



DFD Safety Series: Lithium-ion Battery Safety

Welcome & Thank You for Joining Us for the DFD Safety Series!

Damon Robinson, Chief of DFD Plans & Exams Section

- General Info: 313-596-2900/2959
- Emergencies: 9-1-1
- <https://detroitmi.gov/departments/detroit-fire-department>

“Don’t Be Afraid, Be Informed!”





DFD Safety Series: Lithium-ion Battery Safety

Please Join Us In The Future! Take A Look What's Next.....

Today (**January 8th**): Lithium-ion Battery Safety and Best Practices

Wednesday, **February 12th** : Home Heating Safety

Wednesday, **March 12th**: Fire Prevention when Cooking, Smoking, or Using Candles

Wednesday, **April 9th**: Creating Fire Life Safety Plans for Home and Business

Wednesday, **May 14th**: Summer Safety when Using Grills, Fire Pits, and Fireworks

Wednesday, **June 11th**: How to be HEARTSafe in Detroit and Help the Community



DFD Safety Series: Lithium-ion Battery Safety

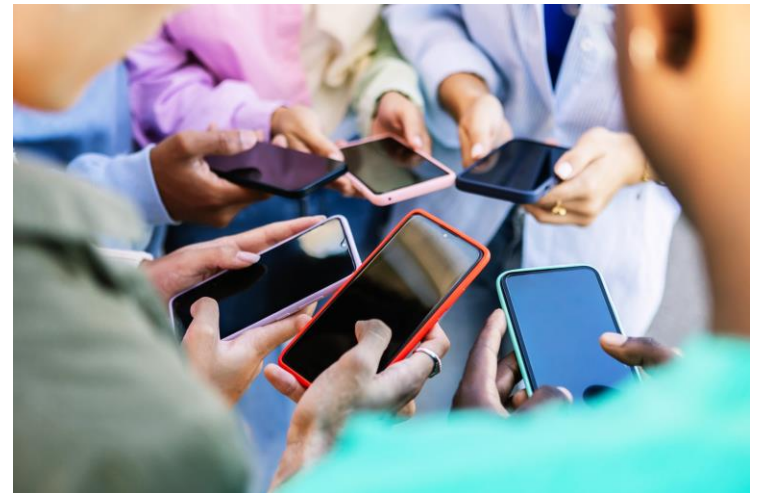
When We Complete This Webinar, We'll Be Better At Understanding:

What is a Lithium-ion Battery

What Hazards/Dangers are Involved in Lithium-ion Batteries

Safety When Using Lithium-ion Batteries

Q&A and Survey Afterward!





DFD Safety Series: Lithium-ion Battery Safety

Where Can You Find a Lithium-ion Battery?

EVERYWHERE!

It's The Most Popular Rechargeable Battery Chemistry Used Today.

Where are lithium-ion batteries?

Lithium-ion batteries empower us to be flexible with energy storage. They make it easier to use on-the-go energy in portable products. They also enable us to store more energy from renewable sources, including wind and solar power.

Examples of devices that use lithium-ion batteries include:

- Mobile phones
- Electric vehicles
- Drones
- Wearable tech
- Headphones
- Hoverboards
- Laptops
- Power banks
- Public transit
- Satellites

