



Standards of Care at Warehouses Storing Lithium-ion Batteries and Products that Include Them

Considerations for Shippers and Carriers

Increasingly, lithium-ion batteries are being used and designed into consumer goods e.g. laptops, tools and toys. Shipping and warehousing lithium batteries in bulk or the products that include these batteries (e.g. cell phones, laptops, tools, toys) in their end product require a few more precautions than those packaged with more traditional nickel cadmium batteries.

For lithium battery transportation the United Nations has clear guidance on testing and criteria to be met for safe transportation¹, but warehouse storage dockside is not addressed.

The following recommendations and considerations aim to help shippers and carriers in their warehousing choices and decision-making.

Recommendations:

1. Develop strict quality control procedures to identify, segregate and quarantine lithium batteries, products or packages, with the potential for an increased safety risk based on visible inspection and temperature monitoring, e.g., using an infrared thermometer dockside
2. Inspect cargo being unloaded carefully, looking for situations where:
 - a. Goods are not packed in their original packing
 - b. Packaging is damaged
 - c. State of Charge (SoC) is higher than 50% (red flag!)
3. Separate and do not warehouse any products or packages found to be heating, visibly damaged, mis-handled, impacted, or dropped. If found, these products/packages should be segregated to a separate storage area and a quality control evaluation should be made before approval for reloading. Note, these products may now present an increased safety risk and must meet the requirements for defective, damaged, waste or recycling. For example, ensure that the warehouse has the equipment and means to store damaged batteries in a safe, segregated area well away from the remainder of the stock.
4. In general, store battery packs in an area separated from the remainder of the warehouse.
5. Store battery packs in original packing, unless packing has been opened for order picking.
6. Do not stack pallets of Lithium-ion batteries, other than in a racking system.
7. Ensure the storage facility has an approved, continuously-monitored fire detection system per NFPA* 72 or equivalent.
8. When possible, choose warehouses with an automatic sprinkler system designed and installed per NFPA 13 or equivalent with hose stations installed per NFPA 14 or equivalent.
9. Require daily visual inspections e.g. thermographic (infrared) scanning.

For further information, please contact your local Marine Loss Control Engineering team.



1. "Dangerous Goods | UNECE." 01 Sept. 2020, <https://unece.org/transport/dangerous-goods>.

NFPA 13: Standard - Sprinkler System Installation

NFPA 14: Standard for the Installation of Standpipe and Hose Systems

NFPA 72: National Fire Alarm and Signaling Code®

*While NFPA documents are the global standard used by AIG, international equivalents may be acceptable.

The information, suggestions and recommendations contained herein are for general informational purposes only. This information has been compiled from sources believed to be reliable. Risk Consulting Services do not address every possible loss potential, law, rule, regulation, practice or procedure. No warranty, guarantee, or representation, either expressed or implied, is made as to the correctness or sufficiency of any such service. Reliance upon, or compliance with, any recommendation in no way guarantees any result, including without limitation the fulfillment of your obligations under your insurance policy or as may otherwise be required by any laws, rules or regulations. No responsibility is assumed for the discovery and/or elimination of any hazards that could cause accidents, injury or damage. The information contained herein should not be construed as financial, accounting, tax or legal advice and does not create an attorney-client relationship.

American International Group, Inc. (AIG) is a leading global insurance organization. AIG member companies provide a wide range of property casualty insurance, life insurance, retirement solutions, and other financial services to customers in more than 80 countries and jurisdictions. These diverse offerings include products and services that help businesses and individuals protect their assets, manage risks and provide for retirement security. AIG common stock is listed on the New York Stock Exchange.

Additional information about AIG can be found at www.aig.com | YouTube: www.youtube.com/aig | Twitter: [@AIGinsurance](https://twitter.com/AIGinsurance) [www.twitter.com/AIGinsurance](https://twitter.com/AIGinsurance) | LinkedIn: www.linkedin.com/company/aig. These references with additional information about AIG have been provided as a convenience, and the information contained on such websites is not incorporated by reference herein.

AIG is the marketing name for the worldwide property-casualty, life and retirement, and general insurance operations of American International Group, Inc. For additional information, please visit our website at www.aig.com. All products and services are written or provided by subsidiaries or affiliates of American International Group, Inc. Products or services may not be available in all countries and jurisdictions, and coverage is subject to underwriting requirements and actual policy language. Non-insurance products and services may be provided by independent third parties. Certain property-casualty coverages may be provided by a surplus lines insurer. Surplus lines insurers do not generally participate in state guaranty funds, and insureds are therefore not protected by such funds.

Copyright © American International Group, Inc. All rights reserved.

MLCE 04282022