СЛОВАРЬ ОРГАНИЧЕСКИХ СОЕДИНЕНИЙ

ТОМ

III

СЛОВАРЬ ОРГАНИЧЕСКИХ СОЕДИНЕНИЙ

СТРОЕНИЕ,
ФИЗИЧЕСКИЕ И ХИМИЧЕСКИЕ СВОЙСТВА
ВАЖНЕЙШИХ ОРГАНИЧЕСКИХ СОЕДИНЕНИЙ
И ИХ ПРОИЗВОДНЫХ

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THE CONSTITUTION AND PHYSICAL AND CHEMICAL PROPERTIES OF THE PRINCIPAL CARBON COMPOUNDS AND THEIR DERIVATIVES, TOGETHER WITH THE RELEVANT LITERATURE REFERENCES

VOLUME THREE

NAPHTHACARBAZOLE—ZYGADENINE

Edited by

I. HEILBRON

Professor of Organic Chemistry
at the Imperial College of Science
and Technology, London

AND

H. M. BUNBURY

Imperial Chemical Industries, Ltd.

Assistant Editor

W. E. JONES

Authors

J. H. BEYNON, D. H. COFFEY, W. DORAN, D. H. HEY, E. H. JONES, A. LOWE, A. McGOOKIN

Assistant Authors

T. BARR, P. G. CARTER, J. L. GRIEVE, A. S. HAIGH, S. H. HARPER

Readers

J. W. BATTY, E. C. BUTTERWORTH, E. HAWORTH, T. KENNEDY, R. WILKINSON, H. R. WRIGHT

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TABLE OF ABBREVIATIONS

A	Acid (A_2, two mols of acid).
A°	Angstrom unit. (10^{-8} cm.).
Abs. EtOH	Absolute alcohol.
AcOH	Acetic acid.
Ac_2O	Acetic anhydride.
AcOEt	Ethyl acetate.
Add.	Additive.
Addn.	Addition.
A.G.F.A.	Aktien-Gesellschaft für Anilinfabrikation.
Alc.	Alcohol, alcoholic.
Alc. NH_3	Alcoholic ammonia.
Alk.	Alkali, alkaline.
$[\alpha]$	Specific rotation.
Amorph.	Amorphous.
Anhyd.	Anhydrous.
Aq.	Aqueous.
Atm.	Atmosphere(s), atmospheric.
B	Base (B_2, two mols of base).
Badische	Badische Anilin und Sodafabrik.
Belg. P.	Belgian Patent.
B.D.C.	British Dyestuffs Corporation.
Bibl.	Bibliography.
B.p.	Boiling point.
C_p	Constant pressure.
C_v	Constant volume.
Cal.	Calories.
Can. P.	Canadian Patent.
Col.	Colour, coloration.
Comb.	Combustion.
Comp.	Compound.
Conc.	Concentrated.
Corr.	Corrected.
Crit.	Critical.
Cryst.	Crystals, crystalline, crystallise.
$(COOH)_2$	Oxalic acid.
$(CH_2COOH)_2$	Succinic acid.
D	Density.
d	Dextrorotatory.
dl	Racemic. Optically inactive by external compensation.
Decomp.	Decomposed, decomposition.
Deriv.	Derivative.
Dil.	Dilute, dilution.
Diss.	Dissolves, dissolved.
Dist.	Distil, distillation.
D.R.P.	German Patent.
E.P.	English (British) Patent.
Et	Ethyl.
Et_2O	Ether (diethyl ether).
EtOH	Ethyl alcohol.
Fluor.	Fluoresces, fluorescence.
F.p.	Freezing point.
F.P.	French Patent.
Form.	Formation.
γ	10^{-6} gm. or 10^{-3} mgm. (microgrammes).
gm.	Gramme(s).
Hyd.	Hydrolyses, hydrolysed, hydrolysis.
i	Optically inactive by internal compensation.
I.C.I.	Imperial Chemical Industries.
I.G.	Interessen Gemeinschaft Farbenindustrie Aktien-Gesellschaft.
Insol.	Insoluble.
I.U.	International Unit.
Jap. P.	Japanese Patent.
k	Dissociation constant.
l	Lævorotatory.
Liq.	Liquid.
m	Meta (position).
Max.	Maximum.
Me	Methyl.
MeOH	Methyl alcohol.
Me_2CO	Acetone.
Min.	Mineral (inorganic).
Misc.	Miscible.
M.L.B.	Meister, Lucius, & Brüning.
mm.	Millimetres.
Mod.	Moderately.
Mol.	Molecule, molecular, molar.
M.p.	Melting point.
ms	Meso (position).
MW	Molecular weight (formula weight).
mgm.	Milligramme(s).
$m\mu$	Millimicron. (10^{-7} cm.).
n	Normal (chain).
n_D	Refractive index (D line, etc.).
NaHg	Sodium amalgam.
NH_3	Ammonia, aqueous ammonia.
$NH_3.AgNO_3$	Ammoniacal silver nitrate.
o	Ortho (position).
Ord.	Ordinary.
Org.	Organic.
Ox.	Oxidise, oxidation.
p	Para (position).
P	Patent.
Part.	Partly, partial.
Pet. ether	Petroleum ether.
$PhNO_2$	Nitrobenzene.
PhOH	Phenol.
Ppd.	Precipitated.
Ppt.	Precipitate.
Pptn.	Precipitation.
Prac.	Practically.
Press.	Pressure(s).
ψ	Pseudo.
Py	Pyridine.
r	Racemic.
Red.	Reduce, reduction.
Ref.	Reference.
Russ.P.	Russian Patent.
S.C.I.	Societé pour l'industrie chimique à Basle.
Sec.	Secondary.
Sol.	Soluble, solution.
Spar.	Sparingly.
Sp. gr.	Specific gravity.
Sp. heat	Specific heat.
Suppl.	Supplement.
Sym.	Symmetrical.
Temp.	Temperature(s).
Tert.	Tertiary.
Undecomp.	Undecomposed.
Unsym.	Unsymmetrical.
UV.	Ultraviolet.
Vac.	Vacuum.
Vap.	Vaporisation.
Vol.	Volume.

JOURNAL ABBREVIATIONS

Journals not listed here are given their full titles in the text.

Acta Phytochim.	Acta Phytochimica (Japan).
Am. Chem. J.	American Chemical Journal.
Am. J. Pharm.	American Journal of Pharmacy.
Am. J. Sci.	American Journal of Science.
Anales soc. españ fís. quím.	Anales de la sociedad española de física y química.
Angew. Chem.	Angewandte Chemie.
Ann.	Annalen der Chemie.
Ann. chim.	Annales de chimie.
Ann. chim. applicata	Annali di chimica applicata.
Ann. chim. phys.	Annales de chimie et de physique.
Ann. phys.	Annales de physique.
Ann. Physik	Annalen der Physik.
Ann. Rev. Biochem.	Annual Review of Biochemistry.
Arch. Pharm.	Archiv der Pharmazie (und Berichte der deutschen pharmazeutischen Gesellschaft).
Arkiv Kemi, Mineral. Geol.	Arkiv för Kemi, Mineralogi och Geologi.
Atti accad. Lincei	Atti della reale accademia nazionale dei Lincei.
Ber.	Berichte der deutschen chemischen Gesellschaft.
Ber. deut. pharm. Ges.	Berichte der deutschen pharmazeutischen Gesellschaft.
Ber. ges. Physiol. exptl. Pharmakol.	Berichte über die gesamte Physiologie und experimentelle Pharmakologie.
Biochem. J.	Biochemical Journal.
Biochem. Z.	Biochemische Zeitschrift.
Biol. Zentr.	Biologisches Zentralblatt.
Brit. Chem. Abstracts	British Chemical Abstracts.
Bull. Chem. Soc. Japan	Bulletin of the Chemical Society of Japan.
Bull. Imp. Inst.	Bulletin of the Imperial Institute.
Bull. Inst. Phys. Chem. Research (Tokyo).	Bulletin of the Institute of Physical and Chemical Research, Toyko.
Bull. sci. acad. roy. Belg.	Bulletin de la classe des sciences, academie royale de Belgique.
Bull. sci. pharmacol.	Bulletin des sciences pharmacologiques.
Bull. soc. chim.	Bulletin de la société chimique de France.
Bull. soc. chim. Belg.	Bulletin de la société chimique de Belgique.
Bull. soc. chim. biol.	Bulletin de la société de chimie biologique.
Can. Chem. Met.	Canadian Chemistry and Metallurgy.
Can. J. Research	Canadian Journal of Research.
Chem. Abstracts	Chemical Abstracts (of the American Chemical Society).
Chem. Ind.	Die Chemische Industrie.
Chem. Met. Eng.	Chemical and Metallurgical Engineering.
Chem. News	Chemical News (and Journal of Industrial Science).
Chem.-Tech. Rundschau	Chemische-Technische Rundschau.
Chem. Trade J.	Chemical Trade Journal (and Chemical Engineer).
Chem. Umschau	Chemische Umschau (auf dem Gebiete der Fette, Oele, Wachse, und Harze). Now Fettchemische Umschau.
Chem. Weekblad	Chemisch Weekblad.
Chem. Zentr.	Chemisches Zentralblatt.
Chem.-Ztg.	Chemiker-Zeitung.
Compt. rend.	Comptes rendus (hebdomadaires dés séances de l'académie des sciences).
Compt. rend. acad. sci. U.R.S.S.	Comptes rendus de l'Académie des Sciences de l'U.R.S.S.
Compt. rend. soc. biol.	Comptes rendus des séances de la société de biologie.
Dinglers polytech. J.	Dinglers polytechnisches Journal.
Fettchem. Umschau	Fettchemische Umschau.
Gazz. chim. ital.	Gazzetta chimica italiana.
Giorn. chim. applicata	Giornale di chimica applicata.
Giorn. chim. ind.	Giornale di chimica industriale.
Giorn. chim. ind. applicata	Giornale di chimica industriale ed applicata.
Helv. Chim. Acta	Helvetica Chimica Acta.
Ind. Eng. Chem.	Industrial and Engineering Chemistry.
Jahresber. Fortschr. Chem.	Jahresbericht über die Fortschritte der Chemie.
J. Am. Chem. Soc.	Journal of the American Chemical Society.
J. Am. Pharm. Assocn.	Journal of the American Pharmaceutical Association.
J. Applied Chem., U.S.S.R.	Journal of Applied Chemistry, U.S.S.R.
Japan. J. Chem.	Japanese Journal of Chemistry.
J. Bact.	Journal of Bacteriology.
J. Biochem. Japan.	Journal of Biochemistry of Japan.
J. Biol. Chem.	Journal of Biological Chemistry.
J. Chem. Education	Journal of Chemical Education.
J. Chem. Ind. Japan	Journal of Chemical Industry (Japan). Now J. Soc. Chem. Ind. Japan.
J. Chem. Physics	Journal of Chemical Physics.
J. Chem. Soc.	Journal of the Chemical Society (London).
J. Chem. Soc. Abstracts	Abstracts of the Chemical Society (London).
J. Chem. Soc. Japan	Journal of the Chemical Society of Japan.
J. chim. phys.	Journal de chimie physique.
J. Chinese Chem. Soc.	Journal of the Chinese Chemical Society.
J. Gen. Chem. U.S.S.R.	Journal of General Chemistry, U.S.S.R.
J. Indian Chem. Soc.	Journal of the Indian Chemical Society.
J. Indian Inst. Sci.	Journal of the Indian Institute of Science.
J. Org. Chem.	Journal of Organic Chemistry.
J. Pharmacol.	Journal of Pharmacology and Experimental Therapeutics.
J. pharm. Belg.	Journal de pharmacie de Belgique.

