

# HOW TO HIT A MOVING TARGET: Keeping Up with Changing Lithium-Ion Transportation and Storage Regulations

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White Paper



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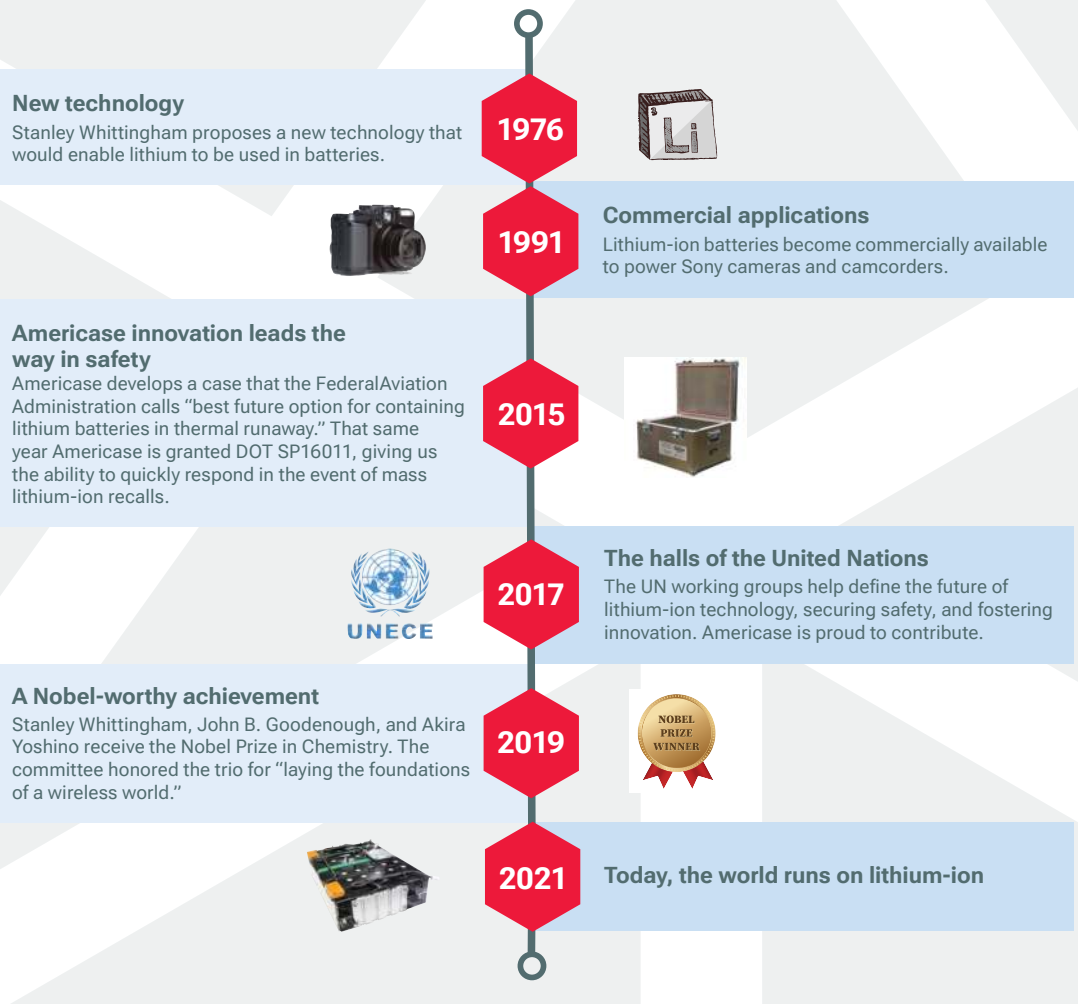
The dynamic landscape of global regulations for lithium-ion batteries presents significant challenges for companies involved in their manufacture, transportation, and storage. This white paper provides an in-depth overview of these regulations, examines the key organizations and processes shaping these rules and highlights Americase's role in the writing and implementation of the regulations as well as in aiding compliance. Along the way, we've included examples from our own work that demonstrate strategies for staying compliant.

## THE MODERN WORLD RUNS ON LITHIUM-ION BATTERIES

In very short order, lithium-ion batteries went from a novel idea representing a new way to harness electricity (the 1970s) to an emerging technology powering consumer electronics (the 1990s) to the standard-bearer for battery-powered devices (the present day).

