Table 2. Strong, moderate, and weak hydrogen bonds following the classification of Jeffrey.[6] The numerical data are guiding values only.

	Strong	Moderate	Weak
interaction type	strongly covalent	mostly electrostatic	electrostat./ dispers.
bond lengths [Å]			
H···A	1.2–1.5	1.5–2.2	>2.2
lengthening of X–H [Å]	0.08–0.25	0.02–0.08	<0.02
X–H versus H···A	X–H ≈ H···A	X–H < H···A	X–H ≪ H···A
X···A [Å]	2.2–2.5	2.5–3.2	>3.2
directionality	strong	moderate	weak
bond angles [°]	170–180	>130	>90
bond energy [kcal mol^{-1}]	15–40	4–15	<4
relat. IR shift $\Delta\tilde{\nu}_{XH}$ [cm^{-1}]	25 %	10–25 %	<10 %
^{1}H downfield shift	14–22	<14	

[6] G. A. Jeffrey, *An Introduction to Hydrogen Bonding*, Oxford University Press, Oxford, **1997**.

[58] Hydrogen bonds can be classified into three strength categories in different ways, that is, with demarcations between the categories placed differently, and different names can be attached to the categories. In the literature, one can find sets of names such as "very strong, strong, weak", "strong, moderate, weak", and "strong, weak, very weak". Clearly, hydrogen bonds between, for example, water molecules, are quite "strong" for one researcher and fairly "weak" for the other one, depending on the personal focus of interest. In a general view on hydrogen bonds, and essentially following the categorization of Jeffrey,[6] it seems appropriate to attach the names "strong" and "weak" to the extremes of the scale, and use a term such as "moderate" for the intermediate range. One might note that chemically, the difference between "strong" (quasi-covalent nature) and "moderate" (mainly electrostatic) is larger than between "moderate" (electrostatic) and "weak" (electrostatic/dispersion).