# Les différentes familles de molécules en chimie organique BTS BAT 1ère année

## I – Alcane

$C_nH_{2n+2}$

| Formule semi-développée | Nom de la molécule |
|---|---|
| $CH_4$ | méthane |
| $CH_3-CH_3$ | éthane |
| $CH_3-CH_2-CH_3$ | propane |
| $CH_3-CH_2-CH_2-CH_3$ | butane |
| $CH_3-CH_2-CH_2-CH_2-CH_3$ | pentane |
| $CH_3-CH_2-CH_2-CH_2-CH_2-CH_3$ | hexane |
| $CH_3-CH_2-CH_2-CH_2-CH_2-CH_2-CH_3$ | heptane |
| $CH_3-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-CH_3$ | octane |
| $CH_3-CH(CH_3)-CH_2-CH_2-CH_2-CH_2-CH_2-CH_3$ | 2-méthyloctane |
| $CH_3-CH(CH_3)-CH(CH_3)-CH(CH_3)-CH(CH_3)-CH_2-CH_2-CH_3$ | 2,3,4,5-tétraméthyloctane |
| $CH_3-CH(CH_3)-CH(CH_2-CH_3)-CH(CH_2-CH_2-CH_3)-CH_2-CH_2-CH_2-CH_3$ | 3-éthyl-2-méthyl-4-propyloctane |
| $CH_3-CH(CH_3)-CH(CH_2-CH_3)-CH(CH_2-CH_2-CH_3)-CH(CH_3)-CH_2-CH_2-CH_3$ | 3-éthyl-2,5-diméthyl-4-propyloctane |
| $CH_3-CH(CH_3)-CH(CH_2-CH_3)-CH(CH_2-CH_2-CH_3)-CH(CH_3)-CH(CH_3)-CH_2-CH_3$ | 3-éthyl-2,5,6-triméthyl-4-propyloctane |

# Les différentes familles de molécules en chimie organique BTS BAT 1ère année

## II - Alcène

$C_nH_{2n}$

| Formule semi-développée | Nom de la molécule |
|---|---|
| $CH_2=CH_2$ | Le nom correct de la molécule est: éthène<br>Son nom d'usage est: éthylène |
| $CH_2=CH-CH_3$ | propène |
| $CH_2=CH-CH_2-CH_3$ | but-1-ène |
| $CH_3-CH=CH-CH_3$ | but-2-ène |
| $CH_2=CH-CH_2-CH_2-CH_3$ | pent-1-ène |
| $CH_3-CH=CH-CH_2-CH_3$ | pent-2-ène |
| $CH_3-CH_2-CH=CH-CH_3$ | pent-2-ène |
| $CH_2=CH-CH_2-CH_2-CH_2-CH_3$ | hex-1-ène |
| $CH_3-CH=CH-CH_2-CH_2-CH_3$ | hex-2-ène |
| $CH_3-CH_2-CH=CH-CH_2-CH_3$ | hex-3-ène |
| $CH_3-CH(CH_3)-CH=CH-CH_2-CH_3$ | 2-méthylhex-3-ène |
| $CH_3-CH(CH_3)-C(CH_3)=C-CH_2-CH_3$ | 2,3,4-triméthylhex-3-ène |
| $CH_3-CH(CH_3)-C(CH_3)=C(CH_2)-CH_2-CH_3$ | 4-éthyl-2,3-diméthylhex-3-ène |

## III – Alcyne

$C_nH_{2n-2}$

| Formule semi-développée | Nom de la molécule |
|---|---|
| $CH\equiv CH$ | Le nom correct de la molécule est: éthyne<br>Son nom d'usage est: acétylène |
| $CH\equiv C-CH_3$ | propyne |
| $CH\equiv C-CH_2-CH_3$ | but-1-yne |
| $CH_3-C\equiv C-CH_3$ | but-2-yne |
| $CH\equiv C-CH_2-CH_2-CH_3$ | pent-1-yne |
| $CH_3-C\equiv C-CH_2-CH_3$ | pent-2-yne |
| $CH\equiv C-CH_2-CH_2-CH_2-CH_3$ | hex-1-yne |

| | |
|---|---|
| $CH_3-CH(CH_3)-CH(CH_3)-CH(CH_3)-C\equiv CH$ | 3,4,5-triméthylhex-1-yne |
| $CH_3-C\equiv C-C(CH_3)(CH_3)-CH(CH_3)-CH_3$ | 4,4,5-triméthylhex-2-yne |
| $CH_3-CH_2-C(CH_2-CH_3)(CH_2-CH_3)-C\equiv C-C(CH_3)(CH_3)-CH(CH_3)-CH_3$ | 3,6,6-triéthyl-2,3-diméthyloct-4-yne |

