

## Dates of important chemical events of 50, 100, 150 ... years ago from 2000

### Organic Chemistry

#### 850 years ago

1150

- *Theophilus* hardens linseed oil by heating

#### 750 years ago

1250

- *Marcus Graecus* describes oil of turpentine under the name "aqua ardens"
- *Arnoldus de Villanova* distils ether oils

#### 350 years ago

1650

- *Johann Rudolf Glauber* prepares several compounds (a.o. ethylchloride)

#### 300 years ago

1700

- *Johan Konrrad Dippel* discovers the to him named "animal stink-oil"

#### 200 years ago

1800

- *Antoine François de Fourcroy* and *Louis Nicolas Vauquelin* demonstrate that wood acid is polluted acetic acid
- *Edward Howard* prepares the detonator mercury fulminate by treating mercury with nitric acid and spirit of wine
- *Louis Nicolas Vauquelin* isolates allantoin

#### 150 years ago

1850

- *Adolph Strecker* discovers purpurine in the root of madder. He also synthesises amino acids by heating aldehydes, ammonia, hydrocyanic acid and hydrochloric acid and saponification of the nitrile (e.g. alanine) (cyanohydrine - synthesis or Strecker - synthesis)
- *James Young* prepares paraffin from coal tar, brown coal and bitumen
- *Alexander William Williamson* synthesises "mixed" ethers by heating potassium alcoholates with alkyl iodides, and proposes a theory of H-O-H type
- *August Wilhelm von Hofmann* discovers the tetra-amine and proposes the penta-valency of nitrogen
- *Charles Frédéric Gerhardt* proposes his theory of chemical types
- *Auguste Laurent* demonstrates the alcohol radicals as homologous of mining gas

- *Carl Jacob Löwig and M E Schweizer* prepare antimonium alkyles (e.g. thiethylstilbène)
- *Ludwig Wilhelmy* conducts principal measures of reaction velocities (e.g. inversion of row sugar by acids as a catalyst)
- *Herman von Fehling* composes the to him named copper-ammonia solution as a test on dextrose and other sugars

## 100 years ago

1900

- *François Auguste Victor Grignard* discovers alkyl- and arylmagnesium halides for preparation of alcohols, aldehydes, ketones, carbonic acids a.s.o. (Grignard-synthesis)
- *Moses Gomberg* prepares for the first time organic radicals (a.o. triphenylmethyl)
- *Johannes Thiele* prepares fulvenes (colored carbohydrates) by condensation of cyclopentadiene with aldehydes or ketones in basic solutions
- *Wilhelm Traube* synthesises xanthine via guanine from the ethyl ester of cyanoacetic acid. Further he synthesizes theobromine, theophylline and caffeine from xanthine by methylation
- *Richard Willstätter and Bode* succeed in preparing  $\beta$ -carbonic acid (ecgonine) by treating an alkaline salt of tropinone with carbonic acid and afterwards reduction of the reaction product so cocaine could be prepared on a synthetic way
- *Friedrich Wilhelm Semmler* explains the constitution of sabinene and thujone, bicyclic compounds
- *Gordon Salamon and Ernest Goldie* studied the reaction product of the heating of sugar (caramel) for colouring liquors, beers a.s.o.

## 50 years ago

1950

- *Otto Diels and Kurt Alder* receive the Nobel Prize for their development of the diene synthesis
- *Christopher Kelk Ingold and E D Hughes* studied the kinetics and mechanism of the nitration of aromatic compounds. With *R I Gillespie* they demonstrate the existence of nitronium and benzoylium ions with cryoscopic measurements
- *E Wiberg and R Bauer* prepare magnesium hydride by thermal decomposition of magnesium diethyl at 175°C and by high vacuum. They also could obtain  $MgH_2$  by reaction of magnesium dialkylene with diborane or with lithium alanate
- *Georg Friedrich Karl Wittig* c.s. prepare metalorganic complex compounds
- *H Schulz and H Wagner* synthesise acrolein
- *Paul Karrer* c.s. conduct the total synthesis of  $\beta$ -carotene and lycopene
- *Karl Ziegler and Wilms* realise the dimerisation of butadiene to cyclo-octadiene

- *Arthur C Cope* c.s. realise the polymerisation of 2-chlorobutadiene to dichlorocyclo-octadiene
- *Derek H R Barton* lays the foundation of the conformation analysis
- *E R Alexander* and *E E Eliel* prepare optical active compounds of carbon atoms with deuterium and hydrogen
- *R Goutard*, *M Janot*, *Vladimir Prelog* and *W J Taylor* propose for the quinine skeleton in the place of the quinol ring the indole ring
- *Arturri Ilmari Virtanen* c.s. synthesise polypeptides (plasteides) with enzymes
- *Waley*, *Watson*, *Hanby* and *A C Farthing* synthesise polypeptides according to the Leuchs method
- *P Erdman* identifies chromatographically amino compounds
- *Friedrich Weygand* conducts research on paper chromatography
- *O R McIntire*, *F Stastny* and *R Gäth* prepare cellular thermoplastic products as polystyr and styropor (foam plastics)
- *Linus Carl Pauling* and *Robert Brainard Corey* estimate with X-ray analysis and  $\alpha$ -helix
- *R Schwarz* and *A Kessler* study esters of silicic acid
- *Kurt Otto Heinrich Meyer*, *Hermann Franz Mark* and *Van der Wyk* edit the book "Makromolekulare Chemie"
- *Paul Karrer* edits the 11<sup>th</sup> edition of his "Lehrbuch der Organischen Chemie"
- *Hermann Staudinger* edits the 3<sup>rd</sup> edition of his book "Organische Kolloidschemie"
- *B Wurzschnitt* renders organic compounds soluble in a nickel "bom".
- *Gerhardt Schrader* prepares the first insecticide of the syntoxrow: diethylethylthioethyl-thiphosphate