



DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. NHTSA-2016-0127; Notice 1]

Toyota Motor Engineering & Manufacturing North America, Inc.,

Receipt of Petition for Decision of Inconsequential

Noncompliance

AGENCY: National Highway Traffic Safety Administration (NHTSA),
Department of Transportation (DOT).

ACTION: Receipt of petition.

SUMMARY: Toyota Motor Engineering & Manufacturing North America, Inc., on behalf of Toyota Motor Corporation (collectively referred to as "Toyota"), has determined that certain model year (MY) 2016-2017 Lexus RX350 and RX450H motor vehicles do not fully comply with Federal Motor Vehicle Safety Standard (FMVSS) No. 302, *Flammability of Interior Materials*. Toyota filed a noncompliance information report dated November 3, 2016. Toyota also petitioned NHTSA on November 23, 2016, and provided a supplement to their petition on December 12, 2016, for a decision that the subject noncompliance is inconsequential as it relates to motor vehicle safety.

DATES: The closing date for comments on the petition is **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Interested persons are invited to submit written data, views, and arguments on this petition. Comments must refer to the docket and notice number cited in the title of this notice and submitted by any of the following methods:

- Mail: Send comments by mail addressed to U.S.
Department of Transportation, Docket Operations, M-30,
West Building Ground Floor, Room W12-140, 1200 New
Jersey Avenue, SE, Washington, DC 20590.
- Hand Delivery: Deliver comments by hand to U.S.
Department of Transportation, Docket Operations, M-30,
West Building Ground Floor, Room W12-140, 1200 New
Jersey Avenue, SE, Washington, DC 20590. The Docket
Section is open on weekdays from 10 am to 5 pm except
Federal Holidays.
- Electronically: Submit comments electronically by
logging onto the Federal Docket Management System
(FDMS) website at <https://www.regulations.gov/>. Follow
the online instructions for submitting comments.
- Comments may also be faxed to (202) 493-2251.

Comments must be written in the English language, and be no greater than 15 pages in length, although there is no limit to the length of necessary attachments to the comments. If comments are submitted in hard copy form, please ensure that two copies

are provided. If you wish to receive confirmation that comments you have submitted by mail were received, please enclose a stamped, self-addressed postcard with the comments. Note that all comments received will be posted without change to <https://www.regulations.gov>, including any personal information provided.

All comments and supporting materials received before the close of business on the closing date indicated above will be filed in the docket and will be considered. All comments and supporting materials received after the closing date will also be filed and will be considered to the fullest extent possible.

When the petition is granted or denied, notice of the decision will also be published in the Federal Register pursuant to the authority indicated at the end of this notice.

All comments, background documentation, and supporting materials submitted to the docket may be viewed by anyone at the address and times given above. The documents may also be viewed on the Internet at <https://www.regulations.gov> by following the online instructions for accessing the dockets. The docket ID number for this petition is shown in the heading of this notice.

DOT's complete Privacy Act Statement is available for review in a Federal Register notice published on April 11, 2000, (65 FR 19477-78).

SUPPLEMENTARY INFORMATION:

I. Overview: Toyota Motor Corporation (Toyota), has determined that certain model year (MY) 2016-2017 Lexus RX350 and Lexus RX450H motor vehicles do not fully comply with paragraph S4.2 of Federal Motor Vehicle Safety Standard (FMVSS) No. 302, *Flammability of Interior Materials*. Toyota filed a noncompliance information report dated November 3, 2016, pursuant to 49 CFR part 573, *Defect and Noncompliance Responsibility and Reports*. Toyota also petitioned NHTSA on November 23, 2016, pursuant to 49 U.S.C. 30118(d) and 30120(h) and 49 CFR part 556, for an exemption from the notification and remedy requirements of 49 U.S.C. Chapter 301 on the basis that this noncompliance is inconsequential as it relates to motor vehicle safety.

This notice of receipt of Toyota's petition is published under 49 U.S.C. 30118 and 30120 and does not represent any agency decision or other exercise of judgment concerning the merits of the petition.

