

*Thorpe's  
Dictionary  
of Applied  
Chemistry*

**VOLUME  
TWELVE**

*General Index*

**FOURTH  
EDITION**

THORPE'S DICTIONARY  
OF  
APPLIED CHEMISTRY

FOURTH EDITION  
(Revised and Enlarged)

**VOL. XII**  
General Index

*Editorial Board:*

SIR IAN HEILBRON, D.S.O., D.Sc., LL.D., F.R.S.  
(*Chairman*)

H. J. EMELÉUS, D.Sc., A.R.C.S., D.I.C., F.R.I.C., F.R.S.

H. W. MELVILLE, D.Sc., Ph.D., F.R.S.

SIR ALEXANDER TODD, D.Sc., D.Phil., LL.D., F.R.S.

*Editor:*

M. A. WHITELEY, O.B.E., D.Sc., F.R.I.C.

*Assistant Editors:*

A. J. E. WELCH, Ph.D., A.R.C.S., D.I.C.

L. N. OWEN, D.Sc., Ph.D., F.R.I.C.

---

*The General Index has been compiled by*

MISS M. LE PLA, B.Sc.

J. BIRD

J. G. COCKBURN, M.Sc., Ph.D.

*First published 1956*

# A

Abaca fibre, I, 1a; V, 164d  
 Abaku nuts, I, 655a  
 Abalak, I, 1a  
 Abalone, I, 1a  
 "Abalyn," I, 1b  
 Abasin, I, 1b  
 Abassi cotton, I, 1b  
 Abderhalden reaction, I, 1b  
 "Abdocain," I, 1b, 369a; II, 34b  
 Abei heat test, III, 363d; IV, 243d, 547a, c  
 "Abefite," I, 1b  
*Abelmoschus moschatus*, I, 304a; IV, 591a  
*Abies* spp., I, 1c; 459b; II, 237c  
 Abietene, sulphonated, as wetting agent, I, 1d  
 Abietenes, I, 1c, d  
 Abietenol, I, 2a  
 Abietic acid, XI, 495c, 501c, 502b  
 — and derivatives, I, 2a; II, 261b; III, 295c  
 — detection and detn., I, 3b  
 — methyl esters, I, 1a  
 — salts, I, 2c  
*neo*Abietic acid, XI, 502d  
 Abietinol, XI, 502c  
 "Abisol," I, 3c  
 "Abracol," I, 3d  
 Abralin, I, 4d  
 Abranin, I, 4d  
 "Abrasil," I, 3d  
 Abrasives, I, 3d  
 — boron carbide and boron silicide, I, 4a; II, 44c, 50d  
 "Abrastol," I, 4c; IV, 30a  
 Abraum-salts, II, 390a  
 Abrin, I, 4d; XI, 670b  
 Abrine, I, 4d  
 "Abrodil," I, 4c; VII, 10d, 16a; XI, 387d  
*Abroma augusta*, I, 4c  
 Abrotne, I, 4c  
*Abrus precatorius*, I, 4c; XI, 670b  
 Absinth, I, 4d; VII, 347d  
 — essential oil, I, 5c  
 Absinthin (absinthin), I, 5d  
 Absinthol, I, 6a  
 Absorbents for petroleum, IX, 369d  
 "Absorbite," I, 6b  
 Absorptiometer, spectroscopic, III, 305d  
 Absorption (see also Washers), I, 6b  
 — counter-current in towers, I, 7d  
 — definition, XI, 20d

Absorption spectra in analysis, II, 709a  
 Abutic acid, I, 11a  
*Abutilon avicennae* and *indicum*, I, 11b; V, 164c  
 Abyssinian Gold, I, 11b  
 Acacatechin, I, 11b; II, 434a  
*n*- and *iso*-Acacatechin, XI, 401a  
*iso*Acacatechin, II, 435c  
 Acacetin, I, 11b; X, 7a, 547b  
 Acacia, XI, 401d  
 — bark, I, 11c  
*Acacia arabica*, I, 11c, 585b  
 — *catechu*, I, 11c; XI, 402d  
 — *cavena*, I, 11c  
 — *dealbata*, I, 11c  
 — *furnesiana*, I, 11c; IV, 394c  
 — *senegal*, I, 11d; VI, 155d  
 — spp., VII, 267b  
 Acaciin, I, 12b; X, 547c  
 Acacipetalin, VI, 85b  
 Acajou, see Cashewnut  
*Acalypha indica*, I, 12b  
 Acalyphine, I, 12b  
 Acanthite, I, 458c; X, 766d  
 "Acaprine," X, 354c  
 "Acardite," IV, 14d  
 Acaroid resins, I, 12b  
*n*- and *iso*-Acarones, XI, 503a  
 Accelerators, I, 12b  
 Acceptor, I, 12c  
 Aceanthurene Green, VIII, 52b  
 "Acedicoin," I, 12c  
 "Acedicone," I, 12c  
 "Acedronoles," I, 12c  
 Acenaphthene, I, 12c  
 Acenaphthenol, I, 13a  
*Acer saccharinum* or *saccharum*, I, 14a; XI, 176b  
 "Acerdol," I, 14a  
 Aceridin, I, 14a  
 Aceritol, I, 14a  
 Acertannin, I, 14a; VI, 85b  
 Acetal, amino-, I, 35d  
 — *iso*quinolines from, 355d  
 — bromo- and mono- and di-chloro-, I, 35c, d  
 — trichloro-, I, 35c  
 — iodo-, I, 35d  
 — nitro-, I, 35d  
 — sulphide, I, 36a  
 Acetals, I, 32a; IV, 382d  
 — aromatic, I, 37a  
 — cyclic, I, 33c  
 — hydrolysis, VI, 252a  
 — mixed, I, 33c  
 Acetaldehyde, I, 14a, 20d  
 — tribromo-, II, 106a  
 — chain photolysis, I, 30a  
 — chloro-, I, 21c  
 — from acetylene, I, 91b

Acetaldehyde, dichloro-, I, 21c  
 — trichloro-, I, 21c; III, 34d  
 — condensation products from amines, I, 29b  
 — cyanohydrin, I, 21b  
 — from acetylene, I, 16a, 19b; X, 594a  
 — from alcohol, I, 15a; II, 427d  
 — from *Aspergillus niger*, V, 51b  
 — from yeast, II, 99b  
 — in caffeol, II, 198b  
 — in production of aldol, butyl alcohol, crotonaldehyde and ethyl acetate, I, 26b, 28a  
 — luminescent polymerisation, III, 23b  
 — oxidation products, I, 23c, 24a, 25b  
 — prepn., II, 427d  
 — purification, X, 595a  
 — reactions, I, 29d  
 — reduction to alcohol, II, 426d  
 — resins, I, 29a; X, 34d  
 — synthetic rubber from, I, 30b  
 "Acetaldehyde-ethyl acetate," I, 35b  
 Acetaldehydisulphonic acid, I, 84a  
 Acetamide, I, 59d  
 Acetanilide, I, 38d; XI, 360c  
 — *p*-bromo-, I, 39a  
 — *N*-chloro-, I, 39a  
 — *p*-chloro-, I, 39a  
 — *o*-, and *p*-nitro-, I, 39a  
 Acetannin, I, 39b  
 Acetarsol, I, 39c, 489c; XI, 383b, 386d  
 "Acetarson," I, 39c, 489c  
 Acetate radical, X, 408d  
 — rayon, see Cellulose acetate; Fibres artificial, or rayon  
 — silk dyes, I, 39c, 205c; IV, 127b, 234b  
 Acetates, qualitative reactions, I, 53b; II, 569d; V, 297a  
 Aceteugenol, I, 43b; IV, 396d  
 Acetisoeugenol, I, 43c; IV, 399d  
 Acetic acid, I, 43c  
 — acetamino-, VI, 17a  
 — amino-, VI, 71d  
 — as preservative, IV, 28a  
 — bromo-, VI, 175d  
 — dibromo-, VI, 175d  
 — tribromo-, VI, 176a  
 — bromochloro-, VI, 176a, b  
 — bromodichloro-, VI, 176b  
 — dibromofluoro, ethyl ester, VI, 176d  
 — chloro-, VI, 174c  
 — from acetylene, I, 91b

**Acetic acid**, dichloro-, VI, 175a  
 — trichloro-, I, 65a; VI, 175b  
 — diethylaminoethyl deriv., VI, 175c  
 — in toxicology, VI, 175b  
 — cyano-, VII, 479b  
 — ethylester, condensation with aldehydes, II, 366a  
 — density of aqueous solutions, I, 52  
 — detn., I, 53b  
 — esters, I, 51a, 56b, 84c  
 — trifluoro-, VI, 176d  
 — from acetylene, I, 50b, 80d  
 — from carbon monoxide, I, 51a  
 — from ethylidene diacetate, I, 51b  
 — from formaldehyde, I, 51a  
 — from methane, I, 50d  
 — from methyl alcohol, I, 50d; II, 350c  
 — from methyl formate, I, 51a  
 — halogeno-derivatives, VI, 174c  
 — hydroxy-, V, 73c  
 — in caffeol, II, 198b  
 — iodo-, VI, 176b  
 — diiodo-, VI, 176c  
 — triiodo-, VI, 176c  
 — nitro-, VIII, 491b, 492b  
 — prepn., II, 310d, 425c, 427d  
 — salts, I, 54a  
 — solidification point of aqueous solutions, I, 51c, d  
 — acids, amino-, benzyl esters, VI, 72d  
 — anhydride, I, 57b  
 — analysis, I, 59b  
 — detection in acetic acid, I, 53d  
**Acetin** (acetine), I, 60b  
 — as plasticiser, II, 448c  
**Acetoacetanilide**, I, 61b  
**Acetoacetic acid**, I, 61b  
 — detection in acetic acid, I, 53d  
 — esters, I, 61d  
 — 2:4-dinitrophenylhydrazones, I, 61b  
**Acetobacter suboxydans**, V, 330d; VI, 495c  
**Acetobetaine**, I, 686a  
 “**Acetocaustin**,” I, 65a  
**Acetochloroamide**, I, 60a  
**Acetocitric acid**, III, 186b  
**Acetoin**, I, 140c; VII, 125d  
**Acetol**, I, 65a  
 — acetate, I, 65c  
 — Baudisch test for, I, 65c  
 — ethyl ether, I, 65b  
 “**Acetol**,” I, 65c  
**Acetomenaphthone**, XI, 369c  
**Acetomorphine**, VI, 205d  
 — hydrochloride, I, 65c  
**Acetonaphthone**, I, 65d  
**Acetone**, I, 65d; VII, 125b

**Acetone bromination**, II, 320b  
 — bromo-, I, 69d  
 — in chemical warfare, III, 10c, d  
 — chloro-, I, 69b  
 — in chemical warfare, III, 10c, 11a  
 — compounds with sugars, II, 289d  
 — configuration, XI, 130c  
 — cyanohydrin, I, 68d  
 — detn., I, 68a; IV, 532b  
 — in vapours, II, 681d  
 — ethylacetal, I, 36d  
 — from acetylene, I, 81b  
 — from horse-chestnuts, VI, 279d  
 — from isopropyl alcohol, X, 230c  
 — glycerol, VI, 66a, 70c  
 — halogenation, VI, 250b  
 — halogen-substituted derivs., I, 69b, c, d  
 — hydroxy-, I, 65a  
 — in dopes for film manufacture, II, 448c  
 — in urine, detection, I, 67c  
 — iodo-, prepn., III, 11d  
 — methylacetal, I, 36d  
 — oil, I, 70d  
 — phenylhydrazones, I, 69b  
 — phosphate, dihydroxy-, reactions in muscle, VI, 76d  
 — production by bacterial fermentation, II, 169d, 429b, 471d; V, 45a  
 — recovery, III, 362c; V, 123d; XI, 17d  
 — reduction to isopropyl alcohol, II, 426d  
 — semicarbazone, I, 69a  
 — solvent in lacquers, II, 469d  
 — specifications, II, 472b  
**Acetonedicarboxylic acid**, I, 70a, 70d; III, 185d; VII, 148c  
**Acetonitrile**, VIII, 8b  
 — from acetylene, I, 84b  
**Acetonylacetone**, I, 70a; VII, 136b  
**Acetonylacetones**, metallic coordination, III, 329a, 335b  
**Acetophenone**, I, 71a; VII, 128d; IX, 286d  
 — o-, m-, and p-amino-, I, 71c  
 — ammonia, I, 71b  
 — p-bromo-, I, 71d  
 — chloro-, in chemical warfare, III, 9a  
 — prepn., III, 11a  
 — diethylacetal, I, 71b  
 — in castor, II, 419d  
 — m-nitro-, I, 71c  
 — 2:4:6-trinitro-, I, 71c  
 — oxime, I, 71b  
 — phenylhydrazones, I, 71b  
**Acetophenones**, amino-, VII, 129b  
 — hydroxy-, VI, 399d; VII, 129c  
 β-Acetopropionic acid, I, 71d  
**Acetopurpurine 8 B**, I, 73b

