HUMIDITY-CONTROLLED CURING

CURING & HUMIDITY-CONTROLLED CURING

Curing is a process that uses heat to create chemical reactions that harden or solidify a material, permanently altering its chemical composition. Curing forms molecular links caused by chemicals, heat, or pressure. The process requires a high level of control, as variations in temperature or cycle time can compromise product quality, resulting in structural weakness or product failure.

While many curing applications rely primarily on heat, certain processes benefit from the addition of moisture within the oven chamber. This process, known as humidity-controlled curing, allows manufacturers to regulate both temperature and humidity to achieve consistent, reliable results.

APPLICATIONS FOR HUMIDITY-CONTROLLED CURING

Humidity-controlled curing is particularly beneficial for high-performance coatings, concrete, and other masonry applications. Maintaining controlled moisture levels throughout the curing process helps prevent cracking and material degradation.

PRECISE TEMPERATURE & HUMIDITY CONTROL

All LEWCO ovens are designed to maintain precise temperature uniformity, and humidity-controlled ovens are no exception. Maintaining consistent temperatures throughout the oven is especially important in these applications, as cold spots can cause unwanted condensation and moisture accumulation, potentially compromising product quality and curing consistency.

Humidity-controlled ovens typically operate at temperatures below 150°F, with relative humidity levels ranging from 25% to 75%, depending on the application. These systems are typically designed to maintain humidity uniformity within 3% of the specified setpoint.

Because humidity-controlled curing requires substantial moisture, water management is another important consideration. In many applications, water is disposed of after use. However, depending on the application, water may be collected, filtered, and recycled when an appropriate filtration system is available.

HUMIDITY-CONTROLLED CURING

CUSTOMIZABLE CURING CYCLES & LEWCO CONTROLS

Curing cycle times vary based on the material and manufacturing process, ranging from several hours to multiple days.

LEWCO offers custom programmable control systems, wired in our UL-certified panel shop that accommodate a wide range of curing profiles, allowing manufacturers to adjust temperature, humidity, and cycle duration to meet their specific requirements.

For applications that do not require humidity throughout the entire curing cycle, an exhaust fan can be incorporated to remove moisture from the chamber. Exhaust fans and dampers allow the oven to transition between humid and dry processing conditions as needed.

DESIGNED FOR LONG-TERM PERFORMANCE

To withstand high-humidity operating conditions, LEWCO incorporates stainless steel airstream components to help minimize corrosion. Integrated drainage systems and dampers collect and remove condensation, helping protect the equipment and maintain reliable operation.

LEWCO recommends installing humidity-controlled curing ovens indoors in a temperature-controlled environment. Depending on the application and process requirements, these ovens can be designed to meet applicable NFPA 86 Class A or Class B standards.

ENGINEERED AROUND YOUR PROCESS

Every curing application has unique temperature, humidity, and cycle requirements. LEWCO designs and manufactures custom curing ovens engineered around the specific needs of each manufacturing process.

From precise environmental controls to customizable curing profiles, our team works closely with customers to develop reliable solutions that support consistent product quality and efficient operation.

Looking for a custom curing solution or think your operation could benefit from humidity-controlled curing? **Contact LEWCO** to discuss your application.

LEWCO®

www.lewcoinc.com • 419.502.2780 • ovensales@lewcoinc.com