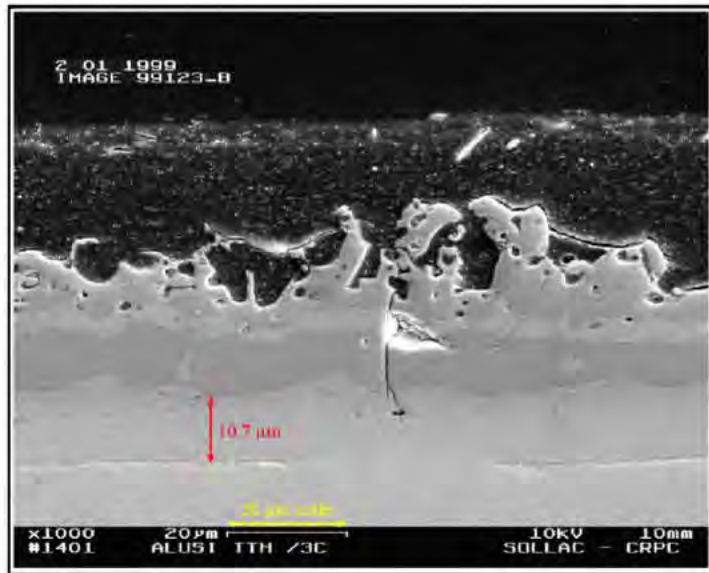


minutes using a 25 μm pre-coating, as disclosed by Cornette. RX-0019 (Cornette) at 9-10. In fact, Lachmann uses the USIBOR 1500 steel, which would have motivated a POSITA to apply Cornette's disclosure to Lachmann. RX-0005 (AM-ITC-0010992) at 11035; RX-0062 (AM-ITC-0019466 at 19469-19471. There are also other similarities, such as heating temperature ranges, between Lachmann and Cornette that would have reinforced the obviousness of applying Cornette's teachings to Lachmann. RX-0019 (Cornette) at 9, FIG. 22; RX-0062 (AM-ITC-0019466) at 19469; RX-0005 (AM-ITC-0010992) at 11031; CX-0084C (Brown Rpt.) ¶ 681.

As a result of applying Cornette's process-related disclosure to Lachmann, it would have been obvious for a POSITA to arrive at the structure shown in Cornette FIG. 22, for example, Cornette's coating thickness and layer morphologies. As I discussed for the '602 patent in reference to the Takagi-Cornette combination, while this modification would have required experimentation, it would have been well within the bounds of what was routine and achievable for a metallurgist of ordinary skill in the art. CX-0084C (Brown Rpt.) ¶ 682.

2.) Claim 9

Lachmann renders obvious claim 9 of the '602 patent—interdiffusion layer thickness less than 15 micrometers. CX-0084C (Brown Rpt.) ¶¶ 686-87. The layers of Lachmann, as modified by Cornette, would have thicknesses the same as or similar to those of Cornette, as shown in Cornette's FIG. 22. The layer of Cornette's coating that is adjacent the base steel (which corresponds to layer (a) of the '602 Patent) has have a measured thickness of 10.7 μm , satisfying this claim, as illustrated in annotated FIG. 22 below.



RX-0019 (Cornette) at FIG. 22 (annotated).

3.) Claim 10

Lachmann renders obvious claim 10 of the '602 patent—interdiffusion layer thickness less than 10 micrometers. CX-0084C (Brown Rpt.) ¶¶ 688-93. As discussed above in relation to claim 9, Cornette's coating that is adjacent the base steel (which corresponds to layer (a) of the '602 Patent) has a thickness of 10.7 μm . The thickness of layer (a) is "directly" related to the temperature of the furnace and dwell time in the furnace, and the thickness of the interdiffusion layer (a) is nothing more than a design choice that would be well within the capabilities of a POSITA. See CX-0617C (AM-ITC-0094851) at 874; RX-1282C (Drillet Tr.) at 115:18-22; CX-0084C (Brown Rpt.) ¶¶ 689, 158, 404. A POSITA would have found it obvious to experiment with the coating thickness to arrive at the claimed less than 10 μm . CX-0084C (Brown Rpt.) ¶ 690. Also, the 0.7 μm difference between 10.7 μm and 10 μm would have been less than manufacturing tolerances for layer thicknesses of coatings on hot-stamped steel parts. RX-0067 (GMW14400) at 3; CX-0084C (Brown Rpt.) ¶ 691. This is corroborated by Passat where the cross-sectional SEM micrograph of the Passat 1049 B-pillar shows a coating with

interdiffusion layer average thickness of 9.4 μm based on two measurements slightly greater than 10 μm (*i.e.*, 10.2 μm and 10.5 μm) and five measurement less than 10 μm . RX-0086 (VINFAST1402-00003562) (annotated); CX-0083C (Bradley Passat Rpt.) ¶¶ 33-34. And a POSITA would not have recognized the “10 micrometers thick” characteristic as providing any notable benefit. *Id.* ¶ 692. A POSITA would have been motivated to try adjusting its thickness as a matter of routine optimization. *Id.* ¶ 693; RX-0104 (Takagi) at [0017].

4.) Claim 18

Lachmann renders obvious claim 18 of the '602 patent—interdiffusion layer thickness between 1 micron and 15 microns. CX-0084C (Brown Rpt.) ¶ 694. *See* discussion above at '602 patent claim 9 of Lachmann disclosing interdiffusion layer thickness of 10.7 μm .

5.) Claim 26

Lachmann renders obvious claim 26 of the '602 patent—interdiffusion layer has a thickness less than 15 micrometers. CX-0084C (Brown Rpt.) ¶ 695. *See* discussion above at '602 patent claim 9 of Lachmann disclosing interdiffusion layer thickness of 10.7 μm , which is less than 15 micrometers.

c. Lachmann in combination with Laurent

1.) Motivation to combine

A POSITA would have been motivated to combine Laurent with Lachmann. CX-0084C (Brown Rpt.) ¶ 697. Laurent describes “steel sheet[s]” having compositions that “ensur[e] a very high mechanical resistance after thermal treatment.” RX-0109 (Laurent '805) at 1:47-62. A POSITA would have found it obvious to try using these steel compositions in the hot stamping processes described by Lachmann and Cornette. This would have constituted no more than substitution of one element (the Laurent steel) for another (the USIBOR 1500 steel of Lachmann) known in the field. RX-0005 (AM-ITC-0010992) at 11035; RX-0062 (AM-ITC-0019466) at

19469-19471; RX-0019 (Cornette) at 9. A POSITA would have been motivated at least by Laurent's discussion of the advantages of such a steel and, more particularly, the specified advantages associated with the particular elements and concentrations of the elements of the steel.

2.) Claims 3 and 4

Lachmann in combination with Laurent renders obvious claims 3 and 4 of the '602 patent—base steel chemical compositions. CX-0084C (Brown Rpt.) ¶¶ 698-702. Laurent composition either exactly matches, falls fully within, or overlaps substantially with, the claimed composition of '602 patent claims 3 and 4. As shown in the below chart, Laurent's disclosure of "preferabl[e]" "steel composition by weight" teaches each of the recited compositions of claims 3 and 4.

Element	Claim [3] composition	Claim [4] composition	Laurent composition (col.2)
C	$0.15\% < C < 0.5\%$	$0.2\% < C < 0.5\%$	$0.20\% < C < 0.5\%$
Mn	$0.5\% < Mn < 3\%$	$0.8\% < Mn < 1.5\%$	$0.8\% < Mn < 1.5\%$
Si	$0.1\% < Si < 0.5\%$	$0.1\% < Si < 0.35\%$	$0.1\% < Si < 0.35\%$
Cr	$0.01\% < Cr < 1\%$	$0.01\% < Cr < 1\%$	$0.01\% < Cr < 1\%$
Ti	$Ti < 0.2\%$	$Ti < 0.1\%$	$Ti < 0.1\%$
Al	$Al < 0.1\%$	$Al < 0.1\%$	$Al < 0.1\%$
P	$P < 0.1\%$	$P < 0.05\%$	$P < 0.05\%$
S	$S < 0.05\%$	$S < 0.03\%$	$S < 0.03\%$
B	$0.0005\% < B < 0.08\%$	$0.0005\% < B < 0.01\%$	$0.0005\% < B < 0.01\%$
Remainder	"iron and impurities inherent in processing"	"iron and impurities inherent in processing"	"iron and impurities inherent in processing"

RX-0109 (Laurent '805) at 1:66-2:10; CX-0084C (Brown Rpt.) ¶ 701.

