

International Union of Pure and Applied Chemistry

# Compendium of Chemical Terminology

Gold Book

Version 2.3.3  
2014-02-24

**PROL0340430**

## Index

- $\alpha$  (alpha),  $\beta$  (beta), 1  
 $\alpha$ - ( $\beta$ -,  $\gamma$ -) ray spectrometer, 2  
 $\alpha$ -addition (alpha-addition), 2  
 $\alpha$ -cleavage (alpha-cleavage), 3  
 $\alpha$ -decay (alpha-decay), 3  
 $\alpha$ -effect, 3  
 $\alpha$ -elimination, 4  
 $\alpha$ -expulsion in photochemistry, 4  
 $\alpha$ -oxo carbenes, 4  
 $\alpha$ -particle (alpha-particle), 5  
'A' value, 5  
*ab initio* quantum mechanical methods, 5  
abatement in atmospheric chemistry, 5  
*abeo*-, 5  
abiotic, 6  
abiotic transformation, 7  
absolute activation analysis, 7  
absolute activity,  $\lambda$ , 7  
absolute configuration, 7  
absolute counting in radioanalytical chemistry, 8  
absolute electrode potential, 8  
absolute full energy peak efficiency, 8  
absolute lethal concentration ( $LC_{100}$ ), 8  
absolute lethal dose ( $LD_{100}$ ), 8  
absolute photopeak efficiency, 9  
absolute preconcentration in trace analysis, 9  
absorbance,  $A$ , 9  
absorbance matching in spectrochemical analysis, 9  
absorbed dose of a substance, 10  
absorbed dose,  $D$  of radiation, 10  
absorbed electron coefficient in in situ microanalysis, 10  
absorbed electrons in in situ microanalysis, 10  
absorbed (spectral) photon flux density, 11  
absorbed (spectral) radiant power density, 11  
absorber, 11  
absorptance,  $\alpha$ , 12  
absorption, 12  
absorption coefficient, 13  
absorption coefficient in biology, 13  
absorption cross-section,  $\sigma$ , 13  
absorption factor, 13  
absorption intensity, 14  
absorption line, 14  
absorption pathlength of a sample cell, 14  
absorption spectrum, 14  
absorptivity [obsolete], 14  
abstraction, 15  
abstraction process in catalysis, 15  
abundance sensitivity in mass spectrometry, 16  
*ac*, 16  
accelerating voltage (high voltage, V) scan in mass spectrometry, 16  
acceleration,  $a$ , 16  
acceleration energy in in situ microanalysis, 16  
acceleration of free fall,  $g$ , 17  
accelerator in solvent extraction, 17  
acceptable daily intake (ADI), 17  
acceptor number (AN), 17  
accommodation coefficient, 17  
accretion in atmospheric chemistry, 18  
accuracy of a measuring instrument, 18  
accuracy of measurement, 18  
acenes, 18  
acetals, 19  
acetanides, 19  
acetylene black, 19  
acetylenes, 19  
acetylides, 20  
Acheson graphite, 20  
achiral, 20  
*aci*-nitro compounds, 20  
acid, 21  
acid anhydrides, 21  
acid deposition in atmospheric chemistry, 22  
acid rain in atmospheric chemistry, 22  
acid-labile sulfur, 22  
acidity, 22  
acidity constant, 23  
acidity function, 23  
acidosis, 23  
acid-base indicator, 23  
actinic, 24  
actinic flux  $S_a$ , 24  
actinism, 25  
actinometer, 25  
action spectrum, 25  
activated adsorption process, 25  
activated carbon, 26  
activated charcoal, 26  
activated complex, 26  
activation, 26  
activation analysis (nuclear), 27  
activation cross-section, 27  
activation energy (Arrhenius activation energy), 27  
activation in electrochemical corrosion, 28  
activation in radiochemistry, 28  
activation reaction, 28  
activator, 28  
active centre, 29  
active medium, 29  
active metal in electrochemical corrosion, 29  
active site in heterogeneous catalysis, 29  
active solid, 30  
active species, 30  
active state in electrochemical corrosion, 30  
active transport in biology, 30  
activity, 30  
activity,  $A$  of a radioactive material, 31  
activity coefficient,  $f$ ,  $\gamma$ , 31  
activity (relative activity),  $a$ , 32  
acute toxicity, 32  
acyl carbenes, 32  
acyl groups, 32  
acyl halides, 33  
acyl shift (1,2-, 1,3-, photochemical), 33  
acyl species, 33  
acylals, 34  
acyloins, 35  
acyloxyl radicals, 35  
addend, 35  
addition, 35  
addition reaction, 36  
additive, 36  
additive name, 36  
additivity of mass spectra, 37  
additivity principle, 37  
adduct, 37  
adduct ion in mass spectrometry, 37  
adhesional wetting, 38  
adiabatic, 38  
adiabatic electron transfer, 38  
adiabatic ionization in mass spectrometry, 39  
adiabatic lapse rate in atmospheric chemistry, 39  
adiabatic photoreaction, 39  
adiabatic transition-state theory, 39

