



# Best practices for container transport of cargo with Li-Ion batteries

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# “Lithium-ion Batteries in Containers Guidelines” – C-SAR 101-A

- In March 2023, the CINS Network, IGP&I, ICHCA International, and the TT Club published guidelines to highlight the risks that Lithium-Ion Batteries present. ([www.cinsnet.com](http://www.cinsnet.com))
- Based on this guidance the following submission questionnaire was developed.
- While not all encompassing, the questions cover the most common issues involved in reviewing and vetting these types of cargo submissions.

# Lithium-Ion Battery Shipments Loss Prevention

1. Have the batteries in question been tested and classified under UNECE, 2021, section 38.3? Provide a copy of the Lithium-Ion Batteries Test Summaries Certificate.
2. Is the cargo properly declared as IMDG Class 9 cargo and properly placarded, i.e.: UN3481?
3. What state of charge are the batteries shipped at?
4. Provide pictures of actual container loading, not just individual packaging.
5. Provide details on origin of shipments, name, and location of manufacturer factory.
6. Are containers inspected prior to loading to ensure structural integrity and suitability?
7. Who is performing the container stuffing.
8. Are these full container load shipments, or LCL shipments?
9. Are battery terminals covered and protected during shipment, provide photos of same.
10. If the batteries are shipped within the equipment (e-bike, etc.), what protections are provided against vibration and mechanical stress during sea transport?

# Container Packing Considerations

## Lithium-Ion Batteries



Source: NCB Archives

- Container Selection
- Cargo Packaging
- Cargo Segregation
- State of Charge
- Cargo Condition
- Cargo Stowage and Securing
- Cargo Declaration

# Lithium-Ion Battery Shipment “Near Miss”



Source: NCB Archives



# Lithium-Ion Battery Shipment “Near Miss”



Source: US Coast Guard

# NCB Container Inspections

## Loss Prevention in Action!

- Over 20,000 inspections conducted annually to ensure that cargo is adequately secured, appropriately packaged, and labelled, and containers are in sound structural condition
- Processes mapped out for distinct types of inspections including “tailgate”, “vanning”, and Dangerous Goods (DG) vs non-DG cargo
- Inspections are carried out:
  - Physically, in US and other locations, by qualified, trained surveyors
  - Remotely, on a global basis where a physical inspection may not be possible or practical.
- NCB Container Inspections meet the World Shipping Council (WSC) criteria required for “industry best practice standard”



Source: NCB Archives

# Container Inspections

## General Procedures

- Review of the provided documentation containing the dangerous goods description
- Checking for proper segregation of the dangerous goods
- Checking for leaks and other dangerous issues affecting safety
- Inspecting the structural integrity of the container
- Checking the CSC plate and periodic inspection information
- Checking the placarding and marking on the exterior of the container
- Checking the labeling and marking of packages
- Checking for the correct package type and for package damages
- Checking the stowage and securing of the consignment



Source: NCB Archives



# Container Inspections

## Most Recent Results



Source: NCB Archives



### Container Inspection Summary

	DG Container	DG Tank	Non-DG	Grand Total
Number of Inspections	22,645	20,377	943	43,965
Failed Inspections	5,377	1,745	282	7,404
Total Deficiencies	7,837	2,267	414	10,518
% Deficiencies	34.6%	11.1%	43.9%	23.9%
% Fail	23.7%	8.6%	29.9%	16.8%

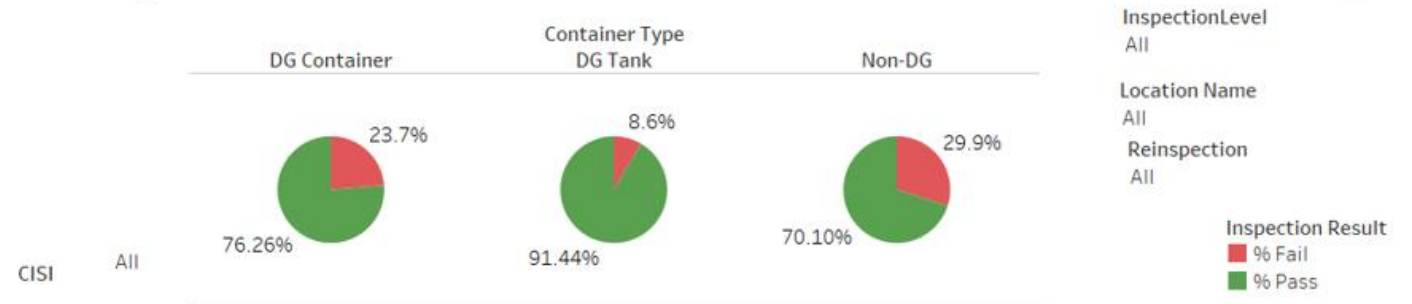
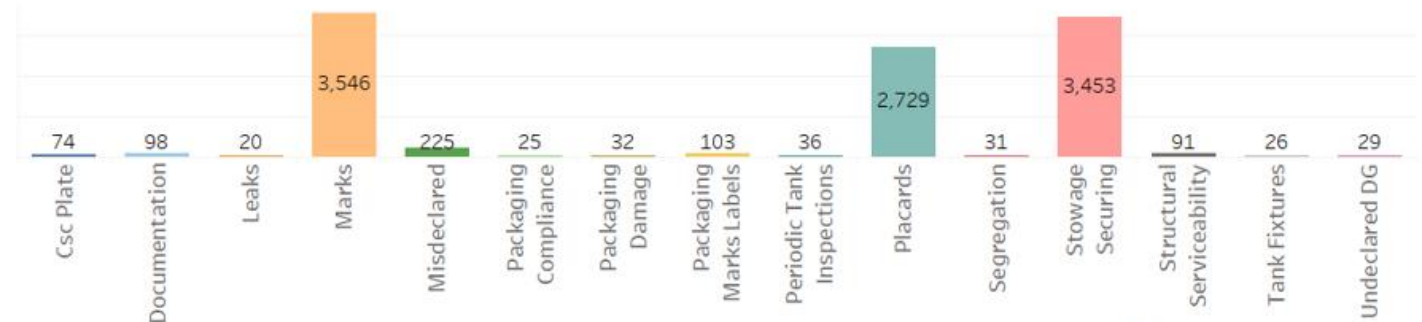
Inspection Date  
1/1/2022 to 6/15/2024

