

## 29.02 環式炭化水素 (Cyclic hydrocarbons.)

### (A) 飽和脂環式炭化水素及び不飽和脂環式炭化水素 (Cyclanes and cyclenes)

#### (1) 単環式飽和炭化水素 (Monocyclic cyclanes)

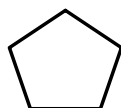
##### (a) シクロプロパン (Cyclopropane)



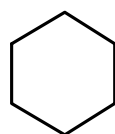
##### (b) シクロブタン (Cyclobutane)



##### (c) シクロペンタン (Cyclopentane)



##### (d) シクロヘキサン (Cyclohexane)



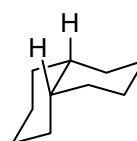
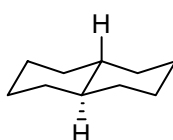
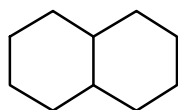
boat



chair

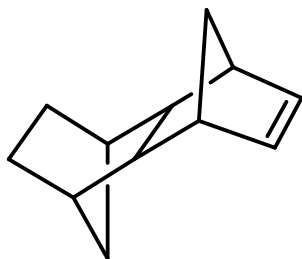
#### (2) 多環式飽和炭化水素 (Polycyclic cyclanes)

##### (a) デカヒドロナフタレン (Decahydronaphthalene)



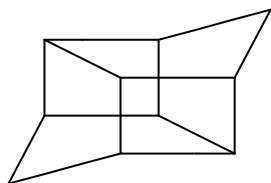
(b) 橋状結合を有する化合物  
(Bridge-linked compounds)

- 1,4,4a,5,6,7,8,8a-オクタヒドロ-エキソ-1,4-エンド-5,8-ジメタノナフタレン  
(1,4,4a,5,6,7,8,8a-Octahydro-*exo*-1,4-*endo*-5,8-dimethanonaphthalene)



(c) かご型構造を有する化合物  
(Compounds with a “cage” structure)

- ペンタシクロ [5.2.1.0<sup>2,6</sup>.0<sup>3,9</sup>.0<sup>5,8</sup>] デカン  
(Pentacyclo [5.2.1.0<sup>2,6</sup>.0<sup>3,9</sup>.0<sup>5,8</sup>] decane)

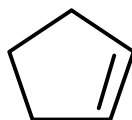


(3) 不飽和脂環式炭化水素  
(Cyclenes)

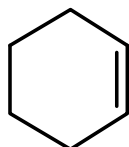
- (a) シクロブテン  
(Cyclobutene)



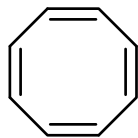
- (b) シクロペンテン  
(Cyclopentene)



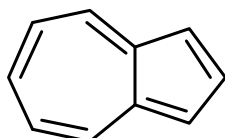
- (c) シクロヘキセン  
(Cyclohexene)



- (d) シクロオクタテトラエン  
(Cyclo-octatetraene)



- (e) アズレン  
(Azulene)



- (B) シクロテルペン  
(Cycloterpenes)

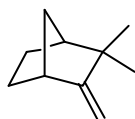
- (1) ピネン  
(Pinene)

$\alpha$ -pinen

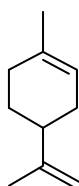
$\beta$ -pinen



- (2) カンフェン  
(Camphene)



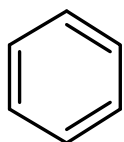
- (3) リモネン  
(Limonene)



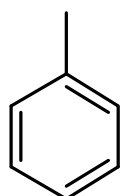
(C) 芳香族炭化水素  
(Aromatic hydrocarbons)

(I) 1組のベンゼン環を有する炭化水素  
(Hydrocarbons with only one benzene ring)

(a) ベンゼン  
(Benzene)

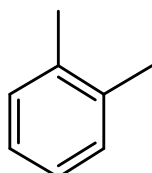


(b) トルエン (メチルベンゼン)  
(Toluene (methylbenzene))

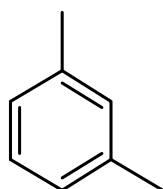


(c) キシレン (ジメチルベンゼン)  
(Xylene (dimethylbenzene))

