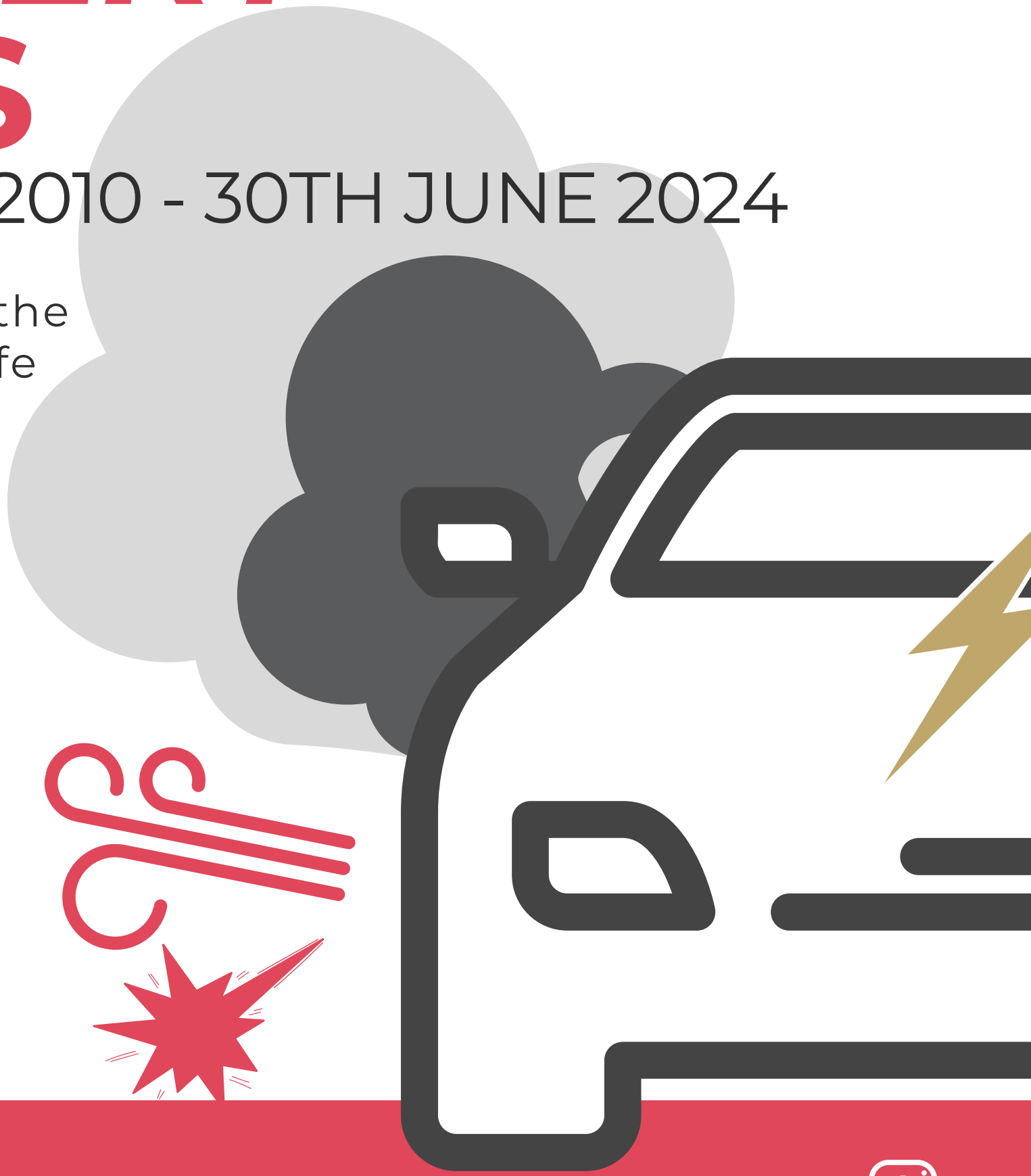


ELECTRIC VEHICLE BATTERY FIRES

GLOBALLY, 2010 - 30TH JUNE 2024

A data update by the
team at EV FireSafe



Research at evfiresafe.com
Learn at evfiresafe.training



BATTERY FIRES IN ELECTRIC CARS REMAIN RARE

Since 2010, EV FireSafe has been able to verify:

511 incidents of thermal runaway in electric passenger vehicles (BEV and PHEV*).