3.) Claims 7 and 8

Lachmann in view of Laurent renders obvious claims 7 and 8 of the '602 patent—base steel titanium to nitrogen ratio. CX-0084C (Brown Rpt.) ¶¶ 703-05. Laurent discloses "[t]itanium, the ratio of the content of which with respect to the nitrogen content should be in excess of 3.42, is introduced in order to prevent combining of the boron with the nitrogen, the

nitrogen being combined with titanium.” RX-0109 (Laurent ’805) at 4:25-28. This is exactly the ratio recited in claims 7 and 8. It would have been obvious to use a base steel having this composition relationship in order to obtain the recited benefit of preventing combining of boron with nitrogen. CX-0084C (Brown Rpt.) ¶ 704.

vi. Engels Grounds

a. Engels alone

1.) Claim 1

To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 470-502.

Engels renders obvious limitation [1pre]-[1g] of the ’602 patent. See § III.D.3.v.a (’602 patent limitation [1pre]-[1g]).

2.) Claim 2

Engels renders obvious claim 2 of the ’602 patent. See § III.D.3.v.b (’602 patent claim 2). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 503-05.

3.) Claim 9

Engels renders obvious claim 9 of the ’602 patent—interdiffusion layer thickness less than 15 micrometers. See § III.D.3.v.c (’602 patent claim 9). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 506-07.

4.) Claim 10

Engels renders obvious claim 10 of the ’602 patent—interdiffusion layer thickness

less than 10 micrometers. See § III.D.3.v.d ('602 patent claim 10). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 508.

5.) **Claim 18**

Engels renders obvious claim 18 of the '602 patent—interdiffusion layer thickness between 1 micron and 15 microns. See § III.D.3.v.e ('602 patent claim 18). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 515.

6.) **Claim 20**

Engels renders obvious claim 20 of the '602 patent—fourth mean iron composition lower than third mean iron composition. See § III.D.3.v.f ('602 patent claim 20). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 516.

7.) **Claim 21**

Engels renders obvious claim 21 of the '602 patent. See § III.D.3.v.g ('602 patent claim 21). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 517-25.

8.) **Claim 22**

Engels renders obvious claim 22 of the '602 patent. See § III.D.3.v.h ('602 patent claim 22). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 526.

9.) **Claim 24**

Engels renders obvious claim 24 of the '602 patent. See § III.D.3.v.i ('602 patent claim 24). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 527-34.

10.) **Claim 26**

Engels renders obvious claim 26 of the '602 patent—interdiffusion layer has a thickness less than 15 micrometers. See § III.D.3.v.j ('602 patent claim 26). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 536.

b. Engels in combination with Cornette

1.) Motivation to combine

It would have been obvious to apply Cornette's disclosure of various process parameters, such as pre-coating thickness, base steel, alloying temperatures, and heating times, to Engels. RX-0019 (Cornette) at 9. A POSITA would have recognized that these specific numerical values would be useful for experimenting based on Engels' disclosure, which discloses heat treatment at "temperatures between 900 °C and 950 °C" but does not disclose specific values for some other parameters, such as austenitization time. RX-0063 (Engels) at 136. A POSITA would already have been aware of reasonable values for these parameters based on general knowledge in the art, but the POSITA would also have recognized the usefulness of Cornette's specific disclosure and sought to apply it when performing hot-stamping as taught by Engels. The POSITA would also have been motivated by Cornette's disclosure that these process specifics provide the "best compromise between corrosion protection and weldability" and "excellent mechanical properties

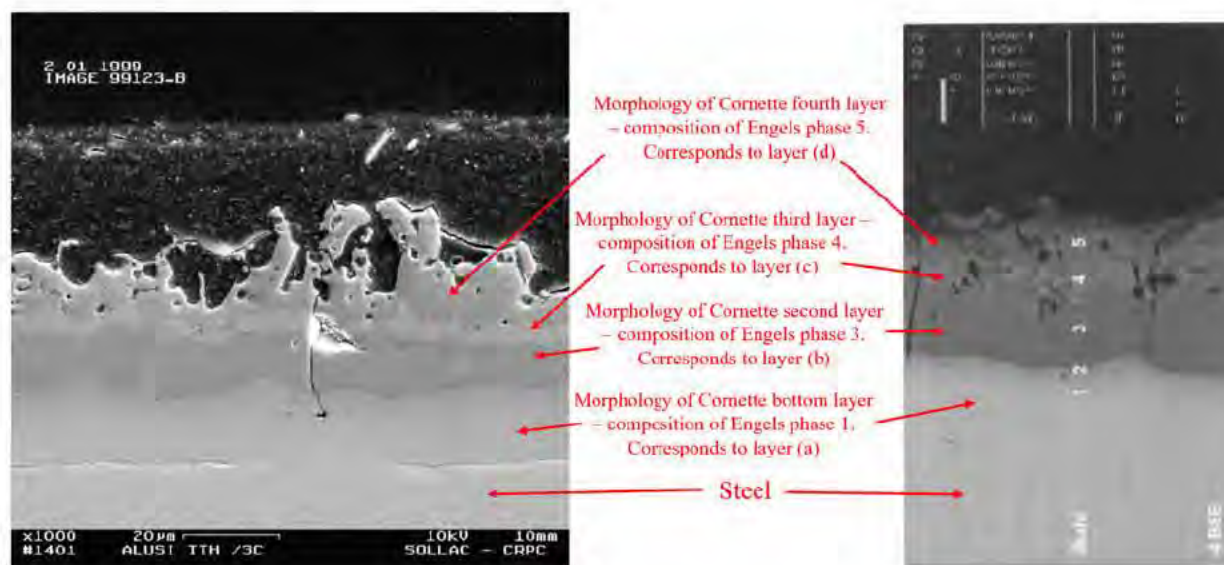
[REDACTED]

of the material after the press hardening process with good corrosion protection.” RX-0019 (Cornette) at 9-10.

To achieve these results, it would have been obvious for the POSITA to use the USIBOR 1500 steel disclosed by Cornette and/or to perform a 900°C austenitization for five minutes using a 25 µm pre-coating, as disclosed by Cornette. RX-0019 (Cornette) at 9-10. With respect to the use of USIBOR 1500 steel, the similar compositions of USIBOR 1500 and the “22mnB5” steel disclosed by Engels mean that this substitution would have constituted only a minor modification of Engels. RX-0019 (Cornette) at 9; RX-0122 (EP1865086) at 5116 (Table 1); CX-0084C (Brown Rpt.) ¶ 540. Further, a POSITA would also have been guided by Engels’ disclosure that “heating rate,” “total processing time,” “maximum austenitizing temperature,” and “material thickness,” are all important for achieving a “correctly shaped diffusion layer.” RX-0063 (Engels) at 142; RX-0019 (Cornette) at 9. There are also other similarities, such as temperature ranges, between Engels and Cornette that would have reinforced the obviousness of applying Cornette’s teachings to Engels. RX-0019 (Cornette) at 9, FIG. 22; RX-0063 (Engels) at 136, FIG. 5.