“**Acetopyrine**,” I, 73b  
 “**Acetosol**,” I, 517d  
 “**Acetoxane**,” I, 73b  
**Acetoxime**, I, 69a  
**2-Acetoxybutadiene**, I, 88b  
**p-Acetoxyphenylurethane**, I, 73b  
 “**Acetozone**,” I, 73b; IV, 28a  
**Acetyl chloride**, chloro-, VI, 175a  
 — trichloro-, I, 105c  
 — peroxide, antiseptic, IV, 28a  
 — prepn., II, 373a  
 — radical, detn., II, 625c  
**Acetylacetone**, VII, 136d  
 — aluminium deriv., I, 293a  
 — rare earth derivs., II, 515d  
 “**Acetylaladin**,” I, 1b  
**Acetyl-p-arsanilic acid sodium salt**, I, 468c, 487a  
**Acetylatoxyl**, I, 468c, 487a  
**Acetylbenzoyl peroxide**, IV, 28d  
**Acetyl-α-bromo-α-ethylbutyryl-carbamide**, I, 1c  
**Acetylbutyryl**, VII, 134c  
**Acetylcamphor**, II, 243c  
**N-Acetylcarbazole**, II, 279b  
**Acetylcarbinol**, I, 65a  
**Acetylcellulose** (see also *Fibres artificial or rayon*), II, 464d  
**Acetylcholine**, III, 93c  
 — bromide, I, 73b  
 — chloride, I, 73b  
 — hydrolysis, II, 200b  
 — in ergot, IV, 331d  
**Acetylcinchonidine**, III, 153b  
**Acetylcinchonine**, III, 155d  
**Acetylcodeine**, I, 12c  
**Acetyldeoxyisosantalol**, II, 260d  
**Acetyldibenzoylmethane**, XI, 425b  
**Acetylene**, I, 73b  
 — addition reactions of, X, 84b  
 — anæsthetic, XI, 356c  
 — as illuminant, I, 116c  
 — black in rubber processing, X, 556d  
 — tetrabromide, IV, 357d  
 — bromo-derivs., I, 82d, 83a, b; II, 320c  
 — butadiene from, X, 593a  
 — carbon tetrachloride from, II, 354d  
 — carcinogenic compounds from, II, 378c  
 — dichloride, IV, 7b  
 — chlorine derivs., I, 96c  
 — dichloro-, I, 96d  
 — detection, I, 96a; II, 681c  
 — detn., gasometric, I, 96a; II, 677d, 681c  
 — from calcium carbide, I, 107b; II, 219b  
 — from cracking, IX, 374a  
 — from ethane, I, 76d  
 — from ethylene, I, 76a  
 — from methane, I, 76a  
 — from natural gas, IX, 397a  
 — generators, I, 109c  
 — heavy, I, 79c  
 — industrial uses, I, 106c

**Acetylene** iodo-derivs., I, 83c  
 — manufacture, X, 593b  
 — metallic derivs. (*see also* Carbides; individual metals), I, 82a  
 — phenol condensation products, I, 85a  
 — polymerisation, X, 21b  
 — reactions, I, 85b  
 — repurification, X, 595c  
 — sodio-compounds, reaction with carbon dioxide, II, 363c  
 — reaction with ethyl carbonate, II, 363d  
 — structure, I, 79c  
 — *mono-* and *di-*substituted derivs., I, 117c  
 — welding, I, 112d  
**Acetylene-divinyl**, I, 88b  
**Acetylguanidine**, VI, 145d  
**Acetyl-H-acid**, I, 119d; IV, 207c  
**1-Acetyl-2-hydroxynaphthoic acid oximes** XI, 125a  
**Acetylmethylcarbinol** in bread, II, 80c  
 — in butter, V, 306c  
**N-Acetyl-N-methyl-p-toluidine-3-sulphonic acid**, resolution, XI, 118d  
**Acetyl-2-naphthylamine**, VIII, 314d  
**Acetylpropionyl**, *see* Pentane-2:3-dione  
**1-Acetyl-4-isopropylidenecyclopentene**, XI, 503a  
**Acetylquinine**, III, 174c  
**Acetylsalicylic acid**, I, 119d; 517d; X, 667d; XI, 360d  
 — calcium salt, I, 370a, 517d  
**Acetylsosantalol**, II, 260d  
**Acetylsulphanilic acid hydrazide**, XI, 216b  
**Acetyltannic acid**, I, 39b  
**Acheson graphite**, I, 119d  
**"Achibromin,"** I, 119d  
**Achillea millefolium**, I, 119d  
**"Achiodin,"** I, 120a  
**Achras sapota**, I, 120a; X, 677d  
**Achroodextrin** II and III, III, 569a, b  
**Acid** Alizarin dyes, I, 120a, 404a  
 — B, green, I, 393b, c, 230c  
 — anhydrides, I, 57a; II, 370c, d, 376c  
 — Chrome dyes, I, 120a  
 — constants, VI, 248d  
 — definition, VI, 247a, 249a  
 — Eosin L. New, XI, 717d  
 — Fuchsine, I, 120a  
 — Green, I, 120a  
 — Conc. F, XI, 706c  
 — O, X, 368c  
 — Magenta, I, 120a  
 — number of porphyrins, III, 82a  
 — Orange, IV, 205a  
 — peroxides, IX, 49d, 299b, 508b, 600a  
 — Violet 2B, XI, 701b

**Acid** Violets, XI, 703a, 707c, 710a  
 — wool dyes, I, 205c  
 $\alpha$ -Acid, I, 1a  
 $\gamma$ -Acid, IV, 209d; VIII, 354a  
 $\delta$ -Acid, III, 557b  
**[E]-Acid**, IV, 349d  
**A-Acid**, I, 1a  
**H-Acid**, VIII, 354b  
**M-Acid**, VIII, 356a  
**S-Acid**, VIII, 350b  
 $\alpha$ -Acid of Claus and Volz, I, 658c  
**peri-Acid**, VIII, 306b  
**Acids**, aliphatic long-chain, structure, VII, 360c  
 — and bases, theory, VI, 247a  
 — carboxylic, II, 361c  
 — dicarboxylic, III, 600d  
 — fatty, autoclaved, IX, 46a  
 — *monoethenoid*, IX, 11a, 12a  
 — *diethenoid*, IX, 7a, 13d  
 — *ultra-violet* absorption, IX, 2d, 14a  
 — *triethenoid*, IX, 13d, 14b  
 — *detn.* by *ultra-violet* absorption, IX, 2d, 14c  
 — *tetraethenoid*, IX, 14d, 27b, 28b  
 — *polyethenoid*, IX, 13d  
 — in fats of aquatic animals, IX, 5d, 34a  
 — in fruit-coat fats, IX, 8b, 9a, 16a, 18c  
 — land animal (*see also* Cow butter), IX, 6c  
 — marine animal, IX, 6a, 7a, 12a, 14d  
 — m.ps., IX, 10d  
 — *detn.* by extinction coefficients, IX, 2d, 14c, 27d  
 — with maleic anhydride, IX, 14c, 61c  
 — vegetable, IX, 13d  
 — prepn., XI, 89a  
 — removal by distillation, IX, 42b  
 — saturated, IX, 10c  
 — seed fats, IX, 8c, 9a, 17c—28b, 55a  
 — separation, XI, 17d  
 — by crystallisation, IX, 2d  
 — by distilling methyl esters, IX, 3a, 15b, 69b  
 — by elaidic acid, IX, 69b  
 — by lead salts, IX, 2b, 65a  
 — from insoluble bromides, IX, 69b  
 — from rosin acids, XI, 389c  
 — straight-chain, adsorbed films, XI, 343  
 — structure, IX, 10b, d  
 — synthesis, IX, 10d, 11c

**Acids**, fatty, unsaturated, IX, 10b, d, 14d  
 — long-chain unsaturated, oxidation in monolayers, XI, 342d  
 — mineral, solvent action, II, 549b  
 — mixed, for nitroglycerin, IV, 492d  
 — neutralisation of bases and, IX, 424d, 425c  
 — organic, *detn.*, potentiometric, II, 510c, 708a  
 — in urine, XI, 814d  
 — polyene carboxylic, X, 2d  
 — strength, VI, 248c  
**pseudo-Acids**, VI, 256a  
 — prototropy of, XI, 428b  
**Acid-base** pairs, conjugate or corresponding, VI, 248b  
**Acidimetry** and **alkalimetry**, II, 637c  
**Acid-mordant** dyes, IV, 127d, 128b  
**"Acidol,"** I, 120b, 686b  
**Acidolysis**, IV, 349d; VI, 397a  
**"Acidulin,"** I, 120c  
**"Acitrin,"** I, 120d; X, 353d  
**Acocanthera schimperii**, I, 120d  
**"Acoine,"** I, 120d, 369c; VI, 144a  
**Aconic acid**, I, 120d  
**Aconine**, I, 121d  
 $\psi$ -Aconine, I, 123a  
**Aconitic acid**, I, 120d  
**Aconitine** and **aconite alkaloids**, I, 120d  
 $\psi$ -Aconitine, I, 123b  
**Aconitum** spp., I, 120d, 122c, 123a, 535c  
**"Acopyrin,"** I, 73b  
**Acorn**, I, 124b  
**Acorn oil**, I, 124a  
**Acorus calamus**, and essential oil, I, 124b; II, 201a  
**Acraldehyde**, *see* Acrolein  
**Acridan nitrile**, I, 127b  
**Acridine**, I, 124c, 565a  
 — 2:6-diamino-, I, 135a  
 — 2:8-diamino-, compound of arsonic acid, I, 134d  
 — 5-chloro-, I, 129b  
 — 5-cyano-, I, 127b  
 — drugs, I, 133d  
 — Grignard compounds, I, 127b  
 — 5-hydroxy-, N-oxide, I, 129a  
 — Orange and Orange R, I, 131a, 132c  
 — N-oxide, I, 129a  
 — 5:10-peroxide, I, 129a  
 — Red 3B, X, 327c  
 — salts, I, 127b  
 — Scarlet, I, 132b, d  
 — yellow, I, 131c, 134a  
**Acridines**, 5-amino-, XI, 380b  
 — diamino-, I, 134d  
**Acridine-5-carboxylamide**, I, 127b  
**Acridine-5-carboxylic acid**, I, 127b

- Acridinium, quaternary salts, I, 126c
- 5-Acridol, I, 128d
- Acridone, I, 128c, 135d
- 2:8-diamino-, I, 125b
- 1-bromo-4-nitro-, I, 129b
- 1-chloro-4-nitro-, I, 129b
- 5-chloro-2:6-dinitro-, I, 135a
- colours, I, 417b
- 2:8-dihydroxy-, I, 129b
- Acridones derived from anthraquinone, I, 396a
- Acridone-3-arsonic acid, I, 129b
- Acridone-3-stibonic acid, I, 129b
- Acridone-2-sulphonic acid, I, 125b
- Acriflavine, I, 134a, b, 135d; IV, 30b; XI, 373b
- Acrinyl thiocyanate and isothiocyanate, I, 136a
- Acrodynia, X, 314d
- Acrolein, I, 136a; III, 10d
- ethylacetal, I, 36a
- resins, I, 136d
- "Acrolite," I, 136d
- "Acronals," X, 107a, b
- Acronol Yellow, X, 218b
- $\alpha$ - and  $\beta$ -Acrose, I, 136d
- Acrylic acid, I, 137a
- iodo-, X, 226b
- ester polymers, X, 106d
- esters, X, 106c
- resins, X, 14d
- Acrylonitrile, X, 606b
- production, acetylene process, X, 606d
- ethylene oxide process, X, 606c
- Actaea racemosa*, I, 137a
- "Asterol," I, 137b
- Actin, X, 261b
- Actinine, II, 392a
- Actinoerythrin, I, 137b; II, 401c
- Actinium, I, 137b
- K, X, 434c
- Actinolite, I, 499c; XI, 688d
- Actinometry, IX, 533c
- Actinomycetes in soil, XI, 4d, 5a, b
- Actinom, I, 138c
- Actinozoa spp.*, coral from, III, 360c
- Activation overpotential, IX, 141c, 142c
- Activators, V, 263d; VIII, 545a
- Active mass, VII, 518b
- "Activin," see "Aktivin"
- "Activit," XI, 192b
- Activity, chemical (see also Catalysis, homogeneous), II, 537b
- "Actol," I, 140b
- "Acton," I, 140b
- Actor, I, 12c
- Aculeatin, VIII, 446a
- Acy azides, I, 582b
- cyanides, prepn., II, 376b
- halides, prepn., II, 370b, 376b
- peroxides, prepn., II, 373a
- Acyloins, I, 140b; VII, 132d
- "Adain," I, 141a; XI, 358a
- Adamantine spar, XI, 48d
- Adamite, I, 4a, 141a
- "Adamon," I, 141a
- Adansonia digitata*, I, 141b
- Additives, multifunctional, VII, 319d, 403b
- Adenase, IV, 315a
- Adenine, I, 141b; II, 197a; VI, 153a
- 9 - Adeninemethylthiopentoside, VI, 85c
- "Adenos," I, 142a
- Adenosine, I, 142a; VI, 85c
- desamidase, IV, 315a
- Adenylic acid, I, 142a, II, 287b; IV, 311b
- Adenylpyrophosphate, V, 18b
- creatine reaction, VI, 78b
- in lactic acid formation, V, 34d; VI, 77a, 78a
- in muscle extract, VI, 75c
- Adeps colli equini*, VI, 280c
- Adermis, X, 313a
- Adhesion, tacky, X, 70b
- Adhesive action, X, 70a
- Adhesives, I, 142b
- casein in, II, 414b
- molten, X, 72c
- plastic, X, 72b
- rubber-resin, X, 38b
- sodium silicates in, X, 880d
- solidification, X, 70d
- synthetic, X, 70a
- thermosetting, X, 71a
- — — test specifications, X, 71d
- urea-formaldehyde, X, 78b
- vinyl, X, 72c
- Adiabatic expansion, VII, 336d, 338d; VIII, 500a
- Adipic acid, I, 143c
- production, X, 4Cb, c
- anhydride, I, 144a
- Adipocellulose, II, 467a
- Adipocere, I, 144c; II, 25d
- Adipodialdehyde, I, 144a
- Adipyl dichloride, I, 144a
- Adlumidine, I, 145b
- Adlumine, I, 145a
- Admiralty gun-metal, I, 145b
- white-metal, I, 145b
- "Adnephria," I, 147a
- "Adnic," I, 145b
- Adobe, VII, 377c
- Adonidosis, II, 387b; VI, 85c
- Adonis vernalis*, I, 145b; I, 85c
- Adonitol, I, 145c; II, 296b
- Adonivernoside, II, 387b, VI, 85c
- Adrenaline, I, 145c; XI, 364d
- in toad poisons, II, 388a
- substitutes, I, 147c
- "Adrenamine," I, 147d
- Adrenocortical steroids, side-chain structure, XI, 138a
- Adrenosterone, VI, 278b
- "Adronol," I, 147d
- Adsorbents, commercial, I, 155a; II, 315c; III, 270d; IV, 246d
- Adsorbents, industrial, XI, 33c
- classification, XI, 34c
- reactivation of, XI, 45b
- "Adsorbit," I, 147d
- Adsorption, I, 147d; III, 282b
- activated, II, 540a; VI, 214b, 314d, 373b, 377c, 380b; XI, 32b
- at liquid-solid interfaces, XI, 345d, 346a
- definition, XI, 20d
- equation, Gibbs, XI, 343d
- in catalysis, II, 422d
- "molecular," VI, 315a
- of solvents, XI, 19b
- "Adurol," I, 155b; IX, 179d
- Advocaat, VII, 347d
- Adynerin, II, 386c
- Aegirine, I, 450b
- Aegirite, X, 336b
- Aegle marmelos*, I, 155c, 585d
- "Aeral," I, 253a
- Aerated and mineral waters, I, 155c
- "Aerofloat 15, 25 and 31," V, 265d
- "Aeron," I, 160a, 277a
- Aerosols, I, 160a; VI, 267d
- Ærugo*, I, 160b; III, 336
- Æschynite*, I, 160b; II, 512b; XI, 408a
- Æscigenin*, I, 160c; X, 686d
- Æscin*, I, 160c; VI, 85c; X, 686d
- Æsculetin*, I, 160c; VIII, 446a
- Æsculic acid*, III, 27b
- Æsculin*, I, 160c; III, 27a, 413a; VI, 279c
- Æsculinic acid*, III, 27b
- Æsculus spp.*, I, 238d; VI, 88b, 279b
- "*Æthacol*," I, 160d
- "*Æthocaine*" (Ethocaine), I, 1b, 160d, 369a; II, 34b
- "*Æthone*," I, 160d
- Æthusa cynapium*, I, 160d; III, 324d
- Ætiobillanic acid*, X, 678b
- Ætiobolanic acid*, from digitoxigenin, II, 382b
- Ætioallocholanolic acid*, from uzarigenin, II, 382b
- Ætiocholanone*, relation to cholesterol, III, 90b
- Ætioporphyrin*, III, 83a; VI, 162a
- relation to blood pigments, II, 20c
- "*Ætox*," V, 395d
- Aframomum amaniense*, I, 160d
- *mala*, I, 161a
- *malegueta*, I, 161a
- African marigold, I, 161a
- "*Afridol*," I, 162b
- Afridol Violet, XI, 381b
- Afterdamp, II, 323d, 344c
- Afwillite, I, 162b; II, 150c
- Agalite, I, 162b
- Agalmatolite, I, 162c; VII, 453a
- Agar-agar, I, 162d, 199b