There are approximately 40 million EVs on the road, according to the International Energy Agency EV Outlook Update 2024



Learn more at evfiresafe.com/ev-fire-what-is-thermal-runaway

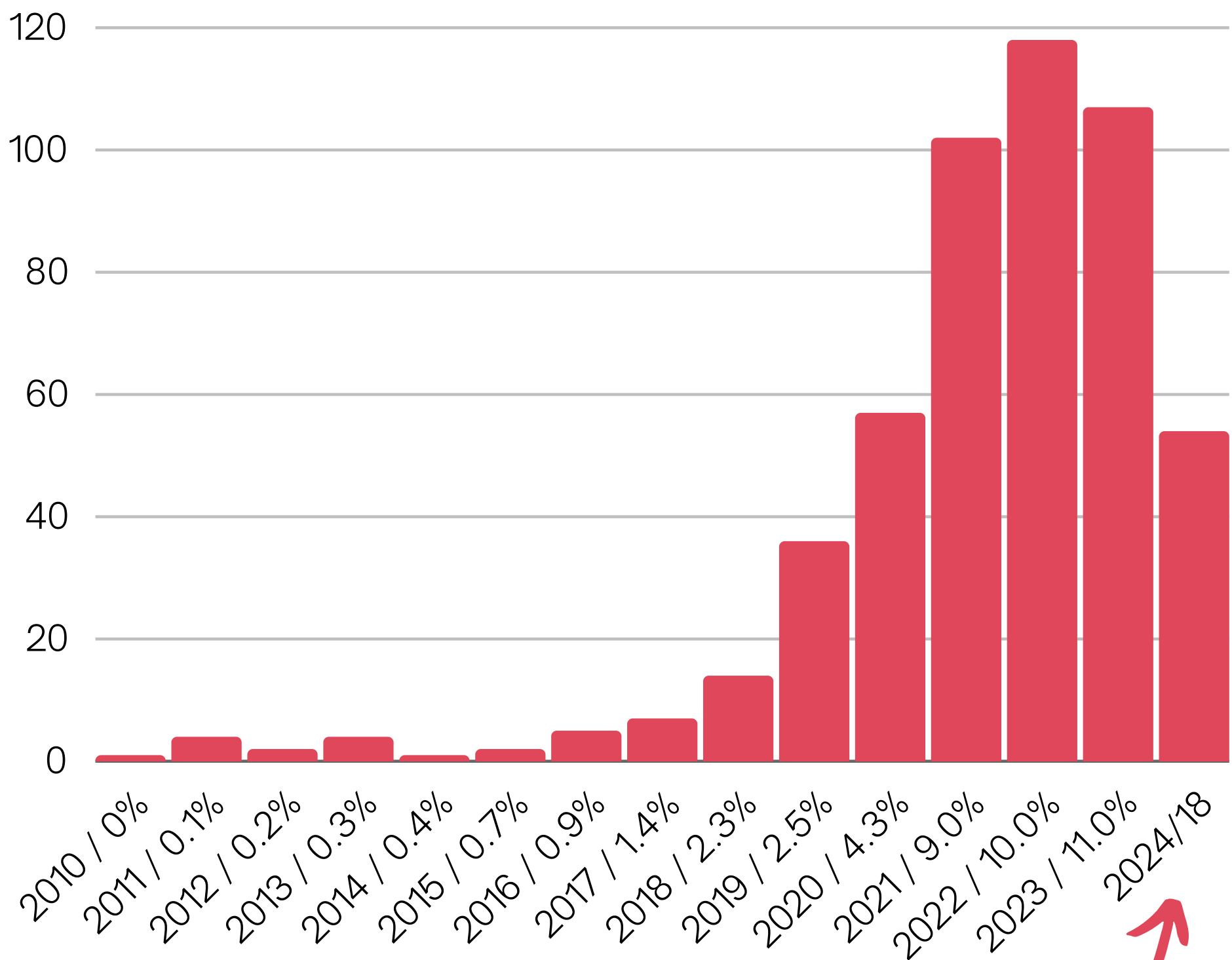
*BEV - Battery Electric Vehicle
PHEV - Plug In Hybrid Electric Vehicle
Data is not exhaustive and is still emerging globally



EV BATTERY FIRE INCIDENTS YEAR ON YEAR



Incidents jumped in 2021 and 2022, primarily due to a fault during manufacturing of battery cells that were used in two major brands. The number of incidents dropped slightly in 2023 as those EVs were recalled and battery packs replaced.