As a result of applying Cornette’s process-related disclosure to Engels, it would have been obvious for a POSITA to arrive at an “Engels-Cornette coating” having the structure shown in Cornette FIG. 22 and the compositions disclosed in Engels’ Table, as shown in the image below. As I discussed for the ’602 patent in reference to the Takagi-Cornette combination, while this modification would have required experimentation, it would have been well within the bounds of what was routine and achievable for a metallurgist of ordinary skill in the art. A POSITA would expect that a given change to austenitization temperature might affect both coating and/or layer thickness and the composition of one or more layers, such that these characteristics cannot be tuned independently without due care. However, this type of optimization was typical and would have

constituted merely routine optimization in the field, and the POSITA would have been aware of how the high-temperature annealing process relates to corresponding layer structures. *See* RX-0104 (Takagi) at [0019].



RX-0019 (Cornette) at FIG. 22; RX-0063 (Engels) at FIG. 5 (annotated).

2.) Claim 2

Engels in combination with Cornette renders obvious claim 2 of the '602 patent—intermetallic and superficial layers are quasi continuous by occupying at least 90% of a level corresponding to each of the intermetallic and superficial layers and wherein less than 10% of intermetallic layer is present at an extreme surface of the product. CX-0084C (Brown Rpt.) ¶ 545. As explained above in Section § III.B.2, ArcelorMittal's expert Dr. Fekete does not offer any analysis as to what the claimed "level" is, and how layers (c) and (d) occupies at least 90% of this undefined level. To the extent ALJ finds infringement of claim 2 based on insufficient information presented by ArcelorMittal, Engels as modified by Cornette renders obvious claim 2. *See* Section § III.4.ii.a.2 ('602 patent claim 2 in reference to the Takagi-Cornette combination) for

discussion of how Cornette FIG. 22 coating satisfies claim 22. CX-0084C (Brown Rpt.) ¶¶ 545, 148-50, 393.

c. Engels in combination with Laurent

1.) Motivation to combine

It would have been obvious for a POSITA to try using the steel compositions of Laurent as a substitute for the “22MnB5” steel of Engels, to obtain the benefits that Laurent teaches are provided by those compositions. *See* Section § III.4.ii.b.1 (discussion with respect to the Takagi-Cornette-Laurent combination for the '602 patent), which is equally applicable here. A POSITA would have understood this substitution as a minor change with respect to the 22MnB5 steel of Engels, as demonstrated by the table below.

Element	22MnB5 Composition (%)	Laurent Composition (%)
C	0.233	$0.20\% < C < 0.5\%$
Mn	1.23	$0.8\% < Mn < 1.5\%$
Si	0.24	$0.1\% < Si < 0.35\%$
Cr	0.14	$0.01\% < Cr < 1\%$
Ti	0.033	$Ti < 0.1\%$
Al	0.035	$Al < 0.1\%$
P	0.018	$P < 0.05\%$
S	0.001	$S < 0.03\%$
B	0.0022	$0.0005\% < B < 0.01\%$
Ni	0.023	--

RX-0109 (Laurent '805) at 1:66-2:10; RX-0122 (EP1865086) at 5116 (Table 1).

2.) Claims 3 and 4

Engels in combination with Laurent renders obvious claims 3 and 4 of the '602 patent—base steel chemical compositions. CX-0084C (Brown Rpt.) ¶¶ 550-51, 193-96. *See* Section § III.4.ii.b.2 (discussion at '602 patent claims 3 and 4 for the Takagi-Cornette-Laurent combination).

3.) Claims 7 and 8

Engels in view of Laurent renders obvious claims 7 and 8 of the '602 patent—base steel titanium to nitrogen ratio. CX-0084C (Brown Rpt.) ¶¶ 552-53 197-98. *See* Section § III.4.ii.b.3 (discussion at '602 patent claims 7 and 8 for the Takagi-Cornette-Laurent combination).

5. Secondary Considerations of Non-Obviousness

ArcelorMittal identifies alleged (i) commercial success, (ii), long-felt need, and (iii) unexpected result as secondary considerations that it contends support the non-obviousness of the Asserted Patents. RX-1171C (Raabe Reb. Rpt.) ¶¶ 700-706. ArcelorMittal's arguments fail, because it has not identified any *nexus* between the alleged objective indicia and the Asserted Patents. *E.g., Merck & Cie. V. Gnosis S.P.A.*, 808 F.3d 829, 837 (Fed. Cir. 2015). CX-0084C (Brown Rpt.) ¶¶ 1020-1030.

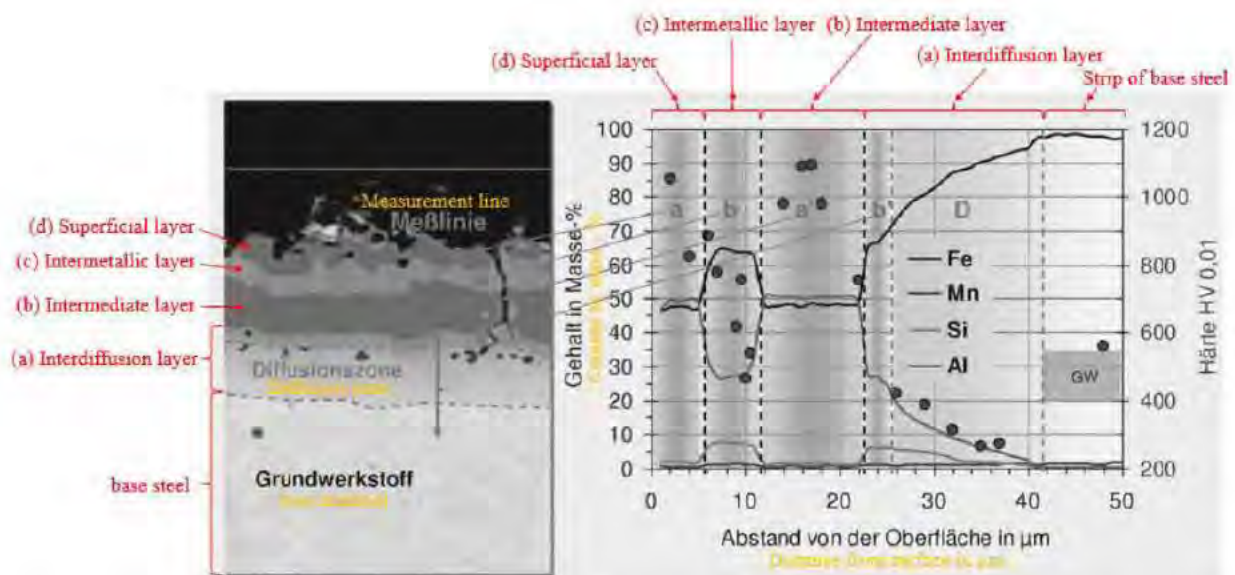
i. No nexus between commercial success and Asserted Patents

“Evidence of commercial success, or other secondary considerations, is only significant if there is a nexus between the claimed invention and the commercial success.” *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311-12 (Fed. Cir. 2006). ArcelorMittal contends that licensing the Asserted Patents to [REDACTED] entities demonstrates commercial success. RX-1171C (Raabe Reb. Rpt.) ¶ 703. However, fact of licensing does not demonstrate the requisite nexus, as parties often take a license because it is often cheaper to take licenses than to defend infringement suits. CX-0084C (Brown Rpt.) ¶ 1027. Furthermore, ArcelorMittal's expert does not apportion how much of the license fee, if any, can be attributed to the Asserted Patents, thereby failing to establish nexus. RX-1171C (Raabe Reb. Rpt.) ¶ 703.