J. pharm. chim.	Journal de pharmacie et de chimie.
J. Pharm. Soc. Japan	Journal of the Pharmaceutical Society (Japan).
J. Phys. Chem.	Journal of Physical Chemistry.
J. prakt. Chem.	Journal für praktische Chemie.
J. Proc. Roy. Soc. N.S. Wales	Journal and Proceedings of the Royal Society of New South Wales.
J. Russ. Phys.-Chem. Soc.	Journal of the Russian Physical-Chemical Society.
J. Soc. Chem. Ind.	Journal of the Society of Chemical Industry.
J. Soc. Chem. Ind. Japan	Journal of the Society of Chemical Industry (Japan).
J. Soc. Dyers Colourists	Journal of the Society of Dyers and Colourists.
Mem. Coll. Sci., Kyoto Imp. Univ.	Memoirs of the College of Science, Kyoto Imperial University.
Monatsh.	Monatshefte für Chemie und verwandte Teile anderer Wissenschaften.
Naturwiss.	Naturwissenschaften.
Org. Chem. Ind. U.S.S.R.	Promischlennosti Organitscheskoi Chimii, U.S.S.R.
Pharm. J.	Pharmaceutical Journal and Pharmacist.
Pharm. Ztg.	Die deutsche Pharmazeutische Zeitung.
Pharm. Zentralhalle.	Pharmazeutische Zentralhalle.
Phil. Mag.	Philosophical Magazine and Journal of Science.
Proc. Acad. Sci., Amsterdam	Proceedings of the Royal Academy of Sciences of Amsterdam.
Proc. Chem. Soc.	Proceedings of the Chemical Society (London).
Proc. Roy. Soc.	Proceedings of the Royal Society (London).
Proc. Imper. Acad., Tokyo	Proceedings of the Imperial Academy, Tokyo.
Quart. J. Indian Chem. Soc.	Quarterly Journal of the Indian Chemical Society.
Quart. J. Pharm. Pharmacol.	Quarterly Journal of Pharmacy and Pharmacology.
Rec. trav. chim.	Recueil des travaux chimiques des Pays-Bas.
Rev. chim. ind.	Revue de chimie industrielle.
Rev. prod. chim.	Revue des produits chimiques.
Sci. Papers Inst. Phys. Chem. Research, Tokyo	Scientific Papers of the Institute of Physical and Chemical Research (Tokyo).
Sci. reps. Natl. Tsinghua Univ.	Science Reports of the National Tsinghua University.
Sci. reps. Natl. Univ. Peking	Science Reports of the National University of Peking.
Sitzb. Akad. Wiss. Wien	Sitzungsberichte Akademie der Wissenschaften in Wien.
Trans. Faraday Soc.	Transactions of the Faraday Society.
Trans. Roy. Soc.	Transactions of the Royal Society (London).
Trans. Roy. Soc. Canada.	Transactions of the Royal Society of Canada.
Z. anal. Chem.	Zeitschrift für analytische Chemie.
Z. angew. Chem.	Zeitschrift für angewandte Chemie. Now Angewandte Chemie.
Z. anorg. allgem. Chem.	Zeitschrift für anorganische und allgemeine Chemie.
Z. Chem.	Zeitschrift für Chemie.
Z. Elektrochem.	Zeitschrift für Elektrochemie und angewandte physikalische Chemie.
Z. ges. Naturwiss.	Zeitschrift für die gesamte Naturwissenschaft.
Z. physik. Chem.	Zeitschrift für physikalische Chemie.
Z. physiol. Chem.	Zeitschrift für physiologische Chemie (Hoppe-Seyler).

LIST OF SUBSTITUENTS

In the following table is given a list of the principal substituent groups as they are used in the dictionary.

1	—F	Fluoro
2	—Cl	Chloro
3	—Br	Bromo
4	—I	Iodo
5	—NO	Nitroso
6	$-NO_2$	Nitro
7	$-N{=}N{\rightarrow}N$	Azido, Triazo
8	—OH	Hydroxy (*followed by* $-OCH_3$ Methoxy, $-OC_2H_5$ Ethoxy, $-O{\cdot}CH_2{\cdot}O-$ methylenedioxy, $-OC_6H_5$ Phenoxy, $-O{\cdot}CO{\cdot}CH_3$, Acetoxy, *etc. in the order of the group attached to the oxygen*)
9	—SH	Mercapto
10	—SO	Thionyl
11	$-SO_2$	Sulphonyl
12	—SCN	Thiocyano
13	=O (in C—CO—C)	Keto
14	>NH	Imino
15	$=N{\cdot}OH$	Isonitroso, Oximino
16	—S—	Thio
17	$-SO_3H$	Sulpho
18	$-NH_2$	Amino
19	$-NH{\cdot}C_6H_5$	Anilino, Phenylimino
20	$-NH{\cdot}C_6H_4{\cdot}CH_3$	Toluidino
21	$-NH{\cdot}CO{\cdot}NH_2$	Ureido
22	$-NH{\cdot}C(:NH){\cdot}NH_2$	Guanidino
23	—NH·OH	Hydroxylamino
24	$-NH{\cdot}NH_2$	Hydrazino
25	—NH·NH—	Hydrazo
26	—N:N—	Azo
27	$\cdot N{:}N{:}]X$	Diazonium, Diazo (X = OH, Cl, etc.)
28	$-N{=}N-\begin{pmatrix}-N{=}N-\\ \downarrow \\ O\end{pmatrix}$	Azoxy
29	—As:As—	Arseno
30	—NH·N:N— (*open*)	Diazoamino
31	—NH·N:N— (*cyclic*)	Azimino
32	$-CH_3$	Methyl
33	$-CH_2OH$	Hydroxymethyl, Methylol
34	$-C_2H_5$	Ethyl

35 —$CH_2{\cdot}CH_2{\cdot}CH_3$ *n*-Propyl

36 —$CH(CH_3)_2$ Isopropyl

37 —$CH_2{\cdot}CH_2{\cdot}CH_2{\cdot}CH_3$ *n*-Butyl

38 —$CH_2{\cdot}CH(CH_3)_2$ Isobutyl

39 —$C(CH_3)_3$ *ert.*-Butyl

40 —$CH_2{\cdot}[CH_2]_2{\cdot}CH_3$ *n*-Amyl

41 —$CH(C_2H_5)_2$ *sec.*-*n*-Amyl

42 —$CH_2{\cdot}CH_2{\cdot}CH(CH_3)_2$ Isoamyl

43 —$CH_2{\cdot}CH<\begin{matrix}CH_3\\C_2H_5\end{matrix}$ *active* Amyl

44 —$C<\begin{matrix}CH_3\\C_2H_5\\CH_3\end{matrix}$ *tert.*-Amyl

45 —$CH_2{\cdot}[CH_2]_4{\cdot}CH_3$ *n*-Hexyl

46 —$CH_2{\cdot}[CH_2]_3{\cdot}CH(CH_3)_2$ Isohexyl

47 —$CH_2{\cdot}[CH_2]_5{\cdot}CH_3$ *n*-Heptyl, Oenanthyl

48 —$CH_2{\cdot}[CH_2]_4{\cdot}CH(CH_3)_2$ Isoheptyl

49 —$CH_2{\cdot}[CH_2]_6{\cdot}CH_3$ Octyl, Capryl

50 —$CH_2{\cdot}[CH_2]_7{\cdot}CH_3$ Nonyl

51 —$CH_2{\cdot}[CH_2]_8{\cdot}CH_3$ Decyl

52 —$CH_2{\cdot}[CH_2]_9{\cdot}CH_3$ Undecyl

53 —$CH_2{\cdot}[CH_2]_{10}{\cdot}CH_3$ Dodecyl

54 —$CH_2{\cdot}[CH_2]_{11}{\cdot}CH_3$ Tridecyl

55 —$CH_2{\cdot}[CH_2]_{12}{\cdot}CH_3$ Tetradecyl

56 —$CH_2{\cdot}[CH_2]_{13}{\cdot}CH_3$ Pentadecyl

57 —$CH_2{\cdot}[CH_2]_{14}{\cdot}CH_3$ Cetyl, Hexadecyl

58 —$CH_2{\cdot}[CH_2]_{15}{\cdot}CH_3$ Heptadecyl

59 —$CH_2{\cdot}[CH_2]_{16}{\cdot}CH_3$ Octadecyl

60 —$CH_2{\cdot}[CH_2]_{18}{\cdot}CH_3$ Eicosyl

61 —$CH_2{\cdot}[CH_2]_{24}{\cdot}CH_3$ Ceryl

62 —$CH_2{\cdot}[CH_2]_{28}{\cdot}CH_3$ Myricyl, Melissyl

63 —$CH<\begin{matrix}CH_2\\|\\CH_2\end{matrix}$ Cyclopropyl (*followed by* Cyclobutyl, Cyclopentyl, Cyclohexyl, Cycloheptyl (Suberyl) *in that order*)