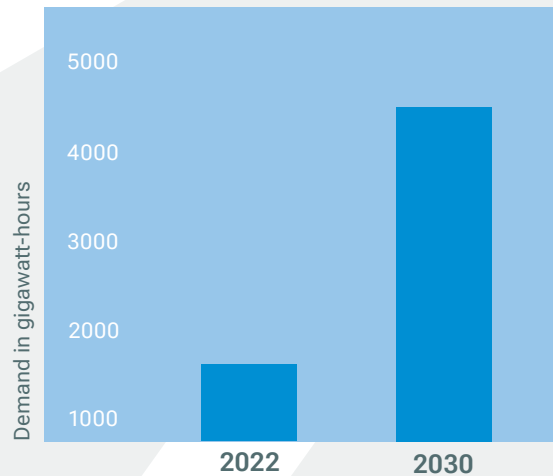
### A BRIEF TIMELINE OF LITHIUM-ION BATTERIES

*Brought to you by Americase*



Lithium-ion batteries are ubiquitous in modern technology, powering everything from smartphones to electric vehicles and seen in every setting of human endeavor, from the mundane to the exotic. Global data clearinghouse Statista forecasts that by 2030, **global demand for lithium-ion batteries will increase sevenfold**. And as supply rises to meet demand, the lithium-ion market – valued at \$54.6 billion USD in 2021 – is expected to be worth approximately \$257 billion USD by 2030.

## LITHIUM-ION BATTERY CELL DEMAND WORLDWIDE



Source: Statista

Lithium-ion batteries are inherently safe devices, but because of their unique electrochemical properties, they must be handled correctly and with care. When the appropriate level of care is not present, the mishandling of lithium-ion batteries can cause disastrous outcomes including fires and explosions. This necessitates stringent and continually evolving regulations for their safe shipping and storage – and when we consider the forecasts, safe shipping and storage will become an even more important endeavor.

Incidents, although increasingly rarer as more and more industries better follow (and even exceed) established standards for safety, can happen, and they illustrate in an often grim way just how important those standards are.

In June 2024, **a significant lithium-ion battery incident occurred in South Korea**, resulting in the loss of 22 lives and highlighting the critical need for robust regulations. A large shipment of lithium-ion batteries caught fire at a storage facility, causing extensive damage and posing serious safety risks. In addition to causing 22 fatalities, this incident resulted in substantial financial losses and also highlighted gaps in the existing safety protocols. This incident serves as a stark reminder of the potential dangers associated with mishandling lithium-ion batteries and underscores the importance of stringent regulatory frameworks.

Regulations are not just about restricting activities; they are vital enablers of innovation and commerce, and they are safeguards against the destruction or loss of property, company image, supply chains, and even life.

Proper regulations ensure that the speed of technological advancements and the efficiency of global commerce can coexist with safety. By establishing clear guidelines and safety standards, regulations create a secure environment where businesses can innovate and operate efficiently, knowing that their activities meet safety requirements.

It is important to understand that regulations do not restrict commerce, and they do not hamper progress. If anything, regulations are an **agent of progress and innovation**, not their enemy.

With that in mind, let's start by looking at the regulatory landscape itself.

## THE REGULATORY LANDSCAPE

### Key Regulatory Bodies

Understanding the major players in the regulatory landscape is crucial for compliance. While the sum total of all lithium-ion regulations, standards, and best practices represents the work of hundreds of organizations and many thousands of professionals, some of the most vital work in regulations and standard setting regarding lithium-ion at the moment is carried out by two organizations: SAE International and the United Nations (UN).

While the regulatory landscape for lithium-ion batteries encompasses hundreds of organizations worldwide, this white paper will focus primarily on two key players: SAE International and the United Nations (UN). These organizations are at the forefront of developing and implementing regulations specifically for the safe transportation and storage of lithium-ion batteries, which aligns directly with Americase's core expertise. SAE and the UN have established committees and working groups dedicated to addressing the unique challenges posed by lithium-ion batteries, from packaging requirements to testing protocols. By concentrating on these entities, we can provide a comprehensive yet focused overview of the most critical regulations impacting the industry, while showcasing Americase's involvement and contributions to these pivotal standard-setting bodies.



**SAE International** is a global professional association and standards organization with more than 138,000 members across the world. Founded in 1905 at the dawn of the automobile age as the Society of Automotive Engineers, and with Henry Ford as its first vice president, the organization has evolved over time and expanded its scope beyond automotive engineering to also encompass aerospace, autonomous vehicles, transport industries, and other adjacent areas.



The **United Nations**, founded in 1945, exists in its own words as a “forum to address issues that transcend national boundaries” and has a venerable history that needs no introduction to most.

