

Statistics and Analysis on fire accidents for EVs

China
2018.09

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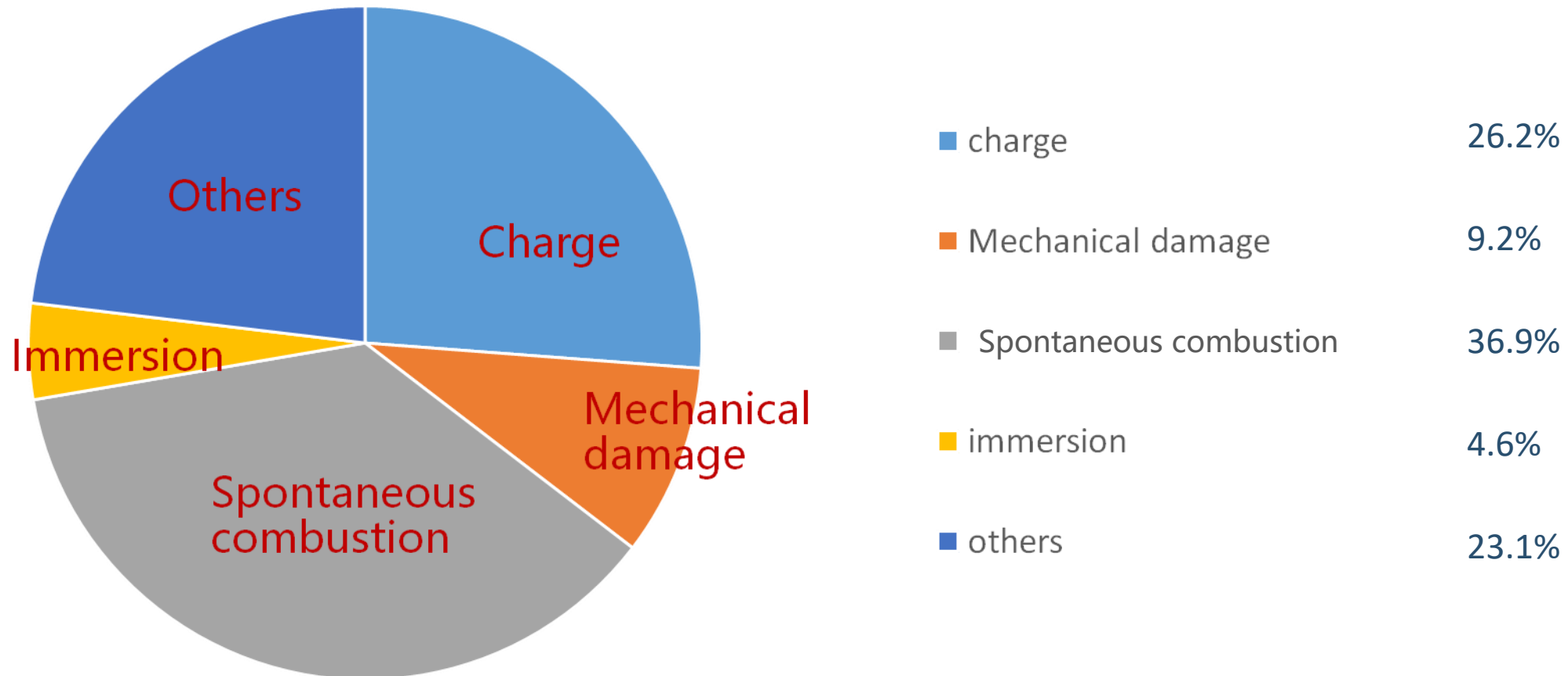
Statistics of EVs fire accidents

Period: 2011.02-2018.06

Range: all drive types, and nearly all manufactures

Source: Statistical information comes from online reports

Accident cause: over charge, crash, spontaneous combustion, water immersion, and others