**Agar-agar gel**, III, 290d  
 — reactions, I, 163b  
**Agaricidies**, IX, 312d  
**Agarobilla**, *see* **Algarobilla**  
**Agate**, I, 163c; II, 517c; X, 189c  
**Agathaleme**, VIII, 392a  
**Agathedicarboxylic acid**, XI, 503a  
**Agathic acid**, I, 164d  
 "Agathin," I, 165a  
**Agave**, I, 165a  
**Agavose**, I, 165a  
**Ageing**, I, 165b  
**Agfa Ultra Colour film**, II, 453a  
**Agfacolor film**, II, 446d  
**Aglycones**, VI, 82c; XI, 135d, 138c  
 — biological activities, XI, 156b  
 — from *Solanum* alkaloids, XI, 6c  
 — steroid, glycosides of, XI, 155a  
**Agmatine**, I, 171c; VI, 144a  
 — in ergot, IV, 331d  
**Agnolin**, *see* **Nanolin**  
**Agnosterol**, III, 92d; XI, 733a  
**Agon**, IV, 347d  
 "Agonol," I, 171d  
**Agriculture**, XI, 672a  
**Agropyrum repens**, I, 171d  
 "Agrosan G," VII, 581d  
**Agrostis pasture**, VI, 132c  
 "Agurin," I, 171d  
 "Aguttan," I, 171d  
**Ahouain**, II, 386c  
 "Aich metal," I, 171d  
**Ailanthus silk** (*A. glandulosa*), I, 171d  
**Ainatite**, XI, 408c  
**Air**, composition, VIII, 498c  
 — conditioning, XI, 38c  
 — — lithium chloride for, VII, 367d  
 — — plants, VI, 287a  
 — drying, XI, 43b  
 — — by adsorption, XI, 44d, 45  
 — — plant, IV, 78a, 79c  
 — liquefaction, IX, 182c  
 — — Joule-Thomson effect in, IX, 182c  
 — — Linde's process, IX, 182c  
 — — Pictet process, VIII, 504c  
 — liquid, fractionation, II, 424b  
**Aircraft**, impregnated wood for, X, 33c  
 — polyester bonding agents for, X, 57d  
 — windows, X, 108c  
 "Airoform," I, 171d  
 "Airogen," I, 171d  
 "Aifol," I, 171d, 700d; VII, 17c  
**Ajacine**, I, 172a; III, 556d  
**Ajaconin**, III, 556d  
**Ajmalicine**, X, 476a  
**Ajmaline**, X, 475d  
**Ajmalinine**, X, 476a  
**Ajowan oil**, I, 172a  
 "Akardit," I, 172a  
**Akarlon fat**, IV, 86d  
**Akermanite**, VII, 549a

"**Akiron C.**," X, 354c  
**Akrochordite**, I, 172a  
 "Aktivin," I, 140a, 172b  
 "Aktoprotein," I, 172b  
 "Akund," V, 169b  
**Alabandite**, I, 172b; VII, 496b, 499b  
**Alabaster**, I, 172b; II, 232b; VI, 159c  
**Alacreteine**, I, 416b  
**Alaite**, I, 172d  
**Alamosite**, I, 172d; VII, 253b  
**Alanine**, I, 172d  
 — acyl derivs., I, 174b  
 — configuration, XI, 97a  
 — salts, I, 173d  
 $\beta$ -Alanine, I, 175a; II, 392c  
 $\alpha$ -Alanine anhydride, I, 174a  
**Alanol**, IV, 328c  
**Alant root**, I, 175b  
**Alantolactone**, I, 175b, c; XI, 503b  
*iso*Alantolactone, I, 175b; XI, 503b  
*iso*Alantolic acid, I, 175c  
*cyclo*Alanylanine, I, 174a  
**Alban** (Albane), I, 175c; VI, 158d  
 "Albany slip," VI, 9d  
 "Albargin," I, 175c  
**Alba-saponin**, VI, 89b  
**Albaspidin**, I, 175c; V, 181c  
 "Albatex Po," XI, 857c  
**Albertite**, I, 175c  
 "Albertols," I, 175d  
**Albite**, I, 175d, 264d; V, 1d  
 "Albocarbon," I, 175d  
**Alboleersin**, V, 56d  
 "Albucid," XI, 374c  
**Album græcum**, I, 175d  
**Albumin**, X, 261b, d  
 — blood serum, II, 19c  
 — oxidation, II, 278b  
 — phenol from, II, 303d  
**Albumins**, rice, II, 493b  
**Albuminoid ratio**, IV, 601b  
**Albuminoids** in plant analysis, IV, 593d  
 "Alclad," I, 253a, 275b  
**Alcohol** (*see also* **Ethyl alcohol**), I, 175d  
 — absolute, prepn., I, 103c, 176b, 178b  
 — — tests, I, 180d  
 — denaturants, I, 183c  
 — detn., II, 683a  
 — entrainers for distillation, XI, 18c  
 — industrial, beet molasses for, XI, 179d  
 — — production, XI, 186a  
 — standards, I, 179c  
**Alcohols**, aliphatic, amino-, VIII, 497b  
 — — from fats, II, 427b  
 — — nitro-, VIII, 497b  
 — — prepn. by catalytic hydrogenation, VI, 183c  
 — fish oil, IX, 35b  
 — for motor fuels, I, 192a

**Alcohols** from carbon monoxide (*see also* **Fischer-Tropsch synthesis**), II, 350b, c, 425c  
 — from petroleum, I, 192c  
 — long-chain, reduce water evaporation, XI, 343a  
 — — — structure, VII, 360c  
 — oxidation to acids, II, 362a  
 — secondary, stereoisomerism, XI, 96a  
**Alcoholase**, I, 20b  
**Alcoholometer**, Tralles', I, 188c  
**Alcoholometry**, I, 185b  
**Alcohololysis**, IV, 349d; VI, 397a  
 "Alcomax" alloys, VII, 459d  
**Alcornin** (alcornol), I, 193c  
**Aldehydes**, I, 193c  
 — action in bread, II, 82a  
 — compounds with sugars, II, 289d  
 — detn. of CO group, VII, 124c, 125c  
 — from carbon monoxide, II, 350b  
 — green, I, 193c  
 — identification, VII, 122a  
 — kinetics of phenol reaction, X, 25d  
 — luminescent oxidation, III, 23c  
 — oxidation, II, 362a  
 — peroxides, IX, 298b  
 — prepn., II, 373c  
 — resolution, XI, 100b  
**Aldehyde-ammonia**, I, 22a  
**Aldehyde-ketones**, VII, 149a  
**Aldehyde-resins**, I, 21a, 29a  
**Aldehydines**, I, 197d, 316a  
**Aldehydrol**, I, 21a  
**Alder**, I, 401d  
 — bark, I, 107d  
 — buckthorn bark, I, 198a  
**Aldol**, I, 26b, 198a  
 — condensation, I, 26b, 195d, 198a; II, 123b  
 — — boron fluoride catalyst, VI, 259d  
 — production and purification, X, 595d  
**Aldolase**, V, 25d, 26c  
**Aldoses**, detection, II, 293c  
**Aldoximes**, configuration, XI, 126a  
 "Aldrey," I, 253a, 277a  
 "Aldur," I, 198b  
 "Aldural," I, 253a  
**Ale**, II, 104d  
**Alcoholic acid**, VII, 301a  
**Alén's** ( $\alpha$ -) acid, *see* **Freund's acid**  
 — [ $\beta$ -] acid, *see*  $\alpha$ -Naphthylamine-3:7-disulphonic acid  
 "Aletodin," I, 517d  
 "Aleudrin," I, 198b  
**Aleurites cordata**, XI, 741a  
 — *fordii*, XI, 741a  
 — *montana*, XI, 741a  
 — spp., *see also* **Tung oil**, I, 198b; IV, 82a, 83c  
**Aleurone grains**, I, 198c

**Alexandrite**, III, 119a; X, 189b  
 — synthetic, V, 512d  
**"Alexipon,"** 199a  
**Alfa**, I, 199a  
**Alfalfa**, I, 199a; VII, 403c  
 — meal, IV, 596b  
**"Alformant"** lamp, IV, 27b  
**Alga**, I, 199a  
 — in soil, XI, 5b  
 — products from (*see also* Iodine), I, 162d, 199a; II, 403c; III, 360c  
**Algarobilla** (algaroba), I, 201b; IV, 276d; VII, 267b; XI, 402a  
**Algaroth**, Powder of, I, 201b, 448a  
**Algarrobin**, I, 201b  
**Algarrobo Negro**, XI, 402a  
**Algin**, *see also* Alginic acid, I, 199d, 200a  
**Alginase**, I, 201d  
**Alginic acid**, I, 200a, 201d; II, 298a; VII, 7a  
 — in soils, XI, 3d  
 — salts, I, 202a  
**"Algiron"** (alginoid iron), I, 203a  
**Algodonite**, I, 203a; IV, 55b  
**Algol colours**, I, 232c, 416a, 418d, 420a  
 — Orange, I, 206a  
 — Red, I, 420c, 232d  
 — scarlet, I, 232d, 416b  
 — vat dyes (*see also* Vat dyes), I, 206a  
 — B violet, I, 232a  
 — yellow, I, 232a, 416c, 418d  
**Algulose**, VII, 7a  
**Alhagi spp.**, VII, 548b  
**Allyclic compounds**, geometrical isomerism, XI, 110d  
 — 1: 2-dihydroxy configuration, XI, 111a  
 — stereochemistry, XI, 107d  
**Alipite**, V, 430a  
**Alite**, II, 141b  
**"Alival,"** I, 203b  
**Alizanthrene yellow**, I, 419d  
**Alizarin** (*see also* Anthracene; Anthraquinone; Chay root; Madder), I, 203b, 212d, 402d; X, 4d  
 — 3-amino-, I, 228c  
 — 4-amino-, I, 206b, 228b  
 — Astrol, I, 206a, 231c, 405d  
 — Bordeaux, *see* Quinalizarin.  
 — Brilliant Cyanine GG, I, 228d  
 — Green, I, 232a  
 — 3-bromo-, I, 220c  
 — Cardinal, I, 228b, 393b  
 — Celestol, I, 230d  
 — 3-chloro-, I, 220c  
 — Cyanine, I, 205b, 227b, 228c, 230b, 391d  
 — Green, I, 205b, 231a, 404d  
 — Cyanol violet, I, 231b  
 — Cyclamen R, I, 232b  
 — Delphinol, I, 230c  
 — deriv. VII, 435d