These organizations serve as natural and authoritative sources for setting standards, as they bring together significant expertise and knowledge in one place. Just as SAE addressed urgent standardization needs in the early 20th century, and the United Nations guided a post-World War II world through crucial infrastructure and human services challenges, these two bodies are now helping us tackle the complexities associated with the ongoing growth and innovation in lithium-ion batteries.

As the need for new and expanded lithium-ion safety regulations became apparent throughout the years, the above organizations set out to study and address the emerging regulatory needs. Several committees, subcommittees and informal working groups were created to address specific safety areas, including lithium-ion battery transportation and storage.

As a pioneer in crafting lithium-ion battery protective containers, Americase has partnered with SAE International and the UN to help shape and develop standards that ensure safe practices in transporting and storing lithium-ion batteries. Americase is engaged in cutting-edge testing methodologies for different kinds of lithium batteries and

the protective cases designed to safely contain them, including Damaged/Defective/Recalled (DDR) batteries, which carry a safety risk of going into a thermal runaway. This expertise allows Americase to play a crucial role in developing and implementing testing protocols for the SAE and UN committees focused on lithium-ion shipping and storage regulations, helping ensure that containment solutions are well-suited for the evolving landscape of lithium battery safety.

## **SAE G-27 – Lithium Battery Packaging Performance Committee**

Formed by SAE International in 2016, the SAE G-27 Committee is dedicated to aerospace standards, specifically focusing on the safe air shipment of lithium batteries. The committee aims to establish a minimum performance standard for this purpose. It promotes the free exchange of information among experts who focus on various aspects such as packaging design, suitable materials, containment capabilities, and other critical criteria. The goal is to develop a comprehensive standard that provides valuable data and examples to guide governmental regulatory agencies, ultimately leading to the adoption of these standards as official regulations.

SAE G-27 is actively working on these standards to assist government agencies in ensuring the safe air transportation of lithium-ion batteries. Americase's CEO, Robby Kinsala, and VP Strategic Business Opportunities, Lithium/HazMat Division, Chris Egloff, contribute significantly as writing and voting members, offering insights into testing and expertise in lithium-ion battery thermal containment and propagation.

To access [the committee's latest publicly available documents, visit SAE](#).

## **SAE J3303 – Lithium and Lithium-Ion Cell and Battery Containment Performance Recommended Practice for Storage**

Initiated by Chris Egloff in 2023, this SAE subcommittee aims to “prescribe test conditions to quantify the effectiveness of micro-containment devices for containing thermal runaway hazards of lithium/lithium-ion cells, batteries, and equipment during storage resulting from the failure of a cell within the container.” Essentially, J3303 focuses on developing standards and regulations for the safe storage of lithium-ion batteries.

While the International Fire Code 2024 (IFC 2024) allows storage in certified containers, SAE highlights the absence of an industry standard for demonstrating container performance during thermal runaway events. Standardizing best practices is crucial for mitigating risks.

Given that lithium batteries and cells can be stored in various environments (e.g., indoors, outdoors), this committee's work is intricate, requiring the testing of multiple container configurations and battery types under different conditions. Americase brings industry-leading expertise in battery thermal containment and testing to the [J3303 committee](#), aiding in the development of safe storage standards across various industries.

## **UN IWG on Hazard-Based Classification of Lithium Batteries and Cells**

The United Nations, a multidisciplinary organization with global reach, is tackling the challenge of lithium battery classification. Currently, regulations define only two categories of lithium batteries, lithium ion and lithium metal, which the UN acknowledges as insufficient. The Informal Working Group (IWG) is working on creating more detailed categories and stringent standards for lithium battery packaging to enhance safety.

Americase's CEO, Robby Kinsala, and VP Strategic Business Opportunities, Lithium/HazMat Division, Chris Egloff, are both writing and voting members of this UN IWG. They offer testing expertise and deep knowledge of the thermal properties of lithium-ion batteries to the group.

“We have the honor of working alongside some of the greatest minds in the industry to help standardize the way lithium-ion batteries are classified and define best practices for handling them in different conditions,” says Americase CEO Robby Kinsala.

The IWG collaborates with numerous experts, analyzing extensive data. The latest [session information document can be viewed here](#).

## **United Nations (UN) Subcommittee of Experts on the Transport of Dangerous Goods**

The United Nations (UN) Subcommittee of Experts on the Transport of Dangerous Goods plays a crucial role in developing the UN Model Regulations, which form the foundation for national and international transport regulations. These comprehensive regulations cover the classification, packaging, labeling, and documenting of lithium-ion batteries to ensure their safe transport across various modes. Updated every two years, the regulations incorporate the latest scientific and technical advancements. However, implementing these regulations poses challenges for companies, which must stay abreast of frequent updates and ensure their packaging and labeling practices comply with the latest standards. This involves accurately classifying lithium-ion batteries based on their chemical composition and clearly marking all relevant safety information on the packaging.