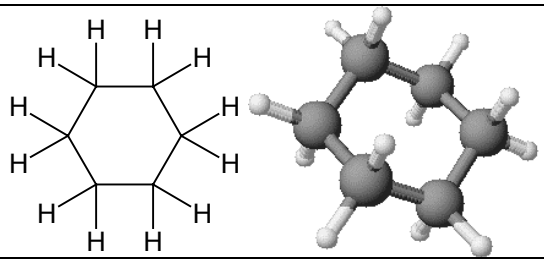
**IV – <u>Dérivé halogéné</u>**

$C_nH_{2n+1}$-Cl

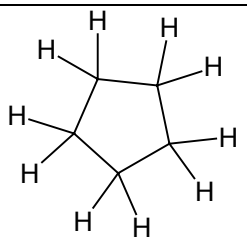
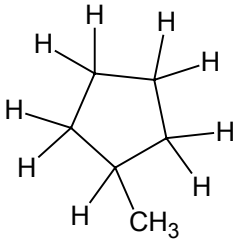
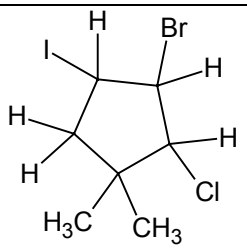
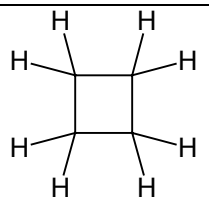
| | |
|---|---|
| $CH_3-Cl$ | chlorométhane |
| $Cl-CH_2-Cl$ | dichlorométhane |
| $Cl-CH(Br)-Cl$ | bromodichlorométhane |
| $Cl-C(Br)(I)-Cl$ | bromodichloroiodométhane |
| $Cl-C(Cl)(Cl)-CH_3$ | 1,1,1-trichloroéthane |
| $Cl-CH_2-CH_3$ | 1-chloroéthane |
| $Br-CH_2-CH_2-Cl$ | 1-bromo-2-chloroéthane |
| $Br-CH=CH-Cl$ | 1-bromo-2-chloroéthène |
| $Cl-C(Cl)=CH-Cl$ | Le nom correct de la molécule est : 1,1,2-trichloroéthène<br>Son nom d'usage est : chlorure de vinyle |

**V – <u>Alcane cyclique</u>**

$C_nH_{2n}$

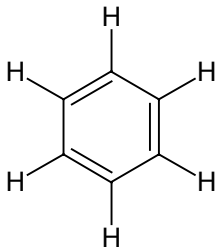
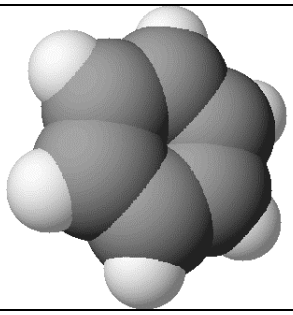
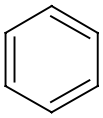
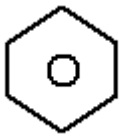
| | |
|---|---|
|  | cyclohexane $C_6H_{12}$ |

# Les différentes familles de molécules en chimie organique BTS BAT 1ère année

| | |
|---|---|
|  | **cyclopentane $C_5H_{10}$** |
|  | **méthylcyclopentane** |
|  | **3-bromo-2-chloro-4-iodo-1,1-diméthylcyclopentane** |
|  | **cyclobutane** |