- adiabatic treatments of reaction rates, 40
- adjacent re-entry model in polymer crystals, 40
- adjuvant, 40
- adsorbate, 40
- adsorbent, 40
- adsorber, 41
- adsorption, 41
- adsorption capacity, 41
- adsorption chromatography, 41
- adsorption complex, 41
- adsorption current, 42
- adsorption hysteresis, 42
- adsorption indicator, 42
- adsorption isobar, 42
- adsorption isostere, 42
- adsorption isotherm in chromatography, 43
- adsorptive, 43
- advancement, 43
- advection in atmospheric chemistry, 43
- adverse effect, 43
- aeration in atmospheric chemistry, 44
- aerobe, 44
- aerobic, 44
- aerobic conditions, 44
- aerogel, 44
- aeromete in atmospheric chemistry, 45
- aerometric measurement in atmospheric chemistry, 45
- aerosol, 45
- aerosol hydrolysis, 45
- affine chain behaviour, 46
- affinity chromatography, 46
- affinity of reaction, *A*, 46
- after mass analysis in mass spectrometry, 46
- ageing of precipitate, 46
- agglomerate in polymer science, 47
- agglomeration (except in polymer science), 47
- agglomeration in polymer science, 47
- agglutination, 48
- aggregate in catalysis, 48
- aggregation (except in polymer science), 48
- aging (ageing) of a polymer, 48
- aglycon (aglycone), 48
- agonist, 49
- agostic, 49
- agostic interaction, 49
- agranular carbon, 49
- air contaminant in atmospheric chemistry, 50
- air mass in atmospheric chemistry, 50
- air monitoring station in atmospheric chemistry, 50
- air pollutant, 50
- air pollution, 51
- air pollution index (air quality index), 51
- air pollution survey in atmospheric chemistry, 51
- air quality characteristic in atmospheric chemistry, 51
- air resource management in atmospheric chemistry, 52
- air sampling network in atmospheric chemistry, 52
- air-lift bioreactor, 52
- Aitken particles, 52
- albedo, 53
- albumin, 53
- alcogel, 53
- alcoholates, 53
- alcohols, 53
- aldaric acids, 54
- aldazines, 54
- aldehydes, 54
- aldimines, 54
- alditols, 54
- aldoketoses, 55
- aldonic acids, 55
- aldoses, 55
- aldoximes, 56
- alert levels in atmospheric chemistry, 56
- alicyclic compounds, 57
- aliphatic compounds, 57
- aliquot in analytical chemistry, 57
- alkaloids, 57
- alkalosis, 58
- alkanes, 58
- alkanium ions, 58
- alkene photocycloaddition, 58
- alkene photodimerization, 58
- alkene photoisomerization, 59
- alkene photorearrangement, 59
- alkenes, 59
- alkoxides, 59
- alkoxyamines, 60
- alkyl groups, 60
- alkyl radicals, 60
- alkylenes, 60
- alkylidene groups, 60
- alkylideneaminoxyl radicals, 61
- alkylideneaminyl radicals, 61
- alkylidenes, 61
- alkylidynes, 61
- alkynes, 61
- allele, 62
- allenes, 62
- allo- in amino-acid nomenclature, 62
- allometric, 62
- allosteric enzymes, 62
- allostery, 63
- allotropes, 63
- allotropic transition, 63
- allylic groups, 63
- allylic intermediates, 63
- allylic substitution reaction, 64
- alternancy symmetry, 64
- alternant, 64
- alternating copolymer, 65
- alternating copolymerization, 65
- alternating current, 65
- alternating voltage, 66
- altocumulus cloud in atmospheric chemistry, 66
- altostratus cloud in atmospheric chemistry, 66
- AM 0 sunlight, 66
- AM 1 sunlight, 66
- amalgam lamp, 67
- ambident, 67
- ambient air in atmospheric chemistry, 68
- ambient air quality in atmospheric chemistry, 68
- ambo*, 68
- Ames/salmonella test, 68
- amic acids, 69
- amide oximes, 69
- amides, 69
- amidines, 71
- amidium ions, 71
- amidrazones, 72
- aminals, 72
- amine imides, 72
- amine imines <sup>[obsolete]</sup>, 72
- amine oxides, 73
- amine ylides, 73
- amines, 73
- aminimides <sup>[obsolete]</sup>, 73
- aminium ions, 73
- aminiumyl radical ions, 74
- amino radicals <sup>[obsolete]</sup>, 74
- amino sugars, 74
- amino-acid residue in a polypeptide, 75
- aminonitrenes <sup>[obsolete]</sup>, 75
- aminoxyl radicals, 75
- aminoxides, 75
- aminoxyl radicals, 76
- aminyl oxides <sup>[obsolete]</sup>, 76

- aminyl radicals, 76  
 ammonium compounds, 76  
 ammonium imines <sup>[obsolete]</sup>, 76  
 ammonium ylides, 77  
 ammoniumyl radical ions, 77  
 amorphous carbon, 77  
 amount concentration,  $c$ , 78  
 amount fraction,  $x$  ( $y$  for gaseous mixtures), 78  
 amount of substance,  $n$ , 78  
 amount-of-substance concentration, 79  
 amount-of-substance fraction,  $x$ , 79  
 ampere, 79  
 amperometric detection method in electrochemical analysis, 79  
 amphipathic, 79  
 amphiphilic, 80  
 amphiprotic (solvent), 80  
 ampholytes, 80  
 ampholytic polymer, 80  
 amphoteric, 81  
 amplification reaction, 81  
 amplitude of alternating current, 81  
 amplitude of alternating voltage, 81  
 anabolism, 81  
 anaerobe, 82  
 anaerobic, 82  
 anaesthetic, 82  
 analgesic, 82  
 analogue metabolism, 82  
 analogue to digital converter (pulse), 83  
 analyte, 83  
 analytical function, 83  
 analytical instrument, 83  
 analytical intercomparison, 84  
 analytical pyrolysis, 84  
 analytical quality control, 84  
 analytical radiochemistry, 84  
 analytical sample, 84  
 analytical unit (analyser), 85  
 anation, 85  
 aneroid barometer, 85  
 Anger camera, 85  
 angle, 85  
 angle of optical rotation,  $\alpha$ , 86  
 angle strain, 86  
 ångström, 86  
 angular distribution, 86  
 angular frequency,  $\omega$ , 86  
 angular momentum,  $L$ , 87  
 angular overlap model (AOM), 87  
 anhydrides, 87  
 anhydro bases, 87  
 anilides, 88  
 anils, 88  
 anion, 88  
 anion exchange, 88  
 anion exchanger, 88  
 anion-exchange polymer, 89  
 anionic polymer, 89  
 anionic polymerization, 89  
 anionotropic rearrangement (or anionotropy), 89  
 anisotropy, 89  
 annelation, 90  
 annihilation, 90  
 annulation, 90  
 annulenes, 90  
 annulenylidenes, 91  
 anode, 91  
 anodic transfer coefficient, 91  
 anomeric effect, 91  
 anomers, 92  
 ansa compounds, 92  
 antagonism, 93  
 antagonist, 93  
 antarafacial, 93  
 anthelmint(h)ic, 95  
 anthocyanidins, 95  
 anthocyanins, 95  
 anti, 95  
