



Dangers of Lithium Batteries and Proper Disposal

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TODAY WE WILL COVER:

Video Designed by Active Learning Center (ALC)

What Contains Lithium Batteries?

What are Lithium Batteries?

Advantages of Lithium Batteries

Disadvantages of Lithium Batteries

Hazards associated with Lithium Batteries

Why Lithium Batteries Catch Fire

How to put out Lithium Fires

How Do We Combat the Problem?

Proper Disposal



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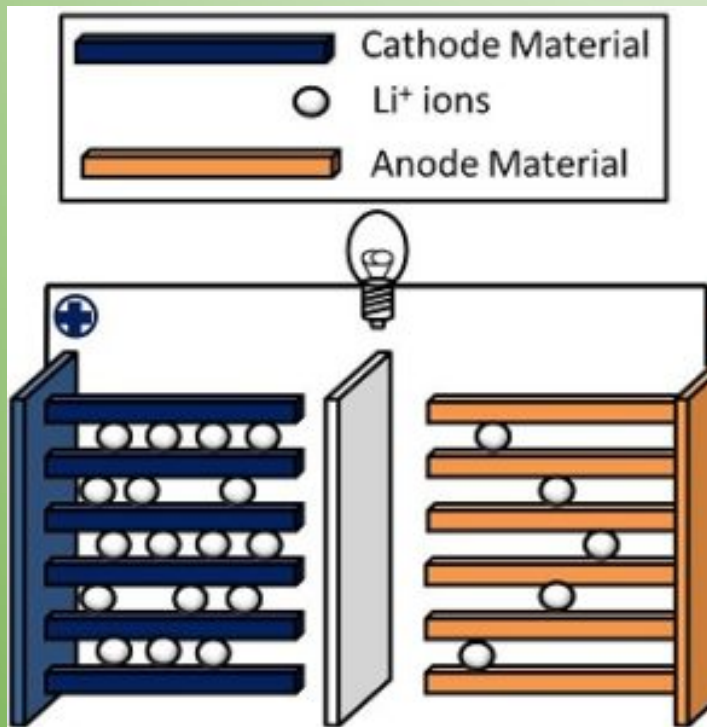
WHAT CONTAINS LITHIUM BATTERIES?



... In Short, Everything.

WHAT ARE LITHIUM BATTERIES?

Lithium batteries are compact, lightweight batteries that hold considerable charge and can continually discharge-recharge.