**VI – <u>Benzène</u>**

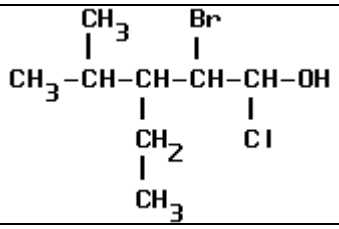
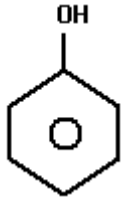
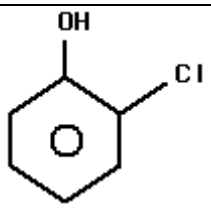
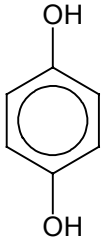
$C_6H_6$

| | | | |
|---|---|---|---|
|  |  |  |  |

**VII – <u>Alcool</u>**

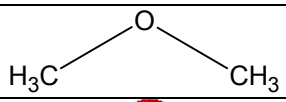
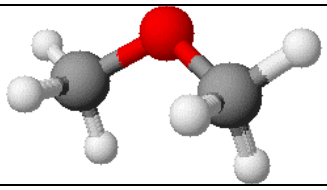
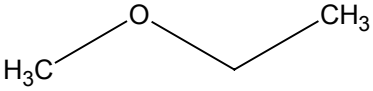
$C_nH_{2n+1}$-OH ou R-OH

| | |
|---|---|
| $HO-CH_3$ | méthanol |
| $CH_3-CH_2-OH$ | éthanol |
| $CH_3-CH_2-CH_2-OH$ | propan-1-ol |
| $CH_3-CH(OH)-CH_3$ | propan-2-ol |

| | |
|---|---|
|  | 2-bromo-1-chloro-3-éthyl-4-méthylpentan-1-ol |
|  | phénol |
|  | Le nom correct de la molécule est:<br>2-chlorophénol<br>Son nom d'usage est:<br>o-chlorophénol |
|  | hydroquinone |

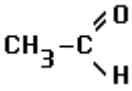
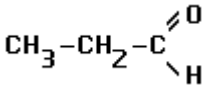
**VIII – <u>Ether</u>**

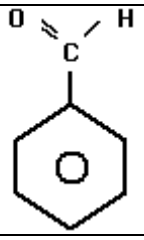
$C_nH_{2n+1}$-O- $C_{n'}H_{2n'+1}$ ou R-O-R'

| | |
|---|---|
|  | diméthyl éther |
|  | diméthyl éther |
|  | éthyl méthyl éther |

**IX – <u>Aldéhyde</u>**

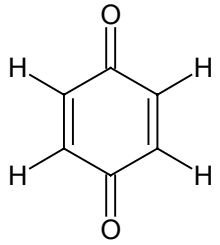
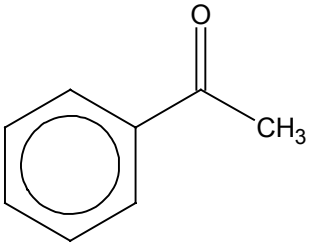
$C_nH_{2n+1}$-COH ou R-COH

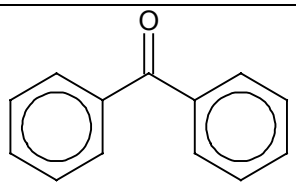
| | |
|---|---|
| | Le nom correct de la molécule est:<br>méthanal<br>Son nom d'usage est:<br>formaldéhyde<br>(ou formol) |
|  | Le nom correct de la molécule est:<br>éthanal<br>Son nom d'usage est:<br>acétaldéhyde |
|  | Le nom correct de la molécule est:<br>propanal<br>Son nom d'usage est:<br>propionaldéhyde |

| | |
|---|---|
| $CH_3-CH_2-CH_2-C(=O)H$ | Le nom correct de la molécule est: butanal<br>Son nom d'usage est: butyraldéhyde |
| $CH_3-CH_2-CH_2-CH_2-C(=O)H$ | Le nom correct de la molécule est: pentanal<br>Son nom d'usage est: valéraldéhyde |
| $CH_3-CH_2-CH_2-CH_2-CH_2-C(=O)H$ | hexanal |
| $CH_3-CH(CH_3)-CH(CH_2-CH_3)-CH(Cl)-CH_2-C(=O)H$ | 4-chloro-3-éthyl-5-méthylhexanal |
|  | benzaldéhyde |

