

applications

Battery Manufacturing (Lithium, Polymer)



General Design and Application Considerations:

For this very sensitive battery manufacturing process, the use of a desiccant-based dehumidifier is essential. Pure lithium reacts violently with water. Even normal atmospheric levels of relative humidity cause quality problems in the lithium battery manufacturing process.¹ Therefore the processing takes place in dry rooms, where the dewpoint temperature is typically controlled at a very low humidity level.² The safety of employees and property is of utmost importance.



The quality of the end product is also extremely important. Recent research demonstrates that the ambient moisture present in the manufacturing room can degrade the "memory" characteristic of lithium and also the newer advanced polymer-based batteries.

Environmental Standards or Requirements:

Dry rooms, or environmental chambers, are generally built to house the manufacturing areas for batteries. Because of the reactive nature of moisture in the air during lithium battery manufacturing, most lithium battery, and lithium polymer battery processes, require a dry room dewpoint of -40°F to -50°F or lower (i.e., 0.6 to 0.3 gr/#, respectively). Taking into consideration that there could be moisture migration into the dry room, even with an airlock entry way, and there could be a slight latent gain within the room due to the workers, the supply air moisture level may be required to be -60°F to -100°F dewpoint (0.1 to 0.0 gr/#, respectively).



For more information
contact CDI:
507.451.2198
sales@cdihvac.com

Fdb	Relative Humidity	gr/#	Fdp
70°	0.51%	0.55	-40°
70°	0.13%	0.14	-60°

Reference Sources:

1. Vaisala Sales Literature: Lithium Battery Manufacturing Process. www.vaisala.com
2. Process/Industrial Instruments and Controls Handbook, 5th Edition, Gregory K. McMillan, McGraw Hill Publishing, 1999



Concepts and Designs
INCORPORATED

Concepts and Designs, Inc. • 2100 Park Drive NW • Owatonna, MN 55060
phone: 507.451.2198 • website: www.cdihvac.com • email: sales@cdihvac.com