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SMART CONCEPTS ON PROTECTIVE PLAN OF EV (ELECTRIC VEHICLE) FIRES

As the number of electric vehicles is increasing worldwide, so does the related fires because lithium, the main metal of electric vehicle batteries, is oxidizing, reacting with water and self-igniting. Various measures are considering and taking in several countries, but the rise in EV fires has not stopped. Electric vehicle fires are difficult to extinguish and are likely to cause enormous damage or major accidents.

Recently, more than 200 vehicles were burned down in a large fire caused by an electric car in a parking lot in Lisbon, Portugal. In 2021, more than 6,000 electric vehicle fires took place in China, and another electric vehicle fires occurred in Bengaluru, India. Also off the coast of the Netherlands, a cargo ship and 3,000 vehicles were destroyed in a fire believed to be caused by an electric car parked on a cargo ship from Germany to Egypt. In Korea, more than 140 cars were burned in a recent fire in an electric car parked in an underground parking lot. An electric car fire broke out while parking, damaging more than 600 other vehicles.

Hence, it is absolutely necessary to build a protective plan against EV fire in advance. The protection plan should include three smart concepts: vehicle cover, thermostat, and alarm system.

Since electric vehicles can be vulnerable to take place fire due to the aforementioned hazards, it is important to park in separate spaces to cut them off from other vehicles. In reality, however, it is difficult to secure separate parking spaces in large cities. Therefore, the first concept of a smart protection plan to reduce the likelihood of electric vehicle fires is that it is proposed by covering the electric vehicle with a non-combustible cover that can have the same effect as parking it separately from other vehicles. The second concept of the smart protective plans can be described as a temperature control system that suppresses temperature rise to prevent the possibility of fire caused by high temperatures. The third concept of the smart protection plan is an alarm system that alerts you when the temperature exceeds the danger set temperature. The alarm system requires operating the Global Positioning System (GPS) device when the temperature exceeds the danger set temperature. It is advisable to transmit the location of the electric vehicle identified by the GPS to a pre-connected disaster prevention system.