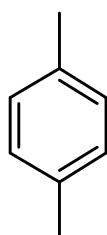
— オルト-キシレン  
(*o*-Xylene)



— メタ-キシレン  
(*m*-Xylene)

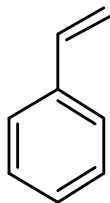


— パラ-キシレン  
(*p*-Xylene)

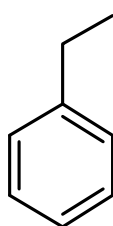


(d) その他の芳香族炭化水素  
(Other aromatic hydrocarbons)

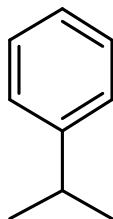
(1) スチレン  
(Styrene)



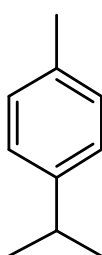
(2) エチルベンゼン  
(Ethylbenzene)



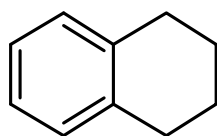
(3) クメン  
(Cumene)



(4) パラ-シメン  
(*p*-Cymene)



(5) テトラヒドロナフタレン (テトラリン)  
(Tetrahydronaphthalene (tetralin))

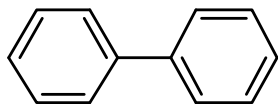


## (II) 非縮合ベンゼン環を2個以上有する炭化水素

(Hydrocarbons with two or more unfused benzene rings)

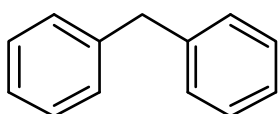
## (a) ビフェニル

(Biphenyl)



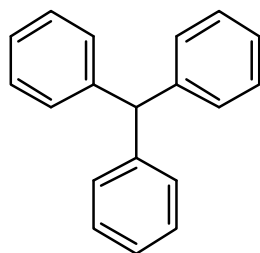
## (b) ジフェニルメタン

(Diphenylmethane)



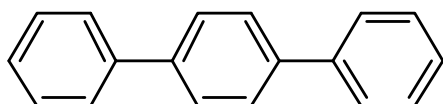
## (c) トリフェニルメタン

(Triphenylmethane)



## (d) テルフェニル

(Terphenyls)

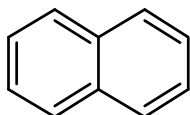
*(p*-Terphenyl)

## (III) 二以上のベンゼン環を有する炭化水素

(Hydrocarbons with two or more benzene rings fused)

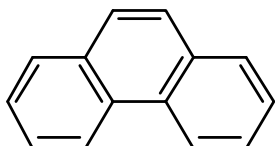
## (a) ナフタレン

(Naphthalene)

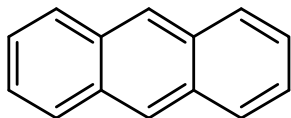


## (b) フェナントレン

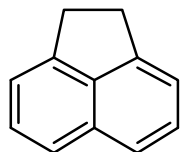
(Phenanthrene)



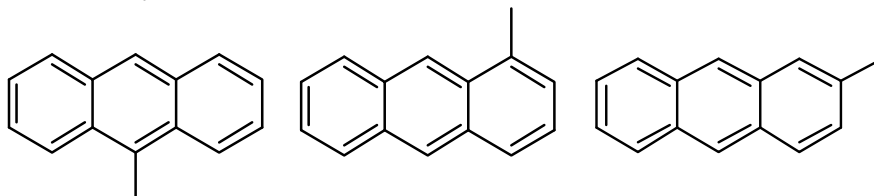
- (c) アントラセン  
(Anthracene)



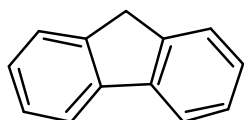
- (1) アセナフテン  
(Acenaphthene)



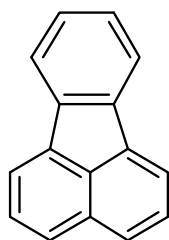
- (2) メチルアントラセン  
(Methylanthracenes)



- (3) フルオレン  
(Fluorene)



- (4) フルオランテン  
(Fluoranthene)



- (5) ピレン  
(Pyrene)

