



The sole question presented in this arbitration is whether aluminum automotive body sheet (“ABS”) constitutes a relevant product market. In making this determination, I have relied upon the evidentiary record, the 2010 Merger Guidelines, as well as relevant case law and other authorities.

Due to space limitations, the factual predicates for this Decision are only briefly stated. Traditionally, auto body parts have been made of steel. In the 1990s, automakers (“OEMs”) started considering aluminum for certain parts,<sup>1</sup> but it was not until Ford announced its decision in 2012 to make an aluminum-intensive F-150 pickup truck, that aluminum ABS began to make serious inroads into OEMs’ decisions regarding the appropriate materials for auto parts.<sup>2</sup> While aluminum is more expensive than steel, it has a weight advantage,<sup>3</sup> which can be critical as automakers work to minimize auto weight (“lightweighting”).<sup>4</sup> Lightweighting serves many purposes, but a principal use is to help OEMs meet increasingly stringent fuel economy standards.<sup>5</sup>

Due to (among other things) the complexities of auto manufacture, the wide range of car models, and the different physical properties of aluminum and steel, OEMs employ a sophisticated and complex analysis when selecting the materials for the various parts in a particular model. This process (the “design phase”) occurs well in advance of actual production, and entails a comprehensive evaluation, by a dedicated group at an OEM, of several variables, including strength, flexibility, formability, and cost, among others.<sup>6</sup> During this evaluation, OEMs engage with steel ABS and aluminum ABS suppliers, who pitch the OEMs on their relative products, and assist with developing potential part designs.<sup>7</sup>

At the design phase, OEMs consider the price of both steel and aluminum ABS, but using estimates largely based on historical prices and price trends.<sup>8</sup> Design engineers factor in the material costs, as well as transport, stamping, casting, and other processing costs, to arrive at a materials decision.<sup>9</sup> This was described by multiple witnesses as an evaluation of price at a “coarse” level.<sup>10</sup> With respect to aluminum ABS, which competes with the incumbent material (steel ABS), the analysis is reduced to a formula expressed as dollars per kilogram saved (“\$/kg weight saved”)<sup>11</sup> – what aluminum ABS suppliers call “value-in-use.”<sup>12</sup> This reflects the cost incurred by an OEM to reduce the weight of the vehicle by one kilogram.

At some point, in the case of aluminum ABS, following selection of the material, an OEM sends out requests for quotation (“RFQs”) to aluminum ABS suppliers,<sup>13</sup> and, typically, only to those suppliers.<sup>14</sup> There can be several rounds of bidding as the OEMs play one aluminum ABS supplier off against another.<sup>15</sup> This process is considered the procurement phase.

At this juncture, the views of the parties diverge. The Government contends it is appropriate to focus on price competition at the procurement stage (which, by definition is only among aluminum ABS suppliers), because “that is the competition that would be lessened as a result of this merger.”<sup>16</sup>

Defendants urge that it is myopic to look independently at the procurement phase as the competitive dynamic is only understood by observing both stages as an interrelated whole. That dynamic is exemplified by the undisputed fact that, among other efforts to compete with steel, Novelis has invested [REDACTED] in [REDACTED], a new plant in Kentucky, in order to expand its capacity.<sup>17</sup> It is also exemplified by the significant investments steel has made in innovating new products (e.g. newer grades of high strength steels) to compete with aluminum.<sup>18</sup> Defendants acknowledge that binding prices are not set at the design phase, but argue that prices and costs nonetheless are very much considered at that time, and, at the very least, the design phase establishes a range for prices, within which aluminum ABS suppliers submit specific competitive bids at the procurement phase.<sup>19</sup>

It is against this backdrop that the appropriate relevant product market is defined. The general legal standard is well-known, but like so many other aspects of antitrust, the details and actual application are left to determination in the particular case. The standard is one of “reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it.” Brown Shoe Co. v. United States, 370 U.S. 294, 325 (1962). However, “reasonable

interchangeability” is not synonymous with “functional interchangeability.” As explained by the Supreme Court, “[f]or every product, substitutes exist. But a relevant market cannot meaningfully encompass that infinite range.” Times-Picayune Pub. Co. v. United States, 345 U.S. 594, 613 n. 31 (1953).

Defendants argue strenuously that aluminum ABS and steel ABS are reasonably interchangeable.<sup>20</sup> They note that every auto part made from aluminum ABS is also made to some degree by steel ABS, and provide evidence showing that even where aluminum has made its most significant penetration – in SUV and truck hoods – steel still has nearly a quarter share.<sup>21</sup> Defendants highlight the particular example of different material choices between the Ford and Chevrolet pick-up trucks – the F-150 and the Silverado – which compete head-on and use widely varying percentages of aluminum (roughly █████ for the former and █████ for the latter).<sup>22</sup>