64 —$CH{:}CH_2$ Vinyl

65 —$CH{:}CH{\cdot}CH_3$ Propenyl

66 —$C(:CH_2){\cdot}CH_3$ Isopropenyl

67 —$CH_2{\cdot}CH{:}CH_2$ Allyl

68 —$CH{:}CH{\cdot}CH_2{\cdot}CH_3$ *α*-Butenyl

69 —$CH_2{\cdot}CH{:}CH{\cdot}CH_3$ *β*-Butenyl, Crotyl

70 —$CH_2{\cdot}CH_2{\cdot}CH{:}CH_2$ *γ*-Butenyl, Allylomethyl

71 —$CH_2{\cdot}[CH_2]_7{\cdot}CH{:}CH{\cdot}[CH_2]_7{\cdot}CH_3$ Octadecenyl

72 —$C{:}CH$ Acetylenyl, Ethinyl

73 —$CH_2{\cdot}C{:}CH$ Propargyl

74 —C_6H_5 Phenyl

75 —$C_6H_4{\cdot}CH_3$ Tolyl

76 —$CH_2{\cdot}C_6H_5$ Benzyl

77 —$CH_2{\cdot}C_6H_4{\cdot}OH$ (*-o*) Salicyl

78 —$CH_2{\cdot}C_6H_4{\cdot}OCH_3$ (*-p*) Anisyl

79 —$CH_2{\cdot}CH_2{\cdot}C_6H_5$ Phenylethyl

80 —$CH_2{\cdot}C_6H_3{\cdot}CH_3$ Xylyl

81 —$C_6H_4{\cdot}CH(CH_3)_2$ Cumyl

82 —$C_6H_2(CH_3)_3$ (1 : 2 : 4) *ψ*-Cumyl

83 —$C_6H_2(CH_3)_3$ (1 : 3 : 5) Mesityl

84 —$CH{:}CH{\cdot}C_6H_5$ Styryl

85 —$CH_2{\cdot}CH{:}CH{\cdot}C_6H_5$ Cinnamyl

86 —$C_{10}H_7$ Naphthyl

87 —$C_6H_4{\cdot}C_6H_5$ Diphenylyl, Xenyl

88 —$CH(C_6H_5)_2$ Benzhydryl, Diphenylmethyl

89 —$C_{14}H_9$ Anthryl, anthranyl

90 —$C_{14}H_9$ Phenanthryl

91 —$C(C_6H_5)_3$ Triphenylmethyl

92 —$CH_2{\cdot}CH_2$— Ethylene, Dimethylene

93 —$CH(CH_3){\cdot}CH_2$— Propylene

94 —$CH_2{\cdot}CH_2{\cdot}CH_2$— Trimethylene

95 —$CH_2{\cdot}CH_2{\cdot}CH_2{\cdot}CH_2$— Tetramethylene

96 —$C(CH_3)_2{\cdot}CH_2$— Isobutylene

97 —$CH_2{\cdot}[CH_2]_3{\cdot}CH_2$— Pentamethylene

98 —$CH_2[{\cdot}CH_2]_4{\cdot}CH_2$— Hexamethylene

99 —$CH_2{\cdot}[CH_2]_5{\cdot}CH_2$— Heptamethylene

100 —$CH_2{\cdot}[CH_2]_6{\cdot}CH_2$— Octamethylene

101 —$CH{:}CH$— Vinylene

102 —C_6H_4— Phenylene

103 —$C_6H_3(CH_3)$— Tolylene

104 —CH_2— Methylene

105 =$CH{\cdot}CH_3$ Ethylidene

106 =$CH{\cdot}CH_2{\cdot}CH_3$ Propylidene

107 =$C(CH_3)_2$ Isopropylidene

108 =$CH{\cdot}CH_2{\cdot}CH_2{\cdot}CH_3$ Butylidene

109 =$CH{\cdot}CH(CH_3)_2$ Isobutylidene

110 $H_2C<\begin{matrix}CH_2—CH_2\\|\quad\quad|\\CH_2—CH_2\end{matrix}>C=$ Cyclohexylidene

111 =$C{:}CH_2$ Vinylidene

112 =$CH{\cdot}CH{:}CH_2$ Allylidene

113 $CH_3{\cdot}CH{:}CH{\cdot}CH=$ Crotylidene

114 =$CH{\cdot}C_6H_5$ Benzylidene

115 =$CH{\cdot}C_6H_4{\cdot}OH$ (*-o*) Salicylidene

116 =$CH{\cdot}C_6H_4{\cdot}OCH_3$ (*-p*) Anisylidene

117 =$CH{\cdot}C_6H_4{\cdot}CH(CH_3)_2$ (*-p*) Cuminylidene

118 =$CH{\cdot}CH{:}CH{\cdot}C_6H_5$ Cinnamylidene

119 —$CH_2{\cdot}CO{\cdot}CH_3$ Acetonyl

120 —$CH_2{\cdot}CO{\cdot}C_6H_5$ Phenacyl

121 —$CH_2{\cdot}CO{\cdot}C_6H_4{\cdot}CH_3$ Tolacyl

122 $C_6H_5{\cdot}CH{\cdot}CO{\cdot}C_6H_5$ Desyl

123 —CHO Aldehydo, Formyl

124 ≡CH Methinyl

125 —$CO{\cdot}CH_3$ Acetyl, Aceto

126 —$CO{\cdot}CH_2{\cdot}CH_3$, Propionyl

127 —$CO{\cdot}CH_2{\cdot}CH_2{\cdot}CH_3$ Butyryl

128 —$CO{\cdot}CH(CH_3)_2$ Isobutyryl

129 —$CO{\cdot}CH_2{\cdot}[CH_2]_2{\cdot}CH_3$ Valeryl

130 —$CO{\cdot}CH_2{\cdot}CH(CH_3)_2$ Isovaleryl

131 —$CO{\cdot}CH_2{\cdot}[CH_2]_3{\cdot}CH_3$ Caproyl

132 —$CO{\cdot}CH_2{\cdot}[CH_2]_{13}{\cdot}CH_3$ Palmityl

133 —$CO{\cdot}CH_2{\cdot}[CH_2]_{15}{\cdot}CH_3$ Stearyl

134 —$CO{\cdot}[CH_2]_7{\cdot}CH{:}CH{\cdot}[CH_2]_7{\cdot}CH_3$ Oleyl

135 —$CO{\cdot}C_6H_5$ Benzoyl

136 —$CO{\cdot}C_6H_4{\cdot}OH$ (*-o*) Salicyloyl

137 —$CO{\cdot}C_6H_4{\cdot}OCH_3$ (*-p*) Anisoyl

138 —$CO{\cdot}CH_2{\cdot}C_6H_5$ Phenylacetyl

139 —$CO{\cdot}C_6H_4{\cdot}CH_3$ Toluyl

140 —$CO{\cdot}CH{:}CH{\cdot}C_6H_5$ Cinnamoyl

141 —$CO{\cdot}C_{10}H_7$ Naphthoyl

142 —$CO{\cdot}CO$— Oxalyl

143 —$CO{\cdot}CH_2{\cdot}CO$— Malonyl

144 —$CO{\cdot}CH_2{\cdot}CH_2{\cdot}CO$— Succinyl

145 —$CO{\cdot}C_6H_4{\cdot}CO$— Phthaloyl, Isophthaloyl, Terephthaloyl

146 —$COOH$ (—$CO{\cdot}OCH_3$, —$CO{\cdot}OC_2H_5$, etc.) Carboxy, (Carbomethoxy, Carbethoxy, etc.)

147 —$CO{\cdot}NH_2$ Carbamyl

148 >CO Carbonyl

149 —$C(:NH){\cdot}NH_2$ Guanyl

150 —CN Cyano

151 —$CO{\cdot}CH_2NH_2$ Glycyl

152 —$CO{\cdot}CH(NH_2){\cdot}CH_3$ *α*-Alanyl

153 —$CO{\cdot}CH_2{\cdot}CH_2NH_2$ *β*-Alanyl

154 —$CO{\cdot}CH(NH_2){\cdot}CH(CH_3)_2$ Valyl

155 —$CO{\cdot}CH(NH_2){\cdot}CH_2{\cdot}CH(CH_3)_2$ Leucyl

156 —$CO{\cdot}CH_2{\cdot}NH{\cdot}CO{\cdot}C_6H_5$ Hippuryl

157 —C_4H_3O Furyl

158 —C_4H_3S Thienyl

159 —$CH_2{\cdot}C_4H_3O$ Furfuryl

160 =$CH{\cdot}C_4H_3O$ Furfurylidene

161 —$CO{\cdot}C_4H_3O$ Furoyl, Pyromucyl

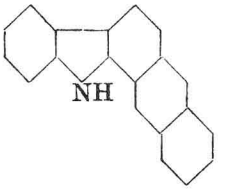
162 —C_4H_3NH Pyrryl

163 —C_5H_4N Pyridyl

DICTIONARY OF ORGANIC COMPOUNDS

N

2 : 3-Naphthacarbazole

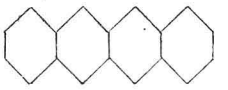


$C_{20}H_{13}N$ MW, 267

Yellow leaflets with greenish fluor. M.p. 325°. Very spar. sol. org. solvents. Conc. H_2SO_4 ⟶ deep blue col.

