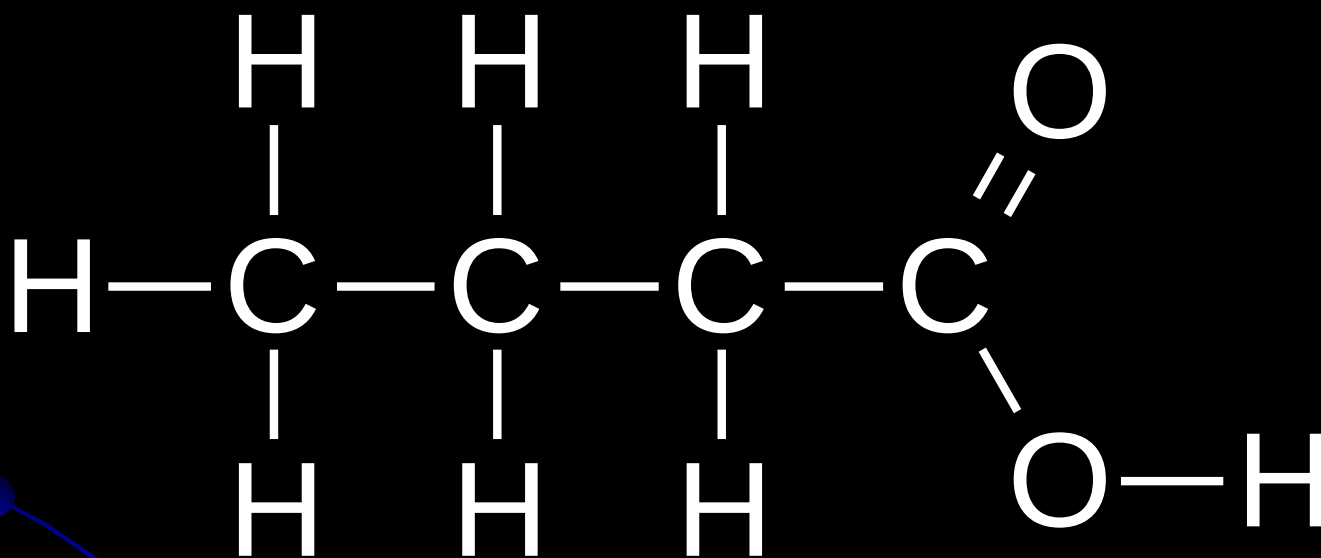


ethanoic acid

Carboxylic Acids

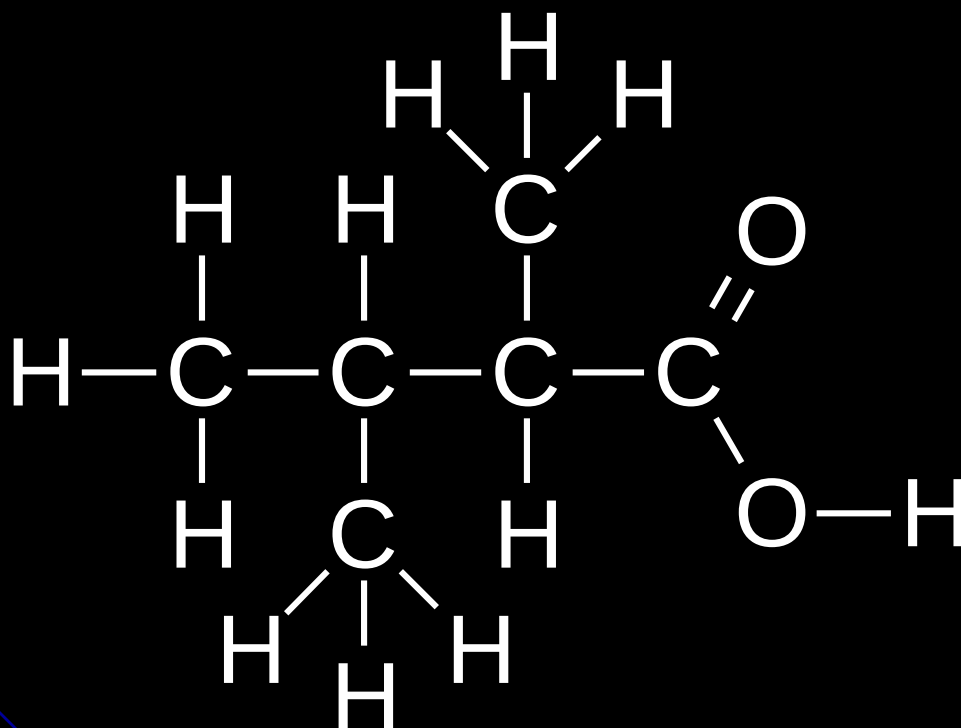


Carboxylic Acids

