



Transporting Lithium Batteries



Risk Management

Properties of Lithium cells (or single cell battery) and lithium batteries :

- Higher Specific Energy
- Higher Energy Density
- Higher Energy Efficiency
- Longer cycle life (Rechargeable Lithium Ion)
- Longer calendar life
- Light in weight
- High current delivery from small battery forms
- Very long shelf life (Lithium metal)

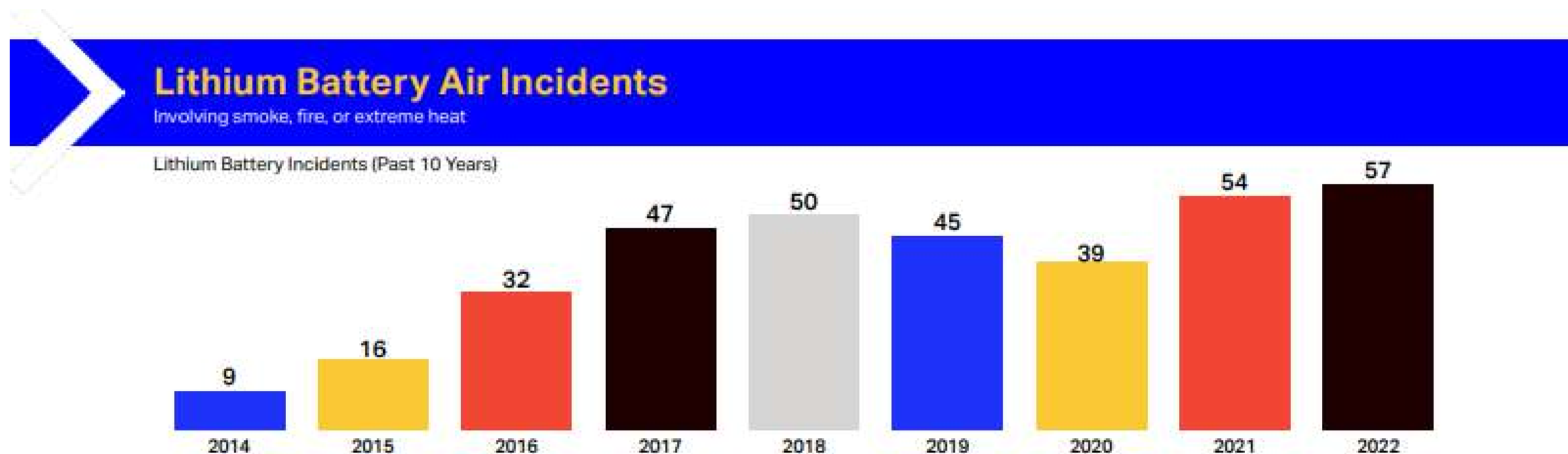


Potential Risks with Batteries

- Short circuit (or other internal failure) leading to overheating
- Pressure build up inside the battery casing leading to explosion
- Release of flammable liquid electrolyte leading to combustion of nearby materials
- Release of flammable gases leading to build-up and gas explosion
- Release of toxic gases leading to air that is toxic to people
- Cells triggering heating of other nearby cells

