



**COMMENTS OF KIA AMERICA INC.
NHTSA DOCKET 2023-0038
EA16-003**

Kia America, Inc. is submitting these comments in response to NHTSA’s Initial Decision of Defect in EA16-003 regarding ARC inflators.

On September 5, 2023, NHTSA published an Initial Decision that certain toroidal inflators manufactured by ARC and installed in frontal air bag modules in about 52 million vehicles in the United States contain a safety-related defect and should be recalled. In its Initial Decision, NHTSA summarized its investigation as follows:

Based on its investigation, NHTSA believes that ruptures may result from the weld slag produced by the friction welding manufacturing process. Should weld slag of a sufficient size become dislodged, it can cause a blockage of the inflator exit orifice when the air bag deploys.¹

NHTSA observed that between 2009 and 2023, there have been seven ARC inflator ruptures during deployment of frontal air bags in the United States. The agency concluded that these seven ruptures are sufficient to establish a safety-related defect in all 52 million ARC-designed inflators, notwithstanding the lack of a definitive root cause for the ruptures or any evidence of commonality among the ruptured units or between the ruptured units and the millions of undeployed air bags containing the subject inflators.

Kia disagrees with this decision on both the facts and the law.

I. The One Rupture in a Kia Vehicle Is Not Typical of the Other Ruptures Identified in NHTSA’s Initial Decision

Of the nearly 3 million ARC inflators in Kia vehicles in the U.S., there has been one reported rupture: a 2004 Kia Optima driver-side airbag inflator that ruptured in a crash in April 2014 in New Mexico, injuring the driver, Mikaila Chavez.

The ruptured inflator was a single-stage ARC inflator installed in an air bag module manufactured by Delphi. To Kia’s knowledge, the Chavez inflator is the only one in which a single-stage ARC inflator ruptured in the field in the United States, and the only one in which a module manufactured by Delphi was involved.

NHTSA’s Initial Decision offered no reason why the Chavez rupture should be considered the same as the other field ruptures in the United States identified by NHTSA, all of which involved dual-stage inflators, or why any of those other field ruptures are predictive of another rupture in a Kia vehicle.

¹ *Initial Decision*, 88 Fed. Reg. 62140 at 62141, September 8, 2023.



Moreover, there is reason to doubt that the Chavez rupture was caused by weld slag blocking the inflator orifice, which is the theory that NHTSA has advanced in its Initial Decision as the likely “root cause” of the ARC inflator ruptures. The Chavez vehicle was inspected on August 6, 2015, with a NHTSA representative present. ARC’s analysis was presented to NHTSA a few weeks later, on August 25, 2015, and discussed in more detail at an in-person meeting in Knoxville, TN on March 1, 2016, in which NHTSA personnel participated. ARC’s observations included the following:

- The Chavez inflator disk rupture pattern does not resemble disk ruptures involving internal obstructions, such as weld slag. According to ARC, such ruptures typically demonstrate a fully opened disk.
- The Chavez inflator disk had a large amount of unopened disk remaining after the rupture, which ARC suggested could have occurred from an *external* obstruction.
- The friction welding on the ruptured component does not show any evidence of weld slag, per ARC’s inspection.
- The manifold on the Chavez inflator did not open in all four quadrants equally, further supporting ARC’s theory that external source constrained the deployment of the air bag.
- Photographs of the interior of the Chavez inflator center support do not show evidence of weld slag.
- The air bag cover on the Chavez steering wheel showed visible damage extending into the KIA emblem, and additional damage near the horn symbol. The damage location aligned with the internal inflator assembly location.
- ARC concluded that a “detrimental external force” was applied to the inflator, causing, or contributing to the rupture.

NHTSA did not acknowledge or discuss any of these observations in its Initial Decision, nor has Kia located any NHTSA analysis refuting, or even questioning, these observations. At a minimum, ARC’s observations cast serious doubt on whether the Chavez incident was caused by weld slag.

The external damage witness marks on the Chavez steering wheel add further credence to ARC’s observations about potential external interference with the deployment. As NHTSA has recently noted, “Any alterations to your air bag or its cover” – including alterations as modest as decorative emblems -- “can also cause it to not function correctly.”² If a rhinestone decal can cause an air bag to “not function correctly,” then there is certainly a reasonable question about whether an external object installed with enough force to damage the steering wheel cover could cause the air bag to malfunction.

For all of these reasons, Kia has concluded that the Chavez inflator rupture was an isolated case of unknown cause, and that it does not represent a trend of rupture risk in other Kia vehicles.

