



## BATTERY RECYCLING

# METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS

MARCH 17, 2022

Sean Plasse  
Program Manager, Northeast Region  
Call2Recycle, Inc.  
[splasse@call2recycle.org](mailto:splasse@call2recycle.org)





# Battery Awareness

# Lithium Battery Fire



Video Shared with Permission from DEM-CON



# June 2017 – A Defining Moment for Call2Recycle



[Reference: https://youtu.be/Alff-fKTBYE](https://youtu.be/Alff-fKTBYE)



# Increasing Safety Incidents



1. As more mobile products using batteries (e.g. toys, tools, electronics) are sold, batteries are **flooding the market**.
2. Battery chemistries can be **hard to identify** making it difficult to know which are hazardous and require special handling.
3. As the **power** of batteries increases and sizes shrink (energy density), damaged or defective batteries release more energy.
4. Sales of **counterfeit batteries**, which are more likely to cause safety incidents, are increasing.
5. The **design of products**, affixing a more powerful battery into a smaller product, creates a premium on design and, in some cases, increases risks.



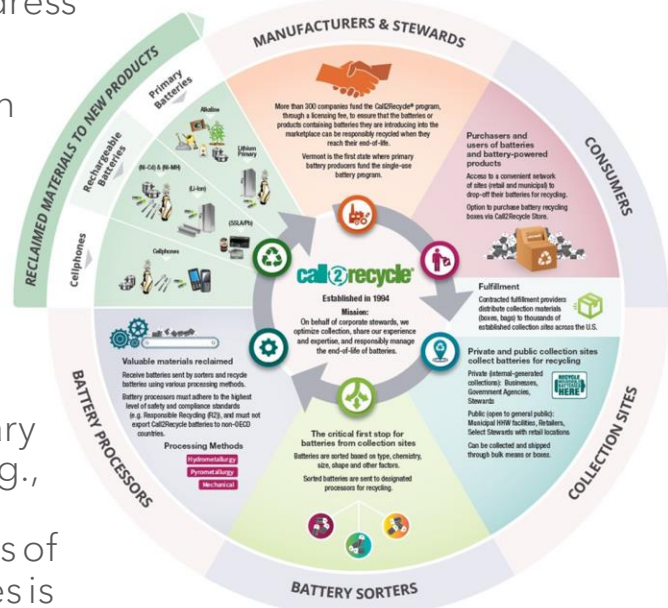


**Call2Recycle**

# Overview: Who Is Call2Recycle?



- Founded in 1994 by industry to address the emergence of EPR legislation.
- Non-profit stewardship organization that administers its collection and recycling program, Call2Recycle®, across the U.S.
- In the U.S., funded primarily by rechargeable battery stewards and, more recently, fee-based services.
- In the U.S., we're primarily a voluntary program except in certain states (e.g., Vermont, Minnesota, New York, Washington, D.C.) where collections of some (but not always all) chemistries is mandated.





# Batteries



## Two Battery Types



**Primary – One and done.**  
**Rechargeable – Use it more than once.**



## Rechargeable Batteries – Free for Munis



**Nickel Cadmium (Ni-Cd)**



**Lithium Ion (Li-Ion)**



**Nickel Metal Hydride (Ni-MH)**



**Small Sealed Lead Acid  
(SSLA/Pb)**



**Nickel Zinc (Ni-Zn)**



## Non-Rechargeable Batteries – Fee Based



**Alkaline: AA, AAA, 6V, 9V, C, D, button cells**

**\$0.40/lbs + shipping**



**Lithium Primary**

**\$3.75/lbs + shipping**





# Battery Recycling



## Battery Collection & Recycling

Ships under U.S. DOT Special Permit 14849 which authorizes Call2Recycle to use its boxes for transporting certain batteries for recycling or disposal.



Nested Battery Recycling Kit



Large Battery Recycling Kit



Small Battery Recycling Kit



Battery Recycling Kit  
(Pallet of 50 Flat Boxes)



[www.call2recycle.org/services-solutions/](http://www.call2recycle.org/services-solutions/)



# Terminal Protection



## Minimum Terminal Protection Guidelines SHIPPING IN CALL2RECYCLE BOXES

Below are the minimum requirements for preparing household batteries for shipment. When in doubt of the battery type, Call2Recycle® *recommends the battery be individually bagged or taped.*

### BATTERY TYPE / CHEMISTRY

### TERMINAL PROTECTION REQUIRED?

### Charge Up Safety!

[call2recycle.org/safety](http://call2recycle.org/safety)

### Avoid the spark!



Battery terminals that touch metal surfaces or other batteries can spark, causing a fire or explosion.

