Chemical Bonding Terms

Here are 30 terms and definitions related to chemical bonding based on the provided document:

Term	Definition
Chemical Bond	The attractive force that holds atoms together in a molecule or compound.
Octet Rule	Atoms combine by gaining, losing, or sharing electrons to achieve a stable octet in their valence shells.
Covalent Bond	A chemical bond formed by the sharing of electron pairs between atoms.
Ionic Bond	A bond formed by the transfer of electrons from one atom to another, leading to the formation of positively and negatively charged ions.
Lewis Dot Structure	A diagram showing the bonding between atoms and the lone pairs of electrons in a molecule using dots to represent electrons.
Valence Electrons	The outermost electrons of an atom, which are involved in forming chemical bonds.
Bond Length	The average distance between the nuclei of two bonded atoms.
Bond Enthalpy	The energy required to break one mole of bonds in a gaseous substance.
Hybridisation	The process by which atomic orbitals mix to form new hybrid orbitals with equivalent energy and shape.
Sigma Bond	A bond formed by the direct overlap of atomic orbitals along the internuclear axis.
Pi Bond	A bond formed by the side-by-side overlap of atomic orbitals, with electron density above and below the plane of the nuclei.
Resonance	The concept where a molecule is represented by two or more structures (resonance structures) that together depict the bonding in the molecule.
Bond Order	The number of chemical bonds between a pair of atoms.
Dipole Moment	A measure of the separation of positive and negative charges in a molecule.
VSEPR Theory	Valence Shell Electron Pair Repulsion theory, used to predict the geometry of molecules based on the repulsion between electron pairs.
Lone Pair	A pair of valence electrons that are not shared with another atom and are found in the outermost electron shell.
Electronegativity	The ability of an atom to attract electrons in a chemical bond.
Hydrogen Bond	A weak bond between a hydrogen atom, which is covalently bonded to a more electronegative atom, and another electronegative atom.
Molecular Orbital	Orbitals that belong to the entire molecule rather than to a single atom, formed by the combination of atomic orbitals.
Bond Polarity	The distribution of electrical charge over the atoms joined by the bond, which results in partial positive and negative charges.
Ionic Radius	The radius of an atom's ion in a crystal lattice, differing for cations and anions.
Bond Dissociation Energy	The energy required to break the bond between two covalently bonded atoms.
Formal Charge	The hypothetical charge on an atom in a molecule, assuming equal sharing of electrons in bonds.
Electron Gain Enthalpy	The energy change that occurs when an electron is added to a neutral atom to form a negative ion.

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Hybrid Orbital	Orbitals that are formed by the mixing of atomic orbitals on the same atom to form equivalent orbitals for bonding.
Molecular Geometry	The three-dimensional arrangement of atoms in a molecule.
Crystal Lattice	A three-dimensional arrangement of atoms or ions in a crystalline solid.
Polar Covalent Bond	A covalent bond where the electrons are not shared equally, leading to partial charges.
Antibonding Orbital	A molecular orbital that weakens the bond between two atoms and has higher energy than the atomic orbitals from which it was formed.
Electron Pair Repulsion	The concept that electron pairs around a central atom will arrange themselves to be as far apart as possible, minimizing repulsive forces.

These terms and definitions were derived from the information within the document "Chemical bonding 11c text book.pdf".