**Alizarin**, diethyl ether, I, 220c  
 — dimethyl ether, I, 220c  
 — Direct Green, I, 406c  
 — violet, I, 232b, 406c  
 — dyeing, Turkey-red oils in, II, 421d  
 — dyes, acid, I, 120a, 404a  
 — diagram, I, 206  
 — Emeraldol G, I, 230d, 393b  
 — from madder, V, 416c  
 — G, GD, I, 224d, 225a  
 — G1, I, 224d  
 — Garnet, I, 206a, 228b  
 — Geranol B, I, 232b, 233b, 407a  
 — glycosides, I, 233b  
 — green, I, 205b, 229a, 397a  
 — Heliotrope, I, 232b  
 — Hexacyanin, I, 213a, 227c, 392a  
 — Indigo, I, 233a  
 — 3-iodo-, I, 220c  
 — Isolol, I, 206a, 231a, 405b  
 — manufacture, I, 216d, 402c  
 — Perkin's process, I, 218a  
 — Maroon, I, 228c, 393b  
 —  $\alpha$ -methyl ether in chay root, II, 523d  
 —  $\beta$ -methyl ether, I, 220b  
 — 3-nitro-, I, 206b, 228a  
 — 4-nitro-, I, 228a  
 — Orange, I, 205a, 206a, 228a  
 — G, I, 228b, 393a  
 — Pentacyanin, I, 227b  
 — Powder W, I, 229d  
 — properties and detection, I, 219a, b  
 — RG, I, 224d  
 — red, I, 206a, 229d, 230b  
 — Rubinol, I, 206a, 232a, 406d  
 — SDG, I, 224d  
 — Saphirol, I, 205b, 206a, 230d, 393d, 394c, 403b, 405a  
 — Turquoise, I, 264d  
 — Uranol, I, 231c, 407b  
 — VG, I, 224d  
 — Violet 2BS, XI, 723b  
 — Viridine, I, 232a, 404c  
 — yellow, I, 206d, 233b, 207a; V, 417a; VII, 131d, 437b  
**Alizarin-3:5-** and **-3:8-Disulphonic acids**, I, 230a  
**Alizarin-3:6-** and **-3:7-Disulphonic acids**, I, 390b  
**Alizarin-Quinoline**, I, 206b  
**Alizarin-3-sulphonic acid**, I, 206b, 390b  
**Alkabr**, III, 549a  
**Alkali Blues**, XI, 698d, 699d  
 — "dense" or "light," for glassmaking, V, 560d  
 — disease in animals, XI, 677d  
 — Fast Greens, XI, 708c, d  
 — metals, detn., electrolytic, II, 699d  
 — liquid, VII, 358c  
 — rare, qualitative reactions, II, 556c, 563b  
 — sulphates, XI, 234b  
 — sulphides, XI, 234a

**Alkali tellurides**, XI, 456c  
**Alkaline-earth oxysulphides**, XI, 235a  
 — polysulphides, XI, 235a  
**Alkalis**, action on refractories, X, 499d  
 — detn. in rocks, III, 203c  
 — in rocks, II, 585c  
**Alkali-beryl**, I, 684c  
**Alkali-cellulose**, viscose process, V, 117d  
**Alkaloids**, I, 233c  
 — borates, II, 50c  
 — classification, I, 236c  
 — detn., I, 236a  
 — ergot, X, 260d  
 — pyrrolizidine, X, 710c  
 — quebracho, X, 342d  
 — isoquinoline, X, 359d  
 — *Rauwolfia*, X, 475d  
 — *Senecio*, X, 710c  
 — solanum, XI, 5c  
 — sophora, XI, 19d  
 — stramonium, XI, 141a  
 — strychnos, XI, 162b  
 — tests for, I, 235a  
**Alkanet**, I, 236d; VII, 372c  
**Alkanna** (Alkannin; Alkenna), *see* Alkanet  
**Alkannan**, VII, 372c  
**Alkarsin**, II, 188c  
**"Alkasal"** ("Alkasol"), I, 238c  
**"Alkasil,"** I, 238c  
**"Alkathene,"** X, 95d  
**Alkermes**, VII, 347d  
**Alkoxy-groups**, detn., Zeisel method, II, 633d  
**Alkyl iodides**, optically active, XI, 99a  
 — radicals, free, gas reactions of, X, 404d  
 — sulphates, as detergents, X, 800b  
**Alkylacetylenes**, I, 117d  
**Alkylacridines**, I, 127c  
**Alkyladipic acids**, I, 144b  
**Alkylanthracenes**, coloured tautomers, VIII, 36b, 38c  
 — from alkylanthrones, VIII, 29c  
 — from ketones and Grignard reagents, VIII, 33a  
 — from simple condensations, VIII, 34b  
 — in nature, VIII, 52d  
**9-Alkylanthracenes**, bromination, VIII, 35c  
 — 9- $\omega$ -bromo-, 4:5-dichloro-tautomeric, VIII, 40c  
 — 1:5-dichloro-, VIII, 24a, 36b  
 — transannular tautomerism, VIII, 35a  
**10-Alkylanthracenes**, 10-hydroxy-, VIII, 22c  
**meso-Alkylanthracenes**, preparation, VIII, 20b, 22a  
**Alkyl-aryl sulphonates**, X, 801d  
**Alkylation** with aluminium chloride catalyst, IX, 360b, 362b

- Alkylation** with hydrogen fluoride catalyst, IX, 359*d*  
 — with sulphuric acid catalyst, IX, 359*a*  
**Alkylbenzenes**, bromination, II, 320*c*  
 $\beta$ -Alkyl- $\Delta$   $\alpha$ -butadienes, I, 89*d*  
**Alkylcatechols** as disinfectants, II, 432*b*  
**Alkylglycerol** formins, V, 327*a*  
**Alkylideneanthrones**, VIII, 25*c*, 29*c*  
 — benzanthrone derivs. from, VIII, 31*a*  
**Alkyl-naphthalenes**, I, 466*d*; VIII, 389*a*  
**Alkylthiophens**, XI, 597*c*  
**Alkynes**, drying oils from, X, 21*b*  
**Allanite** (see also Orthite), I, 238*c*; II, 512*b*; VIII, 451*b*; IX, 131*b*  
**Allantoin**, I, 238*c*; XI, 812*b*  
 — detn. in urine, I, 240*a*  
 — prepn., from uric acid, I, 239*b*  
**Allantonases**, I, 239*d*, 240*a*  
**Allasch**, VII, 349*b*  
**Allemontite**, I, 439*d*  
**Allene**, configuration, XI, 112*c*  
**Allenes**, I, 240*b*; II, 156*b*  
 — asymmetric, XI, 113*a*  
**Alligator pear**, I, 560*b*  
**"Allional,"** see "Allonal"  
**Allium porrum**, VII, 272*a*  
 — sativum, V, 429*a*  
 — *schoenoprasum*, III, 34*c*  
**Alliumin**, V, 429*a*  
**Allobarbitone**, XI, 358*d*  
**"Allochrysine,"** I, 241*d*; VI, 119*b*  
**Allodelphite**, I, 241*d*  
**"Allonal,"** I, 242*a*, 623*a*; XI, 359*a*  
**Allophane**, III, 196*a*  
**Allophanic acid**, santalyl ester, I, 242*a*  
**"Alloprene,"** X, 566*c*  
**"Allosan,"** I, 242*a*  
**Allose**, I, 242*a*; II, 286*a*  
**Allotriomorphic grains**, VII, 597*d*  
**Allotropy**, I, 242*a*  
**Alloxan**, I, 243*d*; XI, 798*c*  
 — alkyl derivs., I, 245*c*  
 — colour reactions, I, 244*d*  
 — condensation, with aromatic amines, I, 247*a*  
 — — with diamines, I, 246*c*  
 — — with hydroxylamine, I, 246*a*  
 — — with ketones, I, 247*d*  
 — dimethylaniline sulphite, I, 245*d*  
 — hydrazones, I, 246*b*  
 — potassium, I, 245*b*  
**Alloxanic acid**, I, 244*d*, 248*b*  
**Alloxanthoxyletin**, VIII, 450*a*  
**Alloxantin**, I, 248*b*, 249*d*  
 — absorption spectrum, I, 248*d*  
**Alloxazine**, I, 246*d*  
 — free radical from, I, 246*d*  
**isoAlloxazine**, XI, 165*c*  
**isoAlloxazine-adenine dinucleotide**, XI, 878  
**Alloy steel**, see under Steel  
**Alloys**, see Amalgams.; Hume-Rothery's rule; and individual metals  
 — amorphous material in, IX, 127*a*  
 — analysis, spectroscopic (see also Assaying; individual metals), II, 692*a*  
 — atomic structure of, Bragg-Williams theory, IX, 128*a*  
 — critical temperature, IX, 124*a*, 126*b*, 128*b*  
 — electrodeposition, IV, 270*b*  
 — electron compounds in, VI, 282*b*, 283*b*  
 — fusible, XI, 623*b*  
 — — as solders, XI, 9*d*  
 — heating curve and critical temperature, IX, 124*a*, 125*b*, *d*, 126*a*, *b*, 128*b*  
 — light, I, 250*a*, 275*d*  
 — magnetic and non-magnetic, VII, 456*c*  
 — molten, thermal conductivity, XI, 560*b*  
 — order-disorder transformation in, IX, 121*a*  
 — plated, I, 253*a*  
 — specific heat-temperature curve, IX, 126*a*, 127*a*, 128*a*  
 — thermal conductivity, XI, 556*b*  
 — type-metal, XI, 623*d*  
**Alloying**, X, 181*a*  
**Allyl acetate**, I, 256*a*  
 — alcohol, I, 256*b*  
 — bromide, I, 257*d*  
 — ribromide, I, 259*c*  
 — chloride, I, 257*d*  
 — cyanamide, I, 258*a*  
 — cyanide, I, 258*b*  
 — ether, I, 258*b*  
 — ethyl ether, I, 258*c*  
 — iodide, I, 258*c*  
 — mercaptan, I, 258*d*  
 — mustard oil, I, 258*d*  
 — nitrite, I, 258*d*  
 — radical and compounds, I, 256*a*  
 — salicylate, X, 666*b*  
 — sulphate, I, 259*a*  
 — sulphide, I, 259*a*  
 — polysulphides in garlic, V, 429*a*  
 — isothiocyanate, I, 258*d*; III, 10*d*; VIII, 255*a*, 256*b*, *d*  
**Allylacetic acid**, I, 256*a*  
**Allylacetone**, I, 256*b*  
**Allylacetylene**, I, 256*b*  
**Allylamines**, I, 257*b*  
**Allylaniline**, I, 257*c*  
**Allylene**, I, 119*a*; II, 281*b*  
**Allylguaiacol**, IV, 395*b*  
**Allylmalonic acid**, I, 258*d*  
**Allylmalonylguanidine**, VI, 146*a*  
**"Allyloid"** systems, VIII, 176*a*  
**Allylphenylthiourea**, I, 259*a*  
**Allylpropyl disulphide**, IX, 93*d*  
**Allylpyrrole**, I, 259*a*  
**Allylthiourea**, I, 259*b*; XI, 599*b*  
**"Almalec,"** I, 277*a*  
**Almandine**, I, 259*c*; V, 429*c*; X, 189*d*  
**"Almasilium,"** I, 277*a*  
**Almond**, I, 259*c*  
 — essential oil, I, 260*d*  
 — kernel oil, IX, 22*a*, 53*a*, 55*a*  
 — oil (fatty), I, 260*a*  
**Almonds**, sweet, enzyme from, IV, 283*b*  
**"Alni"** alloys, composition and properties, VII, 460*a*  
**"Alnico"** alloys, VII, 459*d*; X, 114*c*, 180*c*  
**Alniresinol**, I, 198*a*  
**Alnulin**, I, 197*d*  
**"Alocol,"** I, 261*b*  
**Aloe fibres**, I, 261*b*  
 — resins, I, 261*d*  
**Aloes**, bitter, I, 261*b*  
 — wood, I, 262*c*  
**Aloe-Emodin**, I, 261*b*  
**Aloins**, I, 261*d*, 262*d*  
**Aloinose**, I, 454*a*  
**Aloperine**, XI, 19*d*  
**"Aloxite,"** I, 4*a*, 262*d*  
 — glass-grinding stone, V, 598*d*  
**Alpaca**, I, 262*d*  
**"Alpax,"** I, 251*b*, 262*d*, 277*c*; X, 732*a*  
**Alphanol dyes**, I, 262*d*  
**"Alphogen,"** I, 262*d*; IV, 28*c*  
**"Alphol,"** I, 262*d*; IV, 29*d*  
**"Alphozone,"** I, 262*d*; IV, 28*c*  
**Alpinia oil** (*A. malaccensis*), I, 263*a*  
**Alquifou** (alquifoux), I, 263*a*; V, 415*c*  
**Alsace Green**, I, 263*a*  
**"Alsil,"** IV, 248*c*  
**"Alsol,"** I, 263*a*  
**Alstonia**, alkaloids, I, 263*a*  
 — bark, I, 263*a*  
**Alstonidine**, I, 263*c*  
**Alstonine**, I, 263*c*  
**Alstonite**, I, 263*d*, 613*b*, 638*a*  
**"Altai,"** I, 263*d*  
**Altaite**, VII, 238*a*, 253*d*; XI, 454*d*  
**Athæa officinalis**, I, 263*d*  
 — rosea, I, 264*a*  
**Althæin** (althein), I, 264*a*; VI, 85*d*  
**Altrose**, I, 264*b*; II, 286*a*  
**Aludel**, I, 264*b*  
 — furnaces, VII, 567*c*  
**"Aludur,"** I, 277*a*  
**Alum**, ammonium, I, 296*c*  
 — burnt, I, 295*d*  
 — "cake," I, 289*b*  
 — chrome, III, 100*d*  
 — iron, I, 293*d*  
 — meal, I, 295*b*  
 — mineral, I, 264*c*, 294*a*

