Academie toegepaste biowetenschappen en chemie

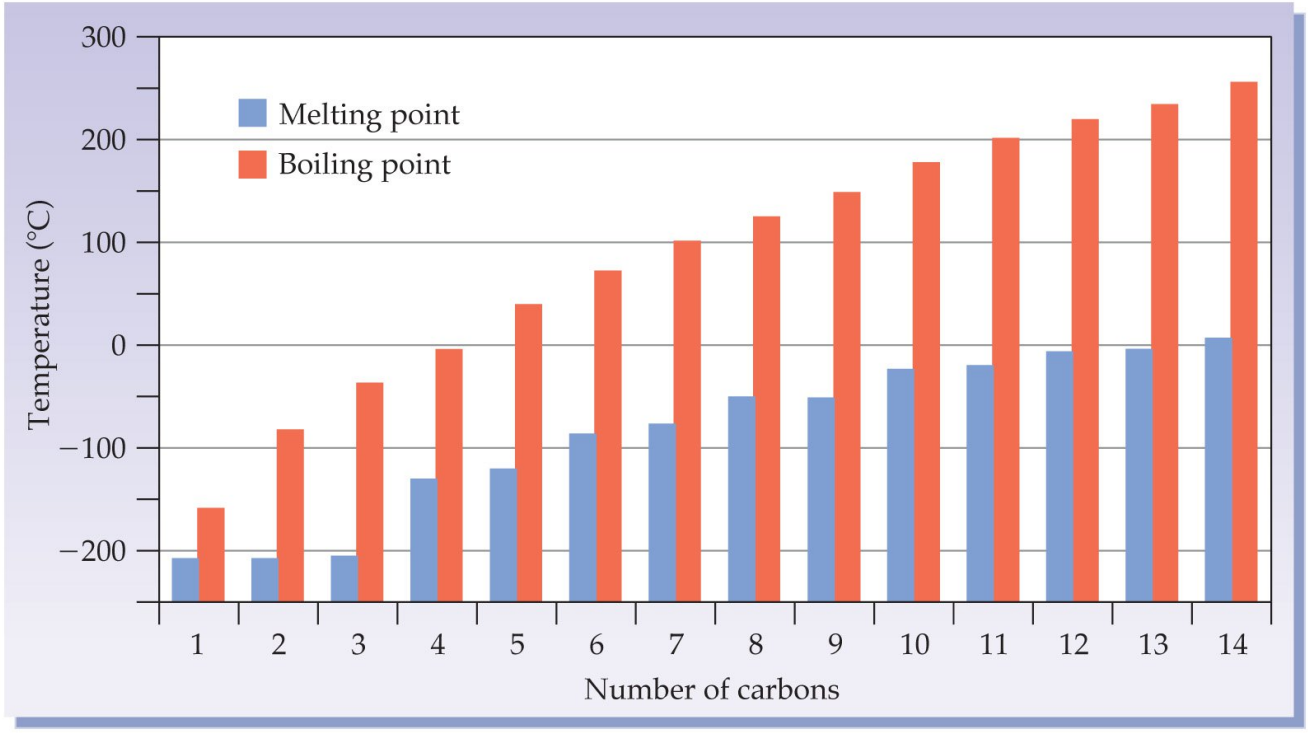
Chemie
Course 3

Week 5

HAN_UNIVERSITY
OF APPLIED SCIENCES

12.7 Eigenschappen van alkanen

Welke aantrekkende kracht kennen alkanen onderling?



12.8 Reacties van alkanen

Verbranding (volledig en onvolledig)

Welke is onvolledig?

Geef de reactievergelijking voor de onvolledige verbranding van butaan, er ontstaat behalve water, koolmonoxide en koolstof in dezelfde molverhouding.