II. Vehicles Involved: Approximately 102,075 MY 2016-2017 Lexus RX350 and Lexus RX450H motor vehicles manufactured between September 29, 2015 and October 21, 2016, are potentially involved.

III. Noncompliance: Toyota explains that the noncompliance is that the front and rear seat covers and rear center armrest assemblies in the subject vehicles were manufactured with needle punch felt material that does not meet the burn rate

requirements as specified in paragraph S4.2 and S4.3 of FMVSS No. 302.

IV. Rule Text: Paragraph S4.2 of FMVSS No. 302 states:

S4.2 Any portion of a single or composite material which is within 13 mm of the occupant compartment air space shall meet the requirements of S4.3.

Paragraph S4.3(a) of FMVSS No. 302 states:

When tested in accordance with S5, material described in S4.1 and S4.2 shall not burn, nor transmit a flame front across its surface, at a rate of more than 102 mm per minute. The requirement concerning transmission of a flame front shall not apply to a surface created by cutting a test specimen for purposes of testing pursuant to S5.

V. Summary of Toyota's Petition: Toyota described the subject noncompliance and stated its belief that the noncompliance is inconsequential as it relates to motor vehicle safety.

In support of its petition, Toyota submitted the following reasoning:

1. The front and rear seats in the subject vehicles are constructed of several layers of soft material mounted on a steel seat frame. The layers of soft material include a leather or synthetic leather seating surface with a cover pad laminated or laminated and sewn underneath, and a needle punch felt material attached to a seat cushion foam pad. The needle punch felt material is used to attach the cover subassembly to the foam pad. The needle punch felt is the only material that does not comply with FMVSS No. 302

requirements. It comprises up to approximately 0.32% of the total mass of the soft material of the front seat assembly, and between 0.48% and 0.55% of the total mass of the soft material of the rear seat assembly, an insignificant mass in relation to the total interior vehicle surfaces required to meet FMVSS No. 302.

2. The needle punch felt material complies with FMVSS No. 302 when tested as a "composite" as installed in the vehicle, i.e., along with the surrounding FMVSS No. 302 compliant seat cover, cover pad, foam pad, seat heater, carpet, and storage bin.
3. Toyota testing and design review of the seat heater and its components indicate that the chance of fire or flame induced by a malfunctioning seat heater is essentially zero.
4. The non-complying needle punch felt material would normally not be exposed to open flame or an ignition source (like matches or cigarettes) in its installed application, because it is installed within or completely covered by complying materials that meet FMVSSs No. 302.
5. The needle punch felt material is a very small portion of the overall mass of the soft material portions comprising the entire seat assembly and is significantly less in relation to the entire vehicle interior surface area that could potentially be exposed to flame. Therefore, it would have an

insignificant adverse effect on interior material burn rate and the potential for occupant injury due to interior fire.

6. Toyota is not aware of any data suggesting that fires have occurred in the field due to the installation of the non-complying needle punch felt material.
7. In similar situations, NHTSA has granted petitions for inconsequential noncompliance relating to FMVSS No. 302 requirements.
8. To emulate the potential real world conditions that could occur to the relevant soft material portions of the front and rear seats as they are assembled into the subject vehicles, Toyota conducted FMVSS No. 302 burn testing of the seating materials when assembled as a "composite." Toyota chose locations to evaluate that were judged to potentially be the least flame resistant so as to be the most conservative in determining material performance.

Toyota determined synthetic leather to be the least flame resistant surface material to test based on review of the material construction as well as "composite" FMVSS No. 302 evaluations performed on the cover subassembly itself. Natural leather made from cow skin contains collagen fibers which are a non-flammable material. Synthetic leather is constructed of flammable urethane resin and polyester fibers

which are treated with a flame retardant to achieve flammability requirements.