Defendants rely on facts that speak to reasonable interchangeability, but their position takes the thirty-thousand-foot view. The relevant product market definition in this case may require more focused attention on the dynamics of auto manufacturing. For though an OEM can potentially use steel for any part that can be made of aluminum, once it makes a decision between the two, and concludes the design phase, it is almost always locked-in to its choice of material for a significant period of time – through the procurement phase and multiple years of production. Evidence of switching during the procurement phase (or after) is, at best, limited.<sup>23</sup> For most of the life cycle of a particular auto model, aluminum ABS and steel ABS are typically not reasonably interchangeable.<sup>24</sup>

To get around this problem, Defendants frame the issue in terms of a differentiated product market analysis. They note that it is inherent in markets characterized by differentiation that products are not perfect substitutes. They concede there is closer substitutability among aluminum ABS suppliers, but also maintain there is sufficient competition from, and discipline imposed by, steel ABS suppliers. Moreover, they urge that in such inter-material markets, one should expect higher cross elasticity among producers of each material, and therefore one should not narrowly focus on minor differences in cross elasticity, nor be concerned if there is some delay in price responsiveness from the discipline imposed by steel ABS.<sup>25</sup>

While a permitted lag in price responsiveness is not specifically covered in the Merger Guidelines (other than a general recognition that there can exist both close and more distant substitutes<sup>26</sup>), there is case law upholding, in appropriate circumstances, inclusion of different physical products in a relevant market, even if the demand for the candidate product is “not particularly or immediately responsive to changes in the price of the other.” United States v. Continental Can Co., 378 U.S. 441, 455 (1964); see also United States v. Engelhard Corp., 126 F.3d 1302, 1307 (11<sup>th</sup> Cir. 1997).

In Continental Can, the Supreme Court reversed the district court’s determination that the government had failed to prove a relevant market that included both metal and glass containers. 378 U.S. at 443-44. In doing so, the Court noted it was not concerned about a potentially broad market definition in that case, because there could be smaller relevant antitrust product markets within the market it defined. Id. at 457-58. Even if Defendants are right that aluminum ABS and steel ABS constitute an antitrust product market, that does not preclude the existence also of narrower relevant markets within that market. For the sake of argument, the broader market proposed by Defendants might be appropriate, if, say, Novelis were trying to merge with ArcelorMittal. But here, the question is of market definition in a proposed merger among aluminum ABS firms. Meanwhile, in Engelhard, the Court of Appeals considered the possibility that stage-one competition in a two-stage market could restrain a monopolist in stage two from raising prices, but explicitly left open the possibility of the opposite conclusion, and held against the government because, unlike here, the government “did not consider the possibility that [stage-one] competition could restrain [the relevant product’s] prices.” Engelhard, 126 F.3d at 1307-8.



compete aggressively to win OEMs' business, through innovation efforts to improve various qualities in their respective metals, and through interactive customer solution centers through which the metal suppliers work with OEMs in an effort to win their business.<sup>43</sup> That competition is not disputed, but establishes only that aluminum and steel are competitive at the design phase. It does not address circumstances where actual and dynamic pricing occurs, which is solely among aluminum suppliers.

The concept of a hypothetical monopolist often plays a major role in determining market definition; the question is whether a hypothetical monopolist of the candidate market could profitably impose a small but significant non-transitory increase in price ("SSNIP"). If so, that suggests putative substitutes would be insufficient to offset a price increase, and establishes the relevant product market.

This exercise is most commonly applied using the Merger Guidelines SSNIP analysis (more on that later), but here evidence has been adduced by asking that question of the parties who would be directly and negatively affected by a price increase – automotive OEMs. Those OEMs who were asked the question answered in the affirmative: "we would pay more in price"<sup>44</sup> (██████████); "prices will most certainly increase"<sup>45</sup> (██████████); "[t]here would be less competitors ... so it could increase the price"<sup>46</sup> (██████████). While not dispositive on its own, this testimony corroborates and is consistent with Novelis' statements in ordinary course documents, supportive of an aluminum ABS relevant product market.<sup>47</sup>

After much consideration, I have concluded that the quantitative evidence offered by the two economic experts was not adequate, in my view, to play a meaningful role in determining the appropriate relevant product market. While the testimony by the government's expert, Dr. James Levinsohn, appears to corroborate my conclusions and the evidence I've cited, the underlying data used by both economists was not sufficiently verifiable to be definitively relied upon.<sup>48</sup>