### Protect terminals before shipping Bag or Tape *Each* Battery!



Place each battery into a clear plastic bag.

- Call2Recycle-provided bags
- Produce bags
- Newspaper bags
- Ziploc® bags

👉 Clear bags only

If no bags are available, tape the positive (+) terminal with a non-conductive tape.

- Clear packing tape
- Electrical tape
- Duct tape

- 🚫 No masking tape
- 🚫 No painter's tape

No Scotch® tape  
Do not cover chemistry label

(drop in the box)



call2recycle



**Rechargeable**  
Nickel Cadmium (Ni-Cd)  
Nickel Metal Hydride (Ni-MH)  
Nickel Zinc (Ni-Zn)

9V or Less = **NO** (drop in the box)

Greater than 9V = **YES**

Terminal protection  
**REQUIRED**



**Primary** (Select sites only)  
Alkaline & Carbon Zinc

12V or Less = **NO** (drop in the box)

Greater than 12V = **YES**

Terminal protection  
**REQUIRED**



**Rechargeable**  
Small Sealed Lead Acid (SSLA/Pb)  
Lithium Ion (Li-Ion)

🚫 **DAMAGED BATTERIES:** Special U.S. DOT-approved packaging (not included here) for shipment required. Contact Customer Service at 877.723.1297 for assistance.

All = **YES**

Terminal protection  
**REQUIRED**



**Primary** (Select sites only)  
Lithium  
Button/Coin Cell

🚫 Call2Recycle boxes should be shipped when full (66 lbs.) or within one year of the collection of the first battery.

🚫 Store the Call2Recycle collection box in a cool, dry place and where it is under supervision.

REMINDER: Call2Recycle only accepts battery shipments in Call2Recycle boxes or those pre-approved by Call2Recycle.

© 2017 Call2Recycle Inc. All rights reserved. 6/17



# Lithium Safety

# PREPARE: Know How to Identify DDR Batteries



Lithium-Based Batteries that Show Signs of Damage Such as Swelling, Smoking, Leaking or Overheating.



**Do NOT place damaged lithium-based batteries in a collection box or drum. Immediately put them in an absorbent, non-flammable material (sand or cat litter) in a cool, dry area.**







## CellBlockEX

**Fire-suppression material. 100% recycled glass granules.**

**Heat – As glass melts, it pulls heat from fire.**

**Fuel – The porous surface absorbs electrolytes.**

**Oxygen – Glass melts to form a silicate coating, cutting off O2.**

**Class D, combustible metals, lithium-ion battery fires.**

**Non-Toxic – Glass is inert, and also does not chemically react with lithium fire.**

**Absorption – Granules absorb vapors.**





## Damaged, Defective or Recalled (DDR) Lithium-Ion Battery Management



Medium DDR  
Li-Ion Battery  
Recycling Pail



Large DDR  
Li-Ion Battery  
Recycling Pail



CellSafe  
DDR Li-Ion  
Recycling Kit



CellSafe  
DDR Li-Ion  
Recycling Kit



55-Gallon DDR  
Li-Ion Battery  
Drum



[www.call2recycle.org/services-solutions/](http://www.call2recycle.org/services-solutions/)



# PROTECT: Safety Solutions



PED-Pad Fire Suppression Pillow



Fire Shield Blanket

Storage & Shipping Drums



# Coming Soon: OneDrum™ Battery Recycling Solution



OneDrum™ - the One Solution that will make preparing large volumes of batteries more manageable and efficient.

- Allows transportation of large volumes of consumer single-use AND rechargeable batteries in one drum **without** sorting by chemistry and **without** individually bagging or taping the battery terminals.
- Infused with CellBlockEX® terminal protection, batteries are protected and cushioned against short circuits, mitigating the risk of thermal events
- Fully satisfies US DOT's requirements (eliminates 49CFR training, special paperwork, or labeling)



# Coming Soon: OneDrum™ Battery Recycling Solution



## OneDrum: Co-Mingled Battery Recycling Steel Drums With CellBlockEX® (Intended for Mixed Battery Chemistries)

**call2recycle**  
Leading the charge for recycling.

|               |   |                |   |   |                 |   |
|---------------|---|----------------|---|---|-----------------|---|
| Contents List |   |                |   |   |                 | A particle filtered protective mask, eye protection with side shields, protective gloves and general purpose work suit are recommended when pouring or handling fire suppressant. |
|               | 55-Gallon Pack Group 1 Steel Drums w/ Lids x1 | Drum Liners x1 | CellBlockEX Filler Suppressant x10 (2.5 per drum) | Envelope Containing Labels: UN3480 x1, UN3090 x1, DOT SP 20549 x1 | Instructions x1 |   |

### Step 1: Unpack & prepare



Remove rubberband & black plastic (reuse or recycle if possible). Open a drum and remove all bags of CellBlockEX. Verify that the drum liner is installed in each drum.