To identify the potentially least flame resistant "composite" sample locations to evaluate Toyota did a thorough design review and "composite" testing of the cover assemblies according to FMVSS No. 302 procedures. Toyota tested the cover subassembly for the seat back and cushions at 21 different locations where needle punch felt is used. All locations met FMVSS No. 302 criteria; however, the three locations with the fastest burn rate were selected for further testing as assembled in the subject vehicles. These locations were tested under various conditions to simulate open flame exposure inside the vehicle. The samples were tested in their installed condition; however, in locations where the seat foam is part of the "composite," only the portion which is within the 13 mm of the occupant airspace specified by the standard was tested. When applicable, the seat heater was included in the "composite" in its "OFF" condition.

a. "Composite" Test Results: Toyota provided test results under eight different test conditions. In all test conditions, the samples exhibited burn rates well within the FMVSS No. 302 S4.3(a) requirements (i.e., no more than 102 mm/min), therefore meeting the FMVSS No. 302

criteria. Toyota provided the following table summarizing the test results.

Table 3. "Composite" Test Result Summary

| Part | Location | Seat Heater | Test Condition Burn Rate, mm/min | | | | | | | | FMVSS 302 Result | | | | | | | | |
|-------------------------------|----------|-------------|----------------------------------|----|-----|-----|---|---|---|---|------------------|-----------------|--|--|--|--|--|-----|-----|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | |
| Non F-Sport Fr Cushion & Back | C | without | 25 | 29 | N/A | 22 | | | | | | ALL PASS | | | | | | | |
| | | with | 23 | 56 | | 59 | | | | | | | | | | | | | |
| | K | without | 46 | 53 | | 40 | | | | | | | | | | | | | |
| | | with | 38 | 68 | | 59 | | | | | | | | | | | | | |
| All Rr Back | U | N/A | 37 | 33 | 45 | N/A | | | | | | | | | | | | | |
| F-Sport Fr Cushion | C-C | | | | | | | | | | | | | | | | | 0 | 5 |
| All Rr Armrest | A-A | | | | | | | | | | | | | | | | | 34 | N/A |
| | B-B | | | | | | | | | | | | | | | | | N/A | 42 |

[■] = Test condition is not relevant to the "composite" sample

As evidenced by testing in the table above, the needle punch felt material complies with FMVSS No. 302 when tested as a "Composite" as installed in the vehicle, i.e., along with the surrounding FMVSS No. 302 compliant cover sub-assembly parts, foam pad, seat heater, or storage bin. The non-complying needle punch felt material would not be exposed to open flame or an ignition source (like matches or cigarettes) in its installed application, because it is within or completely covered by complying materials that meet FMVSS No. 302. Given that the purpose of FMVSS No. 302 is to "reduce the deaths and injuries to motor vehicle occupants

caused by vehicle fires, especially those originating in the interior of the vehicle from sources such as matches or cigarettes," we believe that the noncompliant needle punch felt material as installed in the vehicle does not present a safety risk, and the chance of fire or flame propagation is essentially zero.

9. In order to evaluate any potential risk associated with the seat heater element as an internal ignition source, a design review and tests were conducted. The findings of the review and tests are outlined below:
 - a. In all locations, the needle punch felt material never comes in direct contact with a seat heater element wire.
 - b. The seat heater system has a self-diagnosis function. At ignition "ON" a system self-diagnosis check is performed to confirm that the switch, which consists of a relay and an IPD (intelligent Power Device), is operating properly. If the diagnosis detects a fault in the relay and/or the IPD, the system would not allow the seat heater to be turned on. In the unlikely event both the relay and the IPD fail and are stuck in the open position after the self-diagnosis, each seat heater's temperature is still regulated by its thermostat. Under normal design operating conditions, the thermostat restricts the temperature of the element wire in a range

of approximately 50°C to 100°C, depending on the specific application. This temperature range is far below the auto-ignition temperature of the needle punch felt, which is approximately 253°C.

- c. The seat heater element wire used in the subject vehicle is of a design which eliminates the potential for localized "hot spots." The heating element wire is comprised of multiple individual filaments insulated from each other by urethane coating. The filaments are connected to each other in parallel rather than in series. In the event that one or more of the filaments are damaged, there is no change in current through the seat heater wire, and therefore no increase in temperature.