Client Name  
All

Port of Loading  
All

Container Type  
 DG Container  
 DG Tank  
 Non-DG

### Share of Deficiencies



InspectionLevel  
All

Location Name  
All

Reinspection  
All

Inspection Result  
 % Fail  
 % Pass



Source: NCB Archives

# Cargo declared as bags of Copper Flake

*Actually, Li-Ion batteries and used Electric Vehicle (EV) batteries*



# Cargo declared as Tesla's (non-DG / battery removed)

*Actually, Li-Ion battery remains attached to car. Should be UN3171.*



Source: NCB Archives

# Remote Inspection Pilot Program

## Initial (Poor) Results



### Container Inspection Summary

	DG Container	Grand Total
Number of Inspections	27	27
Failed Inspections	20	20
Total Deficiencies	64	64
% Deficiencies	237.0%	237.0%
% Fail	74.1%	74.1%

Inspection Date  
1/1/2022 to 3/9/2023

Client Name  
All

Port of Loading  
Durban

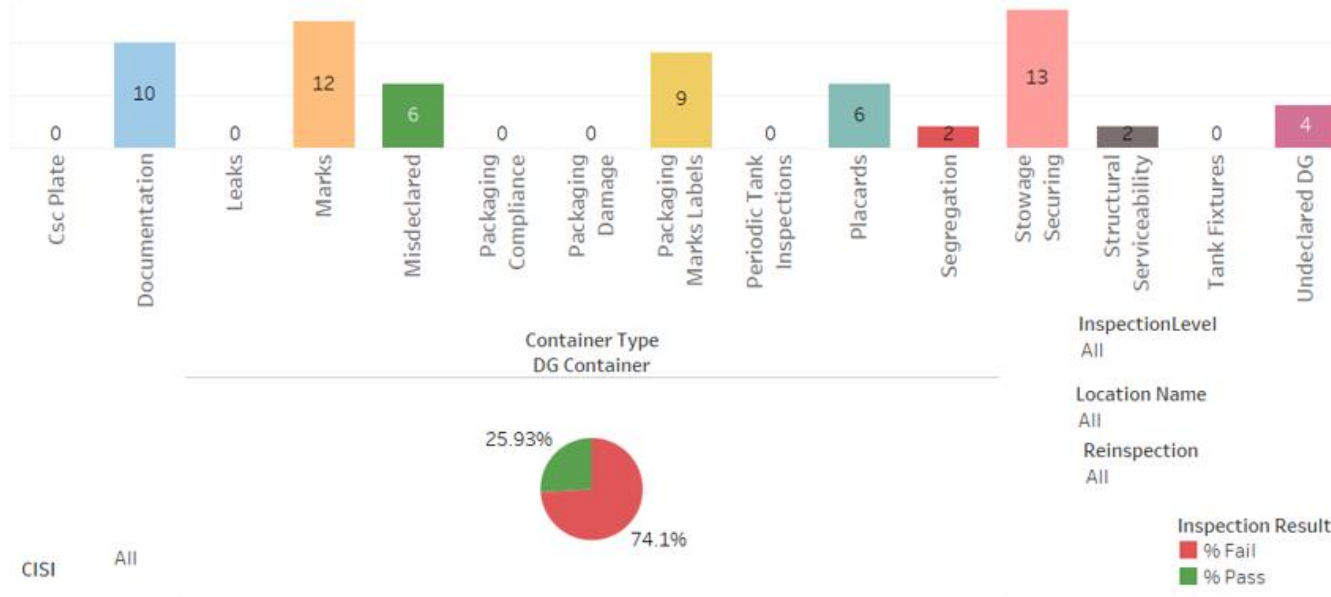
Container Type

- DG Container
- DG Tank
- Non-DG



Source: NCB Archives

### Share of Deficiencies



# Typical Discrepancies noted



Missing Class 6.1 Placard and MP Mark



Missing Marine Pollutant (MP) Marks, Toxic Label is yellow (should be white)