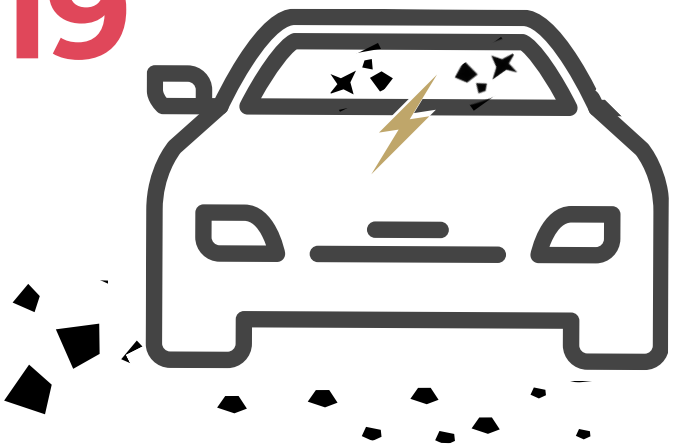
To 30th June 2024

LEADING CAUSES OF EV BATTERY FIRE



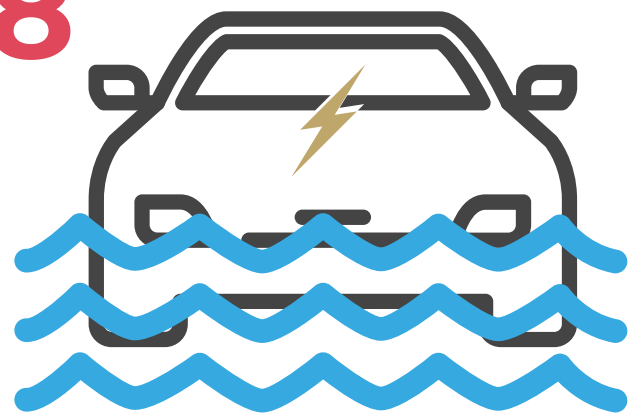
The four leading causes of EV battery fire haven't changed in the past 12 months. They are:

119



Road traffic collision or impact with road debris

28



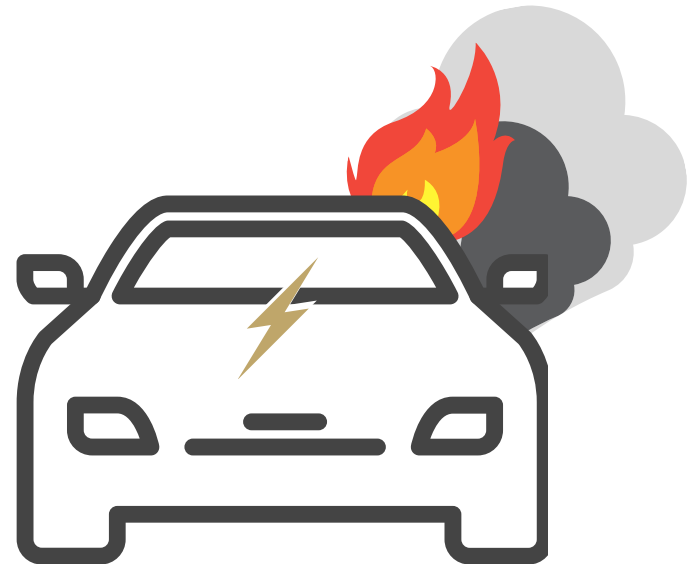
Submersion in a body of water

45



A battery fault during manufacture

22



External fire spreading to the EV

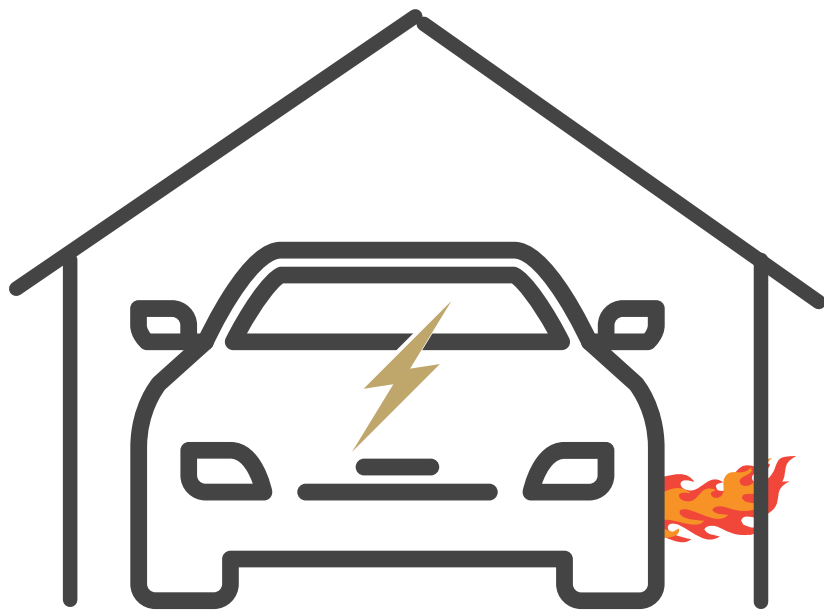
51%

of incidents have an **UNKNOWN** cause, primarily because it was not investigated