Braun, Bayer, *Ann.*, 1929, **472**, 97, 101.

Naphthacene (2 : 3-*Benzanthracene*)

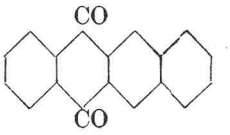


$C_{18}H_{12}$ MW, 228

Orange-red leaflets from xylene. M.p. 341° (335–6°, 331°). Sublimes ⟶ greenish-yellow vapour. Sol. conc. H_2SO_4 ⟶ dull green col. Insol. C_6H_6. Fuming HNO_3 ⟶ naphthacenequinone.

Clar, *Ber.*, 1932, **65**, 517.
Dziewoński, Ritt, *Chem. Abstracts*, 1928, **22**, 2561.
Deichler, Weizmann, *Ber.*, 1903, **36**, 552.

Naphthacenequinone (2 : 3-*Benzanthraquinone*, lin-*benzanthraquinone*, 2 : 3-*phthaloylnaphthalene*)



$C_{18}H_{10}O_2$ MW, 258

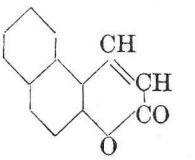
Cryst. from $PhNO_2$ in yellow needles. M.p. 294° (285°). Sublimes. Sol. conc. H_2SO_4 ⟶ red-violet col. Spar. sol. hot C_6H_6, hot Me_2CO. Very spar. sol. AcOH. Sn + AcOH ⟶ yellow needles of the anthrone, m.p. 196°, sol. conc. H_2SO_4 to bright red sol. Sn + Ac_2O + AcONa ⟶ orange needles of naphthacenehydroquinone-diacetate, m.p. 269°.

Fieser, *J. Am. Chem. Soc.*, 1931, **53**, 2336.
Waldmann, Mathiowetz, *Ber.*, 1931, **64**, 1713.

Naphthacetin.
See under 4-Amino-1-naphthol.

Naphthacetol.
See under 4-Amino-1-naphthol.

α:β-Naphthacoumarin (5:6-*Benzcoumarin*)

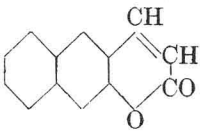


$C_{13}H_8O_2$ MW, 196

Bright yellow needles from EtOH.Aq. M.p. 118°. Sol. EtOH, Et_2O, $CHCl_3$, AcOH. Spar. sol. hot H_2O ⟶ bluish fluor.

Dey, Rao, Sankaranarayanan, *J. Indian Chem. Soc.*, 1932, **9**, 71.

β:β-Naphthacoumarin (6:7-*Benzcoumarin*)

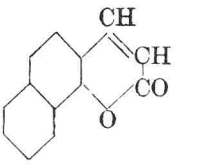


$C_{13}H_8O_2$ MW, 196

Pale yellowish cryst. from $CHCl_3$–pet. ether. M.p. 163–4°.

Boehm, Profft, *Arch. Pharm.*, 1931, **269**, 25 (*Chem. Zentr.*, 1931, I, 1922).

β:α-Naphthacoumarin (7:8-*Benzcoumarin*



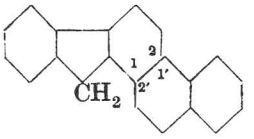
$C_{13}H_8O_2$ MW, 196

Pale yellow needles from EtOH. M.p. 141–2° (138°). Sol. Me_2CO, $CHCl_3$, C_6H_6, AcOH. Spar. sol. Et_2O. Insol. H_2O. Greenish-yellow sol. in conc. H_2SO_4 ⟶ blue fluor.

Dey, Rao, Sankaranarayanan, *J. Indian Chem. Soc.*, 1932, **9**, 71.
Bezdzik, Friedländer, *Monatsh.*, 1909, **30**, 280.
See also previous reference.

Naphthacridine.
See Chrysidine.

2′ : 1′-Naphtha-1 : 2-fluorene

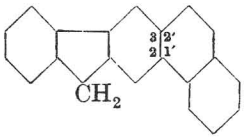


$C_{21}H_{14}$ MW, 266

Colourless leaflets from xylene. M.p. 327–8°. Forms add. comp., m.p. 249–51°, with 2 : 7-dinitroanthraquinone.

Cook *et al.*, *J. Chem. Soc.*, 1934, 1737.

1′ : 2′-Naphtha-2 : 3-fluorene

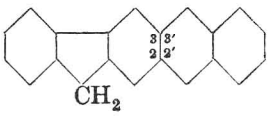


$C_{21}H_{14}$ MW, 266

Colourless leaflets from C_6H_6–EtOH. M.p. 226°.

Cook *et al.*, *J. Chem. Soc.*, 1935, 1323.

2′ : 3′-Naphtha-2 : 3-fluorene (lin-*Naphthafluorene*)

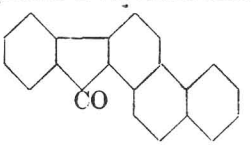


$C_{21}H_{14}$ MW, 266

Cryst. from toluene. M.p. 317°. Sol. C_6H_6 ⟶ bright blue fluor. Sol. conc. H_2SO_4 ⟶ bright green fluor.

Barnett, Goodway, Watson, *Ber.*, 1933, **66**, 1890.

2′ : 1′-Naphtha-1 : 2-fluorenone

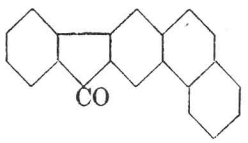


$C_{21}H_{12}O$ MW, 280

Reddish-orange needles from AcOH. M.p. 207–8°.

Cook *et al.*, *J. Chem. Soc.*, 1934, 1737.

1′ : 2′-Naphtha-2 : 3-fluorenone

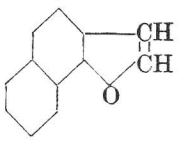


$C_{21}H_{12}O$ MW, 280

Reddish-brown needles. M.p. 215°. Sol. in conc. H_2SO_4 ⟶ magenta col.

Cook *et al.*, *J. Chem. Soc.*, 1935, 1323.

α-Naphthafuran (6 : 7-*Benzcoumarone*)



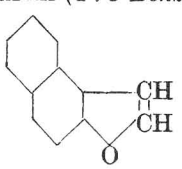
$C_{12}H_8O$ MW, 168

Pale yellow oil. M.p. − 7°. B.p. 282–4°/755 mm. D^{14} 1·1504. n_D^{16} 1·634. Sol. conc. H_2SO_4 ⟶ yellowish-green col., on warming ⟶ blue ⟶ violet fluor

Picrate : reddish-yellow needles. M.p. 113°.

Stoermer, *Ann.*, 1900, **312**, 310.
Boes, *Chem. Zentr.*, 1902, I, 1356.

β-Naphthafuran (4 : 5-*Benzcoumarone*)



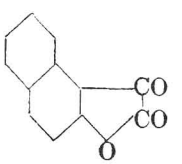
$C_{12}H_8O$ MW, 168

Needles. M.p. 60–1° (65°). B.p. 284–6° (280°). Sol. conc. H_2SO_4 ⟶ yellowish-green col., on warming ⟶ pale violet ⟶ dirty bluish-green ⟶ brownish-violet fluor.

Picrate : red needles. M.p. 141°.

See previous references.

β-Naphthafurandione (4 : 5-*Benzcoumarandione*)



$C_{12}H_6O_3$ MW, 198

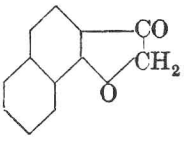
Orange-yellow needles from AcOH or C_6H_6.

M.p. 182° decomp. Sol. EtOH. Spar. sol. H_2O, pet. ether. The blood-red sol. in conc. H_2SO_4 turns colourless on warming.

2-*Anil* : m.p. 126–7°.
2 : 3-*Phenazine* : m.p. 286–7°.
3-*Phenylhydrazone* : m.p. 226–7°.
3-*Semicarbazone* : m.p. 240–1°.
Picrate : m.p. 109°.

Giua, Franciscis, *Gazz. chim. ital.*, 1924, **54**, 509.
Passerini, *ibid.*, 184.
Staudinger, Swiss Ps., 92,688, 93,486, (*Chem. Abstracts*, 1924, **18**, 989).

α-Naphthafuranone-3 (6 : 7-*Benzcoumaranone*-3)



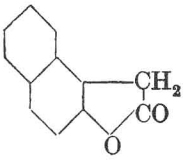
$C_{12}H_8O_2$ MW, 184

Pale yellow needles. M.p. 119°. Yellow sol. in conc. H_2SO_4 ⟶ green fluor. Fehling's ⟶ deep purple col.

2-*Benzylidene deriv.* : m.p. 130°.

Ingham, Stephen, Timpe, *J. Chem. Soc.*, 1931, 895.

β-Naphthafuranone-2 (2-*Hydroxy*-1-*naphthylacetic lactone*, 4 : 5-*benzisocoumaranone*)

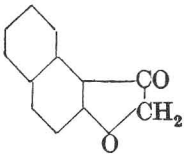


$C_{12}H_8O_2$ MW, 184

Leaflets. M.p. 107° (104°). Very spar. sol. H_2O. Sol. conc. H_2SO_4 ⟶ green fluor.

I.G., D.R.P., 562,391; E.P., 330,916, (*Chem. Abstracts*, 1933, **27**, 735; 1930, **24**, 6031).
Mayer, Schäfer, Rosenbach, *Chem. Zentr.*, 1929, II, 3009.

β-Naphthafuranone-3 (4 : 5-*Benzcoumaranone*)



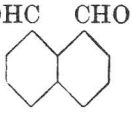
$C_{12}H_8O_2$ MW, 184

Colourless needles from pet. ether, EtOH, or AcOH. M.p. 133°. Sol. Et_2O, C_6H_6. Sol. conc. H_2SO_4 with pale yellow col. Sol. alc. NaOH with bluish-red col. HNO_3 ⟶ 2-nitro-deriv., m.p. 190° decomp.

2-p-*Nitrobenzylidene deriv.* : m.p. 270°.

