

MAYOR WAYNE D. ZITT, JR. & TOWN COUNCIL
IN CONJUNCTION WITH GUTTENBERG FIRE PREVENTION: GUIDE TO
E-BIKE LITHIUM BATTERY FIRE DANGER



E-Bike lithium batteries are often charged in or around homes and businesses. Even though there is a small chance of spontaneous ignition of an e-bike lithium battery, it can happen. **Hundreds of e-bike battery fires and explosions happen each year due to malfunctioning and aging batteries.** It is unsure if or when a battery pack will explode, but when it does the damage is disastrous.

QUICK FACTS

In a period of only 7 months, 3 fires broke out at the HQ and showroom of a Dutch E-bike company. They involved 36 bicycles and 80 batteries.

In China, Statistics show that the recharging of electric bicycle batteries caused **799 fires between 2011 and 2013**, causing the **deaths of 95 people and injuring 58.**

When a battery overheats to the point that a thermal runaway reaction is triggered, the destructive effect of the explosion and fire is enormous. Since they are often charged in or around homes and businesses, lives and property are at risk.

The overheating triggers an uncontrollable, explosive release of electric energy which generates smoke, flammable gas, heat (up to 600 °C to 1000 °C), fire, explosion, or a spray of flammable electrolyte. Before the cell combusts, a flare emerges briefly (~ 1 sec) The impact of the energetic release depends directly on the amount of energy stored and the type of battery.

A THERMAL RUNAWAY CAN BE CAUSED BY:

- Poor manufacturing, bad design
- External heating
- Over charging
- Over Discharging
- High current charging
- Structural damage
- Crush
- External short



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The Town of Guttenberg along with Fire Prevention recommends the following safety precautions:

Until the right consumer-level certified battery storage container solution arrives, bike owners can protect themselves by applying these tips:

- Avoid overcharging batteries
- Charge only one battery at a time, avoid multiple charging
- Never charge a damaged battery or one that has been dropped
- Never leave a charging battery unattended
- Always use the recommended battery and charging as per the manufacturer of your electric bike
- Do not charge batteries close to explosive or combustible items or materials
- Do not modify a lithium-ion battery
- Avoid charging in a confined space, must be well ventilated
- Charge your batteries on rolling wire shelving for quick and easy transport away from if the battery overheats or ignites
- Use a dedicated circuit with GFI breaker (electrical permit required to install)
- Make sure all devices are UL rated
- Make sure all Smoke & CO detectors are working properly
- Have a rated dry chemical fire extinguisher
- If battery starts to smoke disconnect power source and call 911

Lastly make sure all e-bikes are stored in a safe area, not blocking entrance & egress points.

