



Lithium Battery Hazards In The Electronics Recycling Industry

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OVERVIEW

- CEAR is committed to providing responsible and effective management solutions for disposition and recovery of electronic assets and data security; in a manner that protects health and safety of our community and environment.
- Our Services include:

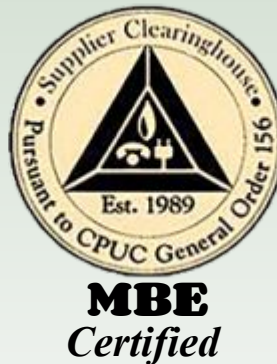


CORPORATE

- Established in 2000
- Located in Mather, California
- 300,000 sq. ft. campus
- 80 plus green jobs created
- Carry multimillion dollar professional, cyber & environmental liability insurance
- Over 9,000 tons of electronic waste recycled in 2018
- Over 10 tons of lithium batteries sent for recycling in 2018



CERTIFICATIONS



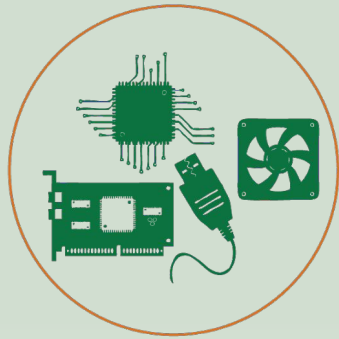
Coming in 2019



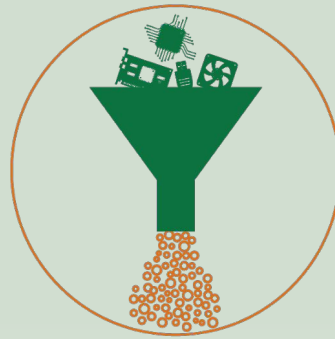
Recycling Process



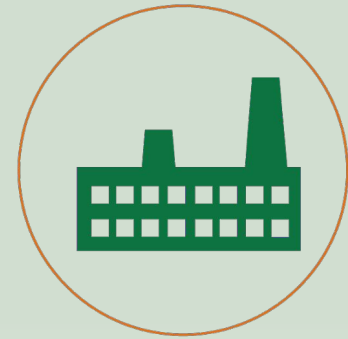
Incoming end-of-life products/weighed, counted & sorted.



Pre-sort & removal of any universal or hazardous materials.



Manual de-manufacturing/machine processing.



Packing & shipping to downstream audited processing or refineries for metal, plastic and precious metal value recovery.

SUPERIOR PROCESSING TECHNOLOGY

- CFT (centrifugal force technology) uses centrifugal force to accelerate and separate material instead of knife-cutting methods.
- The physical collision of the material results in quick liberation and clean commodity outputs.
- Our system processes up to 15,000 tons of electronic waste annually and uses 50% less energy compared to higher capacity knife shredders.



Lithium Batteries are the Most Popular Rechargeable Battery Used Today

Integrated into a wide range of products: cellphones, power tools, children's toys, and many household devices that come through our facility daily

- They come in many shapes and sizes and some are unique to products and, in some cases, very difficult to identify



PROBLEMS WITH PROCESSING

- Many lithium batteries are difficult to identify
- Lithium batteries embedded in the electronics are very difficult to remove;
- Potential safety risks and exposure from incoming damaged lithium batteries
- Excessive handling for individual sorting and taping

