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POSITION PAPER

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Fire Risk from Lithium Batteries in Airport Vehicles

BACKGROUND

Electrification of airside service vehicles is gradually becoming a normalized and integral part of airport operations with electric cars and other lithium battery powered airport ground equipment already being widely used in many airport environments. It is anticipated that other airport machinery, such as pushback vehicles, fuelling trucks and loading equipment, airport installations or ground / facility units, will be introduced in pursuit of carbon neutral goals of airports and air operators. The continuance of this trend will inevitably increase the number of electric vehicles used airside at airports, including in proximity to aircraft, which will increase the risk of an electric vehicle fire affecting aircraft and other critical infrastructure.

Electric vehicles are designed and certified to safety standards, with the contemporary understanding being that they are less likely to be involved in a fire than combustion engine vehicles, however, the severity of the fires is understood to be increased. Lithium batteries in vehicles are extremely difficult to extinguish once on fire. This may require special procedures or equipment to contain the fire risk of a vehicle in a timely manner.

POSITION

Airports, Rescue and Fire Fighting services, operators, and ground service providers should include the risk of uncontained fire of Lithium batteries in vehicles in their risk assessments and prepare and incorporate procedures, training, and equipment to mitigate this particular risk.

ADDITIONAL READING

Hassan, M. K., Hameed, N., Hossain, M. D., Hasnat, M. R., Douglas, G., Pathirana, S., Saha, S. 2023. Fire Incidents, Trends, and Risk Mitigation Framework of Electrical Vehicle Cars in Australia. Fire (Basel, Switzerland), 6(8), p. 325. doi:10.3390/fire6080325

Zhao, C., Hu, W., Meng, D., Mi, W., Wang, X., Wang, J. 2024. Full-scale experimental study of the characteristics of electric vehicle fires process and response measures. Case Studies in Thermal Engineering, Volume 53. doi:10.1016/j.csite.2023.103889.