



The Dangers of Lithium Batteries in Lead Battery Waste Systems

*Metropolitan Washington Council of Governments (COG) Recycling Committee
Jan. 30, 2020*

It's just batteries...., How hard can it be?

Background and History

- Department of Transportation Laws
- The Superfund Act (CERCLA)
- The Resource Conservation & Recovery Act (RCRA)
- The Battery Act (1996)
- The Clean Air Act
- The Clean Water Act
- The Occupational Safety & Health Act (OSHA)
- Superfund Recycling Equity Act (SREA)
- Transboundary Shipments of Wastes Between OECD Countries
- State Specific Regulations
- Local Battery Regulations





Lead Vs Lithium

*Knowing the difference between
batteries destined for recycling*

Lead Battery Recycling

1. Sustainable – lead batteries in your cars, boats, RV, back-up systems, telecommunication's sites, etc. is raw material to make new lead batteries
2. Closed loop, circular economy process
3. 99% of all lead batteries manufactured are recycled





LI-ION BATTERY DANGERS TO SMELTERS AND MATERIAL RECYCLING FACILITIES (MRF'S)

- *In 2017 65% of fires at HHW and MRF facilities in CA were attributed to Li-Ion batteries*
- *According to the US Consumer Product Safety Commission, over 25,000 overheating or fire incidents involving more than 400 types of lithium battery-powered consumer products occurred over a five-year period.*
- *Exploding lithium batteries can damage equipment and shut down Secondary Lead Recycling facilities for days, or cause personal injury*

⚡ *Do you know the difference?*

Lead vs. Lithium



Common Automotive battery



Lithium batteries delivered to Gopher Resources Smelter, Eagan, MN. Discovered inside a lead battery pallet

Lithium batteries have been known to catch fire



⚡ *It can get expen\$ive!*

- Fines and heavy penalties can/will be assessed to the shipper if batteries are not packaged and labeled correctly
- Example: *“WARNING: Failure to comply with regulations for shipping hazardous materials can result in significant civil penalties for the shipper of up to \$100,000.00 per violation”**



* Massachusetts Institute of Technology Safety
Guidance Document



Education and Awareness

PROPER AWARENESS AND TRAINING IS THE BEST SOLUTION

2018 Battery Council International Survey (123 battery sorters and handlers)

- 21% of respondents said battery handling procedures are not part of new employee training
- 24% say no additional training is provided after on boarding
- 15% do not inspect the batteries they receive
- 18% were unaware that mis-handled lithium batteries could cause severe injury
- 20% are not aware of what to do with lithium and other non-lead batteries when they receive them (**1 in every 5 handlers/sorters**)



Know your batteries

Lead vs. Lithium

- **A typical Lead Auto battery weighs 40+ pounds**
The same sized lithium battery about 25 pounds
- **Lead batteries should be labeled (Pb)**
Lithium should be labeled (Li) or (Li-Ion)
Nickel Metal Hydride batteries should be labeled (NiMH)
- **Lead battery terminals are often color coded with red & black terminals**
Lithium battery terminals are usually taller and may look like metal
- *Many Lithium batteries have a bright green label*





Similar looking batteries



Sealed Lead Acid (SLA)



Li-Ion



Li-Ion



Li-Ion



Lithium



Lithium



DOT Regulations

SHIPPERS AND CARRIERS share the responsibility for compliance with the regulations for safe transportation of batteries, and must work together.

Shipping Lithium and other non-conforming batteries

- Even if you purchase your batteries already wrapped from a customer and do not inspect the batteries, if there are lithium or other non-conforming product hidden in that pallet, you as the **SHIPPER** are responsible!
- Smelters and brokers will invoice the shipper for any handling/disposal fees of the non-conforming product (Some smelters will charge up to \$6.00+/lb)
- They will not return the batteries nor will they let you come get them
- And if there are injuries or damage as a result of an explosion from a lithium battery in your shipment, those costs are also the shipper's responsibility





Shipper's Certification

Signing the BOL **certifies** you as the shipper have confirmed that everything on your load is properly classified and in proper condition for transportation. *(A legally binding document.)*

(In other words – you certify that you are not mixing different battery chemistries on any of the pallets contained in your shipment *(even the ones you did not package at your facility)*).

