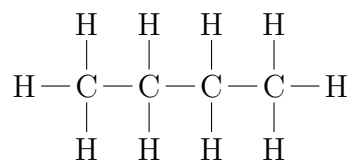


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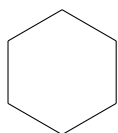
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1 Alkanes

1.1 Butane [A.1]



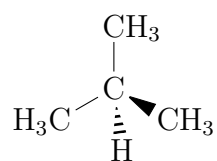
1.2 Cyclohexane [A.2]



1.3 Hexane [A.3]

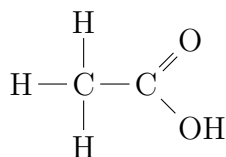


1.4 Isobutane [A.4]

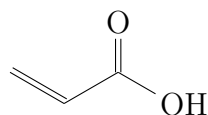


2 Carboxylic Acids

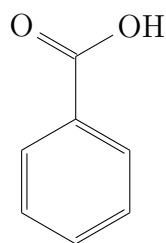
2.1 Acetic Acid [B.1]



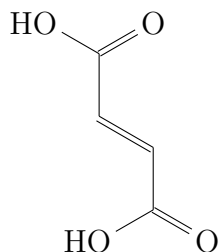
2.2 Acrylic Acid [B.2]



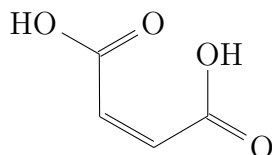
2.3 Benzoic Acid [B.3]



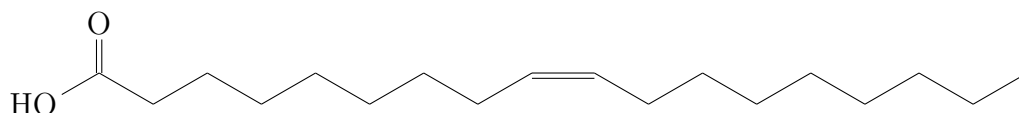
2.4 Fumaric Acid [B.4]