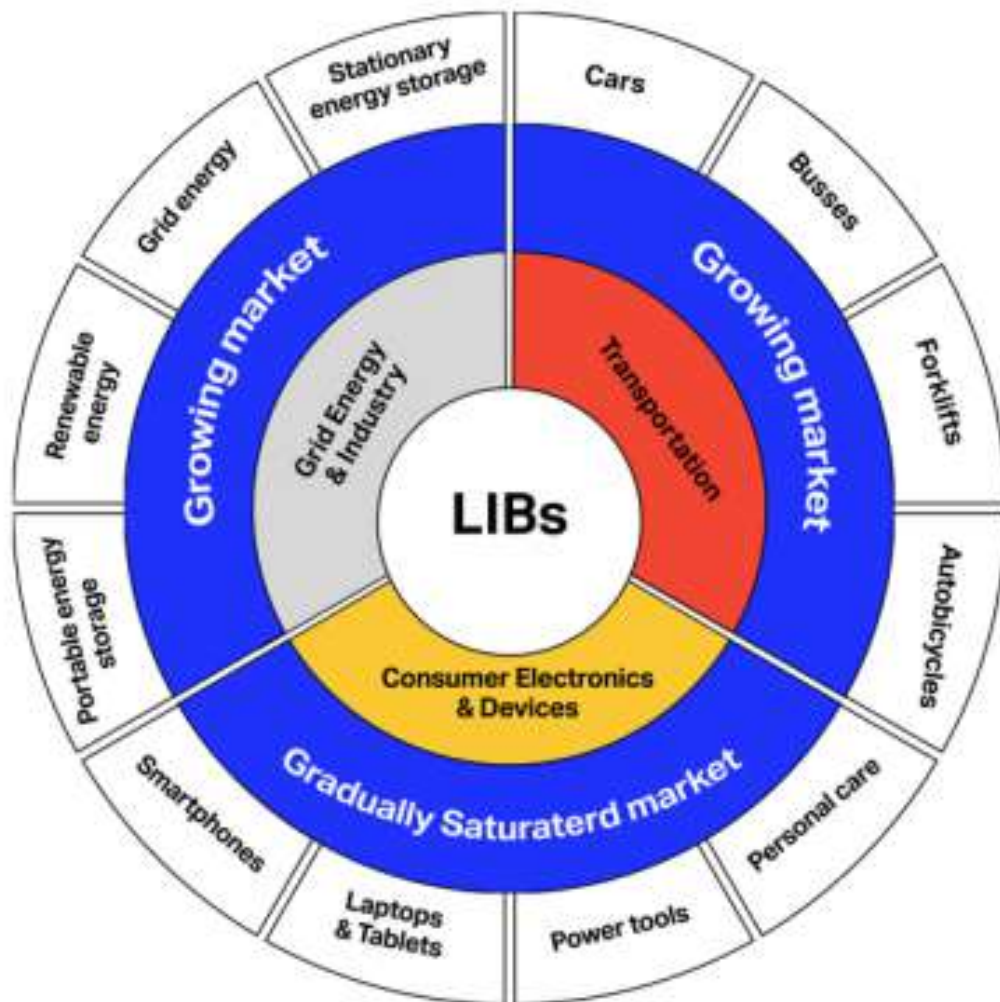


Increasing number of lithium battery incidents



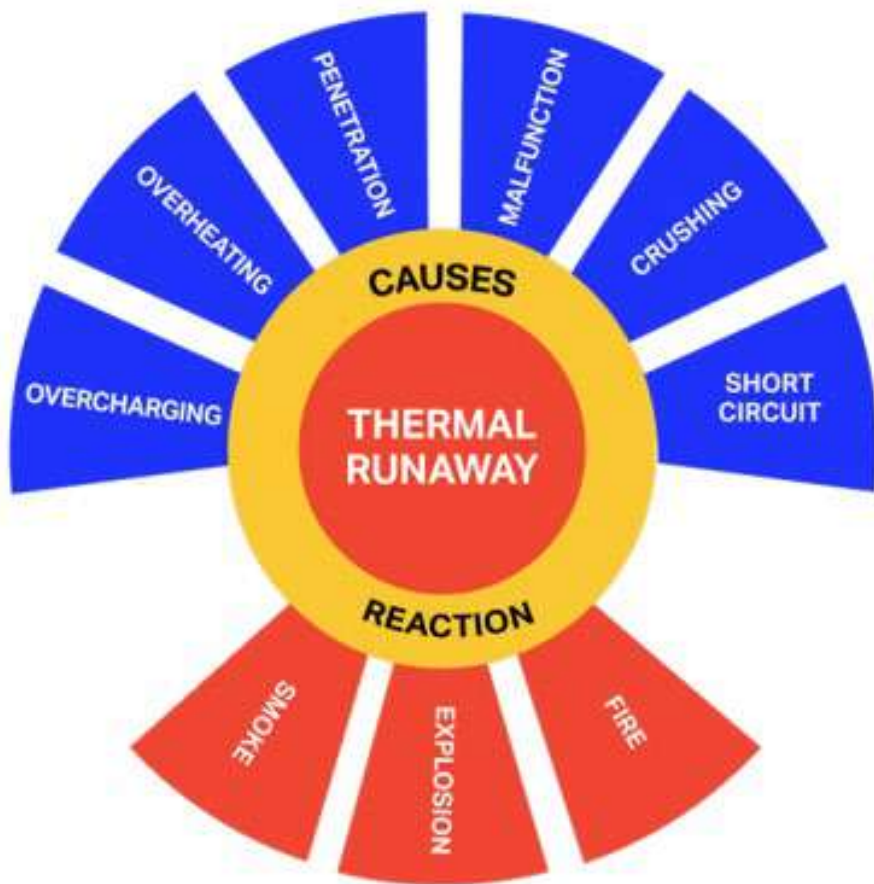
Source: Federal Aviation Administration, Security and Hazardous Materials Safety, last updated February 2023