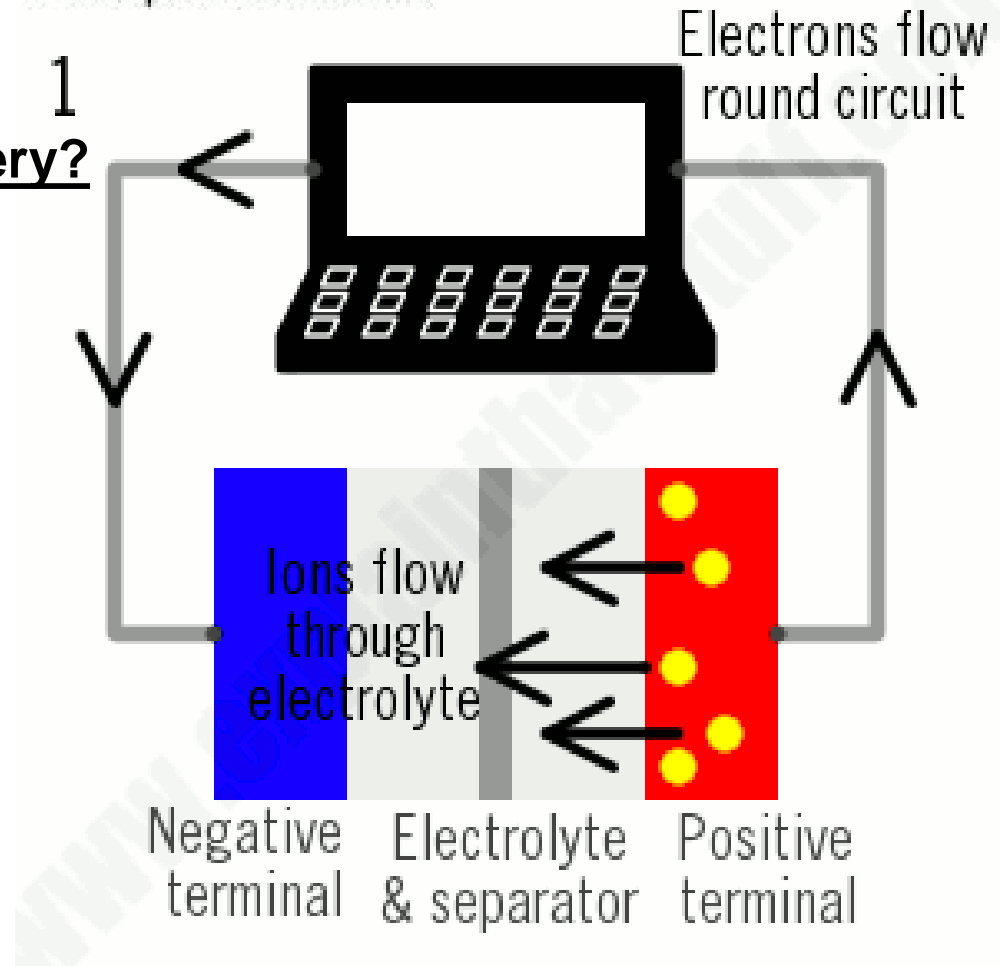


DFD Safety Series: Lithium-ion Battery Safety

www.explainthatstuff.com

1 So, What Is A Lithium-Ion Battery?

- Lithium-ion Batteries use lithium ions and electrons to create an electrical charge that can power all types of devices...





DFD Safety Series: Lithium-ion Battery Safety

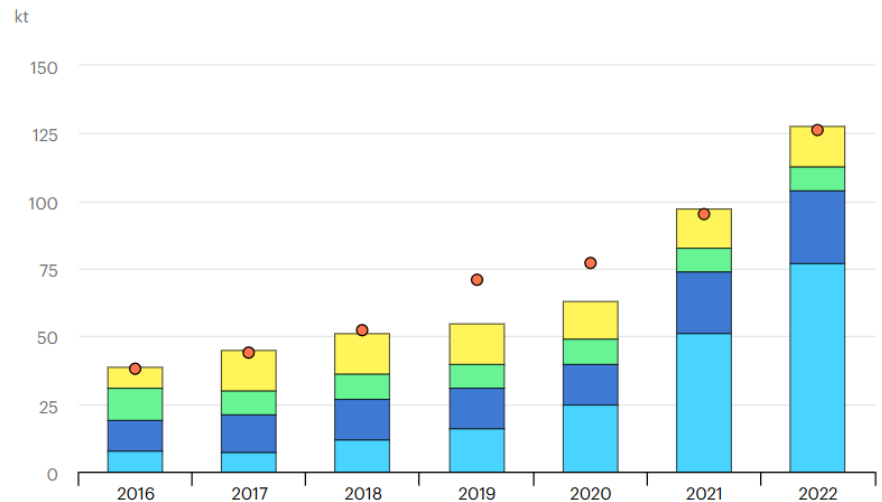
The Demand For Lithium-ion Batteries Is Growing...



According to the [U.S. Consumer Product Safety Commission](#), **at least 25,000** fire or overheating incidents in lithium-ion batteries occurred in a five-year period.

Overall supply and demand of lithium for batteries by sector, 2016-2022

Open



IEA. Licence: CC BY 4.0

● EV demand ● Other batteries ● Ceramics and glass ● Other ● Supply

IEA, Overall supply and demand of lithium for batteries by sector, 2016-2022, IEA, Paris
<https://www.iea.org/data-and-statistics/charts/overall-supply-and-demand-of-lithium-for-batteries-by-sector-2016-2022>, IEA. Licence: CC BY 4.0

General Info: 313-596-2900/2959

Emergencies: 911

<https://detroitmi.gov/departments/detroit-fire-department>



DFD Safety Series: Lithium-ion Battery Safety

What Hazards/Dangers Are Involved In Lithium-ion Batteries?