Typical EVs fire accidents

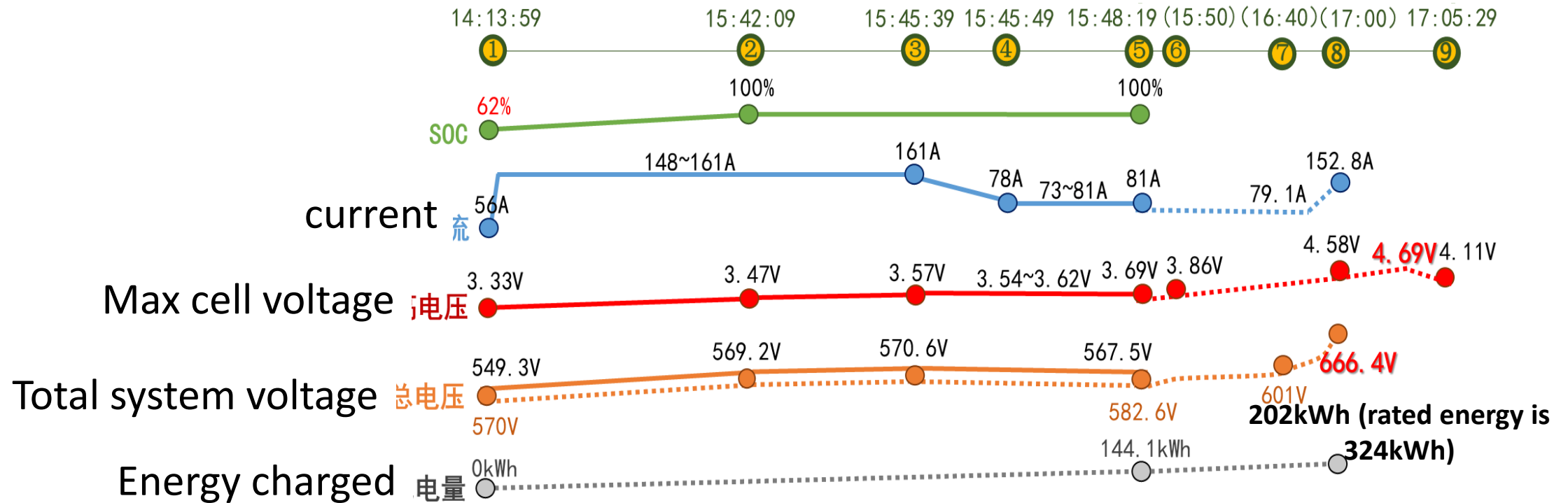
Cause : over charge

Data: 26-04-2015

Location: Shenzhen, China

Vehicle: BEV bus

Battery: LFP



Typical EVs fire accidents

Cause : crash

Data: 26-05-2012

Location: Shenzhen, China

Vehicle: BEV

Battery: LFP

Accident:

An EV taxi was seriously hit by a sports car, and the taxi caught fire, resulting in the death of 3 persons in the taxi

Description:

After the severe collision, the rear part of the vehicle body and the battery were deformed, resulting in damage and short circuit of some batteries. The short circuit formed between the high-voltage line and the vehicle body generated an electric arc, which ignited combustible materials and some batteries. There was no explosion phenomenon.



Typical EVs fire accidents

Cause : immersion

Data: 07-07-2016

Location: Nanjing, China

Vehicle: BEV bus

Accident:

In July 2016, two BEV buses were flooded due to heavy rain in Nanjing. After the rainwater receded, the vehicle was involved in a fire accident.



Typical EVs fire accidents

Cause : spontaneous combustion

Location: China

Vehicle: BEV



Beijing Jun. 2016

The fire position is in the bottom of the car from the battery. According to reports, the car was parked when spontaneous combustion happened.



Anhui Aug. 2018

A EV bus suddenly could not move, and the driver cut off the power to evacuate the passengers. After a few minutes, the bus began to smoke, and the automatic fire extinguishing device started to extinguish the fire. It is reported that only the battery is partially damaged.



Beijing Jun. 2018

The car was parked when spontaneous combustion happened. The battery at the bottom of the vehicle burns violently

Accidents causes and suggestions

N.O	CAUSE OF ACCIDENTS	SUGGESTIONS
1	Charge and overcharge	<ol style="list-style-type: none">1. Overcharge test2. Low temperature charge test3. High temperature charge test4. Thermal propagation test
2	Crash	<ol style="list-style-type: none">1. Crush test2. Inertial load at vehicle crash for packs/systems3. Other critical test, such as dynamic crash test4. Thermal propagation test
3	Water immersion	<ol style="list-style-type: none">1. Water immersion test2. IP test3. Water immersion test after reliability test (vibration, thermal shock, etc.)
4	Spontaneous combustion	<ol style="list-style-type: none">1. Thermal propagation test

Thanks for your attention!