UTAC CERAM

Accidentology transversal factors

BMFE 06 – 27-28/02/2019

Accidentology

Major encountered events (2016 – 2018)

Place	Date	Vehicle	Context	Victims	Comments
Norway Oslo	2016	Bus	A hybrid bus caught fire in the charging area. The bus that caught fire was next to the other buses, and a total of four buses were completely damaged by the fire. The buses were in a 230 V charging zone at night, and the buses were connected to an external 230 V power supply that supplied the bus compartment heating system, the diesel engine water heater, the battery charger and a heating cable for lithium-ion batteries.	-	The investigation revealed that corrosion, heat development, creep and arcing contributed to the fire in the T-connector behind connector 309 located at the front of the bus. Wear and lubrication of the connector suggest that the safety monitoring of this equipment was deficient on both the owner and user side of the bus. In addition, it became clear that the T-fitting had not been installed in accordance with the supplier's instructions and placed in a corrosive environment.
France Boulogne	07/04/2016	Bus vs moto	The pilot of the two-wheeler, the only one involved, reportedly hit a touring bus parked along the lane at high speed.	1 death	The extremely violent impact caused the motorcycle tank to explode and then the bus to ignite.
France Libourne	23/05/2016	School bus	Spontaneous ignition	-	Supposed origin: leak in the engine compartment.
France Bavincourt	14/11/2016	School bus vs truck	Poor weather conditions and heavy fog The truck moves off onto the bus lane, hits the bus on the front left, pushes the bus back to the left and overturns. The truck caught fire a few minutes after the accident.	1 death / 1 sever injury	The circumstances of this accident do not reveal any technical factor likely to give rise to preventive recommendations other than the use of so-called active safety systems whose objective is to radically prevent accidents rather than to mitigate their effects.

Accidentology

Major encountered events (2016 – 2018)

Place	Date	Vehicle	Context	Victims	Comments
Norway Trondheim	11/2016	Bus alone	The fire probably originated in the LED lights that lit the rear license plate of the bus.	-	- LED lamps with cracks abnormal to the use of the vehicle. - Moisture and irradiation of the components of the LED printed circuit board is therefore a likely source of ignition. - Fuses not suitable for preventing this type of incident in the event of a component failure. - Soundproofing materials did not have a good resistance to the propagation of fire.
Germany Münchberg	03/07/2017	Coach	Caught in a traffic jam, the bus crashed into a rolling semi-trailer in front of it and burned	18 décès 31 blessés	Fire following the impact, seems started in the tank area.
France Roclincourt	04/07/2017	Coach	Spontaneous ignition	-	Occasioned by a technical problem at the back of the bus
France Paris	16/01/2018	Urban coach	Spontaneous ignition	-	Supposed origin: leak in the engine compartment.
Italy Rome	08/05/2018	Urban coach	Spontaneous ignition	-	Supposed origin: maintenance problem
France Rambervilliers	15/05/2018	School bus	Spontaneous ignition	-	Supposed origin: leak in the engine compartment.
France Clichy	29/06/2018	Coach	It was in an attempt to avoid another vehicle that the bus driver hit a traffic light and a candelabra. The bus went up in flames in the process	-	An impact on the tank would be the cause of the fire.
France Pont de l'arche	21/07/2018	Coach	Spontaneous ignition	-	Supposed origin: leak in the battery.

Accidentology

Major encountered events (2016 – 2018)

Place	Date	Vehicle	Context	Victims	Comments
France Ableiges	25/07/2018	School bus	Spontaneous ignition	-	Supposed origin: leak in the engine compartment.
France Freney d'Oisans	30/07/2018	Coach	Spontaneous ignition	-	Supposed origin: leak in the engine compartment.
Switzerland Porrentruy	10/10/2018	School bus	Spontaneous ignition	-	Supposed origin: leak in the engine compartment.
France Bourget	17/10/2018	Airport bus	Spontaneous ignition	-	Supposed origin: leak in the engine compartment.

Accidentology

Transversal factors

Based on accidentology feedbacks shared within the working group, main transversal factors are identified :

- Fires account for between 1.0 and 1.5% of fires in buses and coaches in service.
- Around 10% of buses are involved in fire event during their service lifecycle.
- Fire events are not mainly the result of impacts.
- Fires occur mainly in the engine compartment due to fluid leaks, but in most cases the vehicle does not burn completely.
- The estimated evacuation times appear to be between 0 and 5 minutes.