**Alum**, potassium, I, 294a  
 — rock (*see also* Alunite), I, 207d  
 — shale, I, 297a  
 “**Alumatol**,” I, 264c  
**Alumian**, I, 290d  
 “**Alumilite**,” protection of metals, III, 392c  
**Alumina** (*see also* Corundum; Gems, artificial), I, 281a; X, 488a  
 — activated, XI, 43c  
 — reactivation of, XI, 45  
 — calcined or hydrated for glassmaking, V, 561c  
 — catalytic action on methane, II, 394d  
 — “hydrate,” I, 290d  
 — in glazes, X, 166d  
 — production, I, 265d; II, 326a  
 — white, I, 290d  
 $\alpha$ -**Alumina**, XI, 43c  
**Aluminadou**, VII, 374c  
**Aluminates**, I, 284b  
**Alumine hydratée des Beaux**, I, 656c  
**Aluminite**, I, 264c, 289a  
**Aluminium**, I, 264c  
 — acetate, I, 292c  
 — action on phenol, II, 306d  
 — alkyls, I, 293a  
 — alkyl halides, I, 293b  
 — alloys (*see also* Alloys, light), I, 250a, 275d  
 — as pigment, IX, 641b  
 — as reducing agent, XI, 562b  
 — as trace element, I, 504d; II, 496b; XI, 676d  
 — borates, I, 291d  
 — borides, I, 291c; II, 36b  
 — borocarbide, I, 292a  
 — borotartrate, II, 30c  
 — brasses, bronzes, etc., I, 276d  
 — bromate, I, 288a  
 — bromide, I, 287d  
 — carbide, I, 291d; II, 281c  
 — formation, II, 360a  
 — carbonate, I, 292a  
 — carbonyl, I, 292a  
 — cerium alloy, II, 507d  
 — chemical properties, I, 273a  
 — chlorate, I, 287c  
 — chloride, I, 286d  
 — subchlorides, I, 286d  
 — chloroformate, I, 292c  
 — chlorosulphate, I, 291a  
 — citrate, I, 293a  
 — corrosion, by inorganic substances, I, 273d, 274a  
 — by organic substances, I, 274c  
 — prevention, I, 275a  
 — cyanamide, I, 292b  
 — cyanide, I, 292a  
 — detection and detn., I, 270b  
 — by micro-methods, I, 279d  
 — detn., assay, I, 521d  
 — colorimetric, I, 279c; II, 669d  
 — gravimetric, I, 279b; II, 591d

**Aluminium**, detn., in clay, III, 202c  
 — in food, II, 650d; V, 292c  
 — volumetric, I, 279b; II, 650b  
 — dithionate, I, 291a  
 — drop reactions, II, 579c; VIII, 62a  
 — electrodeposition, IV, 270a  
 — electroplating on, I, 278d  
 — ethoxide, I, 28c, 293b  
 — extraction, XI, 17d  
 — fluoride, I, 285d  
 — subfluorides, I, 285d  
 — foil, I, 278b  
 — formate, I, 292c  
 — gluconate in tanning, II, 297b  
 — higher oxides, I, 283c  
 — hydrogen compounds, I, 280c  
 — hydroxide, I, 283c  
 — gels and sols, I, 283d  
 — minerals, for glassmaking, V, 561c  
 — mineral form, II, 25c  
 — hypochlorite, I, 287c  
 — industrial uses, I, 278b  
 — industry, refractories for, X, 503d  
 — iodate, I, 288c  
 — iodide, I, 288a  
 — mellitate, VII, 549c  
 — methoxide catalyst, II, 350d  
 — nitrate, I, 285b  
 — nitrate-acetate, I, 285c, 293a  
 — nitride, I, 284d  
 — nitrite, I, 285b  
 — oleate, I, 293c  
 — organic compounds, I, 292c  
 — oxalate, I, 293b  
 — oxide (*see also* Alumina), I, 281a; IV, 175a  
 — suboxides, I, 281a  
 — paint, I, 278c  
 — palmitate, I, 293c; V, 195c  
 — perchlorate, I, 287c  
 — physical properties, I, 271d  
 — polishing, I, 278d  
 — powder, I, 278c  
 — production, carbon electrodes, I, 268d  
 — electrolytic, I, 265a, 269c  
 — reduction furnaces, I, 269c  
 — qualitative reactions, II, 548a, 552a, 555a, 556d, 568a  
 —  $\gamma$ -ray-absorption in, X, 420  
 — selenate, I, 291b  
 — selenide, I, 291a  
 — selenite, I, 291a  
 — selenocyanate, I, 292c  
 — separation from chromium, VI, 299b  
 — silicate, in building materials, II, 133b  
 — silicates, I, 291b  
 — silicon alloys, X, 732a  
 — silver alloys, X, 763a  
 — sodium alloys, X, 812b  
 — solders for, XI, 11b  
 — stearate, I, 293d

**Aluminium sulphate**, I, 288d; XI, 236a  
 — sulphate-acetate, I, 292d  
 — sulphides, I, 288c; XI, 235d, 236a  
 — sulphite, I, 288d  
 — tartrate, I, 293d  
 — tellurate and telluride, I, 291b  
 — tellurite, I, 291b  
 — thiocyanate, I, 292b  
 — triisobutoxide, II, 170c  
 — triphenyl, I, 293b  
 — vessels in MeOH synthesis, II, 350b  
**Alumino-ferric**, I, 289c  
**Aluminon**, I, 280a, 296d  
 “**Alumnasol**,” *see* Alumnol.  
 “**Alumnol**,” I, 296d; IV, 30a  
 “**Alundum**,” I, 297b, 657b; III, 399c  
**Alunite**, I, 264c, 294a, 297d; X, 136a, 143b, 158b  
**Alumogen**, I, 289a, 298c; IV, 591d  
 “**Alurate**,” XI, 359a  
**Alva**, *see* Alfa  
 “**Alvar**,” I, 90c, 94d; X, 105d  
**Alvite**, VI, 169a  
 “**Alypin**,” I, 298c, 369a; XI, 362c  
**Amadou**, I, 298d  
**Amalgams**, I, 298d  
 — natural, VII, 562d  
**Amalic acid**, I, 249c  
**Amandin**, I, 300d  
**Amanil dyes**, I, 300d  
**Amanita muscaria**, I, 300d; VIII, 264c  
**Amanitin**, X, 260d  
**Amaranth**, I, 300d  
**Amarillite**, I, 300d  
**Amarine**, VI, 99a  
 — luminescent oxidation, III, 24a  
 “**Amatin**,” I, 301a  
**Amatol**, I, 301a  
**Amatoxol**, I, 301c  
**Amazonite** (amazon-stone), I, 301c; X, 189d  
**Ambaline**, I, 301c  
**Ambari**, V, 164c  
**Ambasine**, VIII, 477c  
**Ambatoarinite**, I, 370b; XI, 148a  
 “**Amber**,” I, 303a  
**Amber**, I, 301d  
 — artificial, I, 302c, 614d  
 — essential oil, I, 303a  
**Ambergris**, I, 303b  
 — odour, IX, 291b  
**Amberite**, I, 303d  
 “**Amberlite**,” X, 472d, 473a, b, c  
 “**Amberlite IRA-400 and IRC-500**,” XI, 193d  
**Amblygonite**, I, 303d; VII, 364a  
**Ambratriene**, XI, 728a  
**Ambrein**, I, 304a; XI, 727c  
**Ambreinolide**, XI, 728a  
**Ambrette**, I, 304a  
 — musk, I, 304b  
**Ambrettolide**, I, 304a; IX, 291b

**"Ambrine,"** I, 304b  
**"Ambroid,"** I, 302b  
*Ambrosia artemisifolia*, I, 304b  
**"Ameisine,"** I, 304b  
*Amellaroside*, VI, 93c  
**"Amenyl,"** I, 304c  
**"American alloy,"** I, 253a, 277c  
**American ashes**, I, 304c  
 — chrome yellow, III, 112b  
 — Paris White, I, 304c  
 — vermilion, I, 304c; III, 113b  
**Americium**, X, 441c; XI, 681d, 682c  
 — chemical properties, XI, 688a  
**"Ameroid,"** I, 304c  
**Amethocaine**, XI, 363b  
**Amethyst (dye)**, I, 304c, 576c  
 — oriental, III, 398a  
 — (quartz), I, 304c; X, 189c  
 — violet, I, 576c  
**Amianthus (amiantos)**, I, 304c, 499c  
**Amide powder**, I, 304c  
**Amides**, prepn., II, 371a, 375c  
 — reduction, II, 374d  
 — sulphonated, X, 801c  
**Amidines**, I, 304d  
 — tautomerism, XI, 438b  
**Amidine dyes**, I, 304d  
**Amidogene**, IV, 463a  
**"Amidol,"** I, 305a  
**Amidol-imidol system**, XI, 438a  
**Amidone**, XI, 360b  
**"Amidopyrine,"** I, 305a; X, 286b; XI, 360d  
**Amidoxyl benzoate**, I, 305b  
**Aminacrine hydrochloride**, XI, 373d  
**Amines**, I, 305b  
 — aromatic, potentiometric detn., II, 707a  
 — catalytic prepn., II, 428d  
 — formation, II, 377b  
 — physical properties, I, 310, 311  
 — primary, detn., II, 627b  
 — reactions, I, 312a  
 — sulphurisation, XI, 269d  
**Amino-acids**, I, 316d; XI, 97a  
 — acyl derivs., I, 319d  
 — determination, X, 242b  
 — esters, I, 319a  
 — generally distributed in proteins, X, 234  
 — in nature, X, 233d  
 — isolation, X, 240a  
 — not generally distributed in proteins, X, 235  
 — of rice proteins, II, 493c  
 — polymers from, X, 43a  
 — protein analysis for, X, 238b  
 — reagent for, I, 324b  
 — salts, I, 319a  
 — synthesis, II, 369d  
 **$\alpha$ -Amino-acids**, configuration, XI, 97a, c  
**p-Aminobenzoic acid**, XI, 881b  
**"Aminoform,"** I, 326a  
**Aminoketones**, VII, 111b, 124c  
**Aminolysis**, I, 322a; IV, 349d

**Amino-peptidase**, IV, 325a  
**Aminophenylthiazole J-acid**, X, 216d  
**"Aminophyllin,"** I, 326a  
**Aminopyrazines**, X, 290b  
**Ammine**, I, 284d, 326a; III, 327d, 334a  
**Aminochlorogold**, VI, 114a  
**Ammodendrine**, I, 326b  
**Ammolin**, II, 29d  
**Ammon, carbonit**, IV, 554d  
**Ammonal**, I, 326b  
**Ammonia**, I, 326d  
 — absorber, X, 837a  
 — absorption in sulphuric acid, I, 364d  
 — and derivs., stereochemistry, XI, 120b  
 — aqueous solution, I, 328c, 330a  
 — autoxidation, VIII, 581b  
 — catalytic decomposition, VIII, 454d  
 — oxidation, II, 424b  
 — cracked, for hydrogen supply, I, 330d; VI, 335a  
 — crackers, VI, 335a  
 — decomposition, VIII, 552b  
 — detn., gravimetric, II, 598c  
 — in gases, II, 681b, d  
 — volumetric, II, 645a  
 — distillation, X, 839c  
 — from blast furnace gas, peat and shale, I, 342a  
 — from calcium cyanamide, VIII, 544b  
 — from coal-, lignite-, and producer-gas, I, 338d  
 — from metallic cyanides, VIII, 544b  
 — from metallic nitrides, VIII, 544b  
 — from nitric oxide, VIII, 521b  
 — in fire extinguishers, II, 356c  
 — infra-red absorption, VIII, 505d  
 — liquid, as solvent, I, 331b  
 — oxidation catalyst, VIII, 563b, 564d  
 — — — poisons, VIII, 566a  
 — catalysts other than platinum, VIII, 569b  
 — — — converters, VIII, 564b, 565c, 567d  
 — electrolytic, VIII, 581b  
 — in solution, VIII, 581a  
 — in sulphuric acid works, VIII, 565d  
 — plant, VIII, 564a, 566a, 567c, 568a  
 — processes, VIII, 562c  
 — — — under pressure, VIII, 571d  
 — — — with oxygen, VIII, 571a  
 — photochemistry, IX, 538d  
 — production, I, 331c, 335b  
 — qualitative reactions, II, 553d, 572c  
 — recovery as liquor or sulphate, I, 349a, 350a