## **OTHER KEY ORGANIZATIONS**

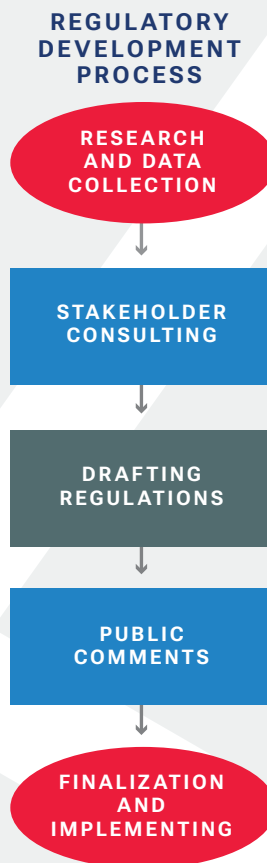
A few other key organizations that make significant contributions to lithium-ion transportation and storage regulations and standards include:

- **The International Civil Aviation Organization (ICAO)**, which is responsible for setting international standards for the safe transport of dangerous goods by air, including lithium-ion batteries. The ICAO Technical Instructions specify the packaging, labeling, and documentation requirements necessary to prevent incidents during air transport. Updated biennially to reflect the latest safety standards and technological advancements, these regulations ensure ongoing safety in the industry. However, compliance with ICAO regulations presents challenges, as it involves understanding and implementing detailed packaging requirements that can vary depending on the battery type and size. For example, lithium-ion batteries shipped by air must be packed in robust outer packaging that meets specific performance tests to withstand potential impacts during transit.
- **The International Maritime Organization (IMO)**, which establishes global guidelines for the safe transport of hazardous materials by sea. The IMO's International Maritime Dangerous Goods (IMDG) Code provides comprehensive stowage, segregation, and emergency response procedures for shipping lithium-ion batteries by sea. Updated every two years to incorporate the latest research and industry best practices, the IMDG Code is critical for maritime safety. Companies must navigate the specific requirements for lithium-ion batteries to comply with IMO regulations. For instance, batteries must be stored away from heat sources and flammable materials to reduce the risk of fire or explosion.
- **The Department of Transportation (DOT)**, which regulates the transportation of hazardous materials within the United States. The DOT's Hazardous Materials Regulations (HMR) cover every aspect of lithium-ion battery transport, from packaging and handling to training and emergency response. These regulations are regularly updated to address emerging safety concerns and integrate new technologies. Compliance with DOT regulations is challenging, requiring rigorous training for all personnel involved in handling and transporting

lithium-ion batteries. This includes understanding the specific requirements for different battery types and ensuring that all packaging and documentation adhere to the latest standards.

## HOW REGULATIONS ARE DEVELOPED

Now that we are familiar with the key organizations in the world of lithium-ion battery transportation and storage regulations, let's explore just how regulations are developed: The processes through which collective expertise becomes prescribed best practice. The development of regulations involves several stages, each crucial to ensuring safety and efficacy:



### Research and Data Collection

The process begins with the extensive gathering of data on incidents, technological advancements, and industry practices. This involves analyzing accident reports, conducting laboratory tests, and reviewing scientific literature. For example, following a series of incidents involving lithium-ion batteries on airplanes, ICAO commissioned studies to identify the causes and preventive measures. These studies included collaboration with battery manufacturers, airlines, and regulatory bodies to collect comprehensive data on the incidents and pinpoint common risk factors.

### Stakeholder Consultation

Next, regulatory bodies engage with industry experts, manufacturers, and other stakeholders to gather input and feedback. This collaborative approach ensures the practicality and effectiveness of the regulations. An



illustration of this is the UN Subcommittee's regular meetings, where stakeholders present their concerns and suggestions. These meetings provide a platform for industry representatives, safety experts, and regulatory officials to discuss emerging issues and propose solutions.

## Drafting Regulations

Based on the collected data and discussions, draft regulations are formulated to address the identified risks and incorporate industry best practices. For instance, the IMO drafts amendments to the IMDG Code based on new research and stakeholder input. These drafts are then reviewed by experts to ensure they effectively tackle the identified safety concerns.