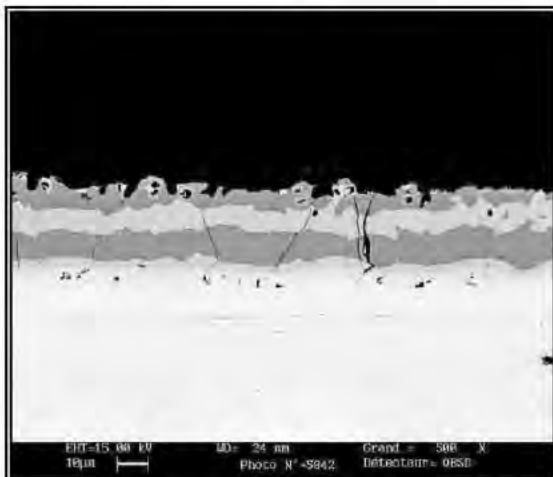
ArcelorMittal also points to sales of pre-coated USIBOR and DUCTIBOR as evidence of commercial success. RX-1171C (Raabe Reb. Rpt.) ¶ 701. However, precoated USIBOR and DUCTIBOR is not what is claimed by the Asserted Patents. RX-1282C (Drillet Tr.) at 120:24-

121:12 (“the historical patent of Usibor in 1999”), 136:7-21 (“Aluminum-silicon coating was an old product”); RX-0109 (VINFAST1402-00004533) (1999 precoated USIBOR patent). And “if the commercial success is due to an *unclaimed feature* of the device, the commercial success is irrelevant.” *Ormco*, 463 F.3d at 1311-12.

Moreover, precoated USIBOR and DUCTIBOR existed at least by 2001, years before the earliest alleged priority date of December 2005. CX-0563C (AM-ITC-0093096) at 93099; CX-0084C (Brown Rpt.) ¶ 1024. Hot-stamping of precoated USIBOR also predated the Asserted Patents. RX-1282C (Drillet Tr.) at 35:9-12, 51:7-13; RX-0010 (AM-ITC-0012162) at 12168, -12172; CX-0084C (Brown Rpt.) ¶¶ 1024-25. So too did the layers recited in the Asserted and DI Claims:



RX-0005 (Lachmann) (AM-ITC-0010992) at 10998; RX-0062 (Lachmann translation) (AM-ITC-0019466) at 19472. Indeed, the Figure 1 of the Asserted Patents, did not originate from the inventors at ArcelorMittal but from third party [REDACTED] from before the earliest priority of the Asserted Patents:



CX-0683C [REDACTED] (AM-ITC-0102170) at 2174. Thus, sales of USIBOR and DUCTIBOR are insufficient to establish commercial success. *Tokai Corp. v. Easton Enterprises, Inc.*, 632 F.3d 1358, 1369 (Fed. Cir. 2011) (“If commercial success is due to an element in the prior art, no nexus exists.”).

Next, ArcelorMittal contends “after the invention, sales of USIBOR 1500P enjoyed exponential growth,” but even assuming *arguendo* an increase in sale of USIBOR 1500P from year 2006 onward compared to pre-2006, such timing at most shows a coincidence in timing and does not establish causation that the invention led to increased sale in USIBOR 1500P. RX-1171C (Raabe Reb. Rpt.) ¶ 701. In fact, it likely reflects ArcelorMittal’s marketing efforts discussed below. As to ArcelorMittal’s own R&D expenditure, it simply reflects ArcelorMittal’s business decision as to where to invest its resources, and is not an indication of commercial success for the claimed inventions. *Id.* The development of the alleged invention is already completed by alleged reduction to practice by 2006, so any later R&D activity cannot be relevant to the alleged commercial success of the invention that has been developed already in 2006.

Furthermore, as discussed in §§ III.C and IV.C (no technical domestic industry), ArcelorMittal failed to prove that the alleged DI Direct Products practice the Asserted Patents, and

certainly not representativeness of the tested DI Direct Products across all Tier 1 manufacturers. For that reason alone, there is no nexus between the “sales of and research for the Domestic Industry Products” and the Asserted Patents. RX-1171C (Raabe Reb. Rpt.) ¶ 701.

Finally, ArcelorMittal’s technical expert, Dr. Fekete, testified that “[b]ased on [his] knowledge and experience in the industry, Usibor 1500P has not been a substantial commercial success over other hot stamped boron products.” RX-1287C (Fekete Tr.) at 32:18-33:9. Dr. Fekete further testified that “ArcelorMittal’s prominence in the market and marketing ability are likely responsible for any growth in sales.” *Id.* at 33:11-34:1. Dr. Fekete’s testimony cannot be squared with ArcelorMittal’s validity expert Dr. Raabe’s contradictory opinion regarding the exact same issue of commercial success, further demonstrating that ArcelorMittal failed to prove nexus between commercial success and the Asserted Patents. CX-0084C (Brown Rpt.) ¶ 1026.

ii. No proof of long-felt but unresolved need

First, ArcelorMittal contends there was a long-felt but unresolved need in the automotive industry for weldable hot-stamped pre-coated steel product but provides no evidence of such unresolved need. RX-1171C (Raabe Reb. Rpt.) ¶ 704. At most, ArcelorMittal’s expert Dr. Raabe points to a handful of isolated instances of ArcelorMittal’s self-documented problems with hot-stamped precoated USIBOR, which does not establish an unresolved need, nor that need being long-felt. *Id.* It then contends that alleged unresolved need was satisfied by the Asserted Patents, but Dr. Raabe fails to establish a nexus that the alleged unresolved need was met by **specific claimed features** of the Asserted Claims. *Ormco Corp.*, 463 F.3d at 1311-12. Indeed, ArcelorMittal’s technical expert Dr. Fekete admits that the various alleged improvements to the hot-stamped pre-coated steel product such as weldability and corrosion resistance are not part of any Asserted Claims and DI claims. RX-1287C (Fekete Tr.) at 154:21-23 (“Weldability is not a

part of the claims.”), 154:24-155:10 (testifying corrosion resistance “[i]s not part of the claims. I agree with that.”).

Furthermore, by 2003, well before the earliest priority date, ArcelorMittal itself publicly presented to the automotive industry that hot stamping leads to good weldability and improved corrosion resistance, which contradicts ArcelorMittal’s claim that such needs were not met until the Asserted Patents. RX-0010 (AM-ITC-0012162) at 12169; CX-0084C (Brown Rpt.) ¶ 1028.

Finally, hot stamped USIBOR 1500P product that satisfied the claims of the Asserted Patents, which would therefore exhibit the alleged benefits meeting the unresolved need under ArcelorMittal’s contentions, existed before the earliest priority of the Asserted Patents. RX-1282C (Drillet Tr.) at 107:1-8 (hot stampers “randomly creat[ed]” the claimed 4-layer structures in 2005); *see also id.* at 80:24-81:23, 83:7-19. Indeed, as discussed in Sections §§ III.D and IV.D (invalidity), prior art disclosed the claimed 4-layer structure of the Asserted Patents. Therefore, such unclaimed alleged benefits of the hot stamped USIBOR 1500P products are irrelevant to whether the claims of the Asserted Patents met a long felt but unresolved need.

iii. No unexpected result

ArcelorMittal’s expert, Dr. Raabe, provides no evidence or analysis of why the alleged benefits of the claimed invention (e.g., weldability, corrosion resistance, and paintability) was unexpected, simply citing to the inventor’s own testimony. RX-1171C (Raabe Reb. Rpt.) ¶ 706. However, cited inventor testimony only identifies some of the alleged benefits without reference to whether such benefits were unexpected. RX-1282C (Drillet Tr.) at 118:24-119:9, 127:15-129:19. “[U]nexpected results must be established by factual evidence,” and the only cited evidence does not support the claim of unexpected result. *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984) (“Mere argument or conclusory statements” are insufficient.”). Furthermore, “[w]hen an article is said to achieve unexpected (i.e. superior) results, those results must logically

be shown as superior compared to the results achieved with other articles.” *Id.* Dr. Raabe provides no such requisite comparison with the prior art hot-stamped products. In fact, the prior art already possessed good weldability and corrosion resistance. RX-0010 (AM-ITC-0012162) at 12169; CX-0084C (Brown Rpt.) ¶ 1028. Finally, the alleged unexpected result must be “different in kind and not merely in degree from the results of the prior art.” *In re Huang*, 100 F.3d 135, 139 (Fed. Cir. 1996). Mere improvement in the known characteristics of the hot-stamped products, such as weldability, corrosion resistance, and paintability, does not amount to an unexpected result. CX-0084C (Brown Rpt.) ¶ 1029.