Given the findings from the evaluation of the seat heater and its components, Toyota believes that the chance of an ignition internal to the seat induced by a malfunctioning seat heater is essentially zero, and no safety risk is presented.

10. The needle punch felt material is one of several layers of the soft material of the seats which is used for securing components together, improving appearance, and reducing noise. For all seating areas the needle punch felt material

is either encased between or covered by other materials which themselves comply with FMVSS No. 302 requirements.

In the vast majority of applications, the needle punch is encased by other FMVSS No. 302 materials. A typical construction consists of the leather seating surface on which an occupant sits. A cover pad is glued to the underside of the leather. The cover and cover pad each comply with FMVSS No. 302. The needle punch felt is sewn to the cover pad assembly, and when so equipped, a layer of seat heater material is attached to the underside, forming a cover sub-assembly. The seat heater complies with FMVSS No. 302 requirements. The cover sub-assembly is then tightly secured over the seat cushion pad foam or seat back pad foam to the seat structure with "hog" rings. The seat cushion and seat back foam each comply with FMVSS No. 302 requirements. When so secured, no portion of the needle punch felt material is visible or directly exposed to the occupant compartment. As constructed, it would be highly unlikely that the needle punch felt material would ever be exposed to ignition sources such as matches or cigarettes, identified in S2 of FMVSS No. 302 as a stated purpose of the standard. Because the needle punch felt is completely surrounded by FMVSS No. 302 compliant material, it would be extremely unlikely that a

vehicle occupant would ever be exposed to a risk of injury as a result of the noncompliance...

11. The needle punch felt material is only a very small part of the overall mass of the soft material comprising the entire seat assembly (i.e. up to a maximum of 0.55% depending on the seat and vehicle model), and is significantly less in relation to the entire vehicle interior surface area that could potentially be exposed to flame. Therefore, it would have an insignificant adverse effect on interior material burn rate and the potential for occupant injury due to interior fire.
12. There are no known field events involving ignition of the needle punch felt material as of November 22, 2016. Toyota is not aware of any fires, crashes, injuries or customer complaints involving this component in the subject vehicles.
13. NHTSA has previously granted at least nine FMVSS No. 302 petitions for inconsequential noncompliance, one of which was for a vehicle's seat heater assemblies, one of which was for a vehicle's console armrest, one of which was for large truck sleeper bedding, and six of which were for issues related to child restraints. (For a full list along with summaries of the petitions that Toyota references please see Toyota's petition)

Toyota stated that they have made improvements that were implemented as of October 21, 2016, to assure that any new vehicle sold by Toyota will meet all FMVSS No. 302 requirements.

Toyota concluded by expressing the belief that the subject noncompliance is inconsequential as it relates to motor vehicle safety, and that its petition to be exempted from providing notification of the noncompliance, as required by 49 U.S.C. 30118, and a remedy for the noncompliance, as required by 49 U.S.C. 30120, should be granted.

NHTSA notes that the statutory provisions (49 U.S.C. 30118(d) and 30120(h)) that permit manufacturers to file petitions for a determination of inconsequentiality allow NHTSA to exempt manufacturers only from the duties found in sections 30118 and 30120, respectively, to notify owners, purchasers, and dealers of a defect or noncompliance and to remedy the defect or noncompliance. Therefore, any decision on this petition only applies to the subject vehicles that Toyota no longer controlled at the time it determined that the noncompliance existed. However, any decision on this petition does not relieve vehicle distributors and dealers of the prohibitions on the sale, offer for sale, or introduction or delivery for introduction into interstate commerce of the noncompliant vehicles under their

control after Toyota notified them that the subject noncompliance existed.

Authority: (49 U.S.C. 30118, 30120: delegations of authority at 49 CFR 1.95 and 501.8)

Jeffrey M. Giuseppe,

Director,

Office of Vehicle Safety Compliance.

Billing Code 4910-59-P

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