2.5 Maleic Acid [B.5]

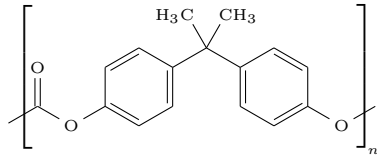


2.6 Oleic Acid [B.6]

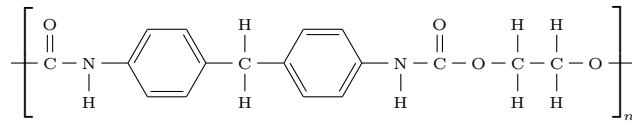


3 Polymers

3.1 Poly(Bisphenol A Carbonate) [C.1]

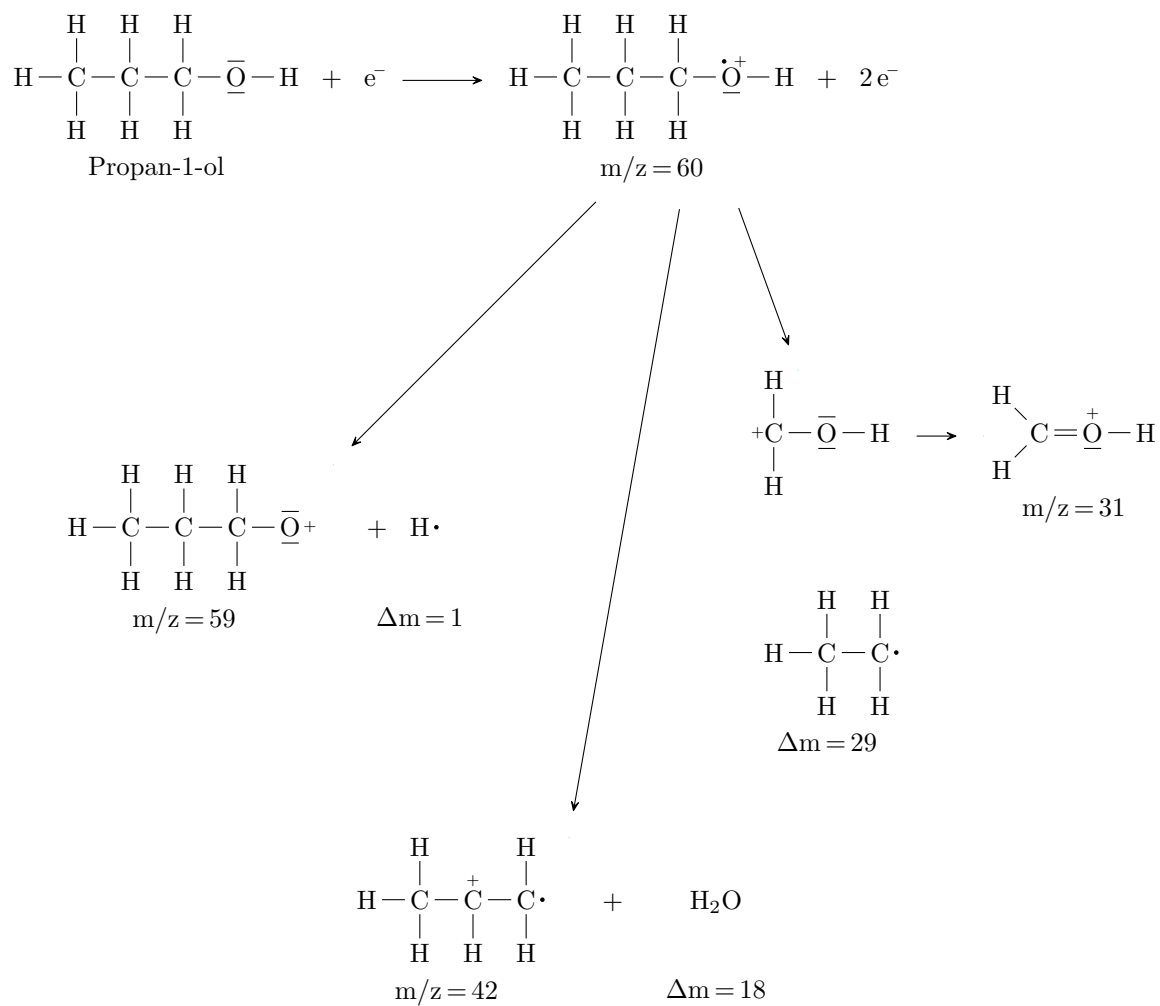


3.2 Polyurethane [C.2]

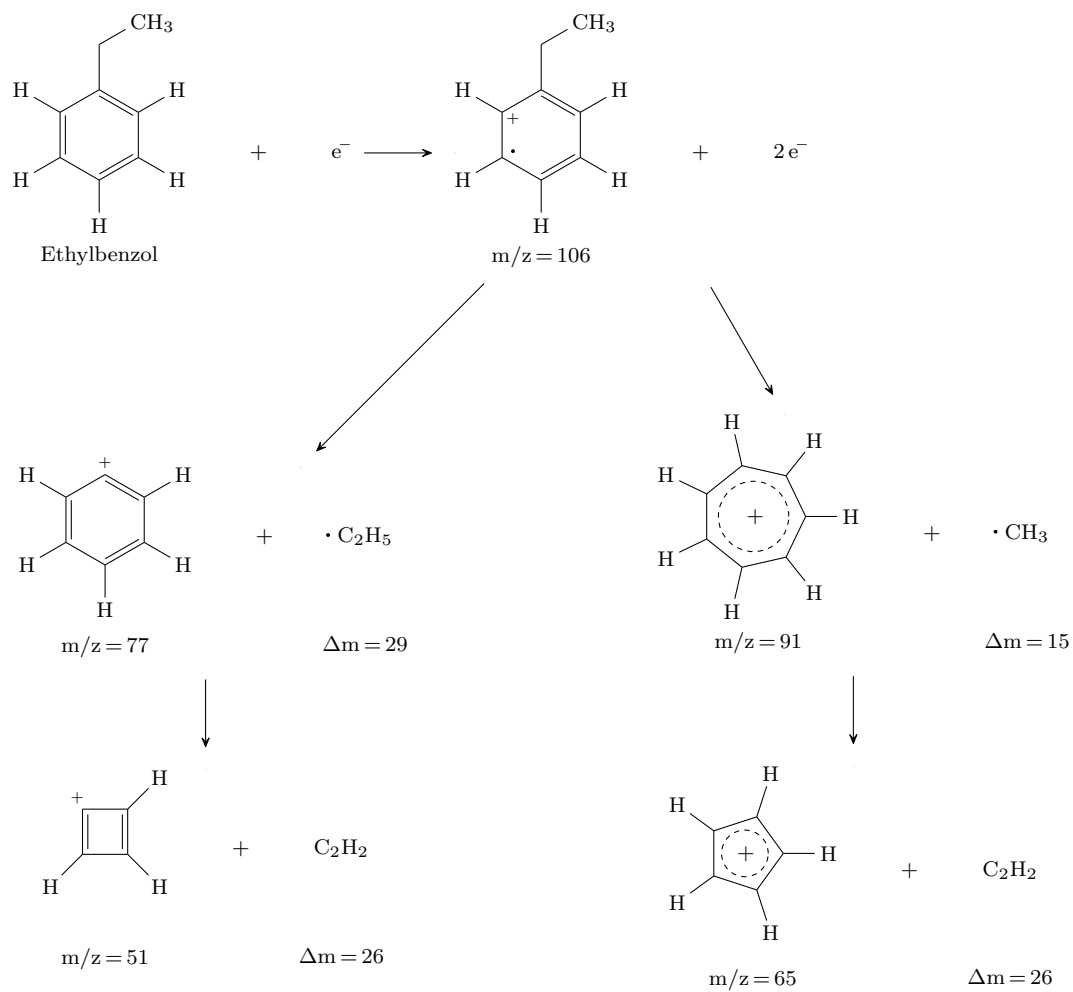


4 Mass Spectrometry

4.1 1-Propanol [D.1]



4.2 Ethylbenzene [D.2]



Appendix

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A Alkanes

A.1 Butane

```
\chemfig{H-C(-[2]H)(-[-2]H)-C(-[2]H)(-[-2]H)-C(-[2]H)(-[-2]H)-  
C(-[2]H)(-[-2]H)-H}
```

A.2 Cyclohexane

```
\chemfig{*6(-----)}
```

A.3 Hexane

```
\chemfig[angle increment=30]{-[1]-[1]-[1]-[1]-[1]}
```

A.4 Isobutane

```
\chemfig[angle increment=30]{H_3C-[1]C(<:[-2.75]H)(-[-3]CH_3)  
<[-1]CH_3}
```

B Carboxylic Acids

B.1 Acetic Acid

```
\chemfig[] {H-C(-[2]H)(-[-2]H)-C(-[-1]OH)=[1]O}
```

B.2 Acrylic Acid

```
\chemfig[angle increment=30]{=^[-1]-[1](-[-1]OH)=[3,0.8]O}
```

B.3 Benzoic Acid

```
\chemfig{*6(---(-([3.333]O)(-[0.666]OH))--)}
```

B.4 Fumaric Acid

```