6. Indefiniteness Under 35 U.S.C. § 112 – “Layer”

The claim term “[interdiffusion / intermediate / intermetallic / superficial] layer” is indefinite because the intrinsic evidence fails to explain with reasonable certainty what a “layer” is so that a POSITA could determine whether the claimed “layer” is present or absent.

The specification does not define the term “layer” despite providing definitions for several other terms. *See* JX-0002 (’602 Patent) at 14:21-56 (defining 7 terms). Instead, the specification simply refers to different layers, such as the “interdiffusion layer,” “intermediate layer,” “intermetallic layer,” and “superficial layer.” *Id.* at 6:22-25. Therefore, the written words of the specification do not provide guidance to a POSITA as to the meaning of the term “layer.”

Figures 1 and 2 of the Asserted Patents provide visual examples of the claimed “layers.” But instead of elucidating the boundary between presence and absence of the claimed layers, the figures instead obscure the boundary. Starting with Fig. 1, the specification describes Figure 1 (reproduced below) as “ha[ving] a four layer structure,” namely the interdiffusion / intermediate / intermetallic / superficial layers. *Id.* at 12:41-58.

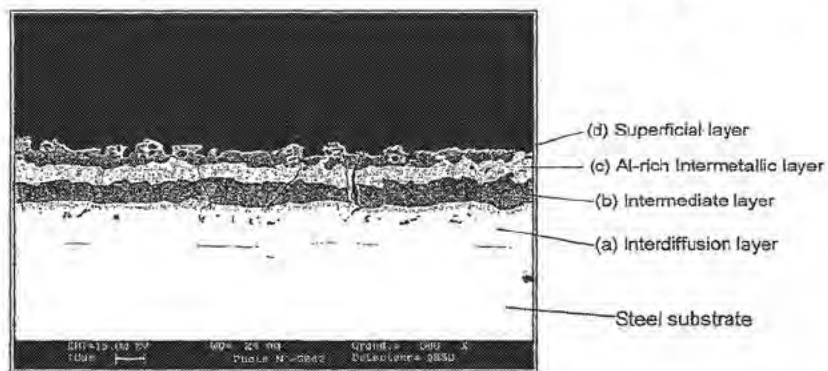


Fig. 1

10µm

JX-0002 ('602 Patent) at Fig. 1. Figure 1 is an instance where at least some of the purported “layers” are reasonably well-defined band extending horizontally with apparent degree of homogeneity, as far as it could be determined. For instance, a POSITA could determine with reasonable certainty that the “Intermediate layer” and the “Al-rich Intermetallic layer” as indicated in Fig. 1 are in fact “layers” within the imaged region of the sample.

A problem with ascertaining the scope of “layer” with reasonable certainty is crystallized by the patent’s own identification of “layers” in Figure 2. The specification states Figure 2 illustrates a “succession of layers (interdiffusion layer and intermetallic layer)[.]” JX-0002 ('602 Patent) at 3:57-61.

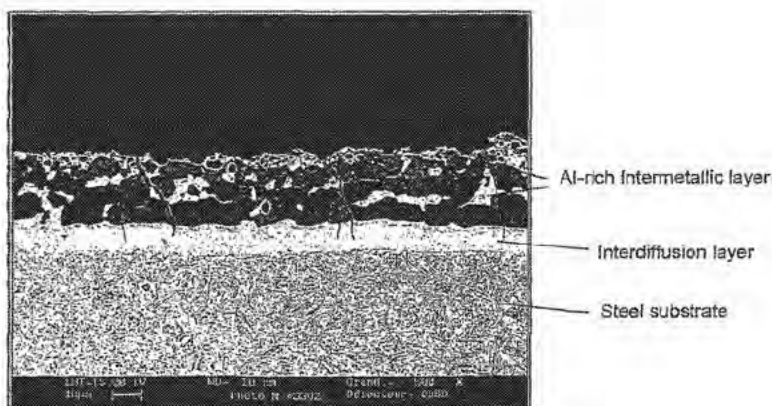


Fig.2

10µm

JX-0002 ('602 Patent) at Fig. 2. The specification describes “the pale intermetallic layer” as “not continuous,” “appears as to be scattered within the coating,” and that “[a]bout 50% of this layer is present at the extreme surface of the part.” *Id.* at 13:1-4. By labeling “Al-rich Intermetallic layer” a “layer,” the Asserted Patents fail to provide reasonable certainty to a POSITA about what qualifies as a “layer.”

Moreover, indefiniteness of the term “layer” as used in the Asserted Patents is heightened by the fact that the specification discusses, and the claims specify, “thickness” for the different layers. For example, the specification provides thickness measurement for each of the four layers shown in Fig. 1. JX-0002 ('602 Patent) at 12:45-55. However, the specification describes for Fig. 2 only the thickness of the “interdiffusion layer” as “10 micrometers thick” but does not provide a thickness for the so-called “Al-rich Intermetallic layer.” *Id.* at 13:1-6. The absence of a thickness value for the “Al-rich Intermetallic layer” is telling. Indeed, a POSITA is unable to determine with reasonable certainty the thickness of the so-called “Al-rich Intermetallic layer” because the upper and lower extent of the so-called “layer” is entirely unclear for the reasons discussed above. But clear guidance on the definition of a “layer” is critical, not only for determining the presence or absence of a layer, but also for determining the thickness of a given layer. *Id.* Indeed, numerous claims such as claims 2, 4, 5, and 8-11 of the '227 patent and claims 9-10 of the '602 patent relate to thickness of one or more layers. A POSITA is unable to determine with reasonable certainty the thicknesses of a given layer because the layer itself lacks a definite meaning that would in turn inform a POSITA how a thickness of a layer would be measured. That the claims require layer thickness determination further highlights the importance of, and lack of certainty on the scope of a “layer” as used by the Asserted Patents. Compounding the indefiniteness issues above, and itself another basis for why the claims are indefinite, is the specification’s descriptions that layers

may be comprised of sublayers. JX-0002 ('602 Patent) at 12:45-75. Thus, the fact that the specification provides no reasoned basis for differentiating layers together with the fact that layers may be comprised of sublayers further confirms the claims are indefinite.

The deposition of ArcelorMittal's witnesses also reveals the lack of any consistent definition or understand of the term "layer." Dr. Drillet, for example, explained that to amount to a "layer," a band must be "Q. So a layer is defined by its chemical composition? A. Yes, each layer is defined by its chemical composition." RX-1282C (Drillet Tr.) at 45:3-8 (objection removed). Dr. Drillet also explained a "layer" must be "homogenous across the length of the microstructure." *Id.* at 81:10-14. Mr. Krishnan, another ArcelorMittal research and development personnel, testified that a "layer" "has certain defined characteristics. For example, a chemical composition or alloy. That would be – that would be the unique identifier of that layer to differentiate from others," but "would not be able to say how much difference that is required to say that one layer is different from the other to make a difference in the resulting product performance characteristics that it can influence" and ultimately he "couldn't say if one layer is different or not." RX-1274C (Krishnan Tr.) at 181:4-182:3.

ArcelorMittal and its expert argue the specification defines a layer by its "mean elemental composition," and relies primarily on extrinsic evidence. RX-1171C (Rabbe Reb. Rpt.) ¶¶ 714-28. First, the specification and claims do not define a layer by elemental composition. Rather, the claims merely state that the layer *have* a mean elemental composition, *e.g.*, "an interdiffusion layer *having* a first mean iron composition[.]" JX-0002 ('602 Patent, claim 1). In fact, if different elemental compositions were the distinguishing characteristic of a "layer," much of the claim language would be superfluous. By the same reasoning, "layers" would have to also have a thickness—and thus a bottom and top—as recited in, *e.g.*, claims 9 and 10 of the '602 patent.