Dziewoński, Duzyk, *Chem. Abstracts*, 1934, **28**, 4415.
Fries, Frellstedt, *Ber.*, 1921, **54**, 715.

Naphthalaldehyde (*Naphthalene* 1 : 8-*dialdehyde*, 1 : 8-*dialdehydonaphthalene*)

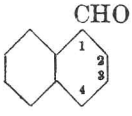


$C_{12}H_8O_2$ MW, 184

Hydrate : $C_{12}H_8O_2,H_2O$. Colourless needles from C_6H_6. M.p. 130°. Reduces $NH_3.AgNO_3$.
Di-p-*nitrophenylhydrazone* : reddish needles. M.p. 229°.

Criegee, Kraft, Rank, *Ann.*, 1933, **507**, 194.

1-Naphthaldehyde (*Naphthalene α-aldehyde*)



$C_{11}H_8O$ MW, 156

M.p. 33–4°. B.p. 292°, 156°/19 mm., 150°/9 mm. Forms bisulphite comp. Ox. in air ⟶ 1-naphthoic acid.

Anil : m.p. 71°.
Azine : m.p. 152°.
Oxime : m.p. 98° (39°).
Phenylhydrazone : m.p. 80°.
p-*Nitrophenylhydrazone* : m.p. 234°.
Semicarbazone : m.p. 221°.
Picrate : m.p. 94°.

Shoppee, *J. Chem. Soc.*, 1933, 42.
Wuyts *et al.*, *Bull. soc. chim. Belg.*, 1932, **41**, 196; 1931, **40**, 665.
I.G., E.P., 250,955, (*Chem. Abstracts*, 1927, **21**, 1272).
Stephen, *J. Chem. Soc.*, 1925, **127**, 1877.
Weil, Ostermeier, *Ber.*, 1921, **54**, 3217.
Gattermann, *Ann.*, 1912, **393**, 227.

2-Naphthaldehyde (*Naphthalene β-aldehyde*).

Leaflets from boiling H_2O. M.p. 61° (59°). Sol. EtOH, Et_2O. Volatile in steam. Gives bisulphite comp. $KMnO_4$ ⟶ 2-naphthoic acid.

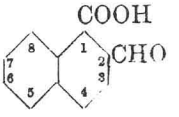
Anil : m.p. 113°.
Azine : m.p. 232°.
Phenylhydrazone : m.p. 217–18° (205–6°).

p-*Nitrophenylhydrazone* : m.p. 230°.
Semicarbazone : m.p. 245°.

See first two and last two references above.

Naphthaldehyde-carboxylic Acid.
See Naphthaldehydic Acid.

1 : 2-Naphthaldehydic Acid (2-*Formyl*-1-*naphthoic acid*, *naphthalene*-2-*aldehyde*-1-*carboxylic acid*, 2-*aldehydo*-1-*naphthoic acid*, 2-*naphthaldehyde*-1-*carboxylic acid*)



$C_{12}H_8O_3$ MW, 200

M.p. 176°.
Oxime : m.p. 215°.

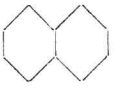
Mayer, Schäfer, Rosenbach, *Chem. Abstracts*, 1930, **24**, 839.

1 : 8-Naphthaldehydic Acid (8-*Formyl*-1-*naphthoic acid*, *naphthalene*-8-*aldehyde*-1-*carboxylic acid*, 8-*aldehydo*-1-*naphthoic acid*, 1-*naphthaldehyde*-8-*carboxylic acid*).

Leaflets from EtOH.Aq. M.p. 167–8° decomp. (rapid heat.).
Me ester : $C_{13}H_{10}O_3$. MW, 214. Rhombic cryst. M.p. 105°. Mod. sol. hot H_2O. Sol. EtOH, Et_2O, C_6H_6.
Acetyl deriv. of lactone form : $C_{14}H_{10}O_4$. MW, 242. M.p. 140°.

Graebe, Gfeller, *Ann.*, 1893, **276**, 13.
Zink, *Monatsh.*, 1901, **22**, 988.
Winterstein, Maxim, *Helv. Chim. Acta*, 1919, **2**, 202.

Naphthalene



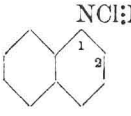
$C_{10}H_8$ MW, 128

Colourless plates from EtOH. M.p. 80·3°. B.p. 218°. Sublimes at 50°/760 mm., 22°/7 mm. Volatile in steam. D^{19} 1·1517, D_4^{100} 0·9625. n_D^{99} 1·58232. Heat of comb. C_p and C_v 1242 Cal. (9605 cal./gm.). Very sol. Et_2O, C_6H_6, toluene, xylene, chlorobenzene, tetralin, hot EtOH, $CHCl_3$. Mod. sol. MeOH, cold EtOH. Spar. sol. cold pet. ether. Insol. H_2O. Forms add. comps. with 1 : 3-dinitrobenzene, m.p. 52°; 2 : 4-dinitrophenol, m.p. 95°; 2 : 4-dinitrotoluene, m.p. 61°; 2 : 4 : 6-trinitrotoluene, m.p. 97°. Passed through red-hot tube ⟶ 2:2′-dinaphthyl. H_2SO_4 + $HgSO_4$, or air + (vanadium comps.) ⟶ phthalic acid. $KMnO_4$.Aq. ⟶ phthalonic acid. HNO_3 or CrO_3.Aq. ⟶ phthalic acid. CrO_3 + AcOH ⟶ 1 : 4-naphthoquinone + phthalic acid.
Picrate : m.p. 149·5°.
Styphnate : m.p. 168–9°.

Ward, *J. Phys. Chem.*, 1934, **38**, 761.
Hill, U.S.P., 1,819,680, (*Chem. Abstracts*, 1931, **25**, 5759).
Schroeter, U.S.P., 1,763,410, (*Chem. Abstracts*, 1930, **24**, 3803).
Salont, *Dyer and Calico Printer*, 1928, **60**, 208 (*Review*).
Weissenberger, *Z. angew. Chem.*, 1927, **40**, 776.
Veselý, Jakes, *Bull. soc. chim.*, 1923, **33**, 955.
Davy, *Chem. Abstracts*, 1920, **14**, 618.
Bamberger, *Ber.*, 1913, **46**, 1899 (*Bibl.*).

Naphthalene 1 : 8-Dialdehyde.
See Naphthalaldehyde.

Naphthalene-1-diazonium chloride (α-*Diazonaphthalene chloride*)



$C_{10}H_7N_2Cl$ MW, 190·5

Pale yellow needles. M.p. 96° decomp. Sol. H_2O, AcOH, MeOH. Spar. sol. EtOH, Me_2CO. Insol. Et_2O, C_6H_6, CS_2, ligroin. Forms stable comp. with $ZnCl_2$.

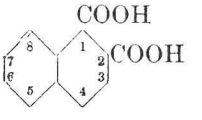
Baudisch, Fürst, *Ber.*, 1912, **45**, 3428.
Badische E.P., 238,676, (*Chem. Abstracts*, 1926, **20**, 1996).

Naphthalene-2-diazonium chloride (β-*Diazonaphthalene chloride*).

Yellow needles. Explodes on heating. Sol. H_2O. Insol. Et_2O, C_6H_6, CS_2. Forms stable comp. with $ZnCl_2$.

Knoevenagel, *Ber.*, 1895, **28**, 2052, 2057.
See also second reference above.

Naphthalene-1 : 2-dicarboxylic Acid



$C_{12}H_8O_4$ MW, 216

Cryst. from H_2O. M.p. 175° ⟶ anhydride. Sol. EtOH, Et_2O, AcOH. Spar. sol. C_6H_6, ligroin, $CHCl_3$, CS_2.
Di-Me ester : $C_{14}H_{12}O_4$. MW, 244. Cryst. from MeOH. M.p. 80°. Spar. sol. pet. ether.

Diamide : $C_{12}H_{10}O_2N_2$. MW, 214. Plates. M.p. 265° ⟶ imide.

Dinitrile: 1 : 2-dicyanonaphthalene. $C_{12}H_6N_2$. MW, 178. Needles from C_6H_6. M.p. 190°. Sublimes. Spar. sol. EtOH.

Anhydride : $C_{12}H_6O_3$. MW, 198. Needles from EtOH. M.p. 168–9°. Sublimes. Sol. Et_2O.

Imide : $C_{12}H_7O_2N$. MW, 197. M.p. 224°.

Waldmann, Weiss, *J. prakt. Chem.*, 1930, **127**, 195.

Noto, *Gazz. chim. ital.*, 1915, **45**, ii, 126, 427.

Freund, Fleischer, *Ann.*, 1913, **399**, 212.

Naphthalene-1 : 4-dicarboxylic Acid.

Rodlets from AcOH. M.p. 309° (288°). Sol. EtOH ⟶ blue fluor. Insol. boiling H_2O.

Di-Me ester : cryst. from AcOH. M.p. 64°. B.p. 195–7°/12 mm.

Dichloride : $C_{12}H_6O_2Cl_2$. MW, 253. Needles from pet. ether. M.p. 80°.

Dinitrile : 1 : 4-dicyanonaphthalene. Needles from AcOH. M.p. 206°. Spar. sol. EtOH, Et_2O.

I.G., D.R.P., 558,471, (*Chem. Abstracts*, 1933, **27**, 310).

Mayer *et al.*, *Ber.*, 1922, **55**, 1841.

Scholl, Neumann, *ibid.*, 120.

Naphthalene-1 : 5-dicarboxylic Acid.

Colourless needles from $PhNO_2$. M.p. 315–20° decomp. Insol. ord. solvents.

Di-Me ester : leaflets from MeOH. M.p. 114–15°.

Di-Et ester : $C_{16}H_{16}O_4$. MW, 272. Needles. M.p. 123–4°.

Diphenyl ester : $C_{24}H_{16}O_4$. MW, 368. Cryst. from C_6H_6. M.p. 198–9°.

Dichloride : needles from $CHCl_3$. M.p. 155–5°.