## Public Comment

A period for public comment follows, allowing stakeholders to provide feedback on the drafts. This feedback is crucial for refining the regulations and ensuring they are practical and enforceable. For example, the DOT often publishes proposed rule changes in the Federal Register, inviting comments from the public and industry. This process enables stakeholders to express their opinions and suggest modifications to the proposed regulations.

## Finalization and Implementation

Finally, the feedback is incorporated, and the regulations are finalized and adopted as official regulations by governing agencies. This stage involves publishing the final regulations and providing guidance to industry stakeholders on compliance. An example of this is the publication and effective date of the finalized ICAO Technical Instructions. Additionally, ICAO offers training and resources to help companies understand and implement the new regulations.

## KEY DIFFERENCES BY GEOGRAPHIC AREA

As one would expect, the nature and content of regulations changes based on geopolitical and economic factors. We will look at a handful of the most prominent differences by geographic region.



**IMDG Code**  
International  
Ocean Transport



**TDG Regs**  
Transport Canada  
DG Regulations



**49 CFR**  
United States  
DG Regulations



**UN MR**  
United Nations  
Model Regulations  
for DG Transport



**ICAO TI**  
International  
Air Transport



**ADR**  
European DG  
Transport Rules

In the **EMEA region (Europe, Middle East, Africa)**, regulations are often harmonized with the UN Model Regulations but feature regional variations. For example, the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) includes specific provisions for lithium-ion batteries. Companies face challenges in navigating differing implementation timelines and local enforcement practices. It is crucial for them to stay informed about regional updates and ensure compliance with both EU-wide regulations and country-specific requirements.

In the **Americas**, regulatory frameworks are led by the United States with its Department of Transportation (DOT) regulations, while other countries in the region have similar but slightly different frameworks. Canada, for instance, follows the Transportation of Dangerous Goods (TDG) Regulations, which align with the UN Model Regulations but include unique national requirements. Companies must ensure compliance with both federal and state-level regulations, particularly in large countries like the U.S. and Brazil, where navigating the complex regulatory landscape involves adhering to federal standards as well as additional state-specific rules.

The **Asia-Pacific (APAC)** region presents a diverse regulatory landscape. Some countries, such as Australia, closely follow UN guidelines, while others, like China, have unique and stringent import/export regulations. Companies face the challenge of keeping abreast of rapidly changing regulations and overcoming language barriers. It is essential for them to ensure compliance with a wide range of regulations and stay updated on frequent changes and new requirements.

## THE SAFETY IMPERATIVE

Regulations, standards, and practices differ around the world, but they all converge on a single point with a singular purpose: Safety. That is not just an aspiration. It is an imperative. And in many cases, it starts with materials.

### Materials Science and Why Materials Matter

Lithium-ion batteries are complex devices where materials play a critical role in safety and performance. Understanding the materials science behind these batteries helps in designing safer batteries and developing effective regulations.

One of the biggest dangers in mishandling or damaging lithium-ion batteries is a phenomenon called thermal runaway. If there is one “big issue” that nearly everyone working in the realm of lithium-ion safety, it is likely thermal runaway.

Thermal runaway occurs when an increase in temperature causes a reaction that further increases temperature, potentially leading to fire or explosion. The choice of materials the battery manufacturer uses, such as cathode and anode materials, electrolytes, and separators, can significantly influence the risk of thermal runaway. Innovations in materials science, such as the development of solid-state electrolytes, aim to mitigate these risks. And in the meantime, we at Americase design and manufacture custom containers that contain thermal runaway events should they occur during shipping or storage.

“Everything we do starts with hard science,” says James Egloff, Americase’s Chief Operating Officer. “To be able to safely contain lithium-ion batteries in case of a thermal runaway, our engineers first must understand the potential chemical reactions that can occur, which are state-dependent.” Egloff explains that the condition of

the battery – for example, whether it is fully charged, whether it is damaged or defective, and other variables – dictates what the “right” conditions are for storage, shipping, and transport and consequently what is required to contain a thermal runaway should it occur.

“Thousands of hours of testing and analysis inform our custom case design,” Egloff continues. “Because we intimately understand the nature of the batteries and understand what could go wrong in the event of mishandling or damage, we also understand how to **prevent** a lot of mishaps before they happen and how to **contain** thermal runaways by being extremely intentional about every detail of our cases: from material to geometry and dimensions, usability, and of course durability.”