PLACES EV BATTERY FIRES HAPPENED

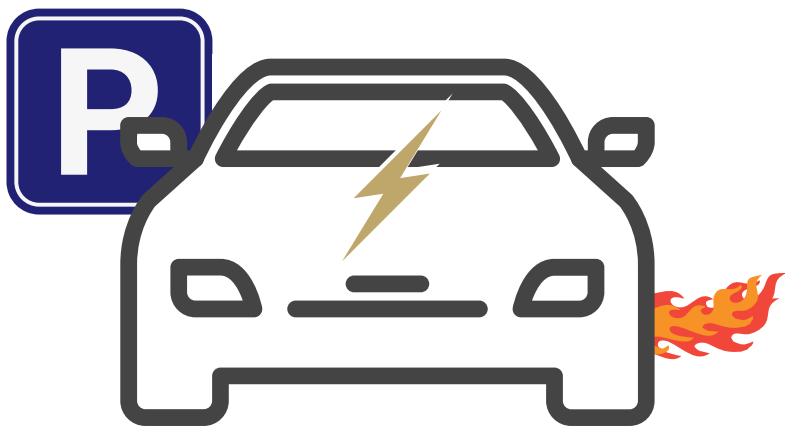


Most EV battery fires occurred outside on the road or in car parks, primarily due to collision



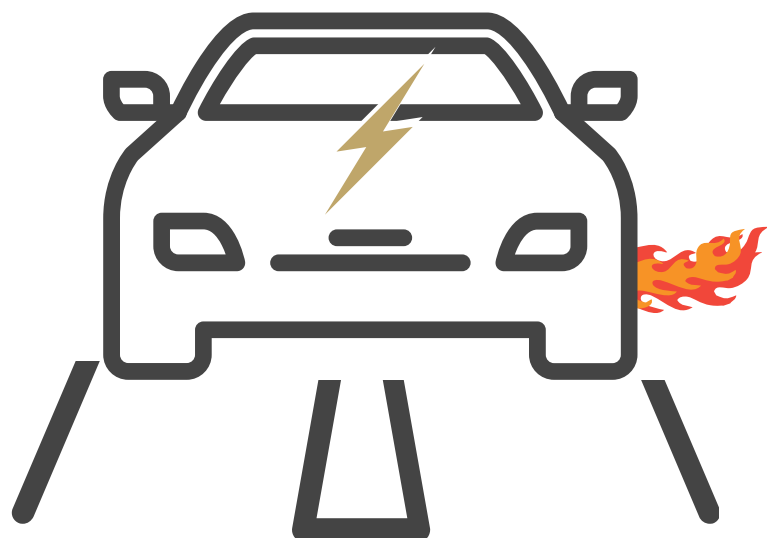
117

Underground / enclosed spaces



173

Outside & parked



155

Outside & driving

IGNITION VS VAPOUR CLOUD EXPLOSION



In most incidents, EV batteries caught fire, often displaying a 'jet-like' flame which is caused by flammable gases escaping under pressure.