² Consumer Alert, “Don’t Buy or Use Steering Wheel Decorative Emblem Decals,” NHTSA release, November 6, 2023.



II. The Inflators Installed in Kia Vehicles Are Not the Same As All of the Other Inflators at Issue in This Investigation

Single-stage air bag inflators like the Chavez inflator are different from dual-stage air bag inflators. As NHTSA noted in the Initial Decision, single-stage inflators deploy at a preset speed and at full force. Dual-stage inflators deploy at two different stages depending upon the size of the occupant as measured by the sensor in the vehicle and the severity of the crash. The design, manufacturing process and performance of single-stage inflators are sufficiently different from dual-stage inflators that it is unreasonable to extrapolate the performance of dual-stage inflators to predict the performance of Kia's single-stage driver side inflators, which were installed in approximately 190,000 Kia Optima vehicles offered for sale in the United States in Model Years 2001 through 2006. The single-stage inflators in Kia vehicles had a single igniter and lower output (measured in kPa) than the dual stage inflators installed in Kia vehicles, per information provided to Kia by ARC. As discussed in Section I, above, there has been one rupture involving a single-stage driver side inflator in a Kia vehicle in the United States. NHTSA has offered no information to explain why this event should be included with other field ruptures that involved inflators of a different design. The rupture of the Chavez inflator lends no support to the finding of a defect in all dual-stage ARC inflators. And because of the rarity of ruptures of single-stage inflators and the absence of evidence that the Chavez inflator rupture fits NHTSA's "weld slag" theory, it lends insufficient support to a finding of a defect in all single-stage ARC inflators.

Kia also employed more than 2.6 million dual-stage inflators in certain models offered for sale in the United States between Model Years 2005 and 2018. Kia has never experienced a field rupture of a dual-stage inflator in the United States. As discussed in the Joint Comments of Safety Professionals certain OEMs filed separately in this Docket, there are many different inflator configurations represented in the population of inflators at issue in NHTSA's Initial Decision. NHTSA does not acknowledge these differences, nor does it explain why ruptures associated with a few of these different configurations provide any technical support for an Order compelling the recall of 52 million inflators containing over a dozen configurations, most of which are different from those of the ruptured inflators.

Finally, based on inflator code information provided to Kia from ARC, none of the inflators installed in Kia vehicles in the United States was involved in any of the lot acceptance test (LAT) ruptures discussed in the joint comments and the confidential file.

III. Under Prevailing Case Law, NHTSA's Initial Decision Does Not Support a Recall Order

The Initial Decision does not support a mandatory recall order under the Vehicle Safety Act. Under the case law construing the defect provisions of the Vehicle Safety Act, NHTSA must show a "significant number of failures" in a component before it can compel a recall.³ In *Wheels*, the Court explained that "[w]e use the term 'significant' to

³ *United States v. General Motors* ("Wheels"), 518 F.2d 420, 427 (D.C. Cir. 1975).



indicate that there must be a *non-de minimis* number of failures.” Although NHTSA asserts in the Initial Decision that the seven ruptures are not “*de minimis*,”⁴ it does not explain this conclusion or address the *Wheels* analysis:

The question whether a “significant” number of failures have taken place must be answered in terms of the facts and circumstances of each particular case. Relevant considerations include the failure rate of the component in question, failure rates of comparable components, and the importance of the component to the safe operation of the vehicle.⁵

Here, NHTSA has not considered the failure rate of the component in question, except to assert in a conclusory fashion that seven ruptures out of an estimated 2.6 million “good” deployments is unacceptable. But this failure rate is close to zero – which must qualify as a *de minimis* failure rate if anything does.

And the law does not require manufacturers to build products that never fail. As another significant NHTSA case, *Pitman Arms*, has taught,

When the defects are occasional or isolated, the risk associated with them is part of the ordinary danger of operating an automobile; minimizing them is one aspect of the quality of a manufacturer’s product which customers choose to pay for. Total elimination of this risk would require a standard of design, construction, and testing that would produce a purchase price so prohibitive that it cannot be taken as the contemplation of Congress. And that obtains even though such a defect may be in a vital component and result in a safety risk.⁶

It is hard to imagine a risk that is more “occasional or isolated” than the lone Kia inflator rupture, which is the only incident involving a single-stage driver side inflator in more than twenty years that the ARC inflators have been in the U.S. market.

And, even if the Kia Chavez inflator rupture is added to the other six ruptures in the United States, NHTSA has not shown that seven ruptures out of 2.6 million successful deployments is a significant or unreasonable risk within the meaning of the case law.