 anti-Compton  $\gamma$ -ray spectrometer, 97  
 anti-Hammond effect, 97  
 anti-Stokes type radiation (fluorescence), 97  
 anti-thixotropy, 97  
 antiaromatic compounds, 97  
 antiaromaticity (antithetical to aromaticity), 98  
 antibiotic, 98  
 antibody, 98  
 antibonding molecular orbital, 98  
 anticholinergic, 99  
 anticircular elution (anticircular development) in planar chromatography, 99  
 anticlinal structures in polymers, 99  
 anticodon, 99  
 anticyclone in atmospheric chemistry, 99  
 antiferromagnetic transition, 99  
 antigen, 100  
 antimetabolite, 100  
 antimony-xenon lamp (arc), 100  
 antimycotic, 100  
 antiparticle, 100  
 antipodes <sup>[obsolete]</sup>, 101  
*antiprismo*-, 101  
 antiresistant, 101  
 antiserum, 101  
 antisymmetry principle, 101  
*ap*, 102  
 apex current, 102  
 aphicide, 102  
 apical (basal, equatorial), 102  
 apicophilicity, 103  
 apo- in carotenoid nomenclature, 103  
 apoenzyme, 103  
 apoprotein, 103  
 apoptosis, 104  
 apparent lifetime, 104  
 apparent (quantity), 104  
 apparent viscosity of a liquid, 104  
 appearance energy (appearance potential), 104  
 appearance potential <sup>[obsolete]</sup>, 105  
 appearance temperature,  $T_{app}$  in electrothermal atomization, 105  
 applied potential, 105  
 aprotic (solvent), 105  
 aquagel, 106  
 aquation, 106  
*arachno*-, 106  
 Archibald's method, 106  
 area of an electrode-solution interface, 106  
 area of interface, 107  
 areic, 107  
 arene epoxides, 107  
 arene oxides, 107  
 arenes, 108  
 arenium ions, 108  
 arenols, 108  
 arenonium ions <sup>[obsolete]</sup>, 109  
 argon ion laser, 109  
 arithmetic mean (average), 109  
 aromatic, 109  
 aromatic photocycloaddition, 110  
 aromaticity, 110  
 arrester in atmospheric chemistry, 111  
 Arrhenius equation, 111  
 arsanes, 111  
 arsanylidene, 111  
 arsanylium ions, 112  
 arsenides, 112  
 arsine oxides, 112  
 arsines, 112  
 arsinic acids, 113  
 arsinous acids, 113  
 arsonic acids, 113  
 arsonium compounds, 113  
 arsonous acids, 113  
 arsoranes, 113