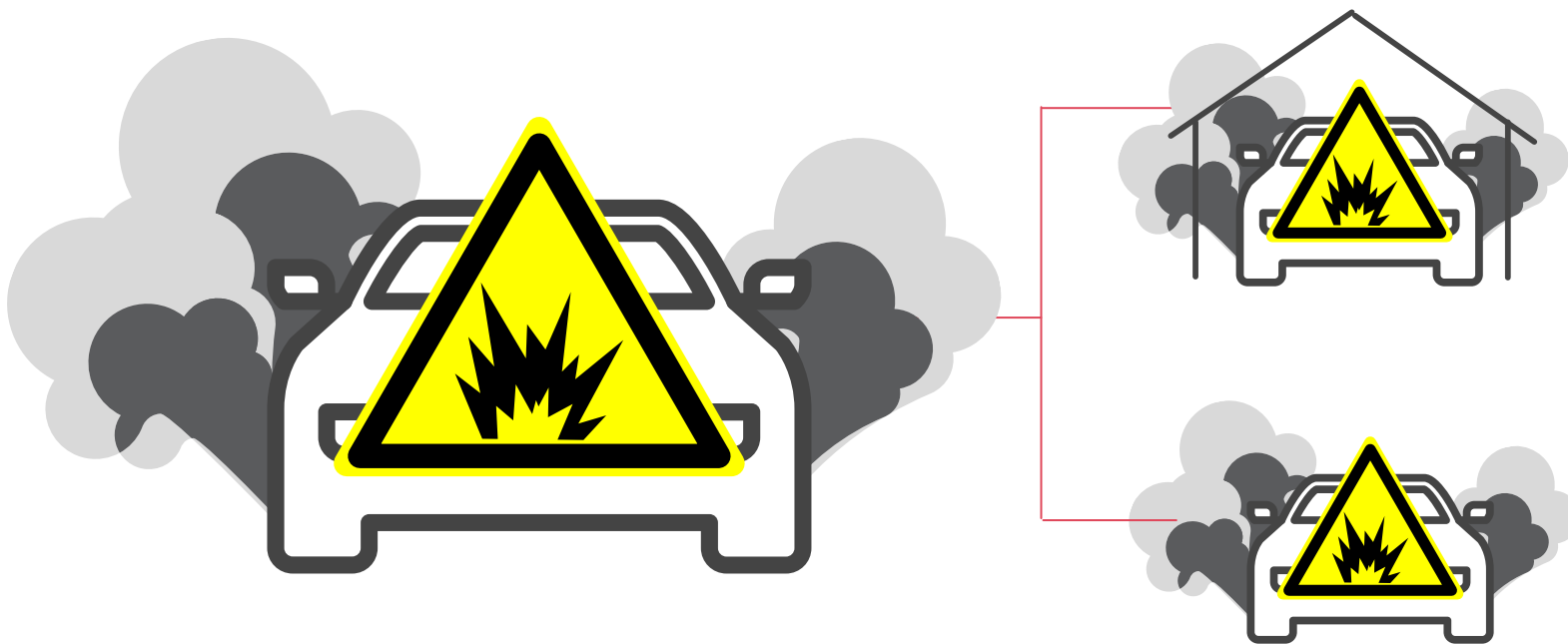


489

Ignition, often with jet like, directional flames

In rare cases, the gases build up and cause an explosive environment, leading to a vapour cloud explosion.

22 Vapour cloud explosions



14

Underground / enclosed space

6

Open air



Learn more at www.evfiresafe.com/post/electric-car-explosions
Train with us at <https://www.evfiresafe.training>

CHARGING CONNECTED EV BATTERY FIRES

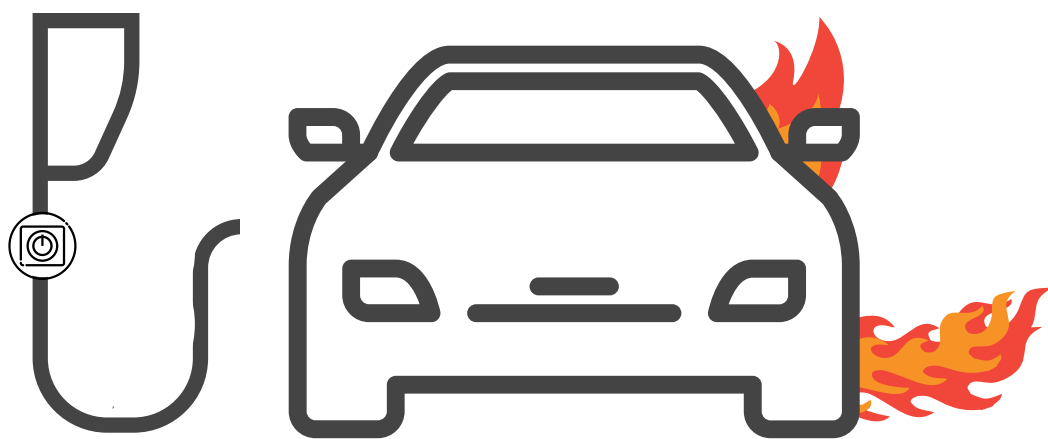


Around 15% of all incidents occurred connected to EV charging, which shows a drop from 18% in June 2023.



80

EV connected to energised charging



10

EV disconnected from energised charging within 60 minutes of incident

IMPORTANT TO KNOW...

A normally operating EV connected to an electrically compliant charging unit, installed to relevant standards by a qualified person CANNOT cause a battery fire due to inbuilt safety checks.

EV charging site managers can reduce risk, and keep responders safer, by downloading our [Fire Safety for EV Charging Sites](#) online report.



Go to www.evfiresafe.training/course/ev-charging-fire to download EV charging fire safety resources for your site.

DATA-DRIVEN LEARNING...



STAY UP TO DATE WITH EV FIRESAFE



Research at
www.evfiresafe.com



Learn at
www.evfiresafe.training



Report an EV battery fire
[www.evfiresafe.com/
report-ev-fire](http://www.evfiresafe.com/report-ev-fire)



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