Dinitrile : 1 : 5-dicyanonaphthalene. Needles from EtOH. M.p. 260° (267°). Sublimes.

Salkind, *Ber.*, 1934, **67**, 1031.

See also third reference above.

Naphthalene-1 : 6-dicarboxylic Acid.

Needles from AcOH. M.p. 310°. Sol. hot EtOH, hot AcOH.

Di-Me ester : needles from EtOH. M.p. 99°.

Dinitrile : 1 : 6-dicyanonaphthalene. Needles from EtOH. M.p. 208–10°.

Weissgerber, Kruber, *Ber.*, 1919, **52**, 354.

Naphthalene-1 : 7-dicarboxylic Acid.

Micro-cryst. powder from EtOH.Aq. M.p. 294–6° decomp. Sol. ord. org. solvents.

Di-Me ester : cryst. from EtOH. M.p. 86–7°.

Ruzicka, Melsen, *Helv. Chim. Acta*, 1931, **14**, 397.

Naphthalene-1 : 8-dicarboxylic Acid.

See Naphthalic Acid.

Naphthalene-2 : 3-dicarboxylic Acid.

Prisms from AcOH. M.p. 239–41° (246° after sublimation). Sol. hot EtOH. Spar. sol. Et_2O, hot AcOH. Very spar. sol. ligroin, $CHCl_3$, C_6H_6, CS_2, cold H_2O. Heat + aniline ⟶ phenylimide. $SOCl_2$ or PCl_5 ⟶ anhydride. The NH_4 salt at 270° ⟶ imide.

Anhydride : rectangular plates from AcOH. M.p. 246°.

Mono-nitrile : 3-cyano-2-naphthoic acid. $C_{12}H_7O_2N$. MW, 197. Yellow cryst. M.p. 273–4°.

Imide : micro-needles from $CHCl_3$–EtOH. M.p. 275° (softens at 250°).

Phenylimide : $C_{18}H_{11}O_2N$. MW, 273. Rectangular silvery plates from $CHCl_3$–EtOH. M.p. 277–8°.

Waldmann, Mathiowetz, *Ber.*, 1931, **64**, 1713.

I.G., F.P., 682,474, (*Chem. Abstracts*, 1930, **24**, 4306).

Freund, Fleischer, *Ann.*, 1913, **402**, 68.

Naphthalene-2 : 6-dicarboxylic Acid.

Needles from EtOH.Aq. M.p. above 300° decomp. Insol. boiling C_6H_6, toluene, AcOH.

Di-Me ester : cryst. from MeOH. M.p. 191°. Sol. Et_2O, $CHCl_3$, toluene, hot ligroin. Spar. sol. pet. ether.

Mono-nitrile : 6-cyano-2-naphthoic acid. M.p. above 300° decomp. Very spar. sol. org. solvents.

Dinitrile : 2 : 6-dicyanonaphthalene. Needles from AcOH. M.p. 296–7°. Insol. boiling EtOH, Et_2O, C_6H_6.

Dianilide : leaflets from aniline. Does not melt below 320°.

Kaufler, Thien, *Ber.*, 1907, **40**, 3257.

Naphthalene-2 : 7-dicarboxylic Acid.

Needles from EtOH. M.p. above 300° decomp. Very spar. sol. boiling C_6H_6, toluene, AcOH.

Di-Me ester : cryst. from MeOH. M.p. 135–6° (141°). Sol. hot ligroin. Spar. sol. pet. ether.

Di-Et ester : m.p. 238°.

Diphenyl ester : $C_{24}H_{16}O_4$. MW, 368. M.p. 162°.

Mono-nitrile : 7-cyano-2-naphthoic acid. M.p. above 300° decomp.

Dinitrile : 2 : 7-dicyanonaphthalene. Needles from AcOH. M.p. 267–8°. Sol. hot EtOH.

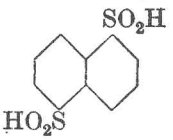
Dianilide : scales from aniline. M.p. 297–8°.

Purgotti, *Chem. Abstracts*, 1926, **20**, 1618.

See also previous reference.

Naphthalene-dihydride.
See Dihydronaphthalene.

Naphthalene-1 : 5-disulphinic Acid



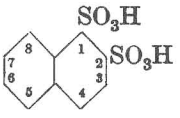
$C_{10}H_8O_4S_2$ MW, 256

Glittering leaflets from HCl.Aq. M.p. 166–7° (174–5° decomp.). Sol. hot H_2O, hot EtOH. Spar. sol. Et_2O, cold EtOH, cold H_2O. Reduces cold alk. $KMnO_4$. Reacts with *p*-benzoquinone (2 mols.) ⟶ comp., m.p. 294°.

Di-NH_4 salt : prisms from EtOH. M.p. 194°.

Curtius, Tüxen, *J. prakt. Chem.*, 1930, **125**, 406.
Corbellini, Albenga, *Gazz. chim. ital.*, 1931, **61**, 111.

Naphthalene-1 : 2-disulphonic Acid



$C_{10}H_8O_6S_2$ MW, 288

Anhydride : $C_{10}H_6O_5S_2$. MW, 270. M.p. 198–9°.

Gattermann, *Ber.*, 1899, **32**, 1156.

Naphthalene-1 : 3-disulphonic Acid.
Dichloride : $C_{10}H_6O_4Cl_2S_2$. MW, 325. Prisms from C_6H_6. M.p. 138°.

Dressel, Kothe, *Ber.*, 1894, **27**, 1197.
Armstrong, Wynne, *Chem. News*, 1890, **62**, 163.

Naphthalene-1 : 4-disulphonic Acid.
Dichloride : plates. M.p. 160°. Sol. C_6H_6.
Diamide : $C_{10}H_{10}O_4N_2S_2$. MW, 286. Needles from EtOH.Aq. M.p. 273°.
Dianilide : pearly leaflets. M.p. 179°.

Gattermann, *Ber.*, 1899, **32**, 1156.

Naphthalene-1 : 5-disulphonic Acid ("*γ*-" *Naphthalenedisulphonic acid*).
Plates + $4H_2O$ from HCl.Aq. M.p. anhyd. 240–5°. Sol. 0·98 part H_2O at 20°. Aq. sol. tastes bitter-astringent. Forms series of arylamine salts of definite m.ps.
Di-Me ester : $C_{12}H_{12}O_6S_2$. MW, 316. Cryst. from $CHCl_3$. M.p. 205°.
Mono-Et ester : $C_{12}H_{12}O_6S_2$. MW, 316. Cryst. from EtOH. M.p. 147°.
Difluoride : $C_{10}H_6O_4F_2S_2$. MW, 292. M.p. 203°.
Dichloride : prisms from C_6H_6. M.p. 183°.
Diamide : does not melt below 340°.
Dianilide : m.p. 248–9°.
Diazide : $C_{10}H_6O_4N_6S_2$. MW, 338. Cryst. from AcOH or $CHCl_3$. M.p. 177°.
Dihydrazide : $C_{10}H_{12}O_4N_4S_2$. MW, 316. Microneedles from H_2O. Does not melt (blackens at 240°).
Benzyl-ψ-thiourea salt : m.p. 251° decomp.

Corbellini, Albenga, *Gazz. chim. ital.*, 1931, **61**, 111.
Curtius, Tüxen, *J. prakt. Chem.*, 1930, **125**, 401.
Steinkopf *et al.*, *ibid.*, 1927, **117**, 1.
Lynch, Scanlan, *Ind. Eng. Chem.*, 1927, **19**, 1010.
Fierz-David, Hasler, *Helv. Chim. Acta*, 1923, **6**, 1133.
Forster, Hishiyama, *J. Soc. Chem. Ind.*, 1932, **51**, 297T.
Hann, Keenan, *J. Phys. Chem.*, 1927, **31**, 1086.

Naphthalene-1 : 6-disulphonic Acid ("*δ*-" *Naphthalenedisulphonic acid*).
Prisms + $4H_2O$ from H_2O. M.p. anhyd. 125° decomp. Sol. 0·61 part H_2O at 18–20°. Forms α-naphthylamine salt, m.p. 265–7° decomp.
Dichloride : leaflets from C_6H_6. M.p. 129°. Very sol. C_6H_6.
Diamide : m.p. 297–8°.
Benzyl-ψ-thiourea salt : decomp. at 81°.

Ufimzew, Kriwoschlükowa, *J. prakt. Chem.*, 1934, **140**, 172.
Ambler, *Ind. Eng. Chem.*, 1927, **19**, 417; 1920, **12**, 1080.
See also last three references above.

Naphthalene-1 : 7-disulphonic Acid.
Dichloride : prisms from C_6H_6. M.p. 123°. Sol. 7% in C_6H_6.

See first reference above.

Naphthalene-1 : 8-disulphonic Acid.
Anhydride : plates. M.p. 227°. Sol. hot AcOH, hot xylene. Spar. sol. C_6H_6.

Armstrong, Wynne, *Chem. News*, 1893, **67**, 299.

Naphthalene-2 : 6-disulphonic Acid ("*β*-" *Naphthalenedisulphonic acid*).
Leaflets. Deliquesces very slowly in air. Forms series of arylamine salts of definite m.ps.
Dichloride : flat needles. M.p. 225°. Spar. sol. C_6H_6. Insol. Et_2O.

Benzyl-ψ-thiourea salt : m.p. 256°.

Hann, Keenan, *J. Phys. Chem.*, 1927, **31**, 1086.
Heid, *J. Am. Chem. Soc.*, 1927, **49**, 844.
Forster, Keyworth, *J. Soc. Chem. Ind.*, 1924 **43**, 165T.
Fierz-David, Hasler, *Helv. Chim. Acta*, 1923, **6**, 1133.
Armstrong, Wynne, *Chem. News*, 1890, **62**, 163.

Naphthalene-2 : 7-disulphonic Acid (" α "-*Naphthalenedisulphonic acid*).

Very hygroscopic needles. Spar. sol. cold conc. HCl. Forms series of arylamine salts of definite m.ps.