MP Mark sideways,  
Class 9 Placard too small

Source: NCB Archives



Damaged container



Missing Proper Shipping Name

# Remote Inspection Pilot Program

## Continuous Improvement!



### Container Inspection Summary

	DG Container	Grand Total
Number of Inspections	71	71
Failed Inspections	28	28
Total Deficiencies	78	78
% Deficiencies	109.9%	109.9%
% Fail	39.4%	39.4%

Inspection Date  
3/10/2023 to 6/15/2024

Client Name  
All

Port of Loading  
Durban

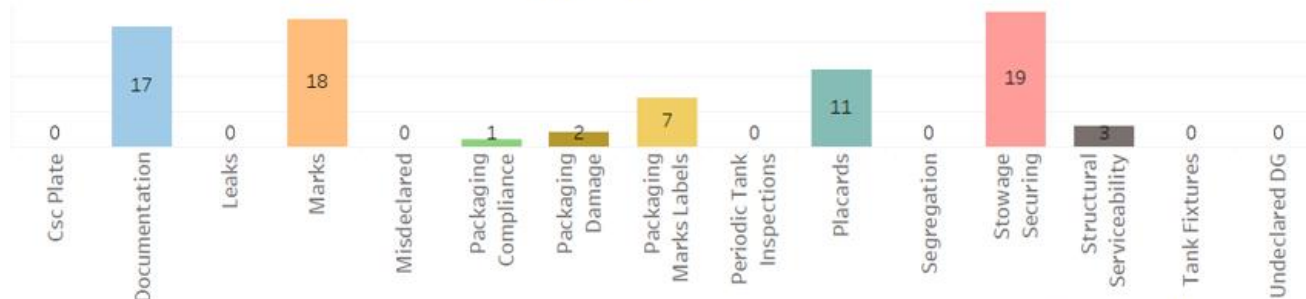
Container Type

- DG Container
- DG Tank
- Non-DG

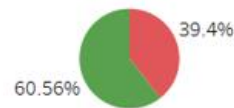


Source: NCB Archives

### Share of Deficiencies



Container Type  
DG Container



InspectionLevel  
All

Location Name  
All

Reinspection  
All

Inspection Result

- % Fail
- % Pass



# World Shipping Council Cargo Safety Program

## Cargo Screening Tool (Hazcheck Detect)

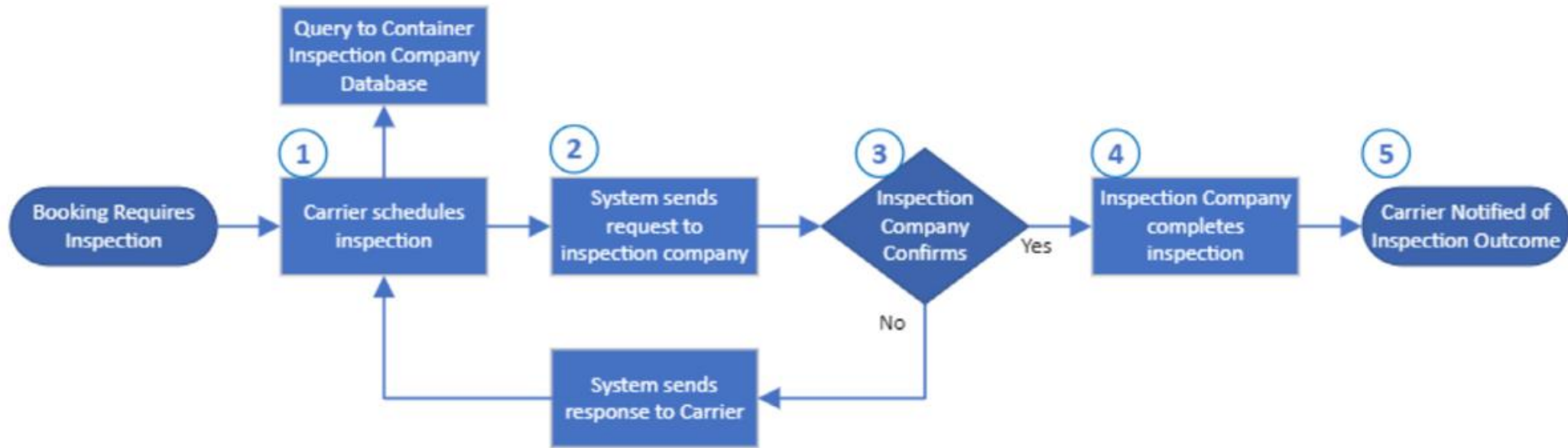


S580E  
BMW I  
S580EMAY  
ID3  
**TESLA**  
ID5  
ID BUZZ

Source: NCB Hazcheck

# World Shipping Council Cargo Safety Program

## “Reactive” Container Inspections



Source: NCB Hazcheck



# Thank You!

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