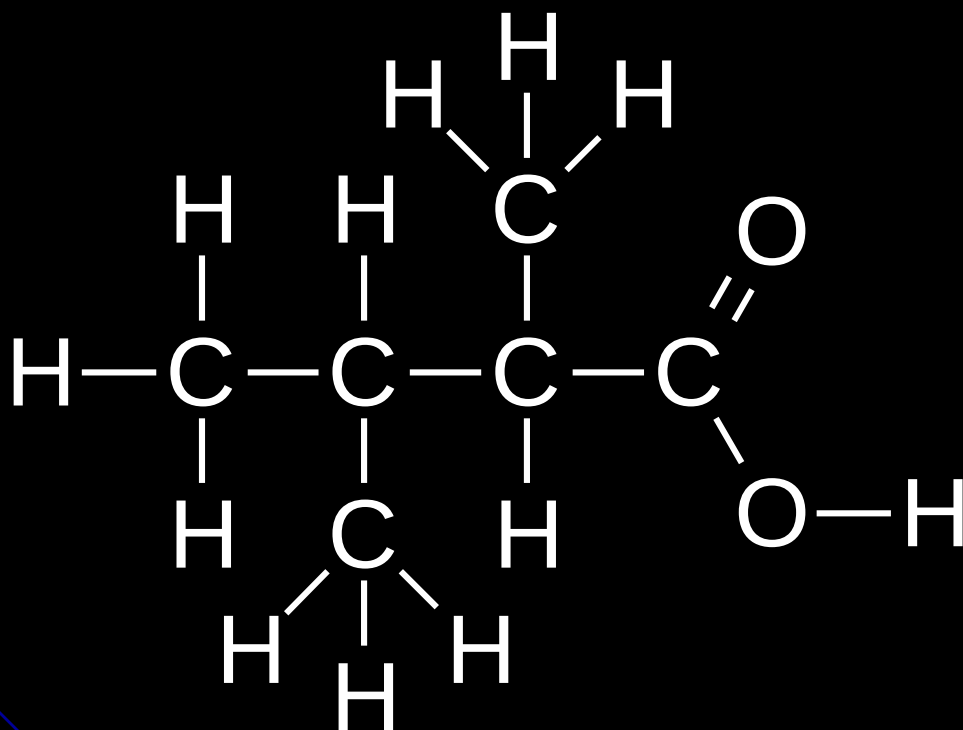


butanoic acid

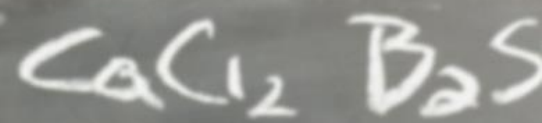
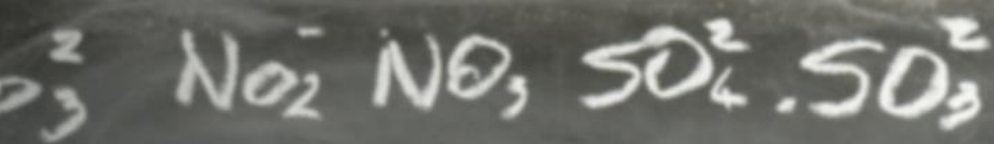
Carboxylic Acids