Dichloride : four-sided plates from C_6H_6. M.p. 159°. Mod. sol. Et_2O.

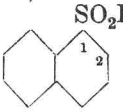
Dibromide : $C_{10}H_6O_4Br_2S_2$. MW, 414. Prisms from C_6H_6. M.p. 137°.

Diamide : needles. M.p. 242–3°.

Benzyl-ψ-thiourea salt : m.p. 211–12° decomp.

Ufimzew, Kriwoschlükowa, *J. prakt. Chem.*, 1934, **140**, 172.
Ambler, *Ind. Eng. Chem.*, 1920, **12**, 1194.
See also first four references above.

Naphthalene-1-sulphinic Acid (α-*Naphthalenesulphinic acid*)



$C_{10}H_8O_2S$ MW, 192

Needles from H_2O. M.p. 98–9° (84–5°). Sol. H_2O. Mod. sol. EtOH. Spar. sol. HCl.Aq., Et_2O. Dil. HCl at 180° ⟶ naphthalene + SO_2.

Höchst, D.R.P., 224,019, (*Chem. Zentr.*, 1910, II, 513).
Knoevenagel, Kenner, *Ber.*, 1908, **41**, 3319.
Rosenheim, Singer, *Ber.*, 1904, **37**, 2154.
Otto, Rössing, Troeger, *J. prakt. Chem.*, 1893, **47**, 95.
Thomas, *J. Chem. Soc.*, 1909, **95**, 342.

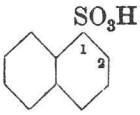
Naphthalene-2-sulphinic Acid (β-*Naphthalenesulphinic acid*).

Needles from H_2O. M.p. 105°. Sol. H_2O, EtOH, Et_2O. Sol. in conc. H_2SO_4 gradually turns green. Dil. HCl at 150° ⟶ naphthalene + SO_2.

Me ester : $C_{11}H_{10}O_2S$. MW, 206. Leaflets from pet. ether. M.p. 44°. Sol. ord. org. solvents. Decomp. on standing. Hyd. by H_2O.

See last two references above.

Naphthalene-1-sulphonic Acid (*Naphthalene-α-sulphonic acid*)



$C_{10}H_8O_3S$ MW, 208

Prisms + $2H_2O$ from HCl.Aq. M.p. 90°. Sol. H_2O, EtOH. Spar. sol. Et_2O. $k = 0{\cdot}18 \times 10^{-3}$ at 25°. Forms series of arylamine salts of definite m.ps. Acid $KMnO_4$ ⟶ phthalic acid.

Me ester : $C_{11}H_{10}O_3S$. MW, 222. M.p. 78° (72–3°). B.p. 214°/15 mm.

Et ester : $C_{12}H_{12}O_3S$. MW, 236. Liq. Decomp. on dist.

Phenyl ester : $C_{16}H_{12}O_3S$. MW, 284. M.p. 75°.

Fluoride : $C_{10}H_7O_2FS$. MW, 210. M.p. 56°.

Chloride : $C_{10}H_7O_2ClS$. MW, 226·5. Leaflets from Et_2O. M.p. 68°. B.p. 194–5°/13 mm., 147·5°/0·9 mm.

Bromide : $C_{10}H_7O_2BrS$. MW, 271. M.p. 88–9°.

Amide : $C_{10}H_9O_2NS$. MW, 207. M.p. 150°.

Anilide : m.p. 152°.

Azide : cryst. from EtOH. M.p. 53°, decomp. at 133°.

Hydrazide : needles from EtOH.Aq. M.p. 123° decomp. *HCl salt* : m.p. 142°.

Piperidide : m.p. 133–4°.

Benzyl-ψ-thiourea salt : m.p. 138°.

2-*Naphthylamine salt* : m.p. 276–9° decomp.

Geigy F.P., 765,771, (*Chem. Abstracts*, 1934, **28**, 6726).
Cumming, Muir, *Chem. Abstracts*, 1934, **28**, 4409.
Masters, U.S.P., 1,922,813, (*Chem. Abstracts*, 1933, **27**, 5085).
Radcliffe, Short, *J. Chem. Soc.* 1931, 220.
Curtius, Bottler, Hasse, *J. prakt. Chem.*, 1930, **125**, 366.
Fierz-David, Weissenbach, *Helv. Chim. Acta*, 1920, **3**, 310, 315.
Rodionow, *Bull. soc. chim.*, 1929, **45**, 117.
Hann, Keenan, *J. Phys. Chem.*, 1927, **31**, 1084.
Forster, Keyworth, *J. Soc. Chem. Ind.*, 1924, **43**, 299T.

Naphthalene-2-sulphonic Acid (*Naphthalene-β-sulphonic acid*).

Very hygroscopic cryst. M.p. 91°. On standing in air, or cryst. from HCl.Aq. ⟶ trihydrate, m.p. 83°. Kept over $CaCl_2$ or conc. H_2SO_4 ⟶ monohydrate, m.p. 124°. $k = 0{\cdot}25 \times 10^{-3}$ at 25°. Very sol. ord. org. solvents. Forms series of arylamine salts of definite m.ps.

Naphthalene-1 : 4 : 5 : 8-tetracarboxylic Acid

With 1 mol. glycine ⟶ cryst. comp., m.p. 193°. Neutral or acid $KMnO_4$ ⟶ phthalic acid.

Me ester: m.p. 56°. B.p. 224–5°/15 mm.

Et ester: m.p. 11–12°. B.p. 134°/vac. of cathode light.

Phenyl ester: m.p. 98–9°.

Fluoride: m.p. 87–8°.

Chloride: m.p. 79° (66°). B.p. 201°/13 mm., 148°/0·6 mm.

Bromide: m.p. 96–7°.

Amide: m.p. 217° (212°).

Azide: needles from ligroin. M.p. 44–6° slight decomp.

Hydrazide: m.p. 137–9°. *HCl salt*: m.p. 148–50°.

Disulphonimide: $(C_{10}H_7SO_2)_2NH$. Cryst. from C_6H_6. M.p. 180–1°. Sol. H_2O.

Benzyl-ψ-thiourea salt: m.p. 193°.

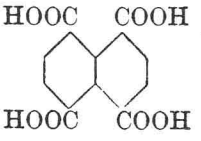
2-Naphthylamine salt: m.p. 211° (brown at 202°).

I.G., D.R.P., 574,836; E.P., 384,722, (*Chem. Abstracts*, 1933, **27**, 4543, 4251).

Dennis, U.S.P., 1,332,203, (*Chem. Abstracts*, 1920, **14**, 1123).

See also last three references above.

Naphthalene-1 : 4 : 5 : 8-tetracarboxylic Acid



$C_{14}H_8O_8$ MW, 304

Leaflets or needles from HCl.Aq. No characteristic m.p. Rapid heat at 200–50° ⟶ decomp., slow heat at 140–50° or cryst. from AcOH ⟶ anhydride. Sol. Me_2CO.Aq. Mod. sol. H_2O, hot AcOH. Very spar. sol. C_6H_6, $CHCl_3$, CS_2, EtOH.

Di-anhydride: $C_{14}H_4O_6$. MW, 268. Needles from AcOH. Sublimes above 300°. Heat + NH_3 ⟶ di-imide.

Di-imide: $C_{14}H_6O_4N_2$. MW, 266. Yellowish needles from H_2O. Sublimes above 270°. Very spar. sol. ord. org. solvents.

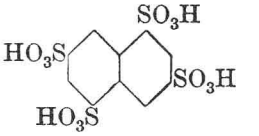
Greune, Eckert, U.S.P., 1,970,651, (*Chem. Abstracts*, 1934, **28**, 6159).

I.G., D.R.P., 601,104; F.P., 756,156, (*Chem. Abstracts*, 1934, **28**, 7267, 2018). F.P., 721,339, (*Chem. Abstracts*, 1932, **26**, 4184). E.P., 364,116, (*Chem. Abstracts*, 1933, **27**, 2457). E.P., 363,044, (*Chem. Abstracts*, 1933, **27**, 1642).

Freund, Fleischer, *Ann.*, 1913, **402**, 74.

Bamberger, Philip, *Ann.*, 1887, **240**, 182.

Naphthalene- : 3 : 5 : 7-tetrasulphonic Acid



$C_{10}H_8O_{12}S_4$ MW, 448

Ba salt: $C_{10}H_4(SO_3)_4Ba_2$. Dimorphous. Blunt prisms + $14H_2O$ at 15° (efflorescent). Cryst. + $8H_2O$ at 35° (stable in air).

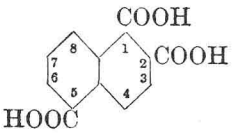
Tetrachloride: $C_{10}H_4O_8Cl_4S_4$. MW, 522. Tetrahedral cryst. M.p. 261–2°. Spar. sol. C_6H_6, Me_2CO.

Schmid, *Chem. Abstracts*, 1922, **16**, 2141.

Fierz-David, *J. Soc. Chem. Ind.*, 1923, **42**, 421T.

Cf. Ufimzew, Kriwoschlükowa, *J. prakt. Chem.*, 1934, **140**, 172.

Naphthalene-1 : 2 : 5-tricarboxylic Acid



$C_{13}H_8O_6$ MW, 260

Colourless feathery needles. M.p. (vac. sublimed) 270–2°. Sol. MeOH.

Tri-Me ester: $C_{16}H_{14}O_6$. MW, 302. Cryst. M.p. 91–2°.

Heilbron, Wilkinson, *J. Chem. Soc.*, 1930, 2546.

Ruzicka, Hosking, *Helv. Chim. Acta*, 1930, **13**, 1405, 1411.

Naphthalene-1 : 4 : 5-tricarboxylic Acid. Cryst. from conc. HCl. Does not melt, but at 100–20° forms the anhydride.

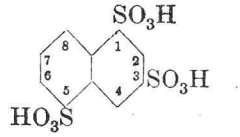
Anhydride: $C_{13}H_6O_5$. MW, 242. Cryst. from EtOH.Aq. M.p. 274° (243°).