\chemfig{HO-[: -30](-[-2](=[[: -30](-[-2](=[[: -30]O)(-[4.666]HO))
))=[:30]O)}
```

B.5 Maleic Acid

```
\chemfig[baseline=(b.base)]{HO-[-0.66](=[0.666]O)(*6(-@{b
})=--(-[2]OH)(=[-0.666]O)))}
```

B.6 Oleic Acid

```
\chemfig[]
{HO-[0.666](=[2,0.8]O)
  -[-0.666]-[0.666]-[-0.666]-[0.666]-[-0.666]-[0.666]-[-0.666]
-[-0.666]=_
  -[-0.666]-[0.666]-[-0.666]-[0.666]-[-0.666]-[0.666]-[-0.666]
-[-0.666]}
```

C polymers

C.1 Poly(Bisphenol A Carbonate)

```
\chemfig
{\phantom{-}\@{op}{-}[0.666](=[2]O)(-[-0.666]O
  (-[0.666]*6(==(-[0.666](-[2.666]H_3C)(-[1.333]CH_3)
  (-[-0.666](*6(==(-[-0.666]O(-[
    0.666]\@{cl}))--)))))--)))))}
\polymerdelim[open xshift = 7.5pt, close xshift = 3.5pt,
  height = 45pt, depth = 10pt, delimiters={[]}, indice =
  \!\!\n]{op}{cl}
```

C.2 Polyurethane

```
\chemfig[]
{-[@{op,.5}]C(=[2]O)-N(-[-2]H)-*6(==(-C(-*6(==(-N(-[-2]H)-C
  (=[2]O)-O-C(-[2]H)(-[-2]H)-C(-[2]H)(-[-2]H)-O-[@{cl,0.5}])
  ==-))(-[
    2]H)
    (-[-2]H))==)}
\polymerdelim[height = 20pt, depth = 20pt, delimiters
  ={[]}, indice = \!\!\n]{op}{cl}
```