Carboxylic Acids



2,3-dimethylbutanoic acid



$$\frac{e^2}{\sqrt{2}R_0}$$

$$F = \frac{q_1 \cdot q_2}{4\pi\epsilon_0}$$

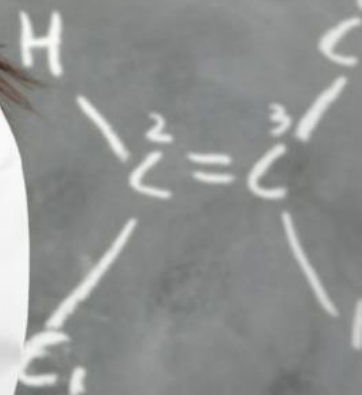
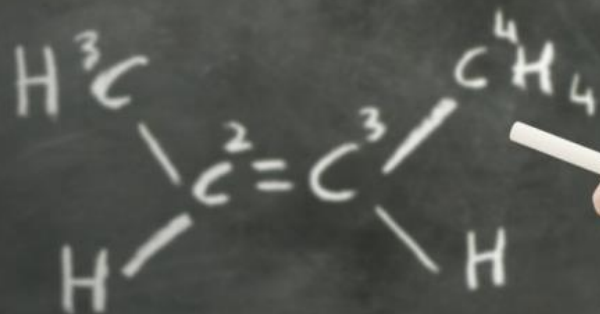
$$R_1 = \sqrt{2}R_0$$

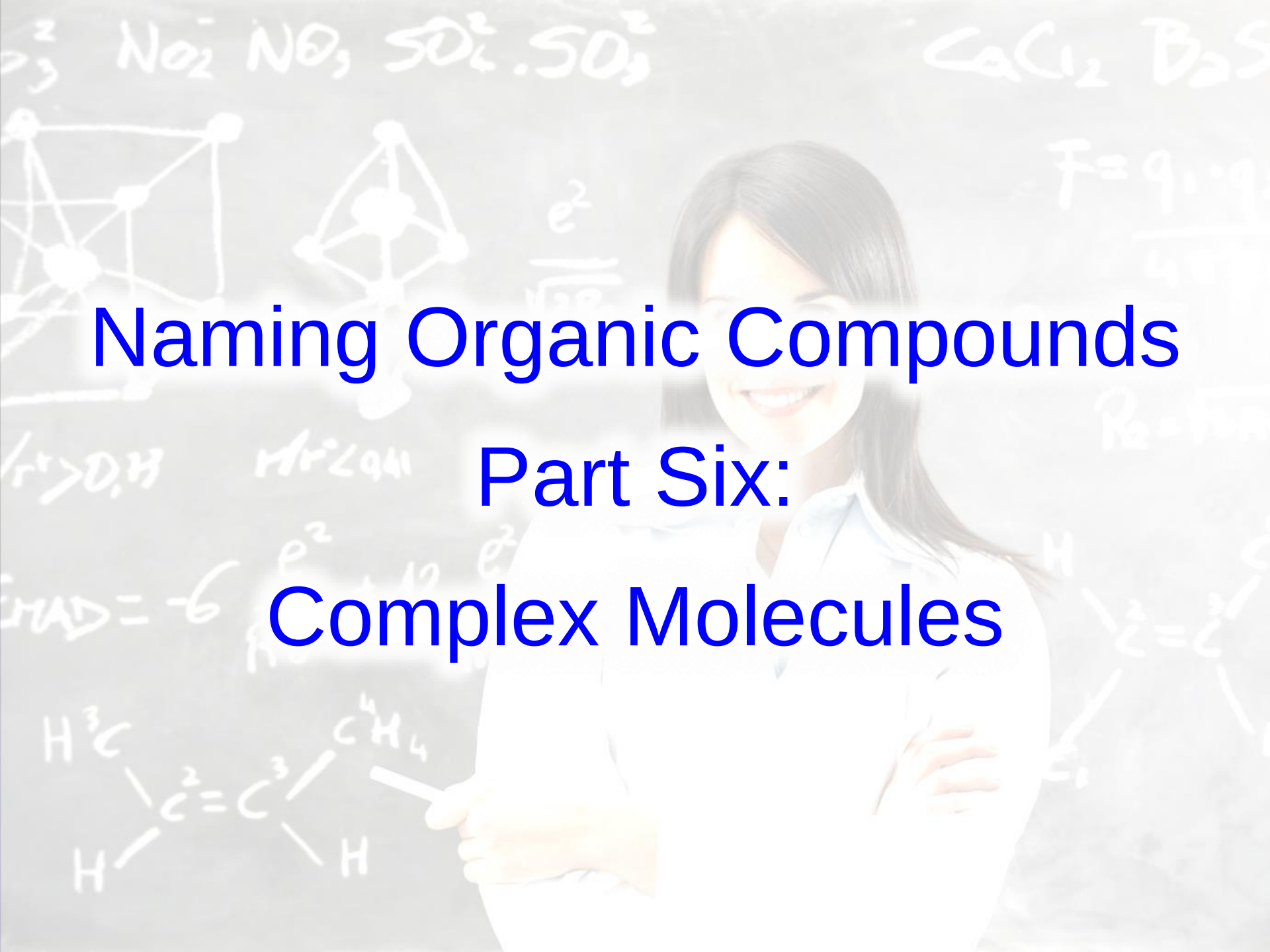
$$R_2 = \sqrt{3}R_0$$

$$r^+ > 0.33$$

$$r^+ < 0.41$$

$$E_{\text{MAD}} = -6 \frac{e^2}{R_0} + 12 \frac{e^2}{\sqrt{2}R_0}$$

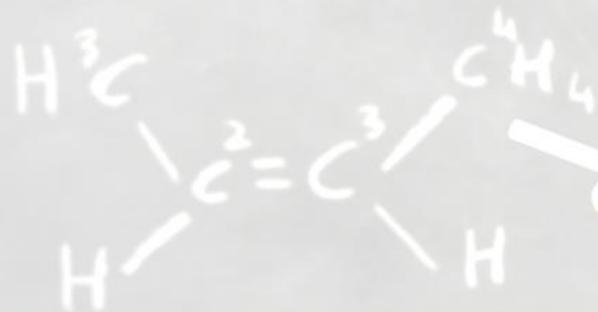


A smiling woman with long dark hair, wearing a white lab coat, stands in front of a chalkboard. The chalkboard is filled with various chemistry-related content, including molecular structures, chemical formulas, and equations. The text "Naming Organic Compounds Part Six: Complex Molecules" is overlaid in blue.

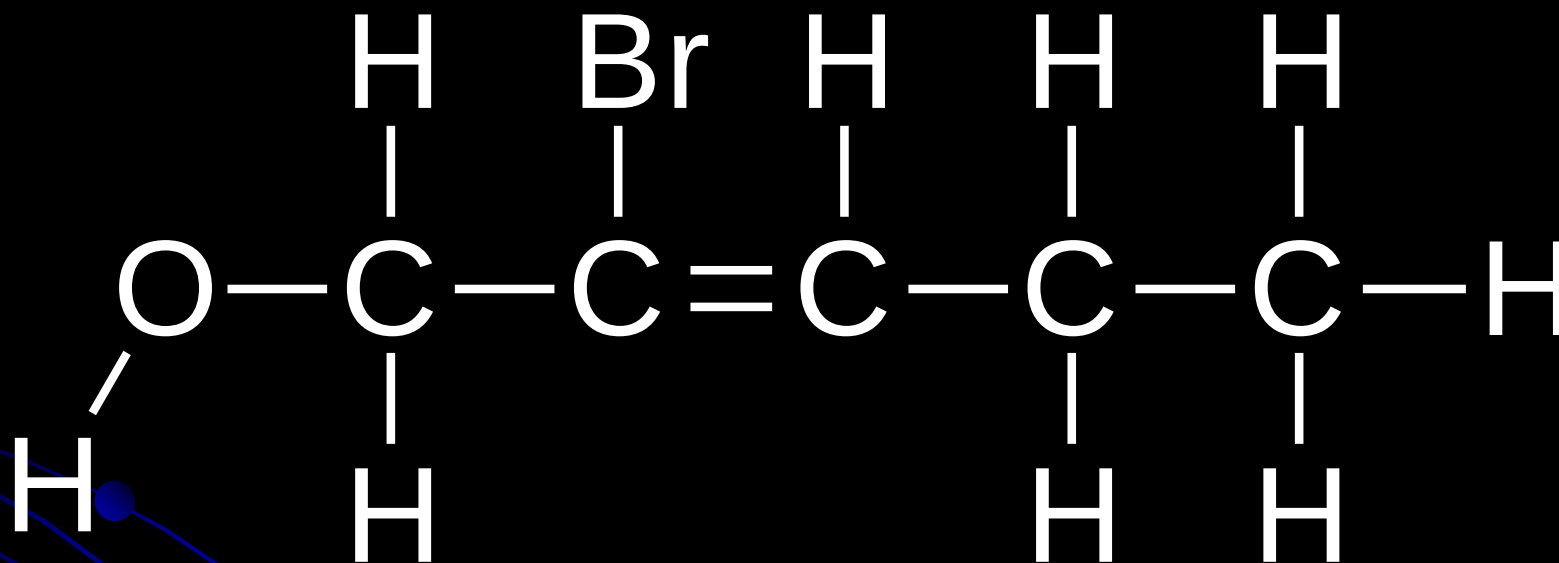
Naming Organic Compounds

Part Six:

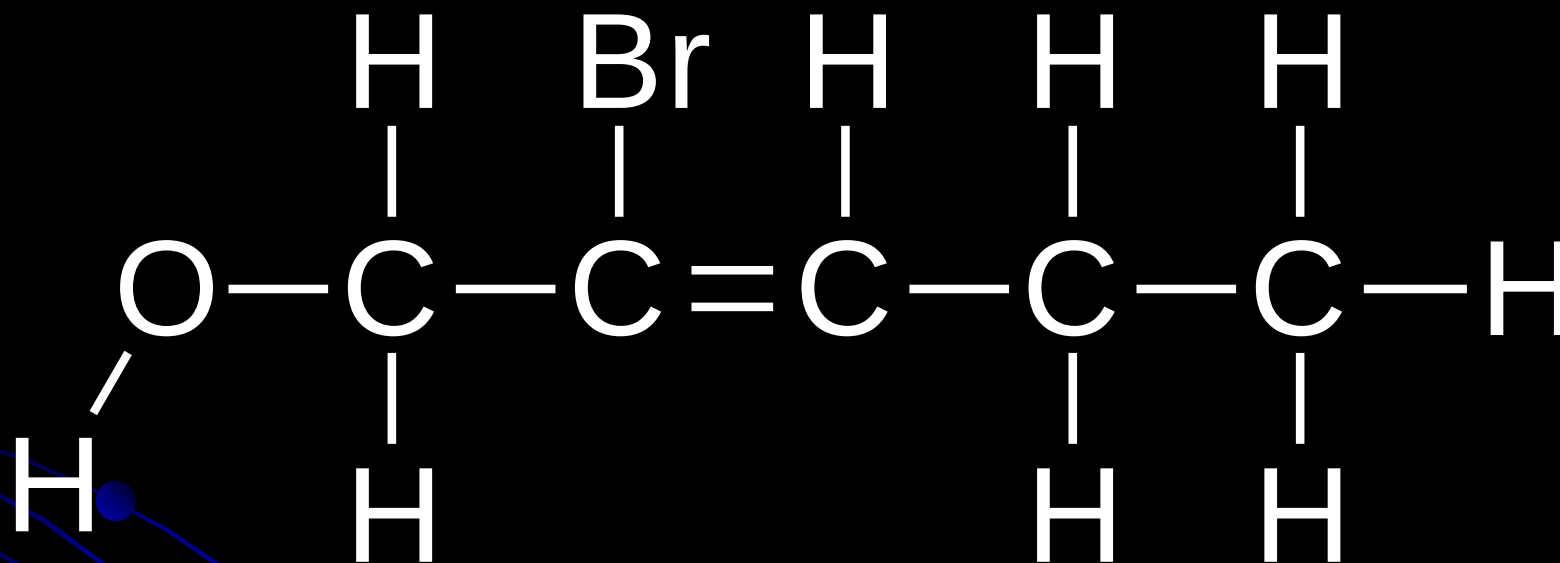
Complex Molecules



Complex Molecules

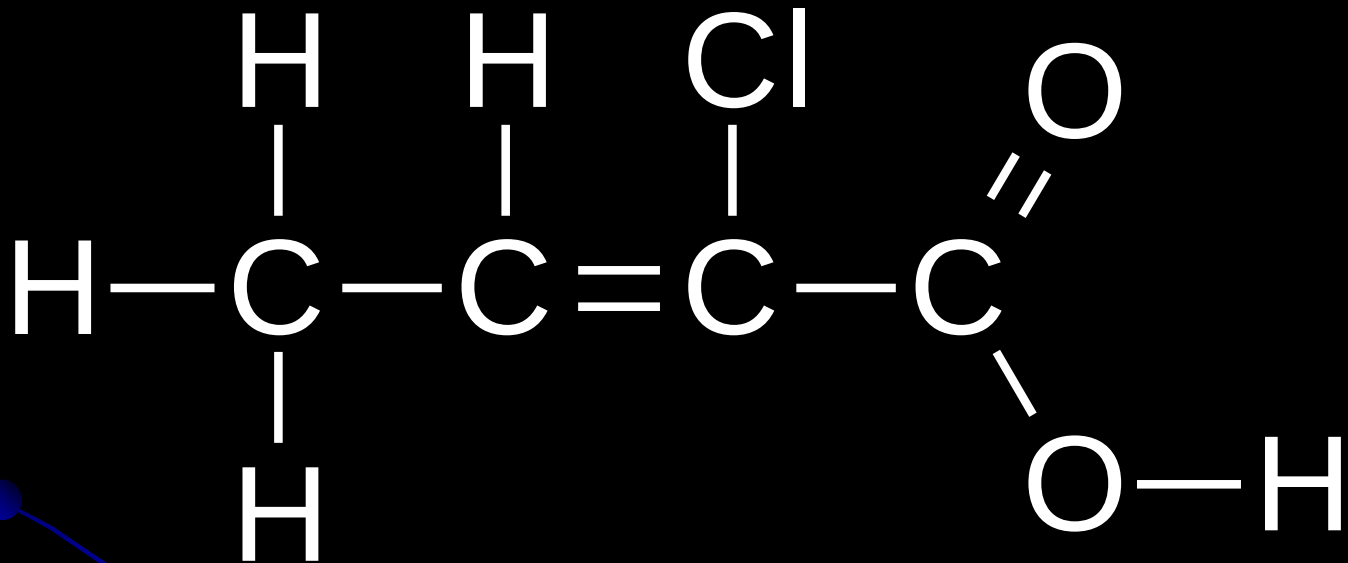


Complex Molecules

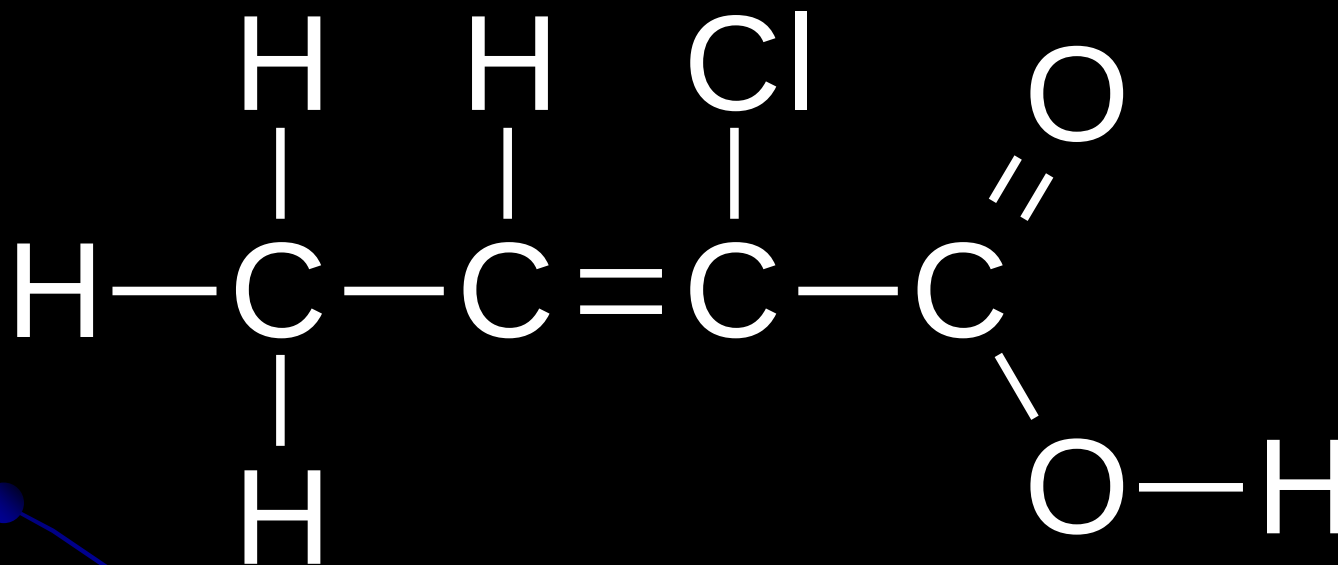


2-bromopent-2-en-1-ol

Complex Molecules

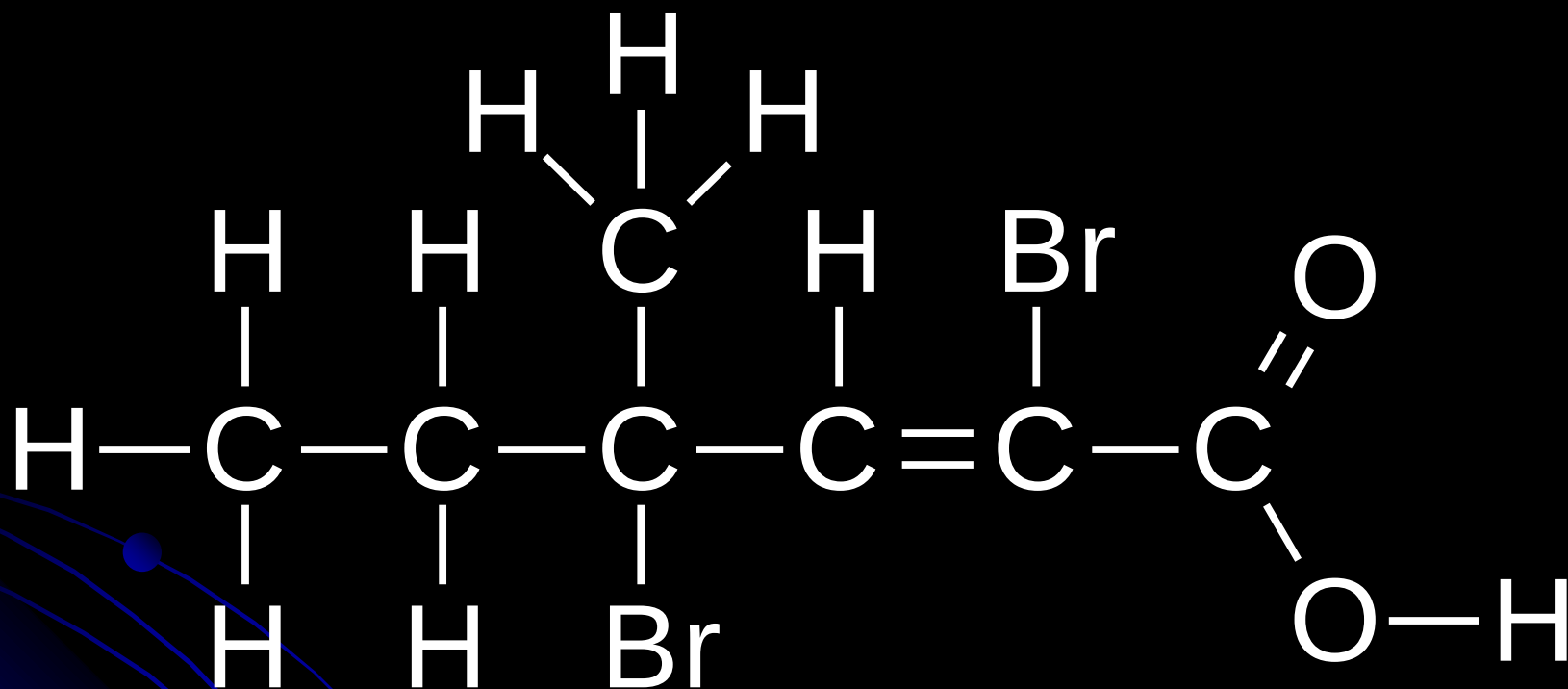


Complex Molecules