An increasing trend in battery production



- Global lithium-ion battery market is expected to grow from USD 44.billion in 2020 to USD 94.4 billion by 2025.
- Global shift to more renewable, climate friendly energy devices.
- Lithium has become "element" of choice as a portable power source.
- Growth of lithium-ion battery market is mainly driven due to presence of high energy density features of lithium-ion batteries.
- Most lithium-ion batteries used on portable devices are cobalt -based which offers highest energy density.
- Power source for numerous consumer goods including toys, laptops, smartphones, GPS units etc.

Incident causes include:



- Increasing production of counterfeit lithium batteries with sub-standard safety features
- Undeclared battery consignments.
- Misuse of refurbished lithium batteries in products.
- Packaging disguised as genuine articles.
- Non-compliance with international regulations when manufactured.
- Poor handling or damage during transportation
- Lack of proper safety management systems (SMS).
- Inadequate or insufficient training.

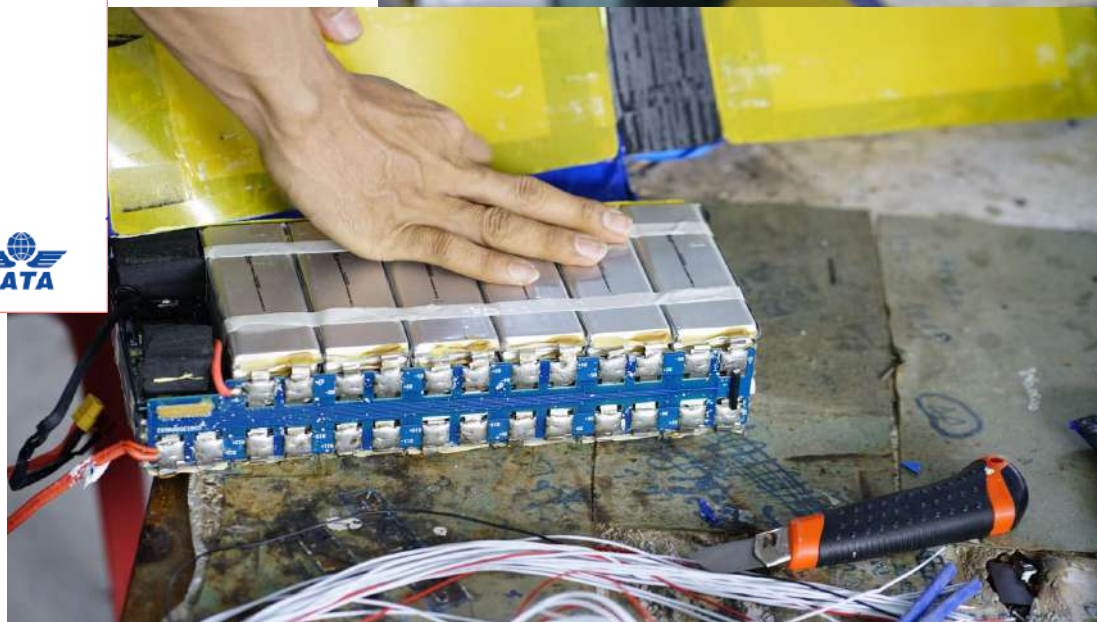
Risk Mitigation

Effective 1 January - 31 December 2025

Battery Shipping Regulations (BSR) Edition 12



www.iata.org/BSR



- Regulation
- Manufacture
- Testing



Risk Mitigation

30% State of Charge (SoC) or....
25% Indicated Battery Capacity



Package Marking



Hazard Labelling

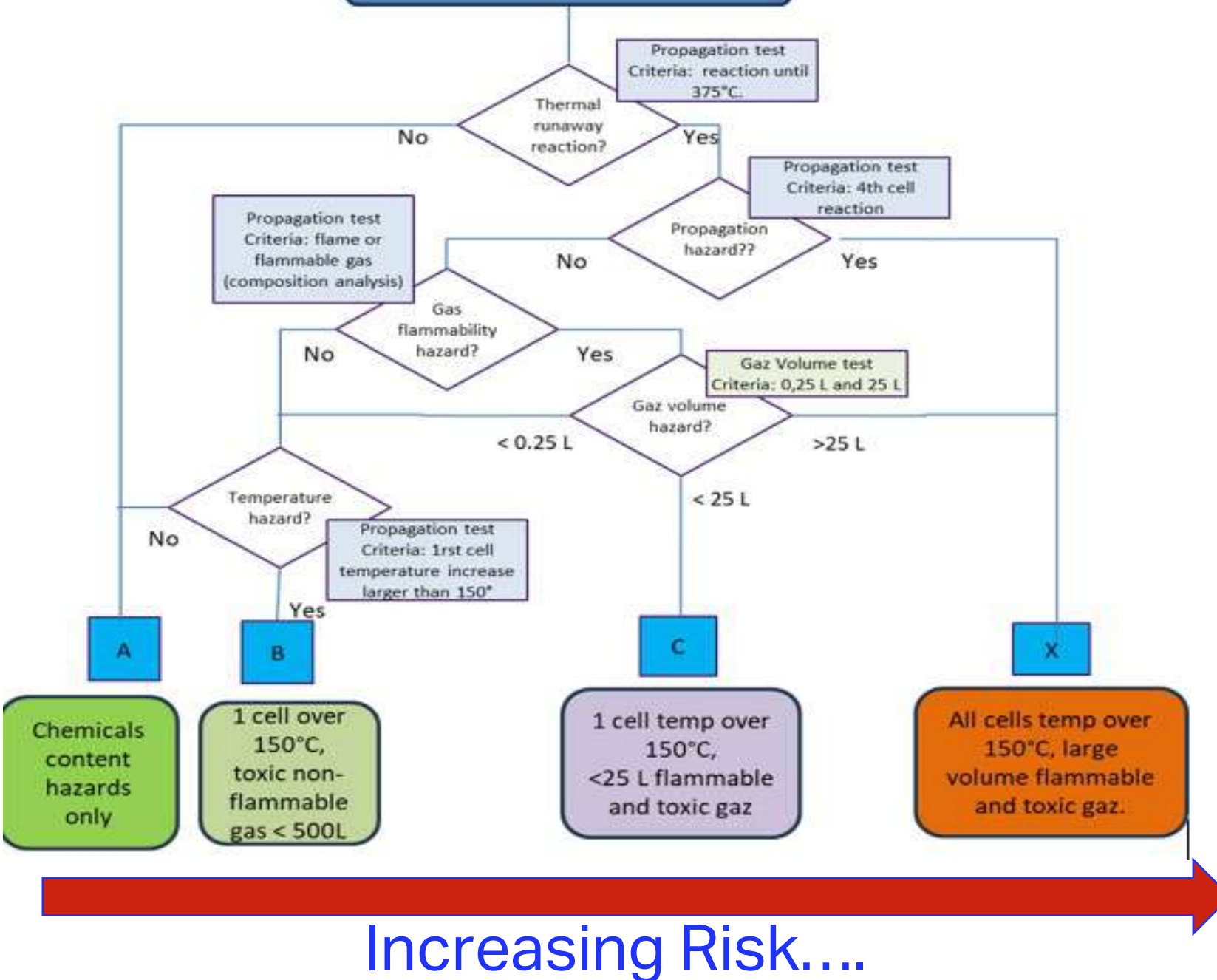


Developing New Fire Resistance Standards For individual packaging and aircraft containers



Additional Classification Criteria for Lithium and Sodium ion Batteries?

Cells and batteries classification





Dangerous Goods Training Program Management under CBTA approach

IATA Dangerous Goods training is evolving from traditional learning to competency-based training and assessment (CBTA) as agreed by ICAO. Find the right DG course for your specific job function.

CBTA DGR Reference 7.1 - 7.10

Freight Forwarders



Trainer / Instructors



Instructional Designers



Instructor Refresher

Dangerous Goods Training Program Management



Any Questions???

