U.S. Department of Transportation
National Highway Traffic Safety Administration

OFFICE OF DEFECTS INVESTIGATION

ODI RESUME

Investigation: EQ22001
Prompted By: Recalls: 20V107,20V630,20V701,21V127,21V650, 22V077,22V162
Date Opened: 04/01/2022 **Date Closed:** 01/07/2025
Investigator: Choon Lee **Reviewer:** Alexander Ansley
Approver: Tanya Topka
Subject: LGES High Voltage Battery Failures

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: LG Energy Solutions
Products: LGES high voltage batteries and their components
Population: 138,324

Problem Description: Internal failures in high voltage batteries produced by LG Energy Solutions

ACTION/SUMMARY INFORMATION

Action: Close Equipment Query (EQ)

Summary:

On April 1, 2022, the National Highway Traffic Safety Administration (NHTSA) opened an Equipment Query (EQ) to contact and obtain information from LG Energy Solutions (LGES), a supplier of high voltage batteries, and its purchasers that received the same or similar high voltage batteries as identified in recalls for Mercedes Benz 20V107, Hyundai 20V630, General Motors 20V701 and 21V650, Hyundai 21V127, Stellantis 22V077, and Volkswagen 22V162. The purpose of contacting these companies was to 1.) make the companies aware of the defects as described in the aforementioned recalls, 2.) have those companies determine the impact, if any, those defects have on the vehicles they manufactured, and 3.) ensure safety recalls are conducted as appropriate.

On April 4, 2022, the Recall Management Division (RMD) issued an Information Request (IR) to LGES requesting: 1.) LGES provide a list of all customers that received the same or similar LGES high voltage batteries, 2.) the submission of a Part 573 Defect Information Report (DIR) to NHTSA or an explanation as to why LGES will not supply a report, and 3.) specific information related to the structure, materials and location of the manufacturing plant of the high voltage battery.

On May 2, 2022, LGES responded to NHTSA’s IR, explaining that high voltage batteries contain three primary components: cells, modules, and packs. LGES stated that cells, modules, and packs are “manufactured in a separate process and customized to meet the specifications and tolerances of a specific OEM’s design and performance requirements.” LGES further noted that,

due to this highly customized process, each battery line is unique to each OEM and its application, and, therefore, LGES will not submit a DIR related to the aforementioned recalls.

On October 5, 2022, RMD issued a follow-up IR to LGES requesting a list of all purchasers of LGES high voltage battery cells, modules, or packs for automotive applications within the past five years and intended for the U.S. market and territories.

On November 7, 2022, LGES responded to the follow-up IR providing a list of purchasers of LGES cells, modules, or packs. On January 20, 2023, RMD reached out to the listed light vehicle manufacturers requesting they submit a Part 573 Recall Report or provide a detailed explanation as to why they would not be submitting a report. The responses from the vehicle manufacturers were generally consistent with LGES's assertion that each high voltage battery application is unique to each model of vehicle. They also explained that the defects described by the subject recalls were not all identical and there was insufficient evidence at that time to suggest a DIR was necessary.

In the course of this EQ, additional safety recalls were announced. On May 25, 2023, Jaguar Land Rover (JLR) notified NHTSA of a safety-related defect in certain 2019-2024 Jaguar I-PACE vehicles, in which the high-voltage battery may overheat. This filing was assigned Recall No. 23V369. On September 8, 2023, Ford Motor Company (Ford) notified NHTSA of a safety-related defect in certain 2020-2022 Lincoln Aviator and Ford Explorer vehicles equipped with 3.0L PHEV engines, in which a manufacturing defect in one or more of the high voltage battery cells may result in an internal short circuit and battery failure. This filing was assigned Recall No. 23V626. On December 13, 2023, Porsche Cars North America (Porsche) notified NHTSA of a safety-related defect in certain 2021-2023 Porsche Taycan, 2021-2022 Taycan 4S, Taycan Turbo S, Taycan Turbo, Taycan 4 Cross Turismo, Taycan 4S Cross Turismo, Taycan Turbo Cross Turismo, 2022 Taycan GTS, and Taycan GTS Sport Turismo vehicles, in which the high-voltage battery may experience a short circuit within the battery modules. This filing was assigned Recall No. 23V-840. On December 20, 2023, Volkswagen Group of America (VW) notified NHTSA of a safety-related defect in certain 2020-2022 E-Tron Sportback Quattro and 2019-2022 E-Tron Quattro vehicles, in which the high-voltage battery modules may overheat. LGES was identified as the supplier of the high voltage batteries in each of these recalls. This filing was assigned Recall No. 23V867.

On March 7, 2024, in response to these additional recalls conducted by JLR, Ford, Porsche and VW, RMD issued another follow-up IR requesting LGES explain how the safety defects identified in a total of 9 recalls, which involve charge limit remedies or "anode" failures, are not the same or similar defects necessitating a DIR be filed with NHTSA in accordance with 49 CFR 573.3(f).

On May 1, 2024, LGES responded stating, "(i) not all of the OEMs implemented charge limits (and there are some differences in implementation among several that did); and (ii) the cell defects, to the extent identified at this time, are different among the various products." LGES also stated that the root cause has not been fully determined in several of the recalls. LGES concluded that, since each vehicle manufacturer's application is unique in its specifications and production, the

root cause of the defect has not been determined in some of the recalls, and because the recalls in which a root cause have been determined are not common across the various manufacturers, LGES would not submit a Part 573 Recall Report for the matter.

The EQ is closed; however, NHTSA will continue to monitor and review all available reports and other data for like conditions and may re-open this query or initiate a new query or other investigation, as appropriate. The closing of this EQ does not constitute acceptance of LGES's interpretation of NHTSA regulations as outlined in its May 1, 2024 response. Specifically, NHTSA does not adopt LGES's assertion that the battery cells at issue are customized such that they are not "installed in the vehicles of more than one manufacturer" under 49 C.F.R. § 573.3(f).