**X – <u>Cétone</u>**

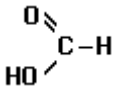
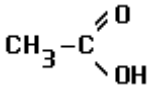
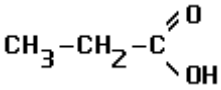
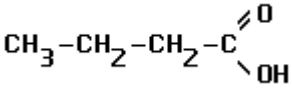
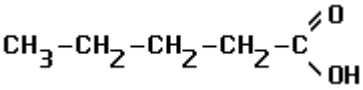
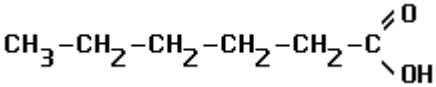
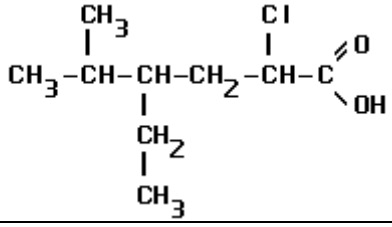
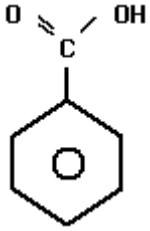
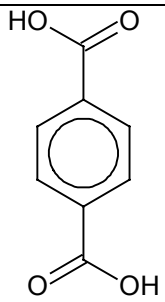
$C_nH_{2n+1}$-CO- $C_{n'}H_{2n'+1}$ ou R-CO-R'

| | |
|---|---|
| $CH_3-C(=O)-CH_3$ | Le nom correct de la molécule est: propanone<br>Son nom d'usage est: acétone |
| $CH_3-C(=O)-CH_2-CH_3$ | butanone |
| $CH_3-C(=O)-CH_2-CH_2-CH_3$ | pentan-2-one |
| $CH_3-CH_2-C(=O)-CH_2-CH_3$ | pentan-3-one |
| $CH_3-CH(CH_3)-C(=O)-CH(Cl)-CH_3$ | 2-chloro-4-méthylpentan-3-one |
|  | benzo-1,4-quinone ou parabenzoquinone (ou quinone) |
|  | 1-phényléthanone |

| | |
|---|---|
|  | benzophénone |

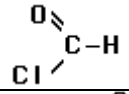
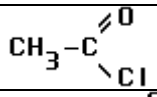
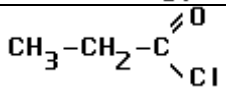
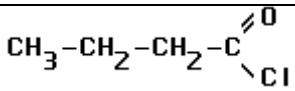
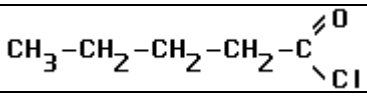
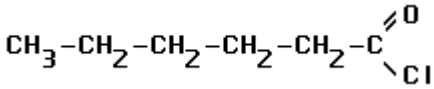
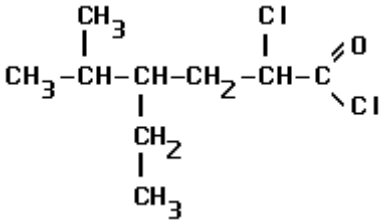
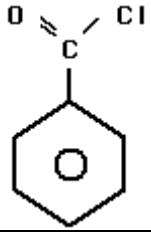
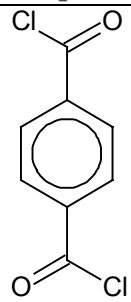
**XI – Acide carboxylique**

$C_nH_{2n+1}$-CO-OH ou R-COOH

| | |
|---|---|
|  | Le nom correct de la molécule est: acide méthanoïque<br>Son nom d'usage est: acide formique |
|  | Le nom correct de la molécule est: acide éthanoïque<br>Son nom d'usage est: acide acétique |
|  | Le nom correct de la molécule est: acide propanoïque<br>Son nom d'usage est: acide propionique |
|  | Le nom correct de la molécule est: acide butanoïque<br>Son nom d'usage est: acide butyrique |
|  | Le nom correct de la molécule est: acide pentanoïque<br>Son nom d'usage est: acide valérique |
|  | acide hexanoïque |
|  | acide 2-chloro-4-éthyl-5-méthylhexanoïque |
|  | acide benzoïque |
|  | Acide téréphthalique |

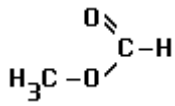
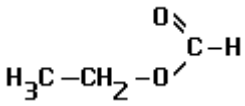
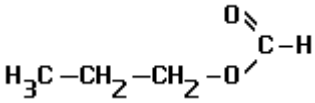
**XII – Chlorure d'acyle**