The case law also requires NHTSA to explain how the failure rate of the components at issue compare with the failure rates of “comparable components,” an analysis that is missing from the Initial Decision. When the industry asked NHTSA to add information to the record of this investigation about the rupture experience of other air bag inflator manufacturers, NHTSA deflected the request, stating that the only “relevant” rupture

⁴ Initial Decision at 62145.

⁵ *United States v. General Motors* (“Wheels”), 518 F. 2d at 438 n. 84.

⁶ *United States v. General Motors* (“Pitman Arms”), 561 F. 2d, 923, 929 (D.C. Cir. 1977).



information related to ARC products.⁷ But this is not consistent with the case law defining and explaining what constitutes a “significant number of failures;” again, that analysis requires an understanding of “failure rates of comparable components.” NHTSA cannot require a recall unless the risk it is addressing is “unreasonable.” The case law teaches how NHTSA is to evaluate the reasonableness of a motor vehicle safety risk:

The unreasonableness of any risk to safety must be assessed relatively in at least three dimensions: (1) the severity of the harm it threatens; (2) the frequency with which that harm occurs in the threatened population relative to its incidence in the general population; and (3) the economic, social and safety consequences of reducing the risk to a so-called ‘reasonable’ level.⁸

NHTSA did not conduct this required analysis. In particular, there is no evidence in the Initial Decision or the accompanying file that NHTSA analyzed the frequency of ARC ruptures relative to ruptures in inflators manufactured by other suppliers, nor is there any evidence that NHTSA considered, much less evaluated, the economic, social or safety consequences of requiring a recall of 52 million inflators nearly all of which will have healthy air bag inflators.

Another Court explained how to evaluate the reasonableness of a future risk, such as in this case, future inflator ruptures. The Court said:

[W]here there is no dispute that at least some such [potentially dangerous] hazards ... can definitely be expected to occur in the future, then the defect must be viewed as one ‘related to motor vehicle safety’⁹

A defect that is “related to motor vehicle safety” is one that presents an “unreasonable risk of accidents, death and injury,” according to the Vehicle Safety Act. Thus, the *Carburetors* Court was saying that a potentially dangerous risk is unreasonable if it is undisputed that the risk can definitely be expected to occur in the future. But here, there is a dispute as to the future risk of rupture. Indeed, NHTSA’s own mathematician, Dr. Glassbrenner, testified at the public meeting in this proceeding and refrained from offering a specific prediction of the number of future ruptures. Instead, she offered a predicted rupture *rate* of 1 rupture for every 370,000 frontal air bag deployments.¹⁰ This prediction does not appear to be based on any technical analysis of ARC inflators, but rather appears to be a straight line projection from the known seven ruptures in an estimated 2.6 million frontal air bag deployments.¹¹ More significantly, Dr. Glassbrenner’s testimony did not quantify what the predicted rupture rate translates to in terms of the number of future ruptures. Given the age of the vehicles involved in NHTSA’s Initial Decision, some of which are now quite old,

⁷ NHTSA recently reiterated its decision that information about the rupture experience of other air bag inflator manufacturers is “not part of this investigative file.” See Docket Entry at NHTSA Docket 2023-0038-0005.

⁸ *U.S. v. General Motors* (“X-Cars”), 656 F. Supp. 1555, 1578 (D.D.C. 1987), *aff’d*, 841 F. 2d 400 (D.C. Cir. 1988).

⁹ *U.S. v. General Motors* (“Carburetors”), 565 F. 2d 754, 758 (D.C. Cir. 1977).

¹⁰ Transcript of Public Meeting of October 5, 2023, NHTSA Docket 2023-0038-0003 at Page 58.

¹¹ This is NHTSA’s estimate, according to the Initial Decision at 62145.



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and the fact that older vehicles are driven fewer miles per year (assuming they are still on the road), according to the CAFE attrition model used by Dr. Glassbrenner,¹² it is entirely possible that there could be no more ruptures in the field. At a minimum, NHTSA cannot conclude that the risk of any actual ruptures in the future is “undisputed” or “definite.”

IV. Conclusion

Kia respectfully submits that NHTSA’s Initial Decision does not support an Order to recall 52 million ARC inflators. Kia will continue to monitor the field performance of its vehicles with ARC inflators, as is its responsibility under the Vehicle Safety Act, and will take appropriate action if the facts dictate the need to do so.

¹² Transcript of Public Meeting at Page 57.