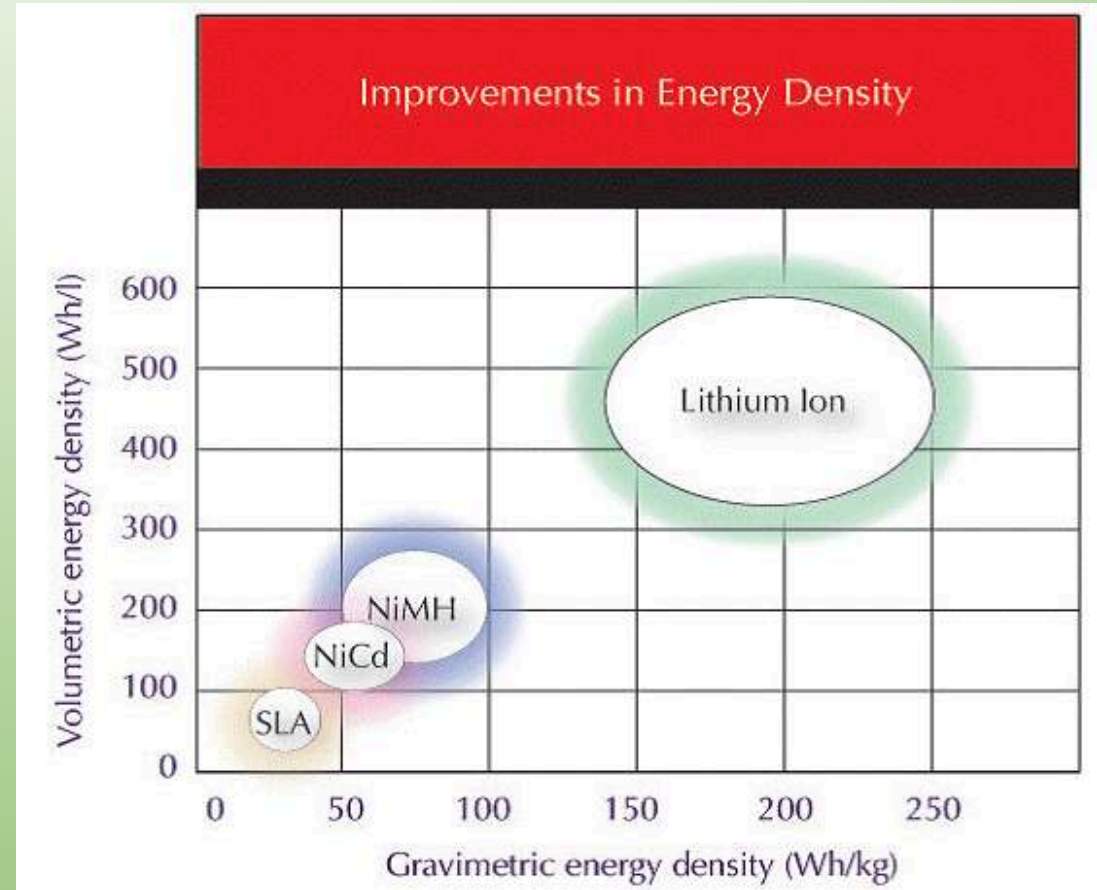


Lithium ion batteries offer many advantages, resulting in displacing other competitors, such as Nickel-Cadmium (Ni-Cd) and Nickel-Metal-Hydride (Ni-MH) batteries.

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ADVANTAGES OF LITHIUM BATTERIES

- High energy density
- Self-discharge
- Low Maintenance
- Cell voltage
- Load characteristics
- No requirement for priming
- Variety of types available



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DISADVANTAGES

Unfortunately, despite the technological promise, Lithium Ion batteries come with their own cons.

Aside from various cons such as transportation restrictions, shorter lifespan, and cost, our waste industry is primarily concerned with the safety of the batteries.



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HAZARDS!



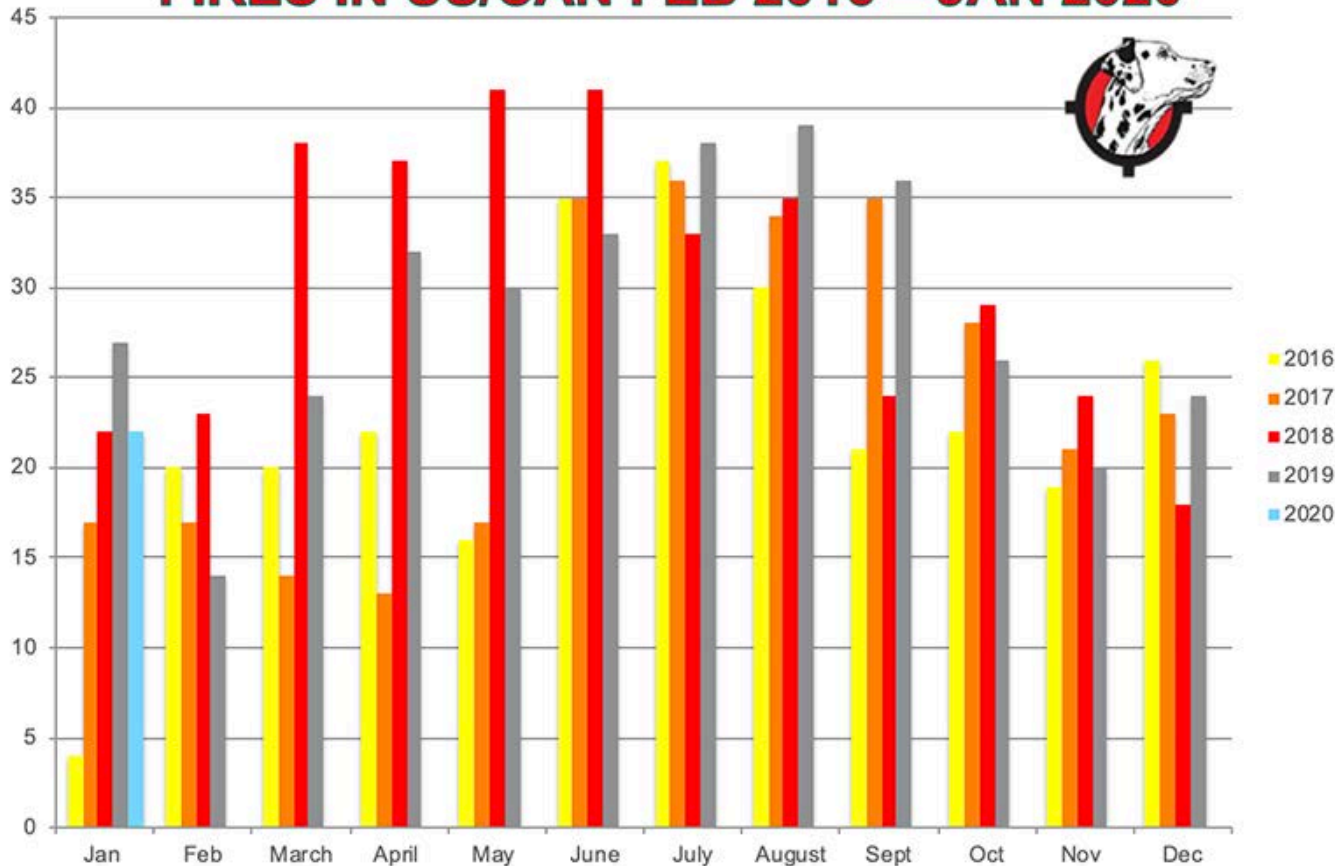
Lithium batteries have caused a number of fires and explosions in consumer products and in our trucks, recycling plants and landfills.