| | | | | | | | |
|--|------|---|--------------|---|---|--|----------------|
| Date: | | BILL OF LADING-SHORT FORM – NOT NEGOTIABLE | | | | Page 1 of 1 | |
| SHIP FROM | | | | Bill of Lading No. (Sales Order No.) | | | |
| SID No: | | | | | | | |
| SHIP TO | | | | Carrier Name: | | | |
| CID No: | | | | Trailer number: Serial number(s): | | | |
| THIRD PARTY FREIGHT CHARGES BILL TO | | | | SCAC: | | | |
| | | | | Pro Number: | | | |
| Special Instructions:: | | | | Freight Charge Terms (freight charges are prepaid unless checked) Prepaid[] Collect [] 3 rd Party [] | | | |
| Additional Emergency Response: | | | | | | | |
| Interstate Batteries 800-541-8419 X6940 | | | | | | | |
| CUSTOMER CARRIER INFORMATION | | | | | | | |
| Description | | | # of Pallets | Weight | Additional Shipper Information | | |
| | | | | | | | |
| Grand Total | | | | | Emergency Response Telephone Number: Call CHEM-TEL 1-800-255-3924 | | |
| CARRIER INFORMATION | | | | | | | |
| Handling Unit | | Package | | | | LTL Only | |
| Qty | Type | Qty | Type | Weight | HM(X) | Commodity Description | NMFC No. Class |
| | | | | | | Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2 (c) of NMFC item 360 | |
| | | | | | | | |
| Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows: "The agreed or declared value of the property is specifically stated by the shipper to not be exceeding _____ per _____" | | | | | | COD Amount: \$ _____ Fee Terms: Collect[] Prepaid[] Customer check acceptable[] | |
| Note: Liability limitation for loss or damage in this shipment may be applicable. See USC 14706 (c)(1)(A) & (B) | | | | | | | |
| Received subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, or request, and to all applicable state and federal regulations. | | | | | | The carrier shall not make delivery of this shipment without payment of charges and all other lawful fees. | |
| Shipper Signature/Date | | Trailer Loaded: | | Freight Counted: | | Carrier Signature/Pickup Date | |
| _____ | | [] By shipper [] By driver | | [] By shipper [] By driver/pallets [] said to contain [] By driver/pieces | | _____ | |
| This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable of the DOT. | | | | | | Carrier acknowledges receipt or packages and required placards. Carrier certifies emergency response information was made available and/or carrier has DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted. | |

Jeopardizing your business relationship

Illegal shipment of non-conforming batteries with your lead batteries

Lead recyclers are not permitted for the collection or recycling of non-conforming batteries.

Secondary lead recyclers can/will reject the load if they see non-conforming product included

Repeated violations of non-conforming product being received at the lead recycler will likely mean termination of business between you and the recycler



Gopher Resources, Eagan, MN



So many battery types

Only lead batteries can be shipped to secondary lead recyclers





Getting the Word out

For Interstate Batteries

1. **Communications to all Interstate Batteries warehouses and All Battery Centers across the U.S. & Canada** (254 distributors and 189 All Battery Centers)
2. **Created a Lithium battery awareness video available to all personnel on Interstate Batteries University (IBU)**
3. **Notifications to 3rd parties when non-conforming material is included with lead battery loads** (letter and video)
4. **Lithium awareness poster created and sent to all distributors and 3rd party customers**
5. **Toll Free number for more information** (888-872-4001)

Getting the Word out



For Battery Council International (BCI)

1. Letter to Senior Management

- Communication to all BCI member recyclers asking them to distribute the letter to their customers, sorters, scrap yards and key contacts in their networks who regularly send batteries

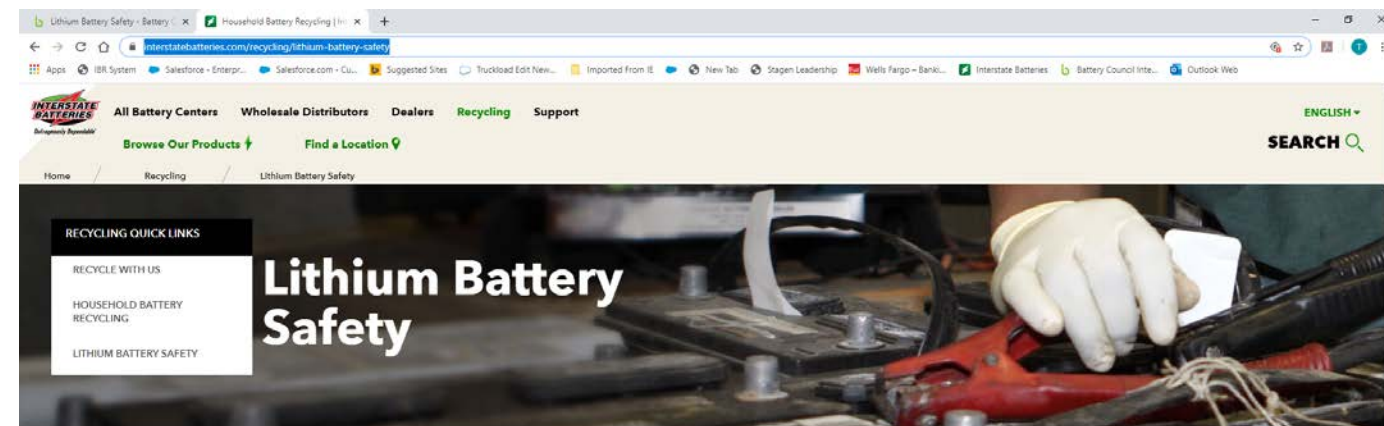
2. Lithium Battery Training Toolkit

- Letter posted on the BCI website encouraging Managers to adopt the toolkit (Includes downloadable lithium awareness posters)



More Information

<https://www.interstatebatteries.com/recycling/lithium-battery-safety>



Keep Lithium and Lead Batteries Separate to Stay Safe

Lithium and lead batteries might look similar, but they must be kept separate. These tips will help you safely collect batteries and avoid potential hazards:



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GOT IT

<https://battery council.org/page/LithiumSafety>





Questions?

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