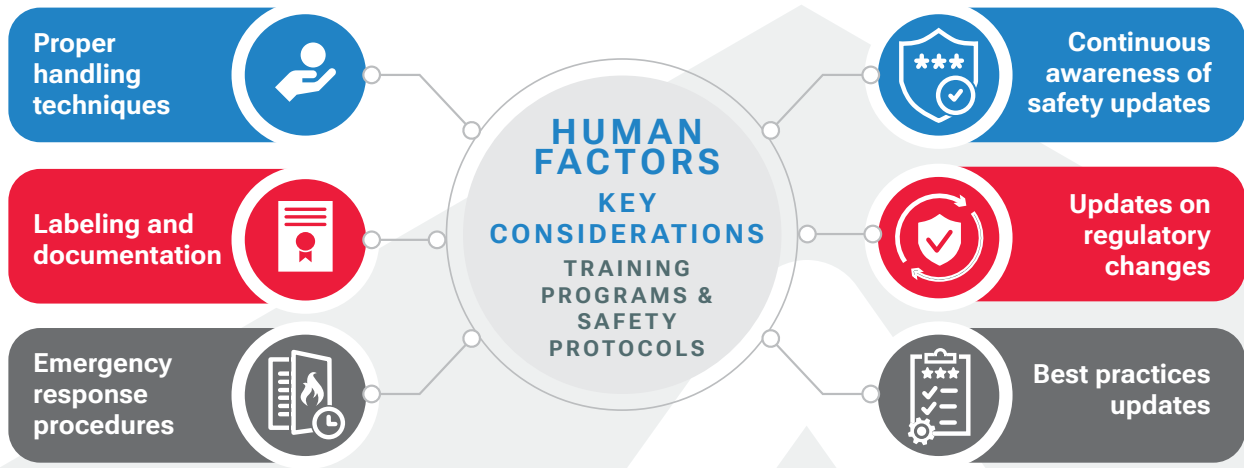
Americase’s containers are engineered with cutting-edge materials to ensure the highest levels of safety and compliance. The design and construction of these containers play a critical role in ensuring the safe transport and storage of lithium-ion batteries. While the exact materials and features are driven by the unique requirements and needs of each customer, the following are considered:

- **Reinforced Materials:** Americase containers are built using reinforced materials that provide superior strength and durability. These materials are selected based on their ability to withstand physical impacts, extreme temperatures, and corrosive environments.
- **Aluminum Alloys:** Lightweight yet strong, aluminum is commonly used in Americase containers. Aluminum provides excellent protection against impacts and is resistant to corrosion, making it ideal for long-term use in harsh environments.
- **Heat Mitigation:** To prevent overheating, Americase containers are equipped with advanced heat mitigating materials. These materials help maintain a stable temperature within the container, reducing the risk of overheating and subsequent incidents.
- **Impact-Resistant Design:** Containers are designed to absorb and dissipate impact energy, reducing the risk of damage to the batteries during transport. This includes features such as reinforced corners, energy-absorbing panels, and shock-absorbing materials.
- **Secure Locking Mechanisms:** Americase containers feature secure locking mechanisms that prevent unauthorized access and ensure that the containers remain sealed during transport. This helps protect the batteries from tampering and reduces the risk of accidental exposure.

## HUMAN FACTORS: KEY CONSIDERATIONS

Regulations are abstract things until they are applied by human hands putting plans into motion: storing, shipping, and moving lithium-ion batteries in varying conditions and sometimes in various states of defect or damage. Human handling also means the potential introduction of human error. To combat that possibility and prevent incidents involving lithium-ion batteries, businesses and organizations routinely handling lithium-ion batteries must run a tight, standardized operation that prioritizes training, preparedness, and knowledge, backed with protocols and contingency plans that account for every possible scenario.

It is a daunting, involved, and complex task, but it is vital: both for your safety and for the profitable commerce of your company.



Comprehensive training programs are essential for personnel involved in the handling, packaging, and transportation of lithium-ion batteries. These programs should cover the specific hazards associated with lithium-ion batteries, proper handling techniques, and emergency response procedures. Proper handling techniques are crucial for lifting, moving, and storing lithium-ion batteries to prevent damage and minimize risk. Additionally, personnel must be trained on how to respond to incidents involving lithium-ion batteries, including fire containment and suppression.

Strict adherence to safety protocols is necessary, including proper labeling, documentation, and emergency response procedures. These protocols should be regularly reviewed and updated to reflect the latest safety standards and best practices. Proper labeling and documentation involve ensuring that all packages are clearly marked with the appropriate hazard symbols and handling instructions. Documentation should include detailed information about the battery type, capacity, and any specific handling requirements. Developing and implementing emergency response plans is also critical. These plans should address potential incidents involving lithium-ion batteries and include procedures for evacuating personnel, contacting emergency services, and mitigating the impact of the incident.