**Ammonia recovery**, direct and semi-direct processes, II, 262b; II, 340b; V, 461a  
 — from coke-oven gas, III, 265a  
 — — indirect process, I, 340b; V, 459a, 461a  
 — — Lymn or Power Gas Corp'n. system, V, 375b  
 — — Mond system, V, 374c  
 — — soda distiller, X, 834b  
 — — — factories, control of, X, 840d  
 — — — process, II, 326a; X, 820b  
 — — — diagram, X, 821d, 836  
 — synthesis, I, 331c, 335b  
 — American processes, I, 338a  
 — catalysts, I, 333d  
 — Claude process, I, 337c  
 — direct, I, 332a; II, 423d  
 — hydrogen production for (see also Hydrogen production), I, 334c; VI, 333d; VIII, 547b, 548d  
 — theoretical basis, II, 534c  
 — technical, as liquor and anhydrous liquid, I, 350c  
 — synthetic, VIII, 544b  
 — — activated iron catalysts for, VIII, 545a, 546a  
 — and methyl alcohol, VIII, 550b  
 — Casale process, VIII, 550c, 551b  
 — catalyst function for, VIII, 545c  
 — — plant, VIII, 548b, 549a  
 — Claude process, VIII, 550b, d  
 — Duparc process, VIII, 551d  
 — Fauser process, VIII, 551c  
 — from cyanamide, VIII, 554d  
 — from cyanides, VIII, 552d  
 — from nitrides, VIII, 552c  
 — gas purification for VIII, 549d  
 — hydrazine content, VIII, 546b  
 — large scale, VIII, 547b  
 — Mont Ceniz process, VIII, 552a  
 — plant corrosion, VIII, 549b  
 — prepn. of catalysts, VIII, 545d  
 — Serpek process, VIII, 552c  
 — water gas for, VIII, 547b  
**Ammoniacal liquor distillation**, I, 344d  
 — phenol from, II, 303d  
**Ammoniacum**, I, 356c  
**Ammoniated superphosphate**, I, 353d  
**Ammonite**, IV, 554a  
**Ammonium acetate**, "hydrolysis" of, VI, 248b

- Ammonium bicarbonate**, I, 351*d*  
 — borate, occurrence, II, 35*b*  
 — borates, II, 48*b*  
 — calcium ferrocyanide, III, 470*d*  
 — carbamate, I, 351*c*; II, 278*b*  
 — carbonate, I, 351*c*  
 — chloride, I, 351*d*; VIII, 582*a*  
 — — "hydrolysis" of, VI, 247*b*  
 — — vapour density of dry, IV, 80*b*  
 — chloropalladate, IX, 211*a*  
 — chloroplatinite, X, 116*a*  
 — chromate, III, 111*c*  
 — cyanate, III, 507*a*  
 — dichromate, III, 111*c*  
 — ferrocyanide, III, 470*c*  
 — ferrous ferrocyanide, III, 471*c*  
 — hydrogen purpurate, VIII, 245*a*  
 — iodide, VII, 13*a*  
 — ion, XI, 120*c*  
 — — drop reactions, VIII, 66*a*  
 — — qualitative reactions, II, 553*d*, 572*c*  
 — nitrate, I, 352*c*, 354*a*; IV, 464*a*; VIII, 561*c*  
 — *N* - nitrosophenylhydroxyl - amine reagent, II, 583*b*  
 — peroxide, IX, 292*c*  
 — persulphate in flour, II, 81*d*  
 — pertechnetate, XI, 454*c*  
 — phosphates, I, 352*d*; V, 223*a*; VIII, 582*a*  
 — phosphomolybdate, VIII, 222*c*  
 — platinonitrite, X, 117*c*  
 — rhodochloronitrate, X, 538*c*  
 — salts, I, 331*a*, 350*d*  
 — — in candle wicks, II, 265*a*  
 — sulphamate, flameproofing with, V, 198*c*  
 — sulphate, VIII, 581*c*  
 — — from coke-oven gas, III, 268*b*  
 — — from gas liquor, I, 347*c*  
 — — from gypsum, I, 351*a*  
 — — production, I, 342*a*, 350*d*; II, 424*b*  
 — tantalum oxyfluoride, XI, 420*a*  
 — thiocyanate, III, 508*d*; VI, 143*a*  
 — titanifluoride, XI, 637*d*  
 — urate, XI, 803*d*  
 — zinc lactate, crystallisation, XI, 99*d*  
**Ammonolysis**, VI, 397*a*; VII, 578*a*, *d*  
**Ammonpulver**, I, 357*a*  
**Ammophos**, I, 353*d*  
**Ammoresinol**, VIII, 446*b*  
**Amebicides**, X, 354*a*; XI, 382*d*  
**Amolonin**, VI, 85*d*  
**Amontons' law**, VII, 398*d*  
**Amosite**, I, 500*b*; VII, 455*d*  
**Ampangabeite**, I, 357*b*  
**Amelopsin**, I, 357*b*; IV, 554*c*; VIII, 649*d*  
**Amphetamine**, IV, 318*a*; XI, 365*b*  
**Amphibole-Asbestos**, I, 499*c*  
**"Amphipathic"** micelles, VIII, 57  
**Amphoteric oxides**, IX, 176*d*  
**"Amphotrophin,"** I, 357*d*  
**Amydracine hydrochloride**, I, 298*c*, 369*a*  
**Amygdalase**, II, 442*c*; IV, 282*d*  
**Amygdalin**, I, 259*c*, 260*b*, 357*d*  
 — gentiobiose in, II, 299*b*  
**isoAmygdalin**, VI, 85*d*  
**Amygdophenin**, I, 358*a*  
**Amyl acetate in film dopes**, II, 448*b*  
 — — in lacquers, II, 469*a*  
 — — production, II, 471*d*  
 — — specifications, II, 472*b*  
 — alcohol, IX, 288*c*  
 — — as stabiliser, IV, 521*c*  
 — — production (see also Fusel oil), I, 178*b*, 360*a*; II, 471*d*  
 — alcohols, I, 358*b*  
 — and amyl compounds, I, 358*a*  
 — bromide, I, 361*b*  
 — esters, I, 361, 362*d*  
 — ether, I, 362*a*  
 — fluorides, I, 362*a*  
 — "ketone," VII, 126*b*  
**isoAmylacetate**, I, 36*a*  
**isoAmylacetate**, VI, 250*b*  
**isoAmylacetate**, ethyl ester, I, 64*c*  
***n*-Amylamine**, I, 361*b*  
**isoAmylamine** in ergot, IV, 331*d*  
**Amylan**,  $\alpha$ - and  $\beta$ -, I, 363*a*  
**Amylarine**, I, 363*c*  
**Amylase** (see also Diastase; brewing), I, 363*c*; II, 302*c*; IV, 311*d*, 313*b*; VI, 395*b*, 396*d*; VIII, 108*c*  
 $\alpha$ - and  $\beta$ -Amylases, XI, 69*d*  
 — in brewing, II, 88*a*  
 — in millet, II, 486*b*  
 — in rice, II, 495*b*  
 $\alpha$ -*n*-Amylcinnamaldehyde, IX, 286*a*  
**Amyl-*m*-cresol**, antiseptic, XI, 372*b*  
**isoAmylcupreine**, III, 161*c*  
**Amylene hydrate**, XI, 357*d*  
**Amylenes**, I, 361*d*, 364*b*  
**Amylenol**, I, 362*d*  
**isoAmylformal**, I, 34*b*  
**isoAmylhydrocupreine**, III, 168*b*  
**isoAmylhydrocupreine hydrochloridum**, IV, 392*c*  
**Amylobacter pectinovorum**, V, 159*c*  
**Amylobarbitone**, XI, 358*d*  
**Amylocaine**, XI, 362*b*  
**Amylodextrins**, II, 88*a*, 298*d*; III, 567*d*, 568*a*  
**"Amyloform,"** I, 365*a*  
**Amylokinase**, II, 88*a*  
**Amylopectin**, I, 365*a*; XI, 66*d*, 67  
 — in rice, II, 494*c*  
**Amylopsin**, I, 690*b*  
**Amylose**, I, 365*a*; XI, 66*d*, 67*a*, 68*a*  
 — precipitants for, XI, 70*b*  
**Amylosynthase**, II, 495*c*  
**2-*n*-Amylquinoline**, 4-methoxy-, III, 462*d*, 463*a*  
**isoAmyltrimethylammonium hydroxide**, I, 363*c*  
**Amyriline in cacao butter**, II, 185*d*  
**Amyrins**,  $\alpha$ - and  $\beta$ -, I, 365*c*; IV, 275*c*; XI, 728*b*, 731*a*, *c*  
**"Amytal,"** I, 365*d*, 368*b*, 623*a*; XI, 358*d*  
**Anabesine**, I, 365*d*  
**"Anacardic acid,"** I, 366*a*  
**Anacardium nut**, I, 12*b*, 365*d*  
**Anaerobic organisms**, IX, 178*b*  
**Anaesthesia**, cyclopropane, X, 225*d*  
**"Anaesthesia"** ("Anesthesia"), I, 366*b*, 369*b*, 371*c*; XI, 363*c*  
**Anaesthetic acetylene**, I, 367*c*  
 — chloroform, I, 367*c*; III, 79*b*  
 — "Chloryl," IV, 359*a*  
 — divinyl ether, I, 368*a*  
 — ether, I, 367*b*; IV, 386*d*, 388*a*; XI, 357*a*  
 — ethers, comparison of, IV, 353*c*  
 — ethyl chloride, I, 367*b*  
 — ethylene, I, 367*d*; VI, 373*a*  
 — nitrous oxide, I, 367*a*  
**Anaesthetics**, I, 366*b*; X, 353*c*  
 — explosion risks with, I, 368*a*; IV, 388*a*, 427*c*  
 — inhalation, XI, 356*b*  
 — local, I, 368*c*; XI, 361*d*  
**Anagyrrine (Anagyris fatida)**, I, 369*d*; VII, 423*a*; XI, 19*d*  
**"Anahæmin,"** VI, 204*d*  
**Analcite**, X, 143*a*  
**"Analgen,"** I, 369*d*; X, 353*d*  
**Analgesics**, X, 353*c*; XI, 359*c*  
**Analgesine**, I, 369*d*  
**"Analutos,"** I, 370*a*  
**Analysers**, harmonic, XI, 477*b*  
**Analysis**, absorption spectra in, II, 709*a*  
 — azeotropes in, II, 711*a*  
 — by hydrogenation, IX, 180*b*  
 — chemical (see also Assaying), II, 541*b*  
 — chromatographic, II, 628*a*; IV, 174*c*; XI, 346*b*  
 — combustion, of carbon compounds, II, 615*a*  
 — — micro-method, II, 630*c*  
 — drop reactions, II, 579*c*  
 — electro-, Hildebrand's method, II, 699*d*  
 — electrochemical, conductivity methods, II, 692*b*  
 — — inner electrolysis in, II, 699*c*  
 — — micro-method, II, 699*c*  
 — electrodeposition methods, II, 695*c*  
 — gas, II, 674*d*, 687*d*

**Analysis**, gravimetric, II, 582c  
 — with cupferron, II, 583b  
 — with oxine, II, 583b  
 — with quinaldinic acid, II, 583c  
 — harmonic, of plant, XI, 476a  
 — hydrogenation, macro- and micro-, VI, 359b  
 — micro-, VIII, 70a, d  
 — detn. of C, H, and N, II, 630c  
 — — of Cl, Br, I and S, II, 632a  
 — — of organic radicals, II, 633d  
 — — gas, II, 680d  
 — — gravimetric methods, II, 629b  
 — — organic, VIII, 74d  
 — — quantitative, II, 629b  
 — — volumetric methods, II, 633d  
 — — of carbon compounds, tests for elements, II, 615a  
 — — dyes, IV, 174c, 194d, 239a  
 — — polarographic, II, 710b  
 — — potentiometric, II, 702d  
 — — proximate of carbon compounds, II, 623b  
 — — qualitative (see also Borax beads; Cobalt nitrate reactions; Flame colorations; Micro-cosmic salt beads; "Silica skeleton test"), II, 545d  
 — — dry tests, II, 547a, 548b  
 — — groups I and II, II, 551a, c  
 — — group III, II, 552a, b  
 — — group IV, II, 552b  
 — — group V, II, 553a  
 — — group VI, II, 554a  
 — — open tube method, II, 547b  
 — — rare metals absent, II, 550c  
 — — rare metals present, II, 554a, 556d  
 — — solvent action of mineral acid, II, 549b  
 — — quantitative, II, 582c  
 — — reactions of organic acids, II, 569a  
 — — reactions of rare earth metals, II, 568c  
 — — special reactions, II, 565d  
 — — spectrum, see Spectrum analysis  
 — — "spot" tests, see Drop reactions  
 — — steam distillation in, XI, 88b  
 — — thermal, apparatus, XI, 551a  
 — — furnaces, XI, 550c  
 — — of minerals, XI, 548d  
 — — titration, conductivity method, II, 693d  
 — — ultimate, of carbon compounds, II, 615a  
 — — volumetric, II, 634d  
 — — calibration of vessel, II, 635c

**Analysis**, volumetric, detn. of combined acids, II, 646b  
 — — detn. of free acids in salts, II, 646b  
 — — iodine, thiosulphate and arsenite methods, II, 648b  
 — — of acids, II, 645a  
 — — of alkaline substances, II, 644a  
 — — standard solutions, II, 641c  
 — — with ceric sulphate, II, 647d  
 — — with dichromate, II, 647b  
 — — with permanganate, II, 646c  
 — — with silver nitrate, II, 649c  
 — — with stannous chloride, II, 649b  
 — — with titanous chloride, II, 649a; IV, 239a  
*Anamirta paniculata* (see also *Cocculus indicus*), I, 370a; IX, 620d  
*Anamirtin*, I, 370a  
*Ananas sativus*, I, 458d  
*Anatase*, I, 370a; XI, 631b, 634a, 641c  
 — X-ray crystallography, XI, 641a  
*Anauxite*, VII, 95b  
 — "Anayodin," I, 370a  
*Ancylite*, I, 370a  
*Ancylotoma duodenale*, XI, 383c  
*Andalusite*, I, 264d, 370b; X, 484a  
*Andeer's lotion*, IV, 29c  
*Andesine*, I, 370c  
*Andesite*, I, 370c  
*Andiroba oil*, II, 277b  
*Andorite*, I, 370d  
*Andradite*, V, 429b  
*Andresen's acid*, VIII, 321a  
*Andropogon* oils (see also *Citronella*), III, 183d  
*Andropogon sorghum*, XI, 20b, 176b  
*Androsin*, I, 370d; VI, 85d  
*Androstan-3-ol-17-one*, I, 370d  
 $\Delta^4$ -5-*Androsten-17-ol-3-one*, I, 371a  
*Androsterone*, I, 370d; VI, 274d  
*Anemolic acid*, I, 371b  
*Anemonin*, anemoninic acid, I, 371b  
 — "Anesin" ("Aneson"), see Acetone-chloroform.  
 — "Anesthesine" ("Anæsthesine"), I, 366b, 369b, 371c  
 — "Anestile," IV, 359a  
*Anethole*, I, 371c  
*Anethum graveolens*, I, 371c; IV, 4c  
*Aneurin*, I, 371c, 583b; VI, 138d; VIII, 81c, 82c, 481d; IX, 165c; XI, 872a

