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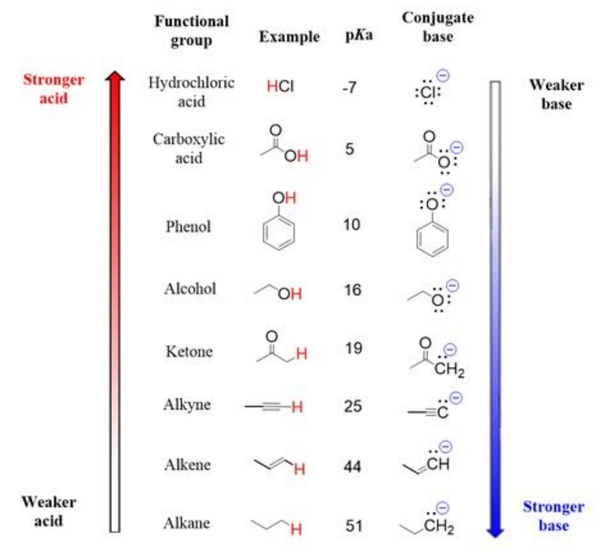
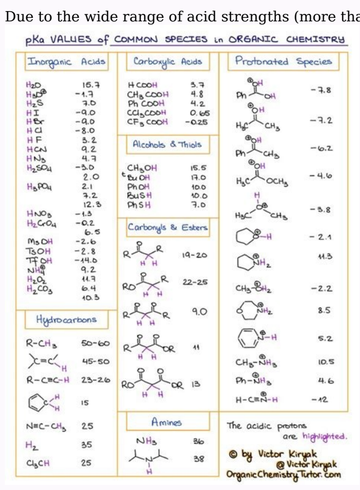
List of organic acids with pka value

List of pka values for acids. Pka value of organic acids. List of pka values of organic compounds.

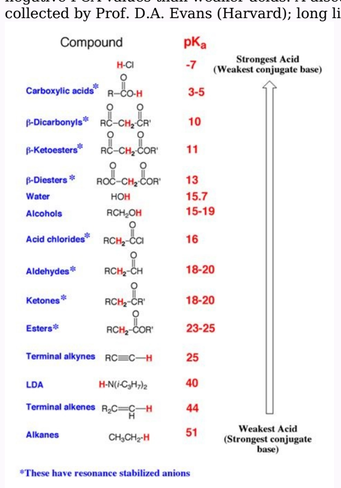
This page contains acidity tables for heteroatomic organic acids and carbonic acids.



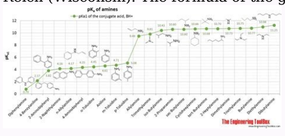
Due to the wide range of acid strengths (more than 1040), the logarithmic scale of acidity (PKA) is commonly used. Stronger acids have lower or more negative PKA values than weaker acids. See here for a discussion of acid-base terminology.



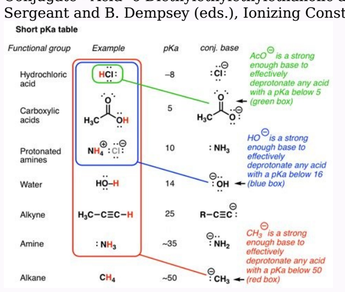
Here the PKA values are extrapolated to water at 25 °C.
Most PKA values reported for low carbon acids are calculated from very basic hydrogen exchange rates. Other collections of PKA values include those compiled by Professor D.A. Evans (Harvard); A large list was compiled by W.P. Jenks and F.H. Westheimer by R. Williams (Penn State); Large collections of PKA water values from Zirchrom and Kaye & Laby; and a collection of PKA tools in DMSO solution compiled by Professor F.G. Bordwell and contributed by Professor H.J. Reich (Wisconsin). Common name acidity formula PKA permanent acid trifluoromethanesulfonic acid Cf3SO3H ca.
About 1013. -13 benzenesulfonic acid c6h5So3h ca. About 103.-2.5 methanesulfonic acid CH3SO3H ca. approx. 3*102 -2.0 Trifluoroacetic acid cf3co2h 1.0 0.0 0.0 0.0 Picroic acid (O2N) 3C6H2OH 0.5 0.3 0.3 Quadratic acid K1 = 0.33 K2 = 3.3 * 10-4 .5 3.3 5 33.5 hcc 3 0.77 oxalic acid (CO2H) K2 = 6.1 * 10-5 1.2 4.2 Dichloroacetic acid chcl2Co2H 5 .. -4 K2 = 1, 7 * 10-5K3 = 4.0 * 10-7 3.13 4.76 6.40 Formic acid * Formic acid HCO2H 107 1. = 0.5 K-2.75 A = 2.5 * 10-12 4 .17 11.6 Benzoic acid C6H5CO2H 6.3 * 10-5 4.20 Acetic acid CH3CO2H 1.77 * 10-5 4.75 Thiophenol C6H5SH 2.5 * 10- 7 P 6.0-6 Propon 6.6.2 . henol O2NC6H4OH 5.7 * 10-8 7.2 7.2 Peracetic acid CH3COO2H 5.7 * 10-10-10. 9 8.2 Success of imides (CH2CO) 2NH 2.5 * 10-10 9.6 Chlorophenol C6H01OH (CH101H01OH) 0.0. amide C6H5SO2NH2 8*10-11 1B'na This page shows acidity tables of heteroatomic organic acids and carbonic acids. Due to the very wide range of acid strength (over 1040), a logarithmic scale (PCA) is usually used. Strong acids have smaller or more negative PCA values than weaker acids. A discussion on the use of acid terminology is available here. The PKA values given here are extrapolated for 25\XC2\XBAC water. Many of the PCA values given for weak carbonic acids are calculated from the rates of hydrogen metabolism with very strong bases. Other PCA value collections include those collected by Prof. D.A. Evans (Harvard); long list compiled by U.P. Jenx and F. Kh. Westheimer and represented by R. Williams (Pennsylvania); Large water value collections Zirhrom and Kaye & Laby; and a set of PCA measurements in DMSO solution, composed by prof. F.G. Bordwell and presented by prof. H. J.