D Mass Spectrometry

D.1 1-Propanol

```

\chemestart
\chemname{\chemfig{H-C(-[2]H)(-[2]H)-C(-[2]H)(-[2]H)-C(-[2]H)(-[2]H)-\charge{90:1pt=\|,-90:1pt=\|}{0}-H}}{Propan-1-ol}
\+
\chemfig{\charge{45=$\scriptscriptstyle{-}}{e}}
\arrow(.mid east--.mid west)
\chemname
{\chemfig{H-C(-[2]H)(-[2]H)-C(-[2]H)(-[2]H)-C(-[2]H)(-[2]H)-\charge{115:1pt=\.,-90:1pt=\|,60:1pt=$\scriptscriptstyle{+}}{0}-H}}
{m/z\,=\,60}
\+
\chemfig{2\,\charge{45=$\scriptscriptstyle{-}}{e}}
\arrow(@c2--n1)[-70,1.5]
\chemname{\chemfig{\charge{180:1pt=$\scriptscriptstyle{+}}{C}(-[2]H)(-[2]H)-\charge{90:1pt=\|,-90:1pt=\|}{0}-H}}{\phantom
\arrow(.mid east--.mid west)[0,0.7]
\chemnameinit{}
\chemname{\chemfig{C(-[3]H)(-[3]H)=\charge{90:2pt=$\scriptscriptstyle{+}}{\.,-90:1pt=\|}{0}-H}}{m/z\,=\,31}
\chemnameinit{}
\arrow(@c2--n2)[-100,5]
\chemname{\chemfig{H-C(-[2]H)(-[2]H)-\charge{90:2pt=$\scriptscriptstyle{+}}{C}(-[2]H)-\charge{0:1pt=\.}{C}(-[2]H)(-[2]H))}
{m/z\,=\,42}\qquad
\+\qquad
\chemname{\chemfig{H_2O}}{\Delta m\,=\,18}
\chemnameinit{}
\arrow(@c2--n4)[225,3]
\chemname
{\chemfig{H-C(-[2]H)(-[2]H)-C(-[2]H)(-[2]H)-C(-[2]H)(-[2]H)-\charge{90:1pt=\|,-90:1pt=\|,0:2pt=$\scriptscriptstyle{+}}{0}}}
{m/z\,=\,59}\qquad
\+
\chemname{\chemfig{\charge{0:1pt=\.}{H}}{\Delta m\,=\,1}
\arrow(@n1--nn1)[-90,0.45,white]
\chemname{\chemfig{H-C(-[2]H)(-[2]H)-\charge{0:1pt=\.}{C}(-[2]H)(-[2]H)}
}{\Delta m\,=\,29}
\chemestop

```

D.2 Ethylbenzene

```

\schemestart
  \chemname{\chemfig{*6((-H)-(-H)=(-H)-(-H)=(-[2](-[0.666]
    CH_3)))-(-H)=(-H))}}{Ethylbenzol} \quad
  \+ \quad
  \chemfig{\charge{45=$\scriptscriptstyle{-}}{e}}
  \arrow(.mid east--.mid west)
  \chemname{\chemfig{*6(\charge{30:3pt=\.}{})(-H)-(-H)=(-H)
    -(-H)=(-[2](-[0.666]CH_3))-\charge{-30:3pt=$\
      \scriptscriptstyle{+}}{}}{(-H
  )-(-H))}}{m/z\,=\,106} \quad
  \+ \quad
  \chemfig{2\,\charge{45=$\scriptscriptstyle{-}}{e}}
  \arrow(@c2--n1)[-60,1.5]
  \chemname{\chemfig{**[0,360,dash pattern=on 2pt off 2pt
    ]7(\charge{25:18.5pt=\+}{})(-H)-(-H)-(-H)-(-H)-(-H)-(-H)
    -(-H)-(-H))}}{m/z\,=\,91}
  \quad \+ \quad \% +
  \chemname{\chemfig{\charge{180:2pt=\.}{C}H_3}}{\Delta m
    \,=\,15}
  \arrow(@n1--m2)[-90,1]
  \chemname{\chemfig{**[0,360,dash pattern=on 2pt off 2pt
    ]5(\charge{35:13pt=\+}{})(-H)-(-H)-(-H)-(-H)-(-H)-(-H)
    -(-H)-)}{m/z\,=\,65}
  \quad \+ \quad
  \chemname{\chemfig{C_2H_2}}{\Delta m\,=\,26}
  \arrow(@c2--n4)[225,2.5]
  \chemname{\chemfig{*6((-H)-(-H)=(-H)-(-H)=\charge{90:3pt=$
    \scriptscriptstyle{+}}{}}-(-H)=(-H))}}{m/z\,=\,77}
  \quad \+ \quad
  \chemname{\chemfig{\charge{180:2pt=\.}{C}_2H_5}}{\Delta m
    \,=\,29}
  \arrow(@n4--m2)[-90,1]
  \chemname{\chemfig{*4((-H)-(-H)=(-H)-\charge{115:3pt=$
    \scriptscriptstyle{+}}{}}{=)}}{m/z\,=\,51}
  \quad \+ \quad
  \chemname{\chemfig{C_2H_2}}{\Delta m\,=\,26}
\schemestop

```