Similarly, a “layer” must have some degree of continuity and have a “level.” *See* JX-0002 (’602 Patent) at 6:52-56. These additional descriptions from the claims and specification of what a layer “has” cannot be reconciled the characterization of the band of “Al-rich” material in Figure 2 as a “layer” because there is no identifiable top, bottom, continuity, or level for the “Al-rich intermetallic layer.”

ArcelorMittal’s contention that “layer” is sufficiently definite because VinFast and its expert identified layers in the prior art is a non-sequitur. To show that a prior art reference discloses a claim element, Dr. Brown only had to identify an example that was safely within the scope of the claims and thus satisfied the claim element. That is an entirely different question than whether there remains a “zone of uncertainty” around the meaning of the claim language such that “the public is not apprised of what is claimed by the patent,” which is the question addressed by the law of indefiniteness. *Mantissa Corp. v. First Fin. Corp.*, No. 2022-1963, 2024 WL 607717, at *4 (Fed. Cir. Feb. 14, 2024); *Vstream Tech., LLC v. PLR Holdings. LLC*, No. 6:15cv974, 2016 WL 6211550, at *8 (E.D. Tex. Sept. 27, 2016) (“The intrinsic record does not depend on the conduct of a party during litigation.”).

ArcelorMittal’s reliance on *Inter Partes* Reviews (IPRs) IPR2024-01375 and PR2024-01376 is also misplaced. Indefiniteness is not an issue that can be raised in IPRs. *See Samsung Elects, Am., Inc. v. Prisia Eng’g Corp.*, 948 F.3d 1342, 1350-51 (Fed. Cir. 202). The fact that a petitioner was able to craft a prior art challenge that is safely within the scope of the claims (and is therefore an example that satisfies the claim element) does not mean there does not remain a “zone of uncertainty” around the meaning of the claim language. *Mantissa*, 2024 WL 607717, at * 4. Indeed, patent examiners routinely present prior art invalidity grounds in office actions against claims that are simultaneously rejected as being indefinite. And the reference to the use of the

term “layer” in US11,578,397 (CX-0930) is of no moment. The dispute centers on the irreconcilable disclosures of the Asserted Patents—not entirely unrelated patents.

The lack of a reasonable objective boundary for the term “layer” is evident from the disputes in this case. For example, ArcelorMittal’s expert Dr. Fekete testified that to perform his analysis of whether certain SEM images reflected the claimed layers, he “compared the SEM micrographs taken from the parts, with the four-layer structure depicted in Figure 1 of the asserted patents.” RX-1287C (Fekete Tr.) at 59:12-17. But when asked to perform the *same* analysis—comparing SEM micrographs from his report to Figure 1—he reached a different conclusion. RX-1287C (Fekete Tr.) at 70:1-23. And for other SEM micrographs found in his report, Dr. Fekete could not say whether it looked more like the invention in Figure 1 of the patent rather than the non-invention in Figure 2. RX-1287C (Fekete Tr.) at 82:13-83:3. Dr. Fekete’s own inconsistent application of his own understanding of the term layer is a practical example of the lack of “reasonable certainty” for the scope of the claim due to the term “layer.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).

7. Invalidity Under § 101

The Asserted Claims are also invalid because they fail to claim patent eligible subject matter under 35 U.S.C. § 101 because they recite merely the results of natural phenomena and/or laws of nature. Section 101 provides that “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. The Supreme Court has “long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)). “[S]uch discoveries are manifestations of . . . nature,

free to all men and reserved exclusively to none.” *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012) (quotations and citations omitted). The concern that underlies “this exclusionary principle” is “one of preemption.” *Alice*, 573 U.S. at 216. Thus, patents that seek to preempt others from using “the basic tools of scientific and technological work” are invalid. *Id.*

The Supreme Court in *Alice* set forth a two-step test for “distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice*, 573 U.S. at 218. First, the Court must “determine whether the claims at issue are directed to one of those patent-ineligible concepts[.]” *Id.* If the Court determines that the claims are directed to a patent-ineligible concept, then the Court must “consider the elements of each claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application.” *Id.* (citation and quotation marks omitted). The Supreme Court describes this second step “as a search for an inventive concept—i.e., an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself.” *Id.* (quotation marks and brackets omitted). For example, “[s]tating that an abstract idea while adding the words ‘apply it’ is not enough for patent eligibility. Nor is limiting the use of an abstract idea ‘to a particular technological environment.’” *Id.* at 223-24 (internal citations and quotations omitted).

A patent, such as those here, that “claim[s the] result” of a natural phenomena “without limitation to particular ways to” achieve that result are not directed to patent-eligible subject matter. *American Axle & Manufacturing, Inc. v. Neapco Holdings LLC*, 967 F.3d 1285, 1298 (Fed. Cir. 2020); *see also CareDx, Inc. v. Natera, Inc.*, 40 F.4th 1371, 1379 (Fed. Cir. 2022), cert.

denied, 144 S. Ct. 248, 217 L. Ed. 2d 113 (2023); *ChromaDex, Inc. v. Elysium Health, Inc.*, 59 F.4th 1280, 1285 (Fed. Cir.), cert. denied, 144 S. Ct. 330, 217 L. Ed. 2d 172 (2023).

i. The Asserted Patents claim merely describe a “result” of “a natural law” without specifying “any physical structure or steps for achieving the claimed result.”

The Asserted Claims cover the result of the natural law and phenomenon arising from the conditions during hot stamping in which an iron-based substrate (e.g., steel) is used with an aluminum-alloy coating. In *American Axle & Manufacturing, Inc. v. Neapco Holdings LLC*, 967 F.3d 1285, 1298 (Fed. Cir. 2020), the Court held that a claim directed to “a result” that naturally follows from “a natural law” is not patent-eligible if it fails to specify “any physical structure or steps for achieving the claimed result.” There the court found the asserted claims unpatentable because they merely instructed one to apply Hooke’s law to attenuate certain vibration modes, without reciting a specific method. There, as here, the claims describe a desired outcome without teaching how to achieve it. Likewise, in *Contour IP Holding LLC v. GoPro, Inc.*, 113 F.4th 1373, 1379 (Fed. Cir. 2024), the Federal Circuit clarified that, to establish patent eligibility under Section 101, claims must not only describe the desired results but also include “a specific process or machinery for achieving those results,” which the Asserted Patents lack.

The claims here recite a result that naturally follows from a law of nature applied to several materials under the physical conditions occurring in hot stamping. In particular, the claims recite a steel product with a coating formed by the natural interdiffusion of base steel and an aluminum or aluminum alloy pre-coating during hot stamping. The claims do not recite any physical structure, steps, or process conditions, such as temperature or pressure parameters, to facilitate the interdiffusion to achieve a desired outcome. Instead, they merely point to a naturally occurring result based on known principles. Thus, like the claims in *American Axle* and *Contour*, the asserted claims describe an outcome without reciting how to achieve it, making them patent-ineligible.

ii. The claims fall under the “product of nature” exception,

The claims of the Asserted Patents also fall under the “product of nature” exception as described in, e.g., *MPEP 2106.04(b)* because “a law of nature or natural phenomenon is claimed as a physical product” is not drawn to patentable subject matter. In particular, the claimed coated steel product results from the natural interdiffusion between base steel and an aluminum or aluminum alloy pre-coating—a process that follows naturally from the materials’ inherent properties under heat. Courts have consistently held that claims, such as those here, to products of nature that do not possess “markedly different characteristics” from their natural counterparts are not patentable. *In re Roslin Institute (Edinburgh)*, 750 F.3d 1333 (Fed. Cir. 2014) and *Diamond v. Chakrabarty*, 447 U.S. 303 (1980). Notably, in *In re Marden*, 47 F.2d 958 (CCPA 1931), the Court ruled that claims to ductile vanadium and purified uranium were not patentable because these properties were inherent in the metals and not introduced through an inventive process such as a “chemical reaction or agency which changes [their] inherent characteristics.” Similarly, in the asserted claims, the metallurgical properties of the coated steel product such as multiple layers formed on the coating arise from natural interactions between the base steel and the aluminum or aluminum alloy under heat and pressure. The claims do not recite markedly different, non-naturally occurring characteristics or any inventive process that creates such characteristics. Thus, under the “product of nature” exception, the claims are ineligible.

iii. The asserted claims preempt all potential methods for achieving the same result.