Continuous awareness programs are vital to keep personnel updated on the latest safety practices and regulatory changes. This includes regular training sessions, safety bulletins, and updates on new regulations and best practices.

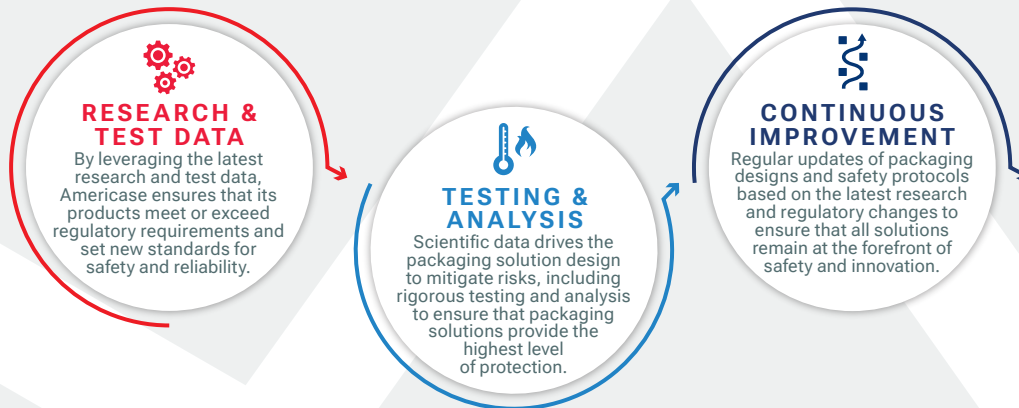
## FROM SOUND SCIENCE TO PRACTICAL APPLICATIONS

Now that we've looked at many of the key activities, organizations, and people that drive regulations – and more important, now that we've seen in greater detail just how these works of collective expertise and care keep us, our assets, and our businesses safe – we hope that you, like us, better appreciate not only the work that goes into creating regulations but also have a deeper understanding of what they are at their very core: ***the best possible evidence we have and the most complete body of knowledge possible at any given time, translated from sound science to practical guidance that saves lives and accelerates commerce.***

## HOW SCIENCE AND EVIDENCE DRIVE AMERICASE'S PROCESSES

Americase employs a science-based approach to develop packaging solutions and safety protocols for shipping and storage of lithium-ion batteries. By leveraging the latest research and test data, Americase ensures that its products meet or exceed regulatory requirements and set new standards for safety and reliability. The company uses scientific data to inform the design of packaging solutions that mitigate risks associated with lithium-ion batteries. This involves conducting rigorous testing and analysis, including drop tests, thermal tests, and vibration tests, to ensure that packaging solutions provide the highest level of protection. Americase is committed to continuous improvement, regularly updating packaging designs and safety protocols based on the latest research and regulatory changes, ensuring that its solutions remain at the forefront of safety and innovation.

### SCIENCE-BASED APPROACH TO DEVELOPING PACKAGING SOLUTIONS



Americase goes beyond mere regulatory compliance by continuously innovating and improving its containers. This proactive approach helps clients stay ahead of regulatory changes and ensures the highest levels of safety and efficiency. The company actively participates in regulatory committees and standards organizations to stay informed and influence the development of new regulations.

Americase also provides clients with comprehensive support, including training, consulting, and custom solutions tailored to their specific needs. The company offers training programs to help clients understand and comply with regulations through workshops, webinars, and on-site training sessions. Expert consulting services are available to assist clients in navigating the complex regulatory landscape, including regulatory audits, compliance assessments, and tailored advice on best practices.

## HOW WE ENSURE EXCELLENCE, SAFETY, AND COMPLIANCE

There's rarely a better way to illustrate what we have done for our clients in the most challenging circumstances than a case study.

In 2016, a global consumer electronics corporation faced a significant challenge with the recall of one of its flagship smartphones due to battery defects that caused overheating and posed a fire risk. With more than one

million units recalled initially, followed by another one million in a second phase, the company required a robust, efficient, and safe solution to manage the return and disposal of these defective devices. Americase was brought in to provide a comprehensive solution to handle this unprecedented recall.

The recall involved several challenges:

- **Volume:** More than one million units needed to be safely returned and disposed of, with another million following in a second phase.
- **Safety and compliance:** The solution needed to comply with DOT regulations for shipping Damaged/Defective/Recalled (DDR) batteries.
- **Usability:** The packaging had to be robust yet simple enough for consumers to use without getting a Dangerous Goods professional involved.
- **Production and distribution:** Rapid production and distribution were critical to manage the massive recall efficiently.

