

European EV incident field data

Study on thermal propagation caused by internal short circuit

UN IWG EVS GTR

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A study performed by TÜV SÜD on behalf of ACEA TF-EVS

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OUTLINE

- **Objective**
- **Results**
- **Conclusions**



OBJECTIVE

- Several ACEA members have already presented in-house knowledge about thermal propagation events related to internal short circuit at previous IWG EVS GTR meetings.
- In order to get a wider view, an independent service provider (TÜV SÜD) was contracted to investigate field data from publically available sources. An acceptance for reported events was done according to the following classification:

Acceptance of Reported xEV Fire Information	
Media	used where no other data has been discovered
OEM (battery or OEM)	considered at face value
Fire / First Responders	considered at face value but also limited in technical depth
Institutions	preferred (as 3 rd party)
Government	considered at face value

- **A total of 28 media reports of xEV fires in Europe were found for 2010 – 2018.**
- **These can be classified to the following categories:**
 - 19 related to crashes, severe misuse or obvious secondary fire caused by external heating
 - 5 fire events that were not preceded by a known crash/abuse event
 - **3 Confirmed root cause other than ISC (2010, 2016, 2016)**
 - Mechanical fault caused by human factor (2016)
 - Other system failure (2016)
 - Electronic fault (2010)
 - **2 Other root cause plausible – Fuel vapor leakage on ICE side (Rex) (2016, 2018)**
 - 4 with insufficient detail, making categorization impossible
 - **1 xEV not confirmed (2018)**
 - **2 General technical fault (2014, 2017)**
 - **1 "Vehicle failure" (2017)**
 - 0 reports with conclusive evidence of thermal propagation due to internal short circuit

CONCLUSIONS

- The media focus on EVs and incidents involving these vehicles makes it improbable that incidents are not brought to media attention and reported.
- In Europe, there has been on an average 1-2 event/years during the studied period, 2010-2018, where passive propagation has occurred without being preceded by known crash or abuse conditions.
- Despite the increase of numbers of EVs (HEV, PHEV and BEV) in Europe (summing up to several 100 000's in 2018), there is no indication of an increase of events in recent years.
- The findings of TÜV SÜD support the previous observation:

Thermal propagation due to internal short circuit only has a very low, if any, field relevance!

ANNEX – LINKS TO DATA (1/2)

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ANNEX – LINKS TO DATA (2/2)

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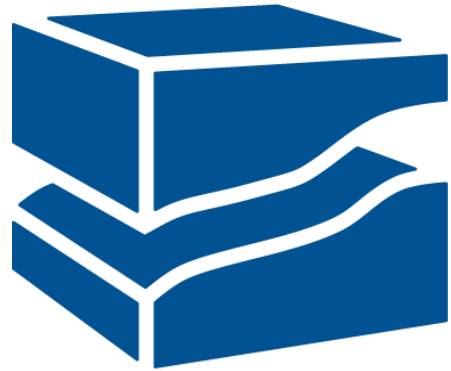
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