*Aneurin*, cleavage and absorption, spectra, VIII, 208b  
 — pyrophosphate, IX, 165c  
 — "Anex," XI, 193a  
*Angelica acid*, X, 715a; XI, 103d  
*Angelica*, essential oil, I, 371c  
*Angelicin*, VIII, 444d, 448a  
*Angeline*, I, 371d  
*Angiotonin*, X, 260c  
*Anglesite*, I, 371d  
 — "Anglopyrin," I, 517d  
*Angostura*, VII, 348a  
*Angostura* (*Angustura*) bark (see also *Cusparis bark*), III, 462b  
*Angosturin* and angosturine, III, 463a, c  
*Angræcum fragrans*, XI, 453a  
*Angular leaf spot*, V, 139a  
*Angustione*, VII, 144c; XI, 489b, 503c  
*Anhaline*, I, 371d; VI, 266a  
*Anhydrides*, acid prepn., II, 370b  
*Anhydrite*, I, 372a; II, 129b, 130a; XI, 235b  
 — conversion into ammonium sulphate, II, 424b  
 — "insoluble" and "soluble," II, 130a  
 — sulphuric acid from, XI, 301d  
*Anhydroazafrinoneamide*, II, 395d  
*Anhydrobrazilic acid*, II, 69d  
*Anhydrocapsanthinone*, II, 273a  
*Anhydrogitalin*, II, 384b  
*Anhydrogossypol*, III, 407d  
*Anhydrolupinine*, VII, 420a  
*Anhydrone*, III, 68d  
*Anhydro-osazones*, II, 293b  
*Anhydropyromonosulphuric acid*, II, 393d  
*Anhydropiliosine*, VII, 76a  
*Anhydroquassin*, X, 342c  
*Anhydro-sugars*, XI, 176d  
*Anhydrotrimethylbrazilone*, II, 71b  
*Anilic acids*, prepn., II, 371b  
*Anilides*, prepn., II, 371b  
*Aniline*, I, 372c  
 — Blue, -Brown, -Red, -Scarlet, I, 376d  
 — 2:5-dichloro-, III, 601d  
 — formaldehyde resins, 37b  
 — from phenol, II, 307a  
 — nitrite, III, 581a  
 — o- and p-nitro-, I, 39a  
 — tetranitro-, IV, 487d  
 — orange, XI, 859d  
 — pyrolysis, II, 278c  
 — violet, I, 577c  
*Anilines*, nitro-, VIII, 487d  
 — — analysis, VIII, 488b  
 — — from chloronitrobenzenes, VIII, 488a  
*Anilinobutaldehyde ethylacetal*, I, 36b  
*Anilinobutylideneaniline*, I, 29d  
*Animal oil*, II, 29c; VI, 135b, 280d  
 — — Dippel's oil, II, 29c

Animal organism, resolution in, XI, 101d  
 — trace element requirements, XI, 672c  
*Anime* (Animi), *see* Elemi  
*Animin*, II, 29d  
*Anion acids*, VI, 247a  
*Anionotropy*, XI, 426b, 440d  
*Anisaldehyde*, I, 376d; IX, 285d  
*Anise oil*, I, 377a  
*Aniseed*, I, 376d  
*Anisette*, VII, 348b  
*Anisic acid*, I, 377a  
*o*-, *m*-, and *p*-*Anisidines*, I, 377b  
*Anisole*, I, 377d  
 — *s*-*trinitro*-, IV, 484a  
*Ankerite*, I, 378a; IV, 53d  
*Annabergite*, VIII, 464a, 477b; X, 468c  
 “*Annaline*,” VI, 160c  
*Annatto*, I, 378a  
 — detection, IX, 73c  
*Annealing*, I, 379a; VII, 600b, 606c  
 — bright, VI, 334c  
*Annivite*, IV, 590d  
*Anode efficiency*, IV, 261c  
 — rays, VII, 520b  
*Anodic oxidation of metals*, III, 392b; IV, 271d  
*Anodising*, IV, 271d  
*Anodoluminescence*, VII, 411d  
*Anodynine*, *see* Antipyrine  
 “*Anogon*,” I, 380d  
 “*Anol*,” VI, 225d  
 “*Anon*,” I, 380d; VII, 141d  
*Anona muricata*, XI, 46b  
*Anona squamosa*, XI, 354b  
*Anopheline mosquito control*, IX, 303a  
*Anorthite*, I, 264d; II, 228c; V, 1d  
*Anorthoclase*, X, 135c  
*Anserine*, I, 380d; II, 392a; X, 260c  
*Antalgine* (*see also* Agathin), I, 381a  
 “*Antergan*,” XI, 368a  
*Anthanthrone*, I, 426a; VIII, 387c, 388d  
*Anthelmintics*, XI, 383b  
*Anthemene*, anthemol, I, 381a  
*Anthemis*, XI, 453a  
*Anthemis nobilis*, essential oil, I, 381a; II, 520a  
*Anthraxanthin*, I, 381a; II, 399d  
 “*Anthisan*,” XI, 368  
*Anthocyanins*, I, 381b  
*Anthocyanidins*, I, 381b; X, 6a, 9b  
 — colour changes in solution, X, 10a  
 — synthesis, X, 10c  
*Anthocyanins*, I, 318b; II, 120b, 183b, 234b; X, 9b  
 — colour changes in solution, X, 10a  
 — distribution number, III, 341b

*Anthocyanins*, sugar in, II, 299b  
*Anthophyllite*, I, 499c; VII, 455d  
*Anthorine*, I, 124a  
 $\psi$ -*Anthorine*, I, 124a  
*Anthra Rubine R*, I, 415c  
*Anthracene*, I, 382a  
 — additive compounds, I, 385c  
 — derivs. from Guyot's compounds, VIII, 32d  
 — — influence of *Bz*-chloro-substituents, VIII, 28a, 36a, 44a  
 — — influence of *Bz*-methyl substituents, VIII, 25c, 41c, 44a  
 — — structural formulae, VIII, 21a  
 — detn., I, 386d  
 — from anthraquinone, I, 388b  
 — halogenation, I, 386b  
 — hydrogenation, I, 386c; VI, 352d  
 — oil, I, 126b; III, 208b 211c  
 — — in wood preservation, II, 308d  
 — — oxidation, II, 428a  
 — purification, XI, 17b  
 — reactions with acyl and alkyl halides, VIII, 26c  
 — — with anhydrides, VIII, 26c  
 — — with benzoquinone, VIII, 27c  
 — — with maleic anhydride, VIII, 26d  
 — ring closure, VIII, 22c, 31c, 33d  
 — series, *o*- and *p*-quinoid structures, VIII, 20c, 21a  
 — spatial formula, VIII, 27a  
 — structure and fluorescence, VIII, 20b, 25a, 43b, 45b  
*Anthracenecarboxylic acids*, VIII, 26c, 52a  
*Anthracenes*, addition of alkyl (aryl) groups to, VIII, 22c  
 — halogeno-, and reactive aryl compounds, VIII, 22c, 28a  
 — dihydroxy-, dehydration, VIII, 23b  
*Anthrachrome dyes*, I, 387c  
*Anthrachrysazin*, *see* Anthrachrysone  
*Anthrachrysone* (anthrachrysazin), I, 213a, 226c, 405a  
 — 2:6-disulphonate, I, 392d  
*Anthracite*, V, 344a  
*Anthracoumarin*, 2:3-*dihydroxy*-, XI, 171d  
*Anthracyanine BGG*, IX, 151d  
*Anthraflavic acid*, *see* Anthraflavin  
*isoAnthraflavic acid*, I, 212d  
*Anthraflavin*, I, 206a, 212d, 223a, 402c  
 — 1:5-dinitro-, I, 392c  
 — 3:7-disulphonic acid, I, 390b, 392d  
*isoAnthraflavin*, I, 206a, 212d, 223b  
 — 1:3:6:8-tetranitro-, I, 392d

*isoAnthraflavin*, 3:6-disulphonic acid, I, 390b, 392d  
*Anthraflavone G*, I, 418d  
*Anthraflusone*, I, 431c  
*Anthragallol*, I, 212d, 223b, 402c; X, 5a  
 —  $\alpha$ - and  $\beta$ -hydroxy-, I, 212d, 226a  
 — dihydroxy-, I, 212d, 227b  
 — 1:2- and 1:3-dimethyl ethers, I, 223d; II, 524a  
 — 4-nitro-, I, 392d  
*Anthragallolamide*, I, 223d  
*Anthrahydroquinone*, 1:2-dihydroxy-, I, 219d  
*Anthrahydroquinones*, I, 215a  
*Anthralan colours*, I, 407d  
*Anthranol*, I, 215a, 388b, 430a; II, 410d; VIII, 21d, 24d  
 — dihydroxy-, III, 127d  
 — 1:2-dihydroxy-, I, 219d  
*Anthranol-Anthrone* equilibrium, VIII, 24d  
*Anthrapinacene*, I, 432b  
*Anthrapurpurin*, I, 206a, 212d, 225a  
 — hydroxy-, I, 213a  
*Anthrapurpurinamide*, I, 225c  
*Anthraquinol*, I, 338b, 430d  
*Anthraquinone*, I, 206c, 207a, 387d, 565a  
 — acyl derivs., I, 396d  
 — alkyl derivs., I, 395c  
 — alkoxyl derivs., I, 211b  
 — 1- and 2-amino-, I, 206a, 211c, 394c, 412b  
 — *leuco*-1:4-diamino-, I, 409b  
 — 1:4:5:8-tetra-amino-, I, 212b  
 — 1:5-diamino-*N:N'*-*di*benzoyl-, I, 232d  
 — 1-amino-2:4-dichloro-, I, 207d  
 — 1-amino-2:3-dihydroxy-, I, 223d  
 — 4-amino-1:3-dihydroxy-, I, 224b  
 — 6-amino-1:2:5:8-tetrahydroxy-, I, 228c  
 — 2-amino-3-nitro-, I, 392a  
 — 1-amino-2:4-dinitro-, I, 392a  
 — aroyl derivs., I, 396d  
 — aryl derivs., I, 395c  
 — chloro-derivs., I, 397d  
 — 2-chloro-, I, 208b, 210d, 402c  
 — dichloro-, I, 211a, 402c  
 — 1:4:6-trichloro-, I, 402c  
 — 2:3:6-trichloro-, I, 402c  
 — 1-chloro-4-hydroxy-, I, 402c  
 — 1-chloro-4-nitro-, I, 392b  
 — 1:8-dichloro-4-nitro-, I, 392b  
 — 1:5-dichloro-4:8-dinitro-, I, 392b  
 — 1:8-dichloro-4:5-dinitro-, I, 392b  
 — colours, brilliancy, I, 429c  
 — derivs., replacement actions, I, 211a  
 — dyes (*see also* Alizarin; Dyeing; Vat dyes), I, 402d  
 — from phthalic anhydride and benzene, I, 401d

**Anthraquinone** Green, I, 406a  
 — *tetrahydro*-, I, 208b  
 — 1-hydroxy-, I, 216a  
 — 2-hydroxy-, I, 216b, 402c; II, 524c  
 — 1:2-dihydroxy- (*see also* Alizarin) I, 397d, 402c; II, 523d  
 — 1:3-dihydroxy-, I, 220c  
 — 1:4-dihydroxy-, I, 220d  
 — 1:5-dihydroxy-, I, 221d  
 — 1:6-dihydroxy-, I, 222a  
 — 1:7-dihydroxy-, I, 222b  
 — 1:8-dihydroxy- (anthranol), III, 120c  
 — 2:3-dihydroxy-, I, 222c  
 — 2:6-dihydroxy-, I, 223a  
 — 1:2:3-trihydroxy-, I, 223c  
 — 1:2:4-trihydroxy-, I, 223d  
 — 1:2:5-trihydroxy-, I, 224c  
 — 1:2:6-trihydroxy-, I, 224c  
 — 1:2:7-trihydroxy-, I, 225a  
 — 1:2:8-trihydroxy-, I, 225d  
 — 1:3:8-trihydroxy-, I, 212d, 225d  
 — 1:4:8-trihydroxy-, I, 212d, 225d  
 — 1:2:3:4-tetrahydroxy-, I, 226a  
 — 1:2:5:6-tetrahydroxy-, I, 226b  
 — 1:2:5:8-tetrahydroxy-, I, 226b  
 — 1:3:5:7-tetrahydroxy-, I, 226c  
 — 1:4:5:8-tetrahydroxy-, I, 227a  
 — 1:2:3:5:7-pentahydroxy-, I, 227b  
 — 1:2:4:5:8-pentahydroxy-, I, 227b  
 — 1:2:3:5:6:7-hexahydroxy-, I, 227c  
 — 1:2:4:5:6:8-hexahydroxy-, I, 227c  
 — 1:2:4:5:7:8-hexahydroxy-, I, 227c  
 — 1-hydroxy-4-benzoylamino-, I, 206d  
 — 1-hydroxymethyl-1:8-dihydroxy-, I, 261b  
 — 1:2:4:5:7:8-hexahydroxy-3-nitro-, I, 228b  
 — 1-nitro-, I, 206c, 210d  
 — 1:5-dinitro-, I, 206a, c, 210d, 391a  
 — 1:8-dinitro-, I, 210d, 391a  
 — 2:7-dinitro-, complex with chrysene, III, 118c  
 — nuclear syntheses, I, 400d  
 — phenoxy-derivs., I, 211b  
 — pigments, X, 4c  
 — production, II, 428a  
 — reduction products, C-alkylation of, VIII, 22c  
 — 1-salicylamino-, I, 233a  
 — structure, VIII, 21a  
 — violet, I, 232a, 405c  
**Anthraquinones**, acylamino-, I, 205c, 206d

