Electric vehicle safety apia

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The concept of electric cars is not recent. In 1884, English inventor Thomas Parker built the first electric car for mass production. The electrical vehicle (EV), however, only came to dominate the car market share in the 21th century. The need for safety standards of electric vehicles was developed in tandem with the surge of globally manufactured EVs. ISO 6469-3:2021--Electrically Propelled Road Vehicles – Safety Specifications – Part 3: Electrical Safety provides electrical safety requirements for voltage class B electric vehicles.

ISO 6469-3:2021 specifies electrical safety requirements for voltage class B electric circuits of electric propulsion systems and conductively connected auxiliary electric systems of electrically propelled road vehicles. The standard covers test procedures and criteria for voltage class B electric vehicles. It provides electrical safety requirements for protection of persons against electric shock and thermal incidents. Specifications for insulation, protective barriers and enclosures, connectors, short-circuits, power supply circuits, equipotential bonding, isolation resistance, and more are detailed in ISO 6469-3:2021.

This standard does not provide comprehensive safety information for manufacturing, maintenance, and repair personnel.

ISO 6469-3:2021 defines voltage classes A, B, B1, and B2. B1 and B2 are subclasses of voltage class B. Both B1 and B2 voltage classes have different voltage levels and requirements. Here are the voltage classes broken down in direct current (DC) in voltage (V) and alternating current (AC) in in voltage (V):

Although electric vehicles (EVs) sold today produce less GHG emissions than cars fueled with gasoline, the manufacturing of battery-electric cars and the charging of these EV create notable emissions. The creation of large lithium-ion EV batteries involves the use of lithium, cobalt, and nickel--requiring the use of fossil fuels to mine these minerals and heat them to high temperatures. This intensive battery manufacturing means that building a new EV can produce around 80% more emissions than building a comparable gas-powered car.

It is worthwhile to note that electric motors do not emit CO2when they run, but instead, CO2can be emitted during the generation of electricity that EVs draw from the electrical grid and store in their batteries. The carbon-intensity of electricity generationvaries by provincebecause each province generates electricity differently, varying in degrees of drawing power from renewable point plants and fossil fuel plants.

Nevertheless, EVs will create fewer carbon emissions than gasoline-burning cars under nearly any conditions, and over the GHG emissions associated with an EV over its lifetime are typically lower than those from an average gasoline powered-vehicle (even when accounting for emissions intensive manufacturing to make batteries for an EV). For example, MIT researchers found that on average gasoline cars emit more than 350 grams of CO2per mile driven over their lifetimes, the hybrid/plug-in hybrid cars emit around 260 grams per

mile of CO2, and the fully battery-electric vehicle creates just 200 grams.

The standard details the following measures shall provide both basic protection and fault protection for voltage class B electric vehicles:

ISO 6469-3:2021 is available in theISO 6469 – Electrically Propelled Road Vehicles Package that addresses on-board rechargeable energy storage systems for the protection of people inside and outside the vehicle as well as safety means and protection against electrical failures. The ISO 6469 Package includes the following standards:

ISO 6469-3:2021--Electrically Propelled Road Vehicles – Safety Specifications – Part 3: Electrical Safety is available on the ANSI Webstore.