As the Court noted in *Contour*, “[w]hen a claim ‘abstractly cover[s] results’ without regard to a specific process or machinery for achieving those results, it creates preemption concerns because it ‘would prohibit all other persons from making the same thing by any means whatsoever’” (citing *McRo, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir.

2016), quoting *Le Roy v. Tatham*, 55 U.S. 156, 175 (1853)). By claiming the end product—a hot stamped coated steel product with layers formed through interdiffusion—the claims monopolize all ways of achieving this outcome. Therefore, the claims are patent ineligible.

iv. The Asserted Claims Lack Utility Under Section 101

An independent basis for the ALJ to find the Asserted Patents invalid under Section 101 is that the Asserted Patents lack of utility. Section 101 provides, “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. Courts have held that this provision embodies a “utility requirement,” which is “a fundamental requirement of American patent law, dating back some two-hundred years, ‘that one may patent only that which is ‘useful.’” *Stiftung v. Renishaw PLC*, 945 F.2d 1173, 1180 (Fed. Cir. 1991) (quoting *Brenner v. Manson*, 383 U.S. 519, 528–29, (1966)). To meet the utility requirement, “the Supreme Court has held that a new product or process must be shown to be ‘operable’—that is, it must be ‘capable of being used to effect the object proposed.’” *Stiftung v. Renishaw PLC*, 945 F.2d 1173, 1180 (Fed. Cir. 1991).

The Asserted Patents fall short of this utility requirement. As explained above, the evidence will show that the claims are directed at layer structures that were known and capable of being created by known prior art processes and the alleged novelty of the Asserted Patents is the hot-stamping parameters that allegedly allow for the repeated presence of the claimed layers. [Cite Drillet]. As Dr. Brown will explain, the claims do not say anything about the hot-stamping parameters that would give rise to the layers. Even the inventor testified that the claimed layers could arise “randomly” in the prior art processes. RX-1282C (Drillet Tr.) at 107:1-8 (hot stampers “randomly creat[ed]” the claimed 4-layer structures in 2005); see also *id.* at 80:24-81:23, 83:7-19.

IV. U.S. PATENT NO. 11,326,227

A. Claim Construction

The parties' positions are set forth in the parties' Joint Claim Construction Chart submitted November 1, 2024. EDIS Doc ID No. 836248. Complainant and Respondents agreed as to the construction of the following terms:

Patent Claims	Claim Term	Agreed on Construction
'227 patent: Claim 7	mean iron composition	Plain and ordinary
'227 patent: Claim 1	mean composition	Plain and ordinary

If claim term "layer" is not found to be indefinite, Complainant and Respondents agreed these terms should be given the constructions shown in the below table:

Patent Claims	Claim Term	Agreed on Construction <i>if not Indefinite</i>
'227 patent: Claims 1, 7	interdiffusion layer	Plain and ordinary
'227 patent: Claims 1, 7, 22	intermediate layer	Plain and ordinary
'227 patent: Claims 1, 7	intermetallic layer	Plain and ordinary
'227 patent: Claims 1, 7	superficial layer	Plain and ordinary

B. Noninfringement

The Accused Products do not infringe any of the Asserted Claims of the '227 patent. As discussed below, ArcelorMittal has failed to prove infringement of the '227 patent.

1. All Asserted Claims of the '227 Patents

i. ArcelorMittal failed to establish that Accused Products have the claimed "interdiffusion layer," "intermediate layer," "intermetallic layer," and "superficial layer"

VinFast incorporate by references the noninfringement arguments for the term "interdiffusion layer," "intermediate layer," "intermetallic layer," and "superficial layer" for the '602 patent above as if set forth fully herein. *See* Section § III.B.1.i.

- ii. **ArcelorMittal failed to establish that Accused Products have a “coating” that “has a thickness greater than 30 micrometers”**

VinFast incorporate by references the noninfringement arguments for the “coating” that “has a thickness greater than 30 micrometers” for the ’602 patent above as if set forth fully herein. See Section § III.B.1.ii.

2. Claim 5 of the ’227 patent

ArcelorMittal failed to establish that “layer (a) has a thickness less than 15 micrometers” of claim 5 of the ’227 is met by the Accused Products. VinFast incorporate by references the noninfringement arguments for “layer (a) has a thickness less than 15 micrometers” for the ’602 patent. See Section III.B.3 discussion of claim 9 of the ’602 patent.

3. Claims 8 and 11 of the ’227 patent

ArcelorMittal failed to establish that “layer (a) has a thickness that is greater than a thickness of layer (b)” of claim 8 of the ’227 patent and “layer (a) has a thickness: that is greater than a thickness of layer (b); that is greater than a thickness of layer (c); and that is greater than a thickness of layer (d) of claim 11 of the ’227 patent are met by the Accused Products. Dr. Fekete relies on his Exhibit F to show this limitation is met. RX-1146C (Fekete Op. Rpt.) ¶ 158. However, ArcelorMittal’s own testing show that at least five of the samples show the alleged layer (a) has a thickness less than layer (b):

Exhibit F: VinFast Part Coating and Laver Thickness

A	B	C	D	E	F
Part	Coating Thickness	Layer (a) Thickness	Layer (b) Thickness	Layer (c) Thickness	Layer (d) Thickness

RX-1146C (Fekete Op. Rpt.) Ex. F; CX-0085C (Brown Reb. Rpt.) ¶ 61.

4. Claim 13 of the '227 patent

ArcelorMittal failed to establish that “layer (a) has a thickness that is more than twice a thickness of layer (c)” of claim 13 of the '227 patent is met by the Accused Products. Dr. Fekete relies on his Exhibit F to show this limitation is met. RX-1146C (Fekete Op. Rpt.) ¶ 158. However, ArcelorMittal’s own testing show that at least five of the samples show the alleged layer (a) does not have a thickness that is more than twice the thickness of the alleged layer (c):

Exhibit F: VinFast Part Coating and Layer Thickness

A	B	C	D	E	F
Part	Coating Thickness	Layer (a) Thickness	Layer (b) Thickness	Layer (c) Thickness	Layer (d) Thickness

RX-1146C (Fekete Op. Rpt.) Ex. F; CX-0085C (Brown Reb. Rpt.) ¶ 62.