## Our Solution

Americase provided a custom solution that addressed the company's needs comprehensively:

- **Special Permit compliance:** Followed guidelines to ensure the safe shipping of DDR batteries.
- **Thermal runaway testing:** Conducted rigorous testing to ensure packaging could safely handle this battery's thermal events.
- **OEM box replication:** Created packaging nearly identical to the original to maintain quality and ease of use and to create consistency for consumers.
- **Efficient production:** Developed GANTT charts to manage timelines and potential delays and purchased additional machinery to enhance production flow.
- **Customer support:** Included a phone number on the packaging for customer assistance, with Americase fielding calls on the client's behalf.



## Overcoming Challenges

Americase navigated several roadblocks to deliver the solution:

- **Pricing and timing:** Worked with the company to reach a feasible price point and expedited production to meet urgent needs.
- **Material sourcing:** Sourced large quantities of mixed thermal material and utilized the client's logistics for material movement.
- **Increased demand:** Managed the surge in demand by running weekend shifts, hiring temporary workers, and renting additional facilities.

## Implementation

The implementation process was systematic and efficient, thanks to good preparation and planning:

- **Rapid production:** Met the immediate demand for one million units and prepared for the additional recall phase.
- **Customer interaction:** Provided easy-to-use packaging and direct customer support to ensure a smooth return process.

## Results

The global consumer electronics corporation achieved a successful recall, the largest in U.S. history, with no further incidents reported. Key outcomes included:

- **Safety and compliance:** Ensured the safe return and disposal of defective units, preventing further damage.
- **Proven containment capability:** Upon opening some of the bags it was discovered that thermal runaway events occurred and were successfully contained inside.
- **Sustainability:** Developed a recyclable packaging solution, contributing to environmental responsibility and sustainability.
- **Public image:** Helped mitigate further damage to the company's public image by efficiently managing the recall.

Americase's dedication to excellence was evident in every step of the project, providing a clear operational advantage in:

- **Comprehensive understanding:** Fully grasped the severity and scope of the recall, taking all necessary actions to be an ideal partner.
- **Regulatory expertise:** Navigated complex regulatory factors to ensure compliance.
- **Material and machinery:** Secured additional resources to meet production demands.
- **Testing:** Conducted extensive battery packaging testing to guarantee safety.

Americase played a crucial role in managing the smartphone recall. Our robust, compliant, and user-friendly packaging solution allowed the company to execute the largest recall in United States history efficiently, safeguarding the client's reputation and preventing further incidents. Through innovative problem-solving and unwavering commitment, Americase demonstrated its capability to handle complex and large-scale challenges in the industry.

## A JOB THAT'S NEVER DONE

"Regulatory work is inherently challenging due to the constantly evolving nature of technology and industry. However, it's incredibly rewarding to know that our efforts contribute to safer practices and innovations in the field. Staying ahead of regulatory changes requires continuous learning and collaboration with experts and regulatory bodies," says Americase CEO, Robby Kinsala.

He adds that the global nature of the lithium-ion battery industry means that we must navigate a diverse and ever-changing regulatory landscape. However, these challenges "are what drives us at Americase to continuously improve and innovate."

Kinsala says that knowing that his team's work helps ensure the safety of products and protects people and property from potential hazards is incredibly rewarding. "Additionally, contributing to the development of new regulations and safety standards allows us to play a role in shaping the future of the industry," he says. "Americase is committed to continuous improvement in all aspects of its operations. This includes regularly reviewing and updating packaging designs, safety protocols, and training programs to reflect the latest research and regulatory changes. By maintaining a proactive approach to safety and compliance, Americase ensures that its clients can operate with confidence in a rapidly evolving industry."

Keeping up with the changing regulations for the transport and storage of lithium-ion batteries is a complex but essential task. By understanding the key organizations and processes involved, leveraging Americase's expertise, and learning from real-world examples, companies can navigate this challenging landscape successfully. Regulations not only ensure safety but also enable innovation and efficient commerce by providing clear guidelines and standards. With Americase's support, companies can stay ahead of regulatory changes and ensure the safe, compliant, and efficient transport and storage of lithium-ion batteries.

For more information on how Americase can help your company stay compliant with lithium-ion battery shipping and storage regulations, visit our website or contact our regulatory experts. Americase offers comprehensive solutions tailored to your specific needs, including custom packaging, training programs, and regulatory consulting services.



Visit [americase.com](http://americase.com) to learn more about us,  
or scan the QR code below:

