

How do you determine if a covalent bond is non-polar covalent or polar covalent?

1. Subtract the electronegativity for the center atom and any atom it is bonded to.
2. If the difference between the two electronegativities is less than or equal to 0.4, it is a non-polar (purely covalent) bond.
3. If the difference between the two electronegativities is greater than 0.4, it is a polar bond.

Electronegativities:

1 H 2.1																	Decreasing ↓				
3 Li 1.0	4 Be 1.5	Increasing →										5 B 2.0	6 C 2.5	7 N 3.0	8 O 3.5	9 F 4.0					
11 Na 0.9	12 Mg 1.2											13 Al 1.5	14 Si 1.8	15 P 2.1	16 S 2.5	17 Cl 3.0					
19 K 0.8	20 Ca 1.0	21 Sc 1.3	22 Ti 1.5	23 V 1.6	24 Cr 1.6	25 Mn 1.5	26 Fe 1.8	27 Co 1.9	28 Ni 1.9	29 Cu 1.9	30 Zn 1.6	31 Ga 1.6	32 Ge 1.8	33 As 2.0	34 Se 2.4	35 Br 2.8					
37 Rb 0.8	38 Sr 1.0	39 Y 1.2	40 Zr 1.4	41 Nb 1.6	42 Mo 1.8	43 Tc 1.9	44 Ru 2.2	45 Rh 2.2	46 Pd 2.2	47 Ag 1.9	48 Cd 1.7	49 In 1.7	50 Sn 1.8	51 Sb 1.9	52 Te 2.1	53 I 2.5					
55 Cs 0.7	56 Ba 0.9	57 La 1.1	72 Hf 1.3	73 Ta 1.5	74 W 1.7	75 Re 1.9	76 Os 2.2	77 Ir 2.2	78 Pt 2.2	79 Au 2.4	80 Hg 1.9	81 Tl 1.8	82 Pb 1.9	83 Bi 1.9	84 Po 2.0	85 At 2.2					
87 Fr 0.7	88 Ra 0.9	89 Ac 1.1															Electronegativities of the Elements				