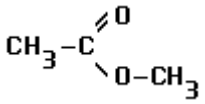
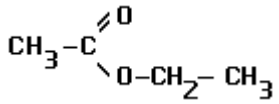
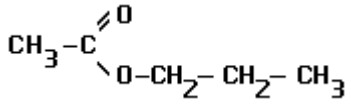
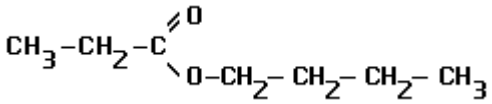
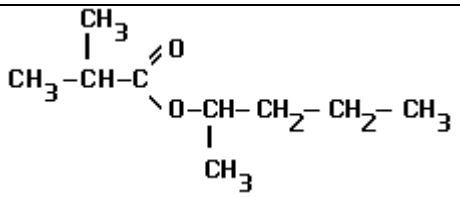
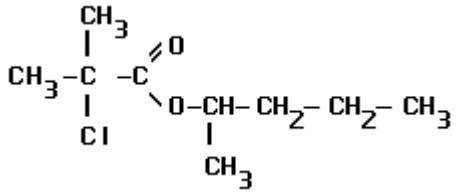
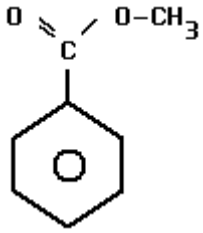
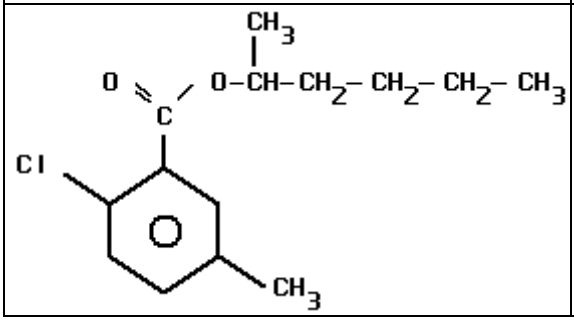
$C_nH_{2n+1}$-CO-Cl ou R-COCl

| | |
|---|---|
|  | chlorure de méthanoyle |
|  | chlorure d'éthanoyle |
|  | chlorure de propanoyle |
|  | chlorure de butanoyle |
|  | chlorure de pentanoyle |
|  | chlorure d'hexanoyle |
|  | chlorure de 2-chloro-4-éthyl-5-méthylhexanoyle |
|  | chlorure de benzoyle |
|  | dichlorure de téréphthaloyle |

**XIII – Ester**

$C_nH_{2n+1}$-CO-O-$C_{n'}H_{2n'+1}$ ou R-CO-O-R'

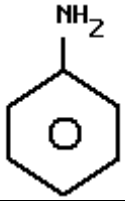
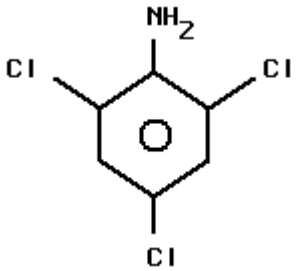
| | |
|---|---|
|  | Le nom correct de la molécule est: méthanoate de méthyle<br>Son nom d'usage est: formiate de méthyle |
|  | Le nom correct de la molécule est: méthanoate d'éthyle<br>Son nom d'usage est: formiate d'éthyle |
|  | Le nom correct de la molécule est: méthanoate de propyle<br>Son nom d'usage est: formiate de propyle |

| | |
|---|---|
|  | Le nom correct de la molécule est:<br>éthanoate de méthyle<br>Son nom d'usage est:<br>acétate de méthyle |
|  | Le nom correct de la molécule est:<br>éthanoate d'éthyle<br>Son nom d'usage est:<br>acétate d'éthyle |
|  | Le nom correct de la molécule est:<br>éthanoate de propyle<br>Son nom d'usage est:<br>acétate de propyle |
|  | Le nom correct de la molécule est:<br>propanoate de butyle<br>Son nom d'usage est:<br>propionate de butyle |
|  | 2-méthylpropanoate de 1-méthylbutyle |
|  | 2-chloro-2-méthylpropanoate de 1-méthylbutyle |
|  | benzoate de méthyle |
|  | 2-chloro-5-méthylbenzoate de 1-méthylpentyle |

