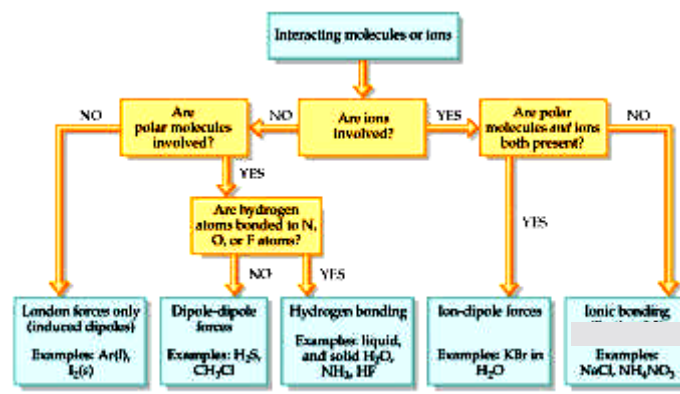


Boiling points of simple hydrogen-containing compounds

Intermolecular Forces Summary

Table 13.3 Summary of Intermolecular Forces

Type of Interaction	Factors Responsible for Interaction	Approximate Energy (kJ/mol)
Ion-dipole	Ion charge, magnitude of dipole	40–600
Dipole-dipole	Dipole moment (depends on atom electronegativities and molecular structure)	20–30
Hydrogen bonding, X—H . . . :Y	Very polar X—H bond (where X = F, N, O) and atom Y with lone pair of electrons An extreme form of dipole-dipole interaction.	5–30
Dipole-induced dipole	Dipole moment of polar molecule and polarizability of nonpolar molecule	2–10
Induced dipole-induced dipole (London dispersion forces)	Polarizability	0.05–40



examples:

Ar(l), I₂(s) H₂S, CH₃Cl liquid & solid H₂O, NH₃, HF KBr in H₂O NaCl, NH₄NO₃