Anhydride Me ester: $C_{14}H_8O_5$. MW, 256. Needles from AcOH. M.p. 222°.

Fieser Peters, *J. Am. Chem. Soc.*, 1932, **54**, 4352.

Graebe, Haas, *Ann.*, 1903, **327**, 95.

Naphthalene-1 : 3 : 5-trisulphonic Acid



$C_{10}H_8O_9S_3$ MW, 368

Amorph. mass. Readily takes up H_2O ⟶

oily liq. which carbonises cellulose and decomposes NaCl.

Trichloride: $C_{10}H_5O_6Cl_3S_3$. MW, 423·5. Cryst. from C_6H_6–ligroin. M.p. 146°.

Erdmann, *Ber.*, 1899, **32**, 3188.
Gattermann, *ibid.*, 1158.

Naphthalene-1 : 3 : 6-trisulphonic-Acid.

Pb salt : very sol. H_2O.

Trichloride : prisms from C_6H_6–pet. ether. M.p. 194°.

Armstrong, Wynne, *Chem. News*, 1888, **57**, 9; 1890, **62**, 162.
Cf. Ufimzew, Kriwoschlükowa, *J. prakt. Chem.*, 1934, **140**, 172.
See also first reference above.

Naphthalene-1 : 4 : 5-trisulphonic Acid.

Na salt : cryst. Effloresces in air. Very sol. H_2O.

Trichloride : needles. M.p. 156–7°.

Gattermann, *Ber.*, 1899, **32**, 1139, 1158.

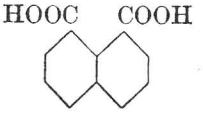
Naphthalene-2 : 3 : 6-trisulphonic Acid.

Na salt : spar. sol. H_2O.

Trichloride : plates from C_6H_6. M.p. 200°.

Armstrong, Wynne, *Chem. News*, 1893, **67**, 299.

Naphthalic Acid (*Naphthalene*-1 : 8-*dicarboxylic acid*)



$C_{12}H_8O_4$ MW, 216

Needles from EtOH. Sol. warm EtOH. Spar. sol. Et_2O. Insol. H_2O.

Di-Me ester : $C_{14}H_{12}O_4$. MW, 244. Prisms from MeOH.Aq. M.p. 102–3°.

Di-Et ester : $C_{16}H_{16}O_4$. MW, 272. Leaflets from EtOH.Aq. M.p. 59–60°. B.p. 238–9°/19 mm. Sol. in conc. H_2SO_4 ⟶ blue fluor.

Dibutyl ester : $C_{20}H_{24}O_4$. MW, 328. Cryst. from MeOH.Aq. M.p. 52–3°.

Dichloride : naphthalyl chloride. $C_{12}H_6O_2Cl_2$. MW, 253. Prisms from CS_2. M.p. 84–6°. B.p. 195–200°/0·2 mm.

Mono-nitrile : 8-cyano-1-naphthoic acid. $C_{12}H_7O_2N$. MW, 197. M.p. 210–50° decomp.

Anhydride : $C_{12}H_6O_3$. MW, 198. Needles from EtOH. M.p. 274°.

Imide : $C_{12}H_7O_2N$. MW, 197. M.p. 300° (290–1°).

N-*Me imide* : $C_{13}H_9O_2N$. MW, 211. M.p. 205°.

N-*Et imide* : $C_{14}H_{11}O_2N$. MW, 225. M.p. 148°.

N-*Phenyl imide* : $C_{18}H_{11}O_2N$. MW, 273. M.p. 202°.

Dianilide : m.p. 250–82° decomp.

Di-Me anilide : m.p. 245–6°.

Duckert, *Chem. Abstracts*, 1934, **28**, 1255 (*Bibl.*).
Jaeger, Canadian P., 321,683, (*Chem. Abstracts*, 1932, **26**, 3263).
Davies, Leeper, *J. Chem. Soc.*, 1927, 1124.
Mason, *J. Chem. Soc.*, 1924, **125**, 2116.
Wislicenus, Penndorf, *Ber.*, 1912, **45**, 410.
Graebe, Gfeller. *Ber.*, 1892, **25**, 653; *Ann.*, 1893, **276**, 6.

Naphthamide.

See under Naphthoic Acid.

Naphthane.

See Decahydronaphthalene.

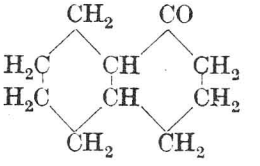
β-Naphthanene.

See 1 : 2 : 3 : 4 : 5 : 8 : 9 : 10-Octahydronaphthalene.

Naphthanol.

See Decahydronaphthol.

α-Naphthanone (1-*Ketodecahydronaphthalene*)



$C_{10}H_{16}O$ MW, 152

Prismatic plates with pronounced menthol-like odour. M.p. 32°. Sol. ord. org. solvents. Spar. sol. H_2O. Gives unstable comp. with $NaHSO_3$.

Oxime : cryst. from EtOH. M.p. 165°. Sublimes in needles at 100°.

Semicarbazone : needles. M.p. about 230°.

Leroux, *Ann. chim. phys.*, 1910, **21**, 522.

β-Naphthanone (2-*Ketodecahydronaphthalene*).

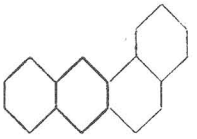
Colourless liq. with strong unpleasant odour. B.p. 240°, 110°/15 mm. D^{16} 0·979. n_D^{16} 1·4834. Sol. EtOH, Et_2O, AcOH. Spar. sol. H_2O. Reduces Fehling's and $NH_3.AgNO_3$.

Oxime : prisms from pet. ether. M.p. 76°. Sol. EtOH, Et_2O. Spar. sol. pet. ether.

Semicarbazone: needles from EtOH. M.p. 195°.

See previous reference.

Naphthanthracene (1 : 2-*Benzanthracene*)



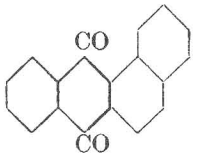
$C_{18}H_{12}$ MW, 228

Leaflets from EtOH–AcOH. M.p. 158–9° (141°). Sublimes. Sols. fluor. intense yellowish-green. $Na_2Cr_2O_7$ + AcOH ⟶ naphthanthraquinone.

Picrate : red needles. M.p. 133°.

Barnett, Matthews, *Chem. News*, 1925, **130**, 339.
Gabriel, Colman, *Ber.*, 1900, **33**, 447.
Graebe, *Ann.*, 1905, **340**, 258.

Naphthanthraquinone (ang-*Benzanthraquinone*, 1 : 2-*benzanthraquinone*, 1 : 2-*phthaloylnaphthalene*)

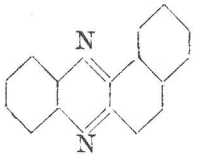


$C_{18}H_{10}O_2$ MW, 258

Yellow cryst. from hot xylene or $PhNO_2$. M.p. 168°. Sol. C_6H_6, $CHCl_3$, toluene. Spar. sol. most other solvents. Conc. H_2SO_4 ⟶ olive-green sol. $KMnO_4$ ⟶ anthraquinone-1 : 2-dicarboxylic acid. Zn + NH_3 ⟶ naphthanthracene.

Dziewoński, Ritt, *Chem. Abstracts*, 1928, **22**, 2561.
See also second reference above.

***ang*-Naphthaphenazine** (" α "-*Benzophenazine*)



$C_{16}H_{10}N_2$ MW, 230

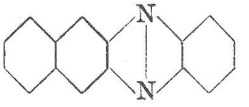
Bright yellow needles. M.p. 142°. Dist. undecomp. above 360°. Sol. EtOH, Et_2O, AcOH. Insol. H_2O. Sol. conc. H_2SO_4 ⟶ reddish-brown; on dilution ⟶ golden-yellow col. + cryst. ppt. of the azine.

Ethiodide : $C_{18}H_{15}N_2I$. MW, 386. Black needles with violet reflex. M.p. 150° decomp.

N-*Oxide* : $C_{16}H_{10}ON_2$. MW, 246. Green cryst. M.p. 182°.

Kehrmann, Mermod, *Helv. Chim. Acta*, 1927, **10**, 64.
Fischer, Hepp, *Ber.*, 1897, **30**, 393.

***lin*-Naphthaphenazine** (" β "-*Benzophenazine*)

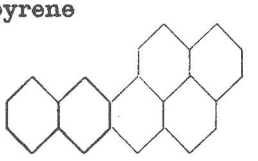


$C_{16}H_{10}N_2$ MW, 230

Red leaflets from C_6H_6. M.p. 233° (darkens). Sol. $CHCl_3$, C_6H_6, hot AcOH. Spar. sol. EtOH. Conc. H_2SO_4 ⟶ yellow sol.

Hinsberg, *Ann.*, 1901, **319**, 261.

Naphthapyrene

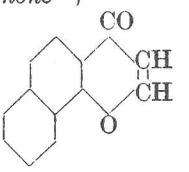


$C_{24}H_{14}$ MW, 302

Deep orange leaflets from C_6H_6. M.p. 273°.

Cook, Hewett, *J. Chem. Soc.*, 1933, 403.

α : β-Naphthapyrone (7 : 8-*Benzchromone*, " α-*naphthochromone* ")



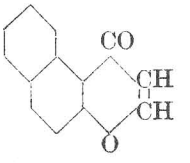
$C_{13}H_8O_2$ MW, 196

Needles from EtOH.Aq. M.p. 125°. Yellow sol. in conc. H_2SO_4 ⟶ intense bluish-green fluor.

Semicarbazone : m.p. 256° decomp.

Pfeiffer, Grimmer, *Ber.*, 1917, **50**, 922.

β : α-Naphthapyrone (5 ; 6-*Benzchromone*, " β-*naphthochromone* ")



$C_{13}H_8O_2$ MW, 196

Stout pale yellow needles from pet. ether. M.p. 103°. Sol. EtOH, C_6H_6, AcOH. Spar.