

Labs

Perfect Temperature / Perfect Humidity

The **HumidiFlex System (IAHS): The Future of Commercial Humidity Control**

Say goodbye to overpriced dehumidifiers. The **HumidiFlex System** is a breakthrough innovation that transforms standard off-the-shelf air conditioners into **high-performance, precision-controlled dehumidifiers**—without the premium price tag.

- **Cost-Efficient:** Achieve superior humidity control at a fraction of the cost of traditional systems.
- **Advanced Control:** Enjoy robust, customizable humidity management tailored to your commercial environment.



Precisely controlling humidity in a lab is crucial for maintaining the accuracy and reproducibility of experiments, preserving the integrity of samples, protecting sensitive equipment, and ensuring a safe working environment. Even minor fluctuations can have significant consequences. The optimal humidity range for most labs is typically between 30% and 60% relative humidity (RH), though this can vary depending on the specific research being conducted.

Effects on Experiments and Samples

- **Sample Integrity:** Biological samples like DNA, tissue, or blood, as well as chemicals and reagents, can be highly sensitive to moisture. Too much humidity can cause them to absorb water, altering their composition, while too little humidity can cause them to dry out and degrade. This directly affects experimental results and the long-term stability of stored materials.
- **Contamination and Growth:** High humidity creates a favorable environment for the growth of bacteria, mold, and other microorganisms. This can lead to sample contamination and compromise the sterility required in many biological and pharmaceutical labs.
- **Reaction Rates:** In certain chemical and physical experiments, humidity can influence reaction rates and material properties, such as the curing time of a polymer or the hydration of a salt. Controlling humidity ensures that these processes occur as expected, allowing for consistent and reliable data.

Effects on Equipment

- **Static Electricity:** Low humidity levels can cause the buildup of static electricity. This can not only give workers an unpleasant shock but also damage delicate electronic components within high-tech lab equipment, like spectrophotometers, microscopes, and balances.
 - **Corrosion and Condensation:** High humidity can lead to condensation on surfaces and within instruments. This moisture can cause corrosion and rust, shortening the lifespan of expensive equipment and leading to inaccurate readings or complete malfunction.
 - **Calibration:** Many instruments are calibrated to function within a specific humidity range. If the humidity falls outside this range, the instrument's accuracy can be compromised, leading to unreliable data.
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Health and Safety Risks

- **Microbial Proliferation:** As mentioned, high humidity can promote the growth of microorganisms, which poses a risk of infection and respiratory illness to lab workers.
- **Airborne Particles:** Humidity levels affect the amount of time airborne particles remain suspended in the air. This is especially important in cleanrooms, where maintaining a low concentration of particulates is critical to prevent product and sample contamination.

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For support in the designing process contact; support@innotekair.com