### Step 2: CellBlockEX layer 1



Pour in a 1-2" base layer of CellBlockEX into the bottom of each drum—approx. a 1/4 bag. Reserve a 1/4 bag of CellBlockEX for a final layer in step 5.

### Step 3: Battery layer 1

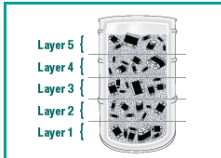


Place your first layer of batteries on top of the CellBlockEX until the batteries are visible & are no longer submerging into the CellBlockEX.

### IMPORTANT

- ! This kit is designed for mixed dry-cell batteries only; shipping a single battery chemistry is not advised.
- ! The following batteries are prohibited from this recycling solution:
  - Wet-cell Ni-Cd and SS/LA batteries
  - Damaged, defective or recalled (DDR) lithium-based batteries
- ! Batteries are limited to 25 lbs (11 kgs) or less gross weight each
- ! Lithium content not to exceed 25g for a single lithium metal battery
- ! Lithium ion watt-hour rating not to exceed 300 wh for a single battery

### Step 4: Repeat layering



Pour a new 1-2" layer of CellBlockEX, covering first layer of batteries to sufficiently fill the empty space between the cells or batteries. Repeat layering batteries & CellBlockEX until the drum is nearly full.

### Step 5: Final layer & seal



Pour in the reserved 1/4 bag of CellBlockEX, completely covering the final layer of batteries and seal drum. SEE BACK FOR MANUFACTURER'S CLOSURE INSTRUCTIONS

### Step 6: Label & secure



Secure all 4 drums tightly to a pallet with shrink wrap & affix the UN3480, UN3090, and DOT SP 20549 labels to the outside of the wrapping on the same side of the pallet.

### Step 7: Schedule shipment



Confirm gross weight of each drum is 660 lbs or less. Contact our customer success team at 1-877-723-1297 to schedule your shipment. Once scheduled, print the BOL & place on the same side of the pallet as the labels in step 6.

For questions, contact customer service at 1-877-723-1297 or [customerservice@call2recycle.org](mailto:customerservice@call2recycle.org)

The performance certification of this package requires that it be filled, assembled, and used in full accordance with the instructions herein. The use of substitute components or packing methods, or failure to follow the supplied instructions may result in a package that is not compliant with this certification. Instructions valid until revoked or

superseded. The special permit for transporting mixed batteries is offered through CellBlock FCS' special permit number SP 20549. A copy of the special permit is maintained at [www.call2recycle.org/certifications-and-audits](http://www.call2recycle.org/certifications-and-audits).





# DC Recycling



## Who is recycling?

31% of residents recycled single-use batteries  
38% of residents recycle rechargeable batteries

## Why aren't they recycling?

39% said it's easier to throw batteries in the trash  
34% didn't know where to recycle batteries  
28% didn't know if batteries could be recycled

## Where are they recycling?

Recycling Depot 38%  
Work 29%  
Retailer 28%  
Curbside 26%



# Accessibility - Call2Recycle DC Collection Sites



Goal for Public Sites = 9 sites x 8 Wards = 72 total

Current Public Sites = 9 total  
Missing Wards 4, 7, and 8

Current Private Sites = 23

Diversity, Equity, and Inclusion





# Prospecting Collection Sites in 2022

---



1000+ potential sites identified by Ward, including large retail, small retail, universities, hospitals, office, government, libraries, and others.

Covid-19 and remote working have changed the collection site patterns

Conversations have begun DC agencies





# Battery Strategy

# Battery Strategic Planning

**Battery Program**  
**Budgeting**  
**Facility Layout**  
**Training**  
**Safety Products**  
**Outreach**

**Future Proofing**





Leading the charge for recycling.™

thank you!



**Sean Plasse**

Program Manager, Northeast Region

[splasse@Call2Recycle.org](mailto:splasse@Call2Recycle.org)

Corporate Headquarters:

1000 Parkwood Circle, Suite 200

Atlanta, Ga 30339