Reich (Wisconsin). The formula of the general name with constant acidity pka triformethanophonic acid CF3SO3H ca. 1013 approx. -13 Benzolconic acid C6H5SO3H CA.



103 approx. -2.5 Methanoic acid CH3SO3H CA. 3*102 approx. -2.0 Triphosaic acid CF3CO2H 1.0 0.0 Picric acid (O2N) 3C6H2OH 0.5 0.3 square acid K1 = 0.33 k2 = 3.3 * 10-4 1.5 3.5 trichloroxic acid CCL3CO2H 0.23 0.77 Oxalic acid (CO2H) 2 K1 = 6.5 * 1 0-2 K2 = 6.1 .1. * 10-5 1.2 4.2 CHCl2CO2H 5.5 * 10-2 1.25 Dichlororoic acid FCH2CO2H 2.5 * 10-3 2.6 Clch2co2H Chlorosus Acid 1.36 * 10-3 2.87 Citric acids C (OH) (CH2CO2H) 2CO2H K1 = 7. 4 * 1 0- 4-4 * 10-4 10-4 * 10-4 10-4 10-4 10-4 10-4 10-4 10-4 * 10 -4 * K2 = 1.7 * 10-5d3 = 4.0 * 10-7 3.13 4.76 6.40 Muravin acid HCO2H 1.77 * 10-4 3.75 Ascorbic acid K1 = 6.7 * 10 -5 K2 = 2.5 * 10-12 4.17 11.6 Benzoic acid C6H5CO2H 6.3 * 10 --- 2.5 * 10-10 9.6 pH enol C6H5OH 10- 10- 10-- 10 - 10 10.0 Hydrated chlorine CCL3CH (OH) 2 10-10 10.0 Benzolsuphutonamide C6H5SO2NH2 8 *Tetramethylpipipipipipipipipipipipipipipipipippyridine Organic Chemistry Michigan State University Common Name Formula 2 10-5 5.0 Meldrumic Acid 8 * 10-6 5.1 2,4-pentanedione CH2 (COCH3) 2 1.26 * H36-9.10 . Nitrochan. * 10-11 10.2 Malononitrile CH2 (CN) 2 10-11 11.0 ethylacetoacetate CH3COCH2C2C2H5 10-11 11.0 Tris (trifluoromethyl) Methane (CF3) 3CH 10-11 11.0 bis.1methyl0sulfonyl)ilmalonate CH2 (CO2C2H5) 2 3.2*10- 14 13.5 bromoform Br3ch 3*10-14 13.7 chloroform Cl3ch 3.2*10-16 15.5 cyclopentadiene 10-16 10 -16 cyclopentadiene 10-16 aldehyde-16-aldehyde-16-aldehyde-1 16 . Alkyl RCH2CN 10-25 25 Acetylene HCEM 10-25 25 25CH F3CH 10-28 28 methyl sulfoxide) C6H5) 2CH2 3.2 * 10-34 33.5 1-C10H7CH3 1-C10H7CH3 1-C10H7CH3 standard 3.2*10-38 37 .5 toluene C6H5ch3 C6H5ch3 C40-40 C40-40 benzene 4 10-44 44 cyclopropane C3H6 10 -46 46 ETHANE C2H6 10-48 48 organic chemistry michigan state university Acid resistance is decreasing in the table. The strength of the mating base increases according to the table. Name Acid/base conjugate PKA Sulfur -10 Hydrogen iodide -10 Hydrogen bromide -9 Hydrogen chloride -7 Acetone - Conjugate acid -7 Benzenesulfonic acid -6.5 Acetic acid - Conjugate - Acid -6 Diethylethylethylethanolic acid - Conjugate acid -Ion -2 1, 74 Nitric acid -1.5 Trifluoroethyl acid 0.5 Bisulfate ion 2.0 Benzoic acid 4.2 Anilium ion 4.6 Acetic acid 4.8 Pyridine ion 5.2 Carbon dioxide 6.4Diisopropylamine 40 Toluene 41 Benzene 43 Propene 43 Ethene 44 Methane approx. 60 For the strength of organic acids, see E. P. Sergeant and B. Dempsey (eds.), Ionizing Constants of Organic Acids in Solution, IUPAC Chemical Data Series No. 23, Pergamon Press, Oxford, UK, 1979.



= 14 - PKA. PKA.