**XIV – <u>Amine</u>**

$C_nH_{2n+1}$-$NH_2$ ou R-$NH_2$

| | |
|---|---|
| $H_3C-NH_2$ | méthylamine<br>ou méthanamine |
| $H_3C-CH_2-NH_2$ | éthylamine<br>ou éthanamine |
| $H_3C-CH_2-CH_2-NH_2$ | propylamine<br>ou propanamine |
| $H_3C-CH_2-CH_2-CH_2-NH_2$ | butylamine<br>ou butanamine |
| $H_3C-CH_2-CH_2-CH_2-CH_2-NH_2$ | pentylamine<br>ou pentanamine |

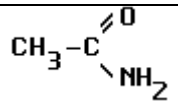
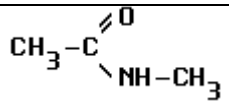
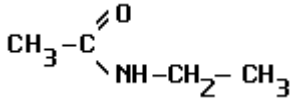
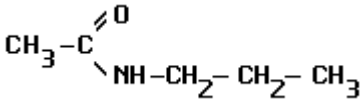
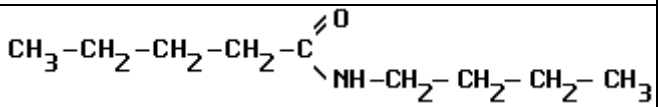
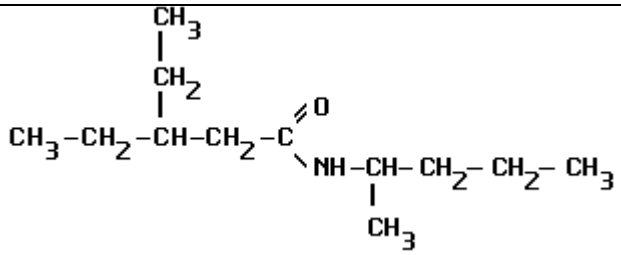
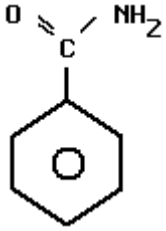
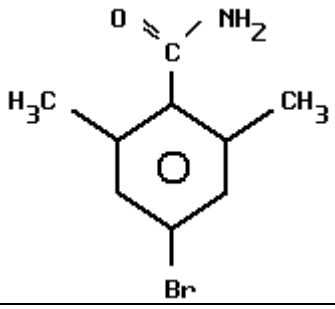
| | |
|---|---|
| $H_3C-CH(CH_3)-CH_2-CH_2-CH_2-NH_2$ | (4-méthylpentyl)amine<br>ou 4-méthylpentan-1-amine |
| $H_3C-CH_2-CH_2-CH(CH_3)-CH_2-NH_2$ | (2-méthylpentyl)amine<br>ou 2-méthylpentan-1-amine |
| $H_3C-NH-CH_3$ | ***N***-méthylméthanamine |
| $H_3C-CH_2-NH-CH_3$ | ***N***-méthyléthanamine |
| $H_3C-CH_2-NH-CH_2-CH_2-CH_3$ | ***N***-éthylpropan-1-amine |
| $H_3C-CH_2-NH-CH(CH_3)-CH_3$ | ***N***-ethylpropan-2-amine |
| $H_3C-N(CH_3)-CH_3$ | ***N,N***-diméthylméthanamine |
|  | aniline |
|  | 2,4,6-trichloroaniline |

**XV – <u>Amide</u>**

$C_nH_{2n+1}$-CO- NH-$C_{n'}H_{2n'+1}$ ou R-CO- NH-R'

| | |
|---|---|
| $H_2N-C(=O)-H$ | méthanamide |
| $H_3C-NH-C(=O)-H$ | N-méthyl-méthanamide |
| $H_3C-CH_2-NH-C(=O)-H$ | N-éthyl-méthanamide |
| $H_3C-CH_2-CH_2-NH-C(=O)-H$ | N-propyl-méthanamide |

# Les différentes familles de molécules en chimie organique BTS BAT 1ère année

| | |
|---|---|
|  | éthanamide |
|  | N-méthyl-éthanamide |
|  | N-éthyl-éthanamide |
|  | N-propyl-éthanamide |
|  | N-butyl-pentanamide |
|  | 3-éthyl-N-(1-méthylbutyl)-pentanamide |
|  | benzamide |
|  | 4-bromo-2,6-diméthylbenzamide |