C. No Technical Domestic Industry

1. ArcelorMittal failed to establish DI Direct Products practice the DI Claims

i. All DI Claims of the '227 Patent

a. ArcelorMittal failed to establish that DI Direct Products have the claimed “interdiffusion layer,” “intermediate layer,” “intermetallic layer,” and “superficial layer”

VinFast incorporate by references the no technical domestic industry arguments for the term “interdiffusion layer,” “intermediate layer,” “intermetallic layer,” and “superficial layer” for the '602 patent above as if set forth fully herein. *See* Section § III.C.2.i.a.

b. ArcelorMittal failed to establish that DI Direct Products have a “coating” that “has a thickness greater than 30 micrometers”

VinFast incorporate by references the no technical domestic industry arguments for the “coating” that “has a thickness greater than 30 micrometers” for the '602 patent above as if set forth fully herein. *See* Section § III.C.2.i.b.

ii. Claim 2 of the '227 patent

ArcelorMittal failed to establish that the DI Direct Products have layer (a) that has a thickness less than half of the thickness of the coating. CX-0085C (Brown Reb. Rpt.) ¶ 125. For example, ArcelorMittal’s expert Dr. Fekete’s test result show that the alleged layer (a) has a thickness that is greater than half of the alleged thickness of the coating of [REDACTED]

[REDACTED]

[REDACTED]

RX-1146C (Fekete Op. Rpt.) Ex. O at 2 (annotated); CX-0085C (Brown Reb. Rpt.) ¶ 125.

iii. Claim 5 of the '227 patent

ArcelorMittal failed to establish that the DI Direct Products have layer (a) that has a thickness less than 15 micrometers. VinFast incorporate by references the no technical domestic industry arguments for claims 9 and 26 of the '602 patent above as if set forth fully herein. See Section § III.C.2.iv.

iv. Claim 10 of the '227 patent

ArcelorMittal failed to establish that the DI Direct Products have layer (a) that has a thickness greater than the thickness of layer (d). CX-0085C (Brown Reb. Rpt.) ¶ 126-27. For example, ArcelorMittal's expert Dr. Fekete's test result show that the alleged layer (d) has a thickness that is greater the thickness of layer (d) of [REDACTED]

[REDACTED]

RX-1146C (Fekete Op. Rpt.) Ex. O at 2 (annotated); CX-0085C (Brown Reb. Rpt.) ¶ 126. Furthermore, SEM images of DI Direct Products also show regions where the alleged layer (d) is thicker than the alleged layer (a) for [REDACTED] RX-1146C (Fekete Op. Rpt.) Ex. U; CX-0085C (Brown Reb. Rpt.) ¶ 127.

v. Claim 13 of the '227 patent

ArcelorMittal failed to establish that the DI Direct Products have layer (a) that has a thickness that is more than twice a thickness of layer (c). CX-0085C (Brown Reb. Rpt.) ¶ 128-29. For example, ArcelorMittal's expert Dr. Fekete's test results show that the alleged layer (a) has a thickness that is less than twice the thickness of layer (c) of [REDACTED]

[REDACTED]

RX-1146C (Fekete Op. Rpt.) Ex. O at 2 (annotated); CX-0085C (Brown Reb. Rpt.) ¶ 128. SEM images of DI Direct Products also show regions where the alleged layer (a) has a thickness that is less than twice the thickness of layer (c) for [REDACTED] RX-1146C (Fekete Op. Rpt.) Ex. U; CX-0085C (Brown Reb. Rpt.) ¶ 129.

vi. Claims 16 and 17 of the '227 patent

ArcelorMittal failed to establish that composition for titanium, boron, iron, nitrogen, or the weight ratio between titanium and nitrogen of claims 16 and 17 of the '227 patent are met. CX-0085C (Brown Reb. Rpt.) ¶ 130-31. As an initial matter, Dr. Fekete does not report the weight percentages of titanium, boron, iron, nitrogen, and the ratio of titanium to nitrogen for the [REDACTED], and thus fail to show that these composition limitations for claims 16 and 17 are met by the tested [REDACTED]. In addition, claim 17 requires that the boron composition greater than 0.002% and less than 0.005%. However, the boron composition for the tested [REDACTED] which does not meet the claim limitation that it has to be greater than 0.002% (“0.002%<boron<0.005%”):

[REDACTED]

RX-1146C (Fekete Op. Rpt.) Ex. N (annotated); CX-0085C (Brown Reb. Rpt.) ¶ 131.

D. Invalidity

1. ArcelorMittal failed to establish earlier priority date

For the reasons discussed above in Section § III.D.1, ArcelorMittal failed to establish earlier priority date for any Asserted or DI claims of the '227 patent.

2. Anticipation

As an initial matter, as explained above in Section § III.D.6, the claimed “layers” are indefinite because ArcelorMittal and its technical expert Dr. Fekete do not advance a standard from which the presence of the layers can be consistently determined by a POSITA. Furthermore, as explained above in Section § III.B.1.i, a presence of a claimed “layer” cannot be based on one isolated image, or even several images without more information such as the processing condition for the part. To the extent ALJ finds that “layer” is not indefinite and finds infringement based on insufficient information presented by ArcelorMittal, the grounds below discussed in this section discloses some or all of the Asserted Claims and DI Claims of the '227 patent.

i. Passat 1049

a. Claim 1

Passat 1049 discloses limitation [1pre] of the '227 patent—a hot stamped coated steel product. See § III.D.3.ii.a ('602 patent limitation [1pre]). CX-0084C (Brown Rpt.) ¶¶ 954-55.

Passat 1049 discloses limitation [1a] of the '227 patent—a strip of base steel. See § III.D.3.ii.a ('602 patent limitation [1a]). CX-0084C (Brown Rpt.) ¶ 956.

Passat 1049 discloses limitations [1b]-[1d] of the '227 patent— a coating on the base steel resulting from interdiffusion between the base steel and an aluminum or aluminum alloy pre-coating. See § III.D.3.ii.a ('602 patent limitation [1b]). CX-0084C (Brown Rpt.) ¶¶ 957-59.

Passat 1049 discloses limitation [1e] of the '227 patent—an interdiffusion layer (a). See § III.D.3.ii.a ('602 patent limitation [1c]). CX-0084C (Brown Rpt.) ¶ 960.

Passat 1049 discloses limitation [1f] of the '227 patent—an intermediate layer (b). See § III.D.3.ii.a ('602 patent limitation [1d]). CX-0084C (Brown Rpt.) ¶ 961.

Passat 1049 discloses limitation [1g] of the '227 patent—an intermetallic layer (c). See § III.D.3.ii.a ('602 patent limitation [1e]). CX-0084C (Brown Rpt.) ¶ 962.

Passat 1049 discloses limitation [1h] of the '227 patent—a superficial layer (d). See § III.D.3.ii.a ('602 patent limitation [1f]). CX-0084C (Brown Rpt.) ¶ 963.

Passat 1049 discloses limitation [1i] of the '227 patent—interdiffusion, intermediate, intermetallic, and superficial layers each having a different mean composition from one another. See discussion at § III.D.3.ii.a ('602 patent limitations [1c]-[1f]) of the Passat 1049 B-pillar disclosing different mean iron compositions for each of the four claimed layers, and discussion at § III.D.3.ii.k ('602 patent limitations [24c]-[24f]) disclosing different mean aluminum compositions for each of the claimed layers, which disclosed this limitation. CX-0084C (Brown Rpt.) ¶ 964.

Passat 1049 discloses limitation [1j] of the '227 patent—coating thickness greater than 30 µm. See § III.D.3.ii.a ('602 patent limitation [1g]). CX-0084C (Brown Rpt.) ¶ 965.

b. Claim 2

Passat 1049 discloses claim 2 of the '227 patent—interdiffusion layer has a thickness that is less than half of the thickness of the coating. Under ArcelorMittal's infringement theory, the cross-sectional SEM micrograph of the Passat 1049 B-pillar shows a coating with an interdiffusion layer average thickness of 9.4 µm, which is less than half of the average thickness of the coating at 37.9 µm. CX-0084C (Brown Rpt.) ¶ 966; CX-0083C (Bradley Passat Rpt.) ¶¶ 33-34; RX-0086 (VINFAST1402-00003562).

c. Claim 4

Passat 1049 discloses claim 4 of the '227 patent—interdiffusion layer has a thickness of 17 micrometers or less. Under ArcelorMittal's infringement theory, the cross-sectional SEM micrograph of the Passat 1049 B-pillar shows a coating with interdiffusion layer average thickness of 9.4 μm , which is less than 17 micrometers. CX-0084C (Brown Rpt.) ¶ 967; CX-0083C (Bradley Passat Rpt.) ¶¶ 33-34; RX-0086 (VINFAST1402-00003562).

d. Claim 5