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HAZARDS!

REPORTED WASTE & RECYCLING FACILITY FIRES IN US/CAN FEB 2016 – JAN 2020



Source: Ryan Fogelman, rfogelman@firerover.com

During the past 12 months, the waste and recycling industry has experienced 338 reported facility fires in the U.S. and Canada. Additionally, we incurred 48 reported injuries and four deaths that can be directly or indirectly attributed to these fire incidents.

Based on reasonable assumptions, we can extrapolate that 1,800-plus facility fires have occurred during that time, which, based on the number of facilities reported by the Environmental Research & Education Foundation (EREF), is more than 40 percent of the industry.

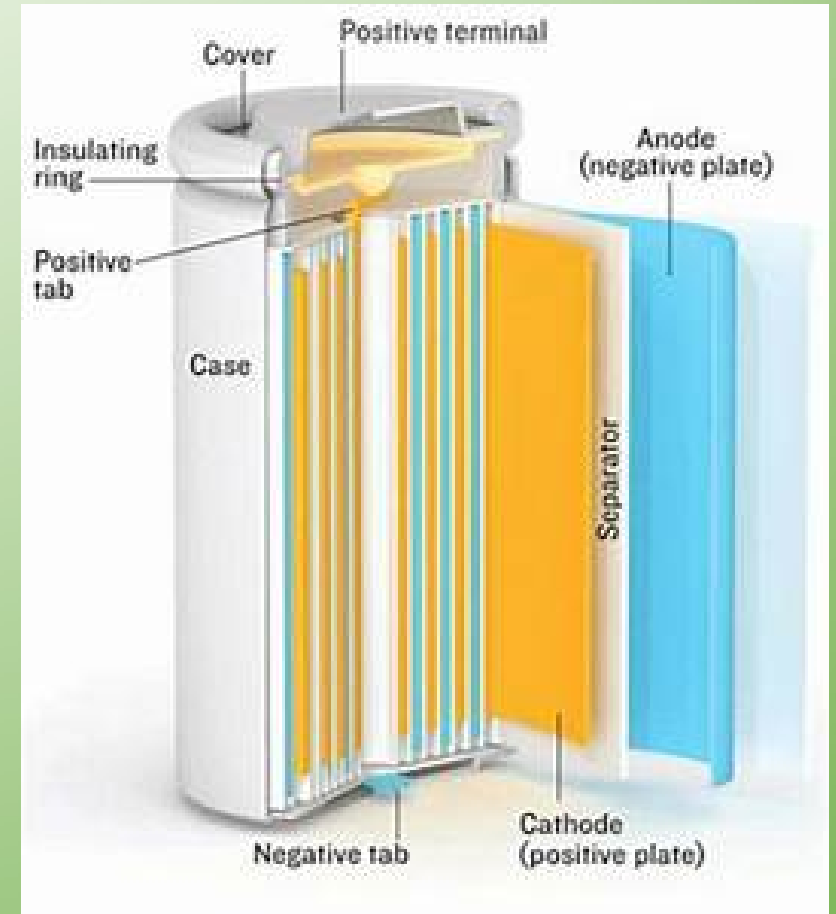
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WHY DO LITHIUM BATTERIES CATCH FIRE?

Lithium batteries are made to deliver high output with minimal weight. Battery components are designed to be lightweight, which translates into thin partitions between cells and a thin outer covering. The partitions or coating are fairly fragile, so they can be punctured.

If the battery is damaged, a short occurs which can result in a spark that can ignite the highly reactive lithium.

Damage can easily occur during compaction of trash in our trucks, recycling centers, and landfills.



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HOW TO PUT OUT LITHIUM FIRES

Lithium Ion
Think Rechargeable
Batteries

VS.

Lithium
Not Rechargeable

**Rule #1: DO
NOT USE
WATER.**

Lithium burns
in the air we
breathe and
reacts with
water to form
explosive
hydrogen that
may develop a
chain reaction.



ABC or BC chemical fire extinguisher.



Class D extinguisher.

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HOW DO WE COMBAT THE PROBLEM?

Current recycling efforts are minimal in comparison to lead acid batteries. While lead-acid batteries are 99% recyclable, lithium-ion batteries are recycled at a rate below 5%.

Step 1: Bring Awareness to the Public

Step 2: Provide Disposal Options

Step 3: Emphasis on Truck or Container Inspections

Step 4: Train Site Personnel to Easily Identify Batteries

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PROPER DISPOSAL

<https://www.call2recycle.org/>



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QUESTIONS??