**How Do Chemists Use Online Chemical Databases?**

Chemists rely on online databases like **PubChem** and **ChemSpider** to access detailed information about chemical compounds, including their structures, properties, biological activity, and safety data. **ChemSpider** is a free resource with data on nearly 25 million compounds, pulling from around 400 different sources. It provides molecular structures, spectral data, synthetic methods, and hazard information, making it a valuable tool for both research and education.

These databases allow users to search by chemical structure, molecular formula, registry numbers (such as CAS), or substance names. This flexibility helps chemists quickly find accurate information for identifying compounds, designing experiments, or checking safety guidelines.

In research, industry, and classrooms, chemical databases streamline access to critical data, enhance understanding, and support innovation in the chemical sciences.

Chemists can download data from these databases for use in their own analysis programs.

This allows for the creation of custom data sets for machine learning, or other analysis.

**Virtual Chemistry Labs**

Virtual labs are interactive, digital simulations of activities that typically take place in physical laboratory settings. Virtual labs simulate the tools, equipment, tests, and procedures used in chemistry, biochemistry, physics, biology, and other disciplines. Virtual labs allow students to participate in lab-based learning exercises without the costs and limitations of a physical lab

Users can actively participate in experiments, manipulate variables, and observe the resulting effects.This hands-on approach promotes active learning and deeper understanding.

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