**Lewis Structures & Molecular Geometry – Formula Sheet:**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Chemical****Formula** | **Electron****Geometry** | **Molecular****Geometry** | **Bond****Angles** | **Polar or****Nonpolar** | **Hybridization****Center Atom** | **Bonding****Groups** | **Lone****Pairs** | **Electron****Groups** |
| $$CO\_{2}$$ | Linear | Linear | $$180°$$ | Nonpolar | $$sp$$ | 2 | 0 | 2 |
| $$BF\_{3}$$ | TrigonalPlanar | TrigonalPlanar | $$120°$$ | Nonpolar | $$sp^{2}$$ | 3 | 0 | 3 |
| $$SO\_{2}$$ | TrigonalPlanar | Bent | $$<120°$$ | Polar | $$sp^{2}$$ | 2 | 1 | 3 |
| $$CH\_{4}$$ | Tetrahedral | Tetrahedral | $$109.5°$$ | Nonpolar | $$sp^{3}$$ | 4 | 0 | 4 |
| $$NH\_{3}$$ | Tetrahedral | TrigonalPyramidal | $$107°$$ | Polar | $$sp^{3}$$ | 3 | 1 | 4 |
| $$H\_{2}O$$ | Tetrahedral | Bent | $$104.5°$$ | Polar | $$sp^{3}$$ | 2 | 2 | 4 |
| $$PCl\_{5}$$ | TrigonalBipyramidal | TrigonalBipyramidal | $$120°$$$$90°$$ | Nonpolar | $$dsp^{3}$$ | 5 | 0 | 5 |
| $$SF\_{4}$$ | TrigonalBipyramidal | Seesaw | $$<120°$$$$<90°$$ | Polar | $$dsp^{3}$$ | 4 | 1 | 5 |
| $$IF\_{3}$$ | TrigonalBipyramidal | T-Shaped | $$<90°$$ | Polar | $$dsp^{3}$$ | 3 | 2 | 5 |
| $$XeF\_{2}$$ | TrigonalBipyramidal | Linear | $$180°$$ | Nonpolar | $$dsp^{3}$$ | 2 | 3 | 5 |
| $$SF\_{6}$$ | Octahedral | Octahedral | $$90°$$ | Nonpolar | $$d^{2}sp^{3}$$ | 6 | 0 | 6 |
| $$IF\_{5}$$ | Octahedral | SquarePyramidal | $$<90°$$ | Polar | $$d^{2}sp^{3}$$ | 5 | 1 | 6 |
| $$XeF\_{4}$$ | Octahedral | SquarePlanar | $$90°$$ | Nonpolar | $$d^{2}sp^{3}$$ | 4 | 2 | 6 |