artificial graphite [obsolete], 114  
 artificial neural networks, 114  
 artificial radioactivity, 114  
 aryl cations, 114  
 aryl groups, 114  
 arylene groups, 115  
 aryne, 115  
 ascending elution (ascending development) in planar chromatography, 116  
 ash in atmospheric chemistry, 116  
 ashing in analysis, 116  
 aspirator, 116  
 assay, 116  
 assay kit, 117  
 association, 117  
 association reaction (associative combination) in mass spectrometry, 117  
 associative ionization in mass spectrometry, 117  
*asym-*, 117  
 asymmetric, 118  
 asymmetric carbon atom, 118  
 asymmetric centre, 118  
 asymmetric destruction, 118  
 asymmetric film, 119  
 asymmetric induction, 119  
 asymmetric membrane, 119  
 asymmetric photochemistry, 119  
 asymmetric synthesis, 119  
 asymmetric transformation, 120  
 asymmetry, 120  
 asymmetry potential of a glass electrode, 120  
 atactic macromolecule, 120  
 atactic polymer, 121  
 atmosphere, 121  
 atmosphere of the earth, 121  
 atmospheric pressure ionization [obsolete] in mass spectrometry, 121  
 atom, 121  
 atom-atom polarizability, 122  
 atom-bond polarizability, 122  
 atomic charge, 122  
 atomic fluorescence, 122  
 atomic laser, 123  
 atomic mass constant, 123  
 atomic mass  $m_a$ , 123  
 atomic mass unit, 123  
 atomic number,  $Z$ , 123  
 atomic orbital,  $\psi$ ,  $\varphi$ ,  $\chi$ , 124  
 atomic spectral lines, 124  
 atomic symbol, 124  
 atomic units, 124  
 atomic weight, 125  
 atomization in analytical flame spectroscopy, 125  
 atomization surface temperature,  $T_a$ , in electrothermal atomization, 125  
 atomize, 125  
 atomizer in analytical flame spectroscopy, 125  
 atom–molecule complex mechanism, 126  
 atropisomers, 126  
 attachment, 126  
 attenuation,  $D$ , 127  
 attenuation filter, 127  
 attenuation, 127  
 attenuation coefficient, 127  
 atto, 128  
 attractive potential-energy surface, 128  
 attractive–mixed–repulsive (AMR) classification, 128  
 attributable risk, 128  
 aufbau principle, 128  
 Auger effect, 129  
 Auger electron, 129  
 Auger electron spectroscopy, 129  
 Auger electron yield, 129  
 Auger yield, 129  
 autacid, 130  
 auto-ionization in mass spectrometry, 130  
 autocatalytic reaction, 130  
 automation in analysis, 130  
 automerization, 130  
 autophobicity, 131  
 autoprotolysis, 131  
 autoprotolysis constant, 131  
 autoradiograph, 132  
 autoradiolysis, 132  
 auxiliary electrode, 132  
 auxochrome [obsolete], 132  
 auxotrophy, 132  
 average current density, 133  
 average degree of polymerization, 133  
 average life in nuclear chemistry, 133  
 average rate of flow in polarography, 133  
 Avogadro constant, 133  
 avoided crossing of potential-energy surfaces, 134  
 Avrami equation, 134  
 axial chirality, 135  
 axial (equatorial), 135  
 axialite in polymer crystals, 136  
 axis of helicity, 136  
 aza-di- $\pi$ -methane rearrangement, 136  
 azacarbenes [obsolete], 137  
 azanes, 137  
 azenes [obsolete], 137  
 azides, 138  
 azimines [obsolete], 138  
 azines, 138  
 azinic acids, 138  
 azlactones, 139  
 azo compounds, 139  
 azo imides, 139  
 azomethine imides, 140  
 azomethine oxides, 140  
 azomethine ylides, 140  
 azomethines, 140  
 azonic acids, 141  
 azoxy compounds, 141  
 azylenes [obsolete], 141  
 $\beta$ -cleavage in mass spectrometry, 141  
 $\beta$ -decay, 141  
 $\beta$ -particle, 142  
 back donation, 142  
 back electron transfer, 142  
 back extraction, 142  
 back scatter coefficient in situ microanalysis, 142  
 back scattered electrons (BSEs) in situ microanalysis, 143  
 back washing [obsolete], 143  
 backbone, 143  
 backflush, 143  
 background concentration (level) in atmospheric chemistry, 143  
 background mass spectrum, 144  
 background of a radiation measuring device, 144  
 background radiation, 144  
 backscatter, 144  
 baffle chamber in atmospheric chemistry, 145  
 bag filter in atmospheric chemistry, 145  
 baghouse in atmospheric chemistry, 145  
 Bainite transition, 145  
 baking in carbon chemistry, 146  
 Baldwin's rules, 146  
 band spectra, 146  
 bandgap energy  $E_g$ , 146  
 bandpass filter, 147  
 bar, 147  
 barbiturates, 147  
 barn, 147  
 Barton reaction, 148  
 base, 148  
 base electrolyte, 148  
 base kind of quantity, 148  
 base pairing, 148

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.