Consumer Product Explosions Related to Lithium Batteries

E-scooter fires soar 300% in 2017

TODAY Online, February 8, 2018

*Train car carrying Lithium batteries
explodes near downtown Houston*

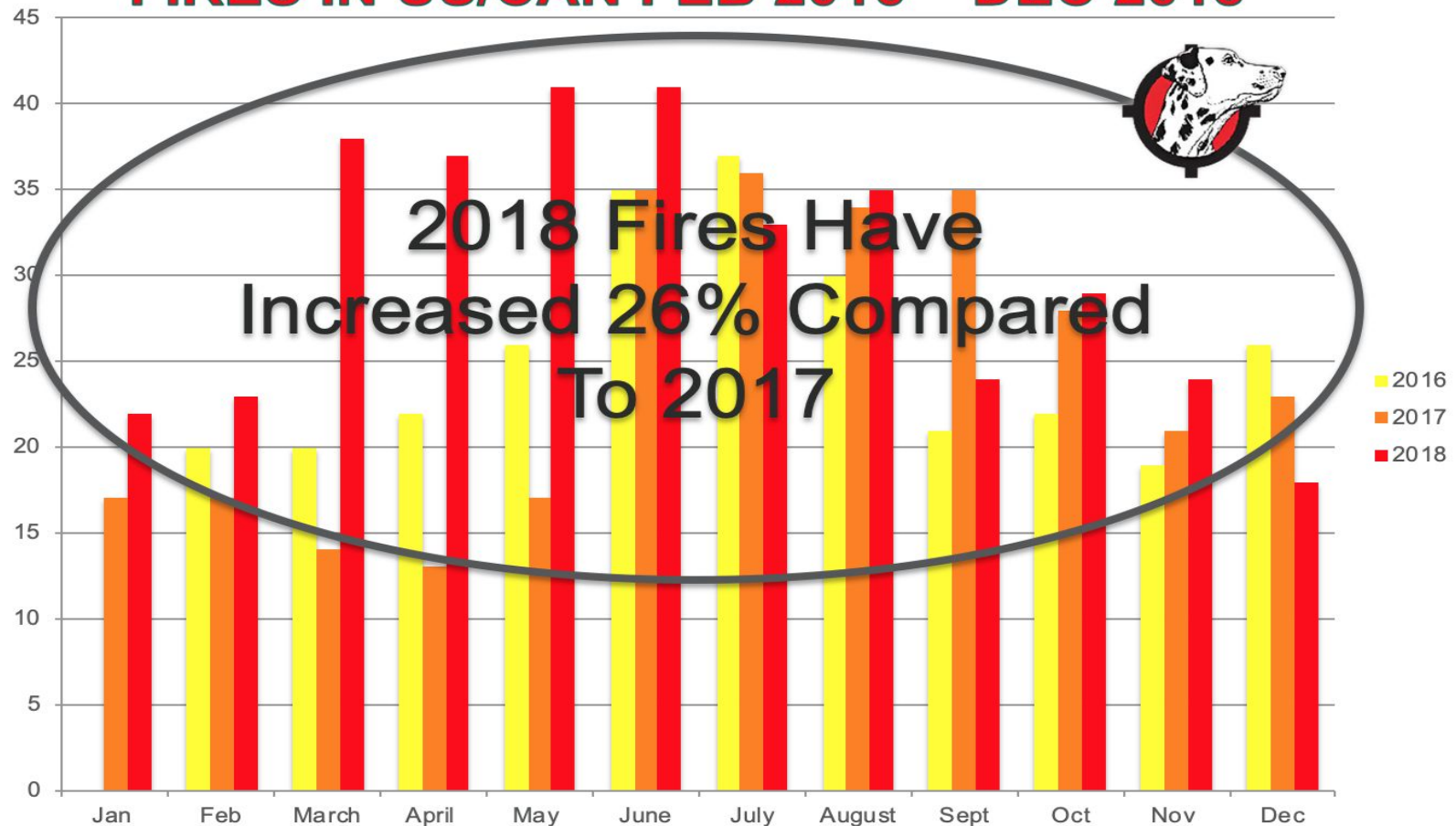
Houston Chronicle April 26, 2017

*Last year, 65% of waste facilities fires in California
began with lithium-ion batteries.*



WHY IS THIS AN ISSUE FOR RECYCLING FACILITIES?

REPORTED WASTE & RECYCLING FACILITY FIRES IN US/CAN FEB 2016 – DEC 2018

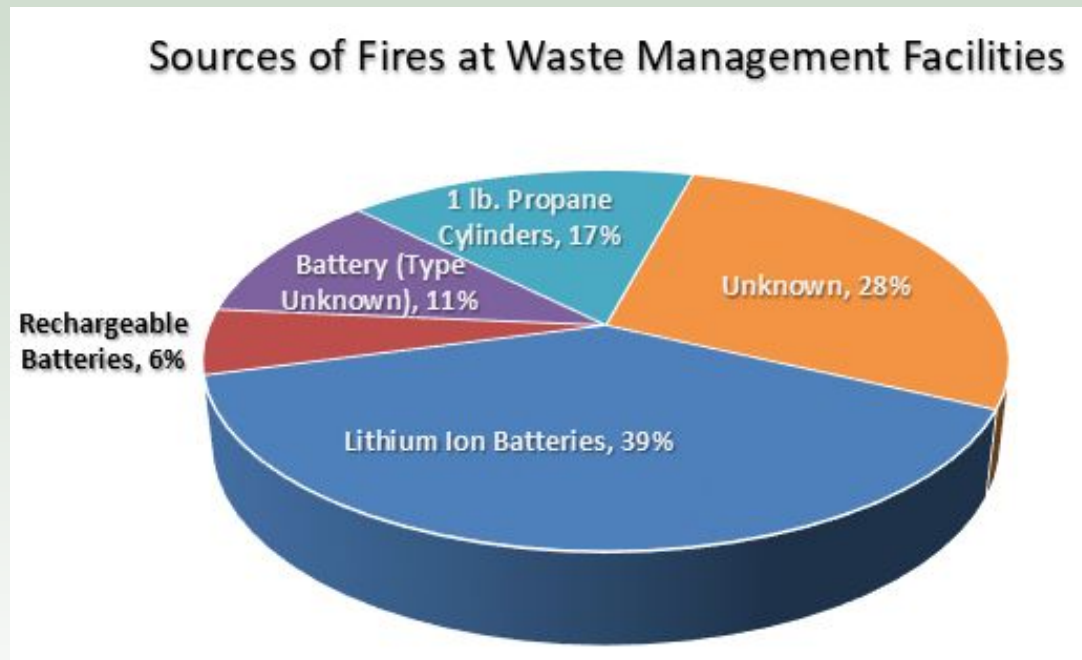


Source: Ryan Fogelman, rfogelman@firerover.com

CPSC Fire Incident Survey

A survey was conducted in March 2018 to find out more about waste facility fires:

- 22 respondents from CA waste facilities, with 21 responding yes or no to facility fires.
- **86% of the 21 reported having a fire at their facility** in the last two years.
- When asked to identify the source of the reported fires, **56% of the reported fires** were due to batteries.
- Lithium ion batteries are the **largest** source of reported fires.



WHAT CAN WE DO TO HELP WITH THE PROBLEM OF THERMAL EVENTS?

1. Manufacturers need to design the products to be more easily recyclable.
2. More consumer education to increase the awareness of proper lithium battery handling and recycling.
3. Operational best practices must be in place. No recycler is impervious to dealing with fire hazards, but much can be done to mitigate risks.
4. Support Bills such as AB 1509.

WHAT CAN WE DO TO HELP WITH THE PROBLEM OF THERMAL EVENTS?

- AB 1509(sponsored by CPSC, SBWMA and CAW)
- This bill would require, for a product with a nonremovable rechargeable battery, that the manufacturer of the product provide disassembly information to recyclers
- It would also require labeling in a conspicuous manner that is visible to consumers.



THANK YOU !