The foundational data set utilized by both economists came from a model produced by the consulting firm ██████████ in 2017, when it did work for Novelis that required it to construct a value-in-use tool of its own to compare the net benefits of aluminum ABS and steel ABS.<sup>49</sup> ██████████ valuation of so-called "secondary benefits"<sup>50</sup> to lightweighting vehicles was significant to ultimate estimates of net benefits (used by both experts in the determination of demand elasticities),<sup>51</sup> but the record contains no explanation as to the methodology or source for assigning value to secondary benefits. Dr. Levinsohn didn't (and, to be fair, perhaps couldn't) do anything to substantiate the data.<sup>52</sup> There appeared to be at least a weak consensus by both economists that the ██████████ data provided the best data source available, but "best available" doesn't necessarily translate to good enough (and in fact Defendants' expert, Dr. Kevin Murphy, testified that he would not rely on the ██████████ model for SSNIP test purposes<sup>53</sup>). While Novelis relied upon it to make decisions about aggregate demand,<sup>54</sup> there is no indication it is used for current value-in-use purposes, or at a part specific level.<sup>55</sup> Moreover, the final statement of work between ██████████ and Novelis specifically removed elasticities from the scope of the project,<sup>56</sup> which implies that calculating elasticities was not a goal or purpose of the project, even though both economists used the data for that purpose. In all, the model was 55% accurate at predicting OEM choices between aluminum and steel, and 71% accurate at predicting volume.<sup>57</sup> The government unearthed one example in which the model correctly predicted a future change that had not yet materialized (meaning that an instance Dr. Murphy concluded was a miss, was actually a hit),<sup>58</sup> but the one change identified (in the context of over 4000 inputs) would not materially improve the model's prediction rate.

Even if the issue of the data quality could be overcome, there are other shortcomings in the analysis. Dr. Levinsohn based the SSNIP test on the "conversion premium,"<sup>59</sup> rather than total cost. While the Merger Guidelines permit use of a firm's "specific contribution to value [when] it can be identified with reasonable clarity,"<sup>60</sup> other than three examples, none apposite here, they provide no doctrinal guidance as to when contribution to value, as opposed to total price, is appropriate.<sup>61</sup> While it is certainly true that the "contribution to value" can be easily equated to the conversion price, OEMs

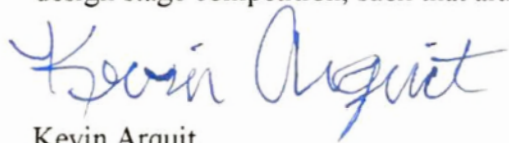
make a decision between aluminum and steel for a given part based on the total cost of each material. I believe this to be a question of first impression, but conclude that in the circumstances here, where the outside good (steel ABS) does not lend itself to assignment of a conversion premium (and even if it did, the difference in raw material cost would have to be adjusted for), relying on contribution to value is not appropriate – there could be no apples-to-apples comparison.

I found Dr. Murphy's testimony on margins more persuasive, as it is supported by the common sense notion that you cannot assume a company's opportunity cost on a particular product would be determined solely by the higher margin of the two alternatives (and especially here, where aluminum cans are a more constant business than the fluctuating specialty aluminum).<sup>62</sup> Similarly, I found more convincing Dr. Murphy's, rather than Dr. Levinsohn's, supplemental (and final) elasticity calculations. In rebuttal of Dr. Murphy, Dr. Levinsohn submitted results from a "corrected" version of one of Dr. Murphy's models that did not converge, and that "corrected" model yielded a lower elasticity favorable to Dr. Levinsohn's testimony. But Dr. Levinsohn provided no rationale for choosing one of among the three ways of implementing his proposed "correction," which was to isolate the data point for one of three groups of cars (e.g. compact, midsize, and SUV/truck). As far as Dr. Levinsohn testified to, he could equally well have isolated a different car group, and the model may have converged (and resulted in a higher elasticity).<sup>63</sup>

Taking all of this into consideration – and particularly the substantial doubt cast upon the appropriateness and value of the [REDACTED] model – the results of the Government's SSNIP test are inconclusive at best, and therefore did not play a role in my determination.

Dr. Murphy did not do his own SSNIP test with more reliable data, so, similarly, Defendants have no SSNIP test to support their position. Dr. Murphy did testify to product market definition generally, based on qualitative factors, but it was not sufficient to outweigh my determination on the record evidence discussed above.

Over the course of the hearing, the parties submitted hundreds of exhibits, and presented testimony from over a dozen individuals, including three experts. Given this volume of evidence, and the numerous competitive factors at play in the automotive body sheet space, this Decision is necessarily abridged. While, as a general matter, there is inter-relatedness between price and non-price competition and on multiple levels, the record makes abundantly clear there is also sustained and meaningful price competition among only aluminum ABS suppliers at the procurement stage, sufficiently attenuated from design stage competition, such that aluminum ABS is a relevant product market.



Kevin Arquit

Arbitrator







<sup>60</sup> Horizontal Merger Guidelines (2010) § 4.1.2.

<sup>61</sup> Defendants' counsel pointed out that where a firm's contribution to value is small, it may make sense to conduct a SSNIP on the contribution to value, or risk skewing the analysis. For example, if a firm contributes 10% of the value to a finished product, using a SSNIP of 5% on the total cost would mean that the firm in question would be raising the cost of their contribution by 50%. Tr. at 2302:16-2303:4. By contrast, an aluminum ABS suppliers contribute approximately 50% of the value of the finished product.

<sup>62</sup> Tr. at 1804:17-1805:10 (Murphy Testimony).

<sup>63</sup> Tr. at 2144:5-2145:6 (Levinsohn Testimony).