

## 8.3 Lewis Acids and Bases

### Skills to Develop

- Understand that there is a more comprehensive theory of acid-base chemistry, called the Lewis concept, that describes acid-base reactions as the sharing of electron pairs.

The Brønsted-Lowry proton donor-acceptor concept has been one of the most successful theories of Chemistry. But as with any such theory, it is fair to ask if this is not just a special case of a more general theory that could encompass an even broader range of chemical science. In 1916, G.N. Lewis of the University of California proposed that the *electron pair* is the dominant actor in acid-base chemistry. The Lewis theory did not become very well known until about 1923 (the same year that Brønsted and Lowry published their work), but since then it has been recognized as a very powerful tool for describing chemical reactions of widely different kinds and is widely used in organic and inorganic chemistry. According to Lewis,

- An *acid* is a substance that **accepts** a pair of electrons, and in doing so, forms a covalent bond with the entity that supplies the electrons.
- A *base* is a substance that **donates** an unshared pair of electrons to a recipient species with which the electrons can be shared.

*In modern chemistry, electron donors are often referred to as nucleophiles, while acceptors are electrophiles.*

We will discuss Lewis acids and bases in more detail at the end of the chapter.

### Contributors

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