

# United States Senate

WASHINGTON, DC 20510

December 10, 2014

Mr. Shigehisa Takada  
Chairman and CEO  
Takata Corporation  
ARK Hills South Tower  
4-5 Roppongi 1-Chome  
Minato-ku, Tokyo, 106-8488  
Japan

Dear Mr. Takada:

We write seeking documents and information regarding Takata's adherence to industry standards on the design and performance of airbag inflators. These specifications, known as USCAR24, were developed by the United States Council on Automotive Research (USCAR), a consortium consisting of General Motors Company, Chrysler Group LLC, and Ford Motor Company. Although not required by federal law, the specifications are known to be widely required by the U.S. car manufacturers for which you are a supplier.

It is striking that these specifications seem to predict the nature of Takata's airbag defect. While the public is only just learning that an airbag is capable of exploding into metal shards that can blind, injure, or kill, the authors of USCAR24 seem to demonstrate clear understanding of this potential scenario.

During the recent Senate Commerce hearing on the defective Takata airbags, Mr. Hiroshi Shimizu suggested that the problem is likely a combination of inflator aging, exposure to high humidity, and production problems. However, USCAR24 should have guarded against the inflators failing due to aging or high humidity, and any production problems should have been quickly spotted and rectified through standard quality control measures. As you should know, USCAR24 requires inflators to undergo comprehensive testing in a variety of extreme conditions. For example, in order to pass USCAR24, an inflator must pass the *high humidity and heat age test*, designed to, "evaluate inflator resistance to temperature aging in an environment of high humidity." Since Takata airbags are thought to be more susceptible to deploying violently in high humidity environments, this test seems particularly critical. Other tests that seem highly relevant to testing for the suspected defect with Takata airbags include the *humidity resistance test*, *leak test*, and a variety of *aging tests*.

Many questions have also been raised recently regarding Takata's choice of ammonium nitrate in its propellant formula, but concerns regarding the stability of this chemical have long been known. In fact, under the *propellant stability* requirement of USCAR24, propellants containing ammonium nitrate are "required to undergo added stability evaluation for propellant strength and burn rate stability." It is also well established in the scientific literature and among experts that ammonium nitrate has a tendency to attract and absorb moisture. Given this known property, it would be especially important for inflators to pass stringent tests that make sure the

propellant is properly sealed off from potential outside moisture. *Hermeticity*—the quality of being airtight and waterproof—is a core requirement in the specifications.

We have been deeply troubled by Takata's apparent inability to pinpoint the root cause of many of the incidents involving the defective airbags. A decade has passed since Takata learned of the first fatality involving a ruptured airbag and it is unacceptable that Takata continues to maintain its complete lack of awareness regarding the cause of the defect associated with many of the incidents. Without a root cause, we have no closure on why airbags are rupturing.

As Takata speeds up its production lines to supply parts to repair the recalled vehicles, it is more critical than ever that Takata act aggressively to determine the root cause. Understanding the root cause is crucial for safety regulators and auto manufacturers to figure out the best path forward for ensuring the safety of all drivers and passengers. Therefore, we write with many questions regarding the role of USCAR24 in the design, testing, and production of Takata inflators, with the hope that this may help shed light on the root cause of the defect. Please provide answers to the following questions by December 22, 2014:

1. Did Takata test all of its driver and passenger-side airbag inflator designs in accordance with USCAR24 specifications?
2. Did Takata provide the complete test results to the car manufacturers Takata supplied with airbags? If yes, please provide complete testing observations and results from when the airbags were first designed, as well for any subsequent redesigns. These should include, but not be limited to, the Design Verification Report, Design Failure Modes and Effects Analysis, Production Validation Report, and Process Failure Modes and Effects Analysis. Date of all test results should be clearly indicated. Please also specify the version (i.e. year) of USCAR24 specifications used and the name of any third parties employed to conduct this testing. Please also specify the version (i.e. year) of USCAR24 specifications used and the name of any third parties employed to conduct this testing. If no, please explain why no testing was conducted or provided.
3. Car manufacturers are responsible for signing off on any deviations from the precise test procedures outlined in the specifications, as well as the additional tests required for propellants containing ammonium nitrate. Were any deviations from USCAR24 specifications considered or permitted by manufacturers? If so, please provide all documentation related to such consideration or permission. Did Takata consult with car manufacturers in all such cases? What, if any, additional testing did Takata conduct to evaluate the stability of its ammonium nitrate based propellant? Please provide all documentation related to communications with manufacturers on such issues.
4. Which car manufacturers required documentation showing that Takata inflator passed USCAR24 specifications? Does Takata have a policy for providing car manufacturers with complete USCAR24 testing results? Please describe Takata's procedures.
5. If Takata inflators fully passed USCAR24 tests, please provide your understanding of how Takata airbags, which are suspected to explode in humid environments, could have been able to pass USCAR24.
6. What is Takata's most current understanding on the root cause of the defect?



This information will also help us all better understand how critical industry standards can be better enforced and designed to serve the American public and prioritize public safety. Thank you for your prompt attention to this grave and serious matter.

Sincerely,



Richard Blumenthal  
United States Senator



Edward J. Markey  
United States Senator