- Lithium-ion batteries can malfunction if they're overcharged or if internal damage/flaw causes a short circuit
- If this happens, the batteries heat up in what's called a "**thermal runaway**," which can lead to the battery and its casing catching fire or even exploding.
- Properly designed batteries have a built-in circuit breaker, known as a current interrupt device or CID, which kills the charging current when the voltage reaches a maximum, if the batteries get too hot, or their internal pressure rises too high.
- Lithium-ion battery fires are very difficult to extinguish. They are NOT a "traditional" fire.





DFD Safety Series: Lithium-ion Battery Safety


Safety When Using Lithium-Ion Batteries

Signs of a Problem...

Stop using the battery if you notice these problems:



- Strange Odor
- Change in Color
- Too Much Heat
- Change in Shape
- Leaking
- Odd Noises

If At Any Point, There Is Smoke Or Flame Coming From The Battery Or The Device It's In, Get Away And Call 9-1-1!!



Be aware of lithium battery fire safety.

Stop using them if you notice an odor, change in color, too much heat, change in shape, leaking or odd noises.





DFD Safety Series: Lithium-ion Battery Safety

Safety Tips When Using Lithium-ion Batteries

- Purchase and use devices that are listed by a **qualified testing laboratory**.
- **Always** follow the manufacturer's instructions.
- Use **only** the battery that is designed for the device.
- Put batteries in the device the **right way**.
- Use **only** the charging cord that came with the device.
- **Do not** keep charging the device or device battery after it is fully charged.
- **Do not** charge a device under your pillow, on your bed, or on a couch.





DFD Safety Series: Lithium-ion Battery Safety

Safety Tips When Using Lithium-ion Batteries (cont.)

- **Do not** put lithium-ion batteries in the trash. Recycling is always the best option.
Detroit Contact: 313-923-2240/ 313-876-0148 DPW- Household Hazardous Waste
Other resources: [Earth 911 database](#) and [Call2Recycle](#)
- **Do not** attempt to modify the battery or charger.
- If your device, battery, or charger needs repairs, **do not** attempt to fix them yourself. Seek out a qualified professional.
- Keep batteries at **room temperature** when possible. **Do not** charge them at temperatures below 32°F (0°C) or above 105°F (40°C).
- Store batteries **away** from anything that can catch fire. Store in non-flammable containers.
- **Do not store or charge batteries in areas that are near exits, windows, or pathways to get out!**
- **Always** have working smoke detectors installed!





DFD Safety Series: Lithium-ion Battery Safety

Let's Recap...

- Lithium-ion Batteries use lithium ions and electrons to create an electrical charge that can power all types of devices.
- If a Lithium-ion Battery malfunctions, it can produce extreme heat, fire, and even explode.
- Warning signs of potential problems in a Lithium-ion Battery are
 - Strange Odor
 - Change in Color
 - Too Much Heat
 - Change in Shape
 - Leaking
 - Odd Noises



DFD Safety Series: Lithium-ion Battery Safety

Let's Recap...

HOW TO HANDLE LITHIUM-ION BATTERIES

DO'S



Purchase and use devices that are listed by a qualified testing lab.



Only use the battery and charging cord designed for the device.



Keep devices and batteries at room temperature.



Store batteries away from flammable objects.

DON'TS



Do not leave devices plugged in once fully charged.



Do not charge the device under your pillow, on your bed, or on a couch.



Do not charge devices at temperatures below 32°F or above 105°F.



Do not discard lithium-ion batteries in the trash.

Posted in [Fire & Life Safety](#)

General Info: 313-596-2900/2959

Emergencies: 911

<https://detroitmi.gov/departments/detroit-fire-department>



DFD Safety Series: Lithium-ion Battery Safety



General Info: 313-596-2900/2959

Emergencies: 911

<https://detroitmi.gov/departments/detroit-fire-department>



Lithium-ion Battery Safety Webinar

Help Us Out and Tell Us What You Think!

SURVEY: <https://www.surveymonkey.com/r/LVZVMZG>

- What did we do right?
- What needs improvement?
- Are there any additional topics you'd like DFD to discuss for future webinars?

Thank You!