**Anthraquinones**, amino-, I, 205c, 211c, 394c, 414b  
 — — halogenation, I, 397b  
 — *diamino*-, I, 212a, 392b, 395a  
 — and Grignard reagents, VIII, 22a, 23b, 26a  
 — hydroxy-, I, 203b, 212d, 397d  
 — — constitution, I, 215c  
 — — lakes from, and properties, I, 215d, 216a  
 — — reduction, I, 215a  
 — dihydroxy-, I, 220c, 221d, 222, 223, 397d  
 — in lichens, VII, 306a  
 — dinitro-, I, 391a  
 — substituted, 609a  
**Anthraquinonedisulphonic acids**, I, 208d, 209c, 210c  
 — — dichloro-, I, 390d  
**Anthraquinone-2 : 6-disulphonic acid**, 1 : 5-dihydroxy-4 : 8-diamino-, I, 206d  
**Anthraquinone-3 : 7-disulphonic acid**, 1 : 2 : 4 : 5 : 6 : 8-hexahydroxy-, I, 206d  
**Anthraquinonemonosulphonic acids**, I, 390d  
**Anthraquinonesulphonic acids**, I, 208d  
 — — dichloro-, I, 390d  
**Anthraquinone-1-sulphonic acid**, I, 209b  
**Anthraquinone-2-sulphonic acid**, I, 210a  
**Anthraquinone-5- and -8-sulphonic acids**, 1-nitro-, I, 391d  
**Anthraquinonethioglycolic acid** dyes, I, 232c  
**Anthraquinonoid vat dyes**, XI, 852b  
**Anthraquino-quinolines**, I, 396d  
**Anthrarobin**, I, 219d, 433a; III, 117d  
**Anthrarufin**, I, 221d  
 — 4:8-diamino-, I, 205c, 212c  
 — as intermediate, I, 405a  
 — hydroxy-, I, 206a, 212d, 224c  
 — 4:8-dinitro-, I, 212d, 392c  
 — 2:4:6:8-tetranitro-, I, 392c  
 — synthesis and prepn., I, 212d, 221d  
**Anthrarufin-2:6-disulphonic acid**, I, 390b, 392d  
**Anthrarufin-2 : 4 : 6 : 8-tetrasulphonic acid**, I, 390b  
**Anthrimides**, I, 411b  
**Anthroic acid**, VIII, 52a  
**Anthrone**, I, 206c, 215a, 388b  
 — 1-chloro-, I, 432d  
 — 1:5-, 1:8-, and 4:5-dichloro-, VIII, 41b  
 — 10:10-dichloro-, VIII, 25d  
 — derivs., I, 432d  
 — enolisation, VIII, 23b, 25a  
 — periodides, VIII, 25d  
 — prepn., I, 430a  
 — structure, VIII, 21b, 24b  
**Anthrones**, alkylation, VIII, 22d  
 — and Grignard reagents, VIII, 22b, 23b, 26a

**Anthrones**, from alkyl (acyl) benzyl-benzoic acids, VIII, 22c, 31c  
 — halogeno-, and aromatic compounds, VIII, 22c, 28c  
 — dihalogeno-, in Friedel-Crafts reaction, VIII, 29c  
 — influence of  $\alpha$ -chlorines on mesohydrogens, VIII, 39c  
 — nitro-, VIII, 41c, 44d  
 — prepn., VIII, 24b  
 — reactions with aldehydes, VIII, 22c, 29c, 30b  
 — — with benzophenone, VIII, 29d  
 — — with unsaturated compounds, VIII, 22c, 29c  
 — — with  $\alpha\beta$ -unsaturated ketones, VIII, 30c  
 — Bz-substituted, VIII, 24b, 25c, 41c, 44a  
 — 10-substituted, VIII, 25b  
 10-Anthrahydrosuccinic anhydride, VIII, 27d  
**Anti-agers** for rubber, I, 29d; X, 556b  
**Antiaregenin**, II, 387c  
**Antiarin**, I, 433a  
**Antiarin**,  $\alpha$ - and  $\beta$ -, II, 387c; VI, 86a  
**Antiarose**, II, 387c  
**Antibacterials**, XI, 371c  
 — external application, XI, 371d  
 — for systemic treatment, XI, 375c  
**Antiberiberi vitamin**, XI, 872a  
**Antibiotics** in soil, XI, 5b  
**Antibodies**, XI, 665c  
**Anti-catalysts**, *see also* Catalyst poisons  
 — in drying oil, IV, 92a  
 — in prepn. of bornyl chloride, II, 251b  
**Anti-chlor**, I, 433b  
**Anticoagulants**, blood, II, 24b  
 "Anticol," I, 433b  
**Anticonvulsants**, XI, 359b  
 "Anticorodal," I, 253a, 277a  
**Anti-dimming materials** in respirators, III, 18d  
 "Antidin," I, 433b  
 "Antifebrin," I, 38d, 433b; XI, 360c  
**Anti-flash compounds**, IV, 521d  
 "Antiformin," I, 433b  
**Anti-fouling paints**, III, 383c  
**Anti-friction additives**, VII, 402b  
 — metal, I, 446a  
**Anti-Froths**, V, 289a  
 "Antifungin," I, 433b  
**Antigen** of blood, II, 22b  
**Antigens**, XI, 665c  
**Antihypo**, I, 433b  
**Anti-knock agents**, addition to petrol, I, 674a; IV, 417d, 449a  
 — — manufacture, X, 808d  
 — — metal carbonyls as, II, 358d  
 — — in aero engines, VIII, 637b

- Anti-knock agents**, iron pentacarbonyl, IX, 381c  
— value, VIII, 632c, 637c  
“*Antileprol*,” I, 433c  
“*Antileutin*,” I, 433c  
“*Antilusin*,” XI, 364b  
**Antimalarials**, X, 354a; XI, 379a  
**Antimers**, behaviour with optically active compounds, XI, 100c  
**Antimonials**, aliphatic, I, 434a  
— alkyl, dihalides, I, 434b  
— aromatic, I, 435c  
— cyclic, I, 437c  
— detn. of antimony in, II, 622b  
— organic, I, 433c  
**Antimonine**, I, 439c  
**Antimonious oxide**, I, 448a  
— — pigment, I, 449c  
**Antimonite**, I, 439c, d; XI, 139d  
**Antimony**, I, 439c  
— arsenical, I, 439d  
— blende, I, 439d  
— bloom, I, 439d; XI, 826c  
— butter of, I, 447d  
— cacodyl, I, 434c  
— chloride as chlorine carrier, II, 353b  
— trichloride, I, 447d  
— — reaction with carotene, II, 394d  
— — test for polyenes, VIII, 207d  
— pentachloride, chlorination catalyst, II, 428d  
— chromium alloy, III, 104a  
— cinnabar, I, 447c; II, 233d  
— crocus, I, 447b  
— crude, I, 442a, 446b  
— derivs., therapeutic, XI, 386d  
— detn., assay, I, 522a  
— — colorimetric, II, 670c  
— — electrodeposition method, II, 700a  
— — gravimetric, II, 600b  
— — in enamelled ware, V, 292d  
— — iodimetric, II, 651c  
— — potentiometric, II, 707a  
— drop reaction, II, 579d; VIII, 67c  
— trifluoride, I, 448c  
— pentafluoride, I, 448c  
— — glance, I, 439d; XI, 139d  
— luminescent reaction, III, 23d  
— mordant, I, 448c  
— nickeliferous grey, I, 439d  
— ochre, XI, 139c  
— ore, I, 446b  
— oxalates, IX, 149a  
— oxide, IX, 627b  
— — as catalyst, II, 350d  
— — complexes with catechol, II, 431a  
— — for glassmaking, V, 560a  
— trioxide, I, 448a  
— tetroxide, I, 448b  
— oxychloride, I, 448a  
— qualitative reactions, II, 551d, 554d, 556d, 573d  
**Antimony**, red, I, 439d; X, 477c  
— saffron, I, 447b  
— salt or salts, I, 448b, d  
— sulphide, brown-red, I, 446c  
— sesquisulphide, I, 446b  
— trisulphide, I, 446b; XI, 139d  
— pentasulphide, I, 447a  
— sulphides, XI, 239b, c  
— uses, XI, 140a  
— white, I, 439d, 449c  
— yellow, I, 447c; IX, 636c  
**Antimonyl compounds**, I, 438d  
“*Antinonin*,” I, 448d; IV, 30c  
“*Antinosin*,” I, 448d  
**Anti-oxidants** (see also Inhibitors, gum), VI, 468d; X, 556a  
— addition to benzole motor fuel, I, 674b  
— for dried egg, X, 198c  
— for drying oils and rubber, II, 427c; IV, 92a  
— for rubber, X, 574d  
— in fats, IX, 26b, 48b  
— in food, II, 427c; V, 306a  
“*Antiperiodyin*” (*Antiperiositin*), I, 449a  
**Antipyretics**, X, 353d; XI, 359c  
“*Antipyrin*,” I, 369d, 449a; VI, 300d, 302b; IX, 466c; XI, 360c  
**Antirrhinin**, I, 449a  
**Anti-scurvy vitamin**, XI, 874a  
**Antiseptics** (see also Disinfectants; Food preservatives) X, 353d  
— acridine, I, 133d  
— benzoic acid, IV, 28c; V, 300c  
— butyric acid, IV, 28b  
— camphor, IV, 30d  
— carbon tetrachloride, IV, 30d  
— cinnamic acid, IV, 29a  
— creosol, IV, 29c  
— creosote, III, 420a, 422a; IV, 29d  
— cresols, IV, 29b  
— cresylic acid, III, 427d  
— essential oils, IV, 30d  
— halogenated aromatic compounds, IV, 30c  
— hops, II, 92a  
— hydrocarbon, IV, 30c  
— lanolin, III, 92c  
— lysol, III, 427d  
— nitro-compounds, aromatic, IV, 30c  
— perborates in, II, 52a  
— petroleum, IV, 30c  
“*Antistin*,” XI, 369a  
**Anti-stokes frequencies**, VIII, 187d  
**Antitoxins**, XI, 665c, 670b  
— assay, XI, 671a  
— clinical use, XI, 671b  
— purification, XI, 670d  
— toxin reaction, XI, 668b  
“*Antitussm*,” I, 449c  
**Antivenenes**, antivenom sera, II, 24d  
**Anti-wear additives**, VII, 402c  
“*Antodyne*,” I, 449c  
**Antonov's rule**, XI, 349c  
“*Antox*,” I, 449c  
“*Antrycid*,” X, 354c; XI, 382c  
“*Antryol*,” XI, 381d  
“*Antu*” (“109”), IX, 314b  
**Anzaic acid**, VII, 294a  
**Aomai**, II, 495d  
**Apallagin**, I, 449c  
**Apatite**, I, 449c; II, 204a, 224c  
— for superphosphate manufacture, V, 68c  
— in bone, II, 27c  
**Aphis sinensis**, V, 426c  
**Aphthalite**, I, 450b; X, 158a  
**Aphylline**, I, 365d  
**A.P.I.** gravity scale, I, 450c  
“*Apiezon*,” VIII, 167d  
**Apigenin**, II, 520b; V, 514b; VI, 171c; X, 6b, 7a; XI, 953a  
**Apiin**, I, 450c; II, 288d; V, 514b; X, 6b  
— in celery, II, 441b  
**Apiol**, IX, 90c, 233b  
**Apionic acid**, I, 450d  
**Apionol**, IX, 478d  
**Apiose**, I, 450c; II, 288d  
**Apis dorsata**, XI, 936a, 937b  
— mellifica, XI, 935d  
**Apis spp.**, V, 530b; VI, 262d, 263b  
**Apium petroselinum**, I, 450d  
**Aplite**, VI, 126b  
**Apocadalene**, VIII, 405a  
**cisApocamphoric acid**, II, 34b  
**Apocarnitine**, I, 450d; II, 391c  
**Apochoic acid**, compound with camphor, II, 240d  
**Apocinchene**, III, 141a  
**Apocinchonidine**, III, 153c  
**Apocinchonine**, III, 157a  
**Apocyclene**, II, 240c  
**Apoenzym**, VIII, 481b, 612c  
“*Apolysin*,” I, 450d  
**Apomorphine methyl bromide**, II, 118d; IV, 401d  
“*Aponal*,” I, 450d  
**Aponal**, XI, 358b  
**Apophosphorylase**, V, 35c  
**Apophyllite**, II, 227c  
**Apoquinamine**, III, 169a  
**Apoquinene**, III, 141a, 178a  
**Apoquinidine**, III, 149c, 171b  
**Apoquinine**, III, 149c, 176b  
**Aporeine**, I, 450d  
**Aporphine alkaloids** (see also isoQuinoline alkaloids), III, 400b  
**Aposafranines**, I, 570c, 575c; X, 550a  
**Aposafranone**, I, 571a  
“*Apothesine*,” I, 369a, 451a; XI, 362c  
**Apozymase**, III, 250c  
**Apple**, I, 451a  
— jack, I, 452b  
— pulp, I, 452b