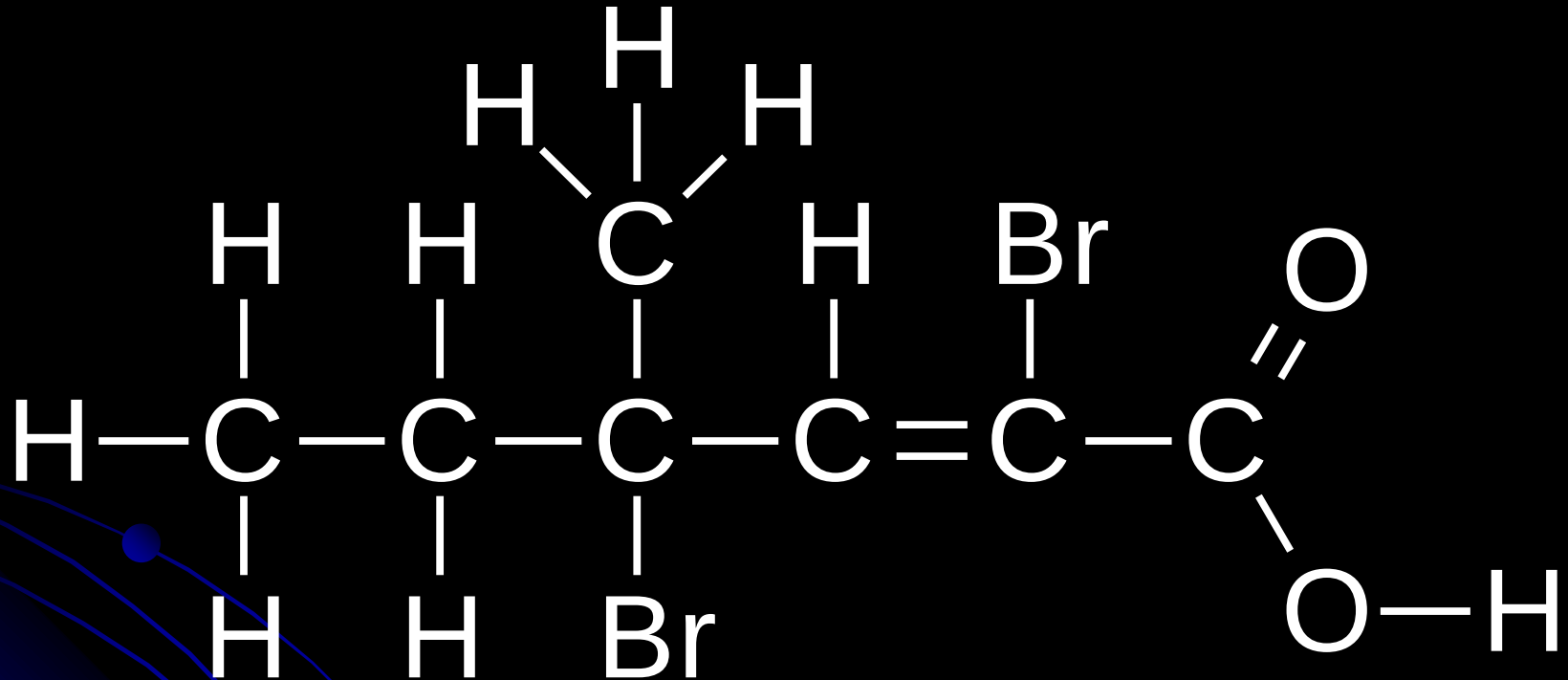


2-chlorobut-2-enoic acid

Complex Molecules



Complex Molecules



2,4-dibromo-4-methylhex-2-enoic acid