$C_4H_{10(g)} + O_{2(g)} \rightarrow CO_{(g)} + C_{(s)} + H_2O_{(g)}$

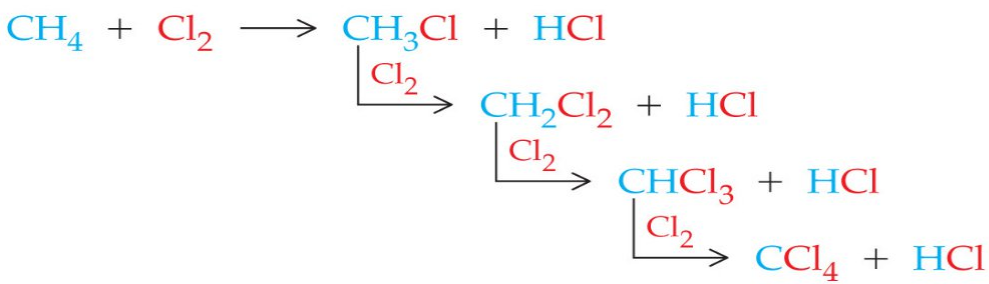
$C_4H_{10(g)} + O_{2(g)} \rightarrow 2CO_{(g)} + 2C_{(s)} + 5H_2O_{(g)}$

$C_4H_{10(g)} + 3{,}5O_{2(g)} \rightarrow 2CO_{(g)} + 2C_{(s)} + 5H_2O_{(g)}$

$2C_4H_{10(g)} + 7O_{2(g)} \rightarrow 4CO_{(g)} + 4C_{(s)} + 10H_2O_{(g)}$

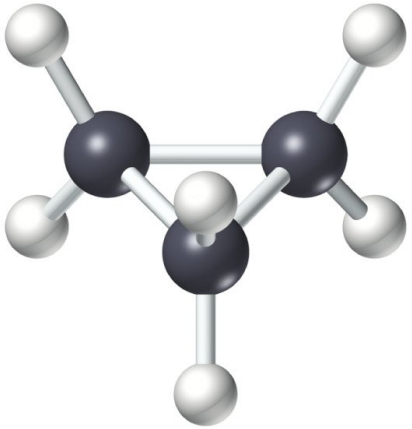
Halogeneren

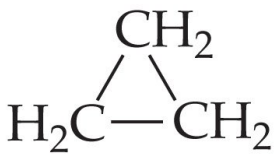
Deze reactie vindt plaats onder invloed van warmte of licht.
Er worden uit chloorgas chloorradicalen gevormd.



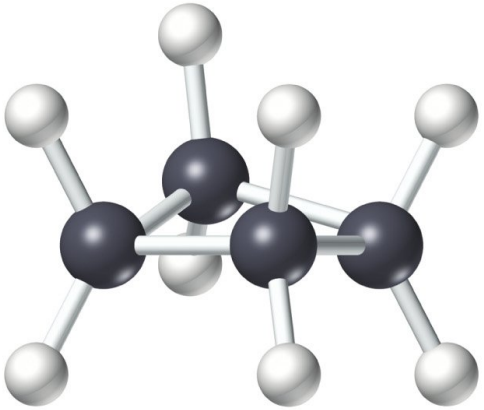
CH_3Cl, chloromethane
CH_2Cl_2, dichloromethane
$CHCl_3$, chloroform
CCl_4, carbon tetrachloride

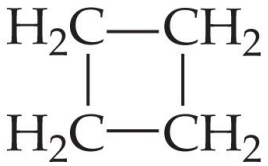
12.9 Cyclo-alkanen



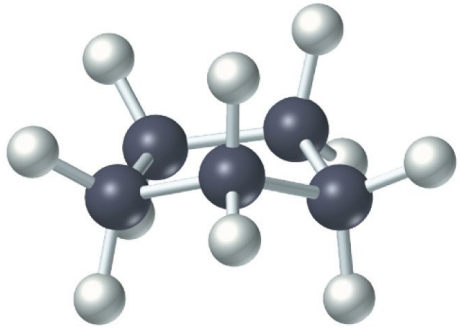


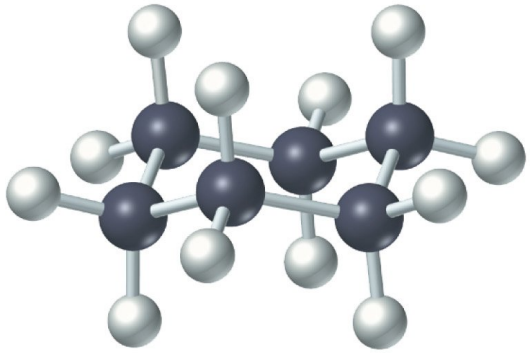
Cyclopropane
(mp −128 °C, bp −33 °C)

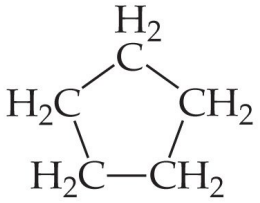




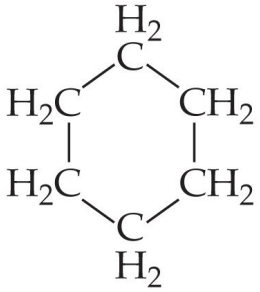
Cyclobutane
(mp −50 °C, bp −12 °C)





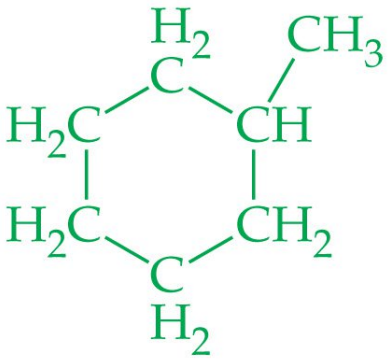


Cyclopentane—all bond angles are near 109°.

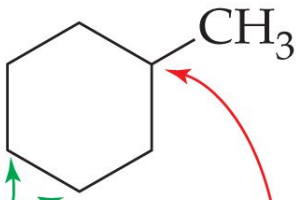


Cyclohexane—all bond angles are near 109.5°.

12.10 Tekenen en nomenclatuur

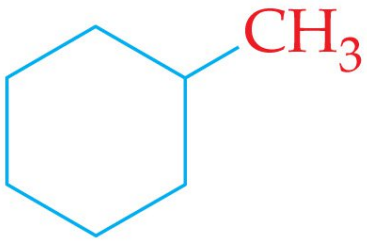


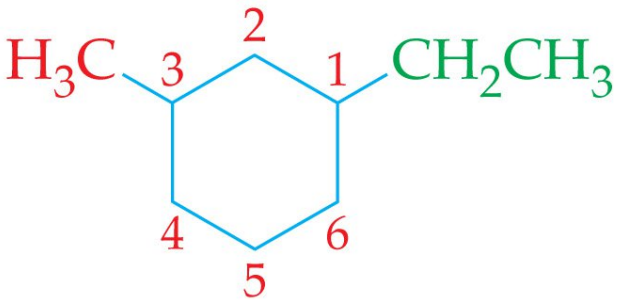
is the same as

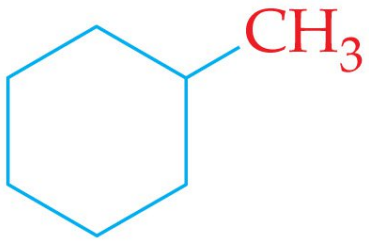


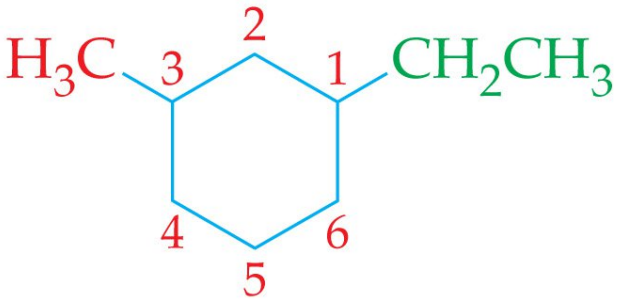
This three-way intersection is a CH group.

These intersections represent CH_2 groups.

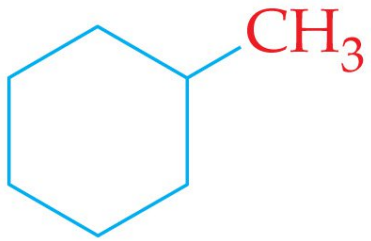




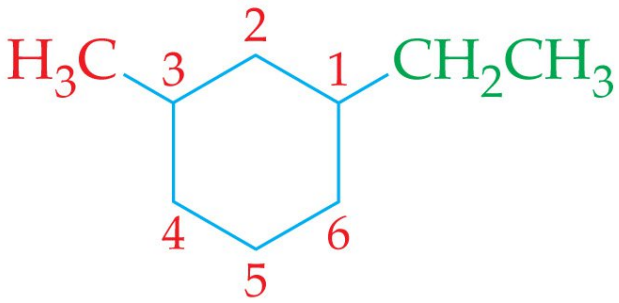




1-ethyl-3-methylcyclohexane
(not 1-ethyl-5-methylcyclohexane or
1-methyl-3-ethylcyclohexane or
1-methyl-5-ethylcyclohexane)



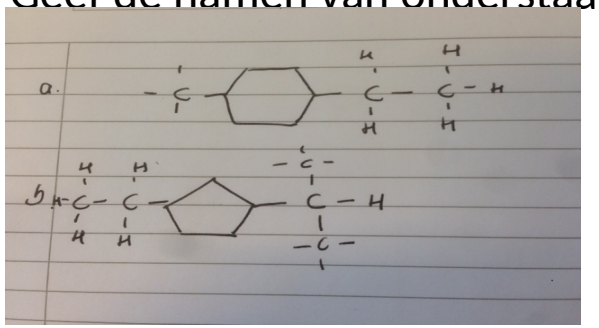
Parent compound: Cyclohexane
Name: Methylcyclohexane
(not cyclohexylmethane)



1-ethyl-3-methylcyclohexane
(not 1-ethyl-5-methylcyclohexane or
1-methyl-3-ethylcyclohexane or
1-methyl-5-ethylcyclohexane)

12.18.

Geef de namen van onderstaande cyclo-alkanen.



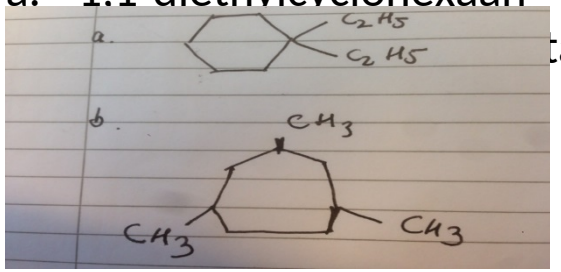
a. 1-ethyl-4-methylcyclohexaan

b. 1-ethyl-3-isopropylcyclopentaan

12.19

Teken de lijnsrtucturen van:

a. 1.1-diethylcyclohexaan



12.20

a. Waarvoor zijn etheen en propeen grondstoffen?
   (zie chemistry in action in paragraaf 12.9)

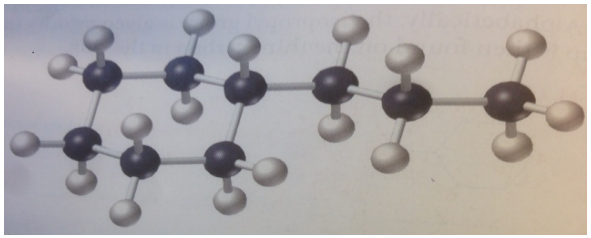
b. Butadieen wordt gebruikt voor de productie van synthetisch rubber, wat is het voordeel van synthetisch rubber in vergelijking met natuurrubber?

a. voor kunststoffen

b. het is beter bestand tegen zowel hoge als lage temperaturen

12.21

Geef de naam van onderstaand molecuul



Propylcyclohexaan

Bronnen

Afbeeldingen afkomstig van:

- McMurry - Fundamentals of general, organic, and biological chemistry. 7th edition, uitgever: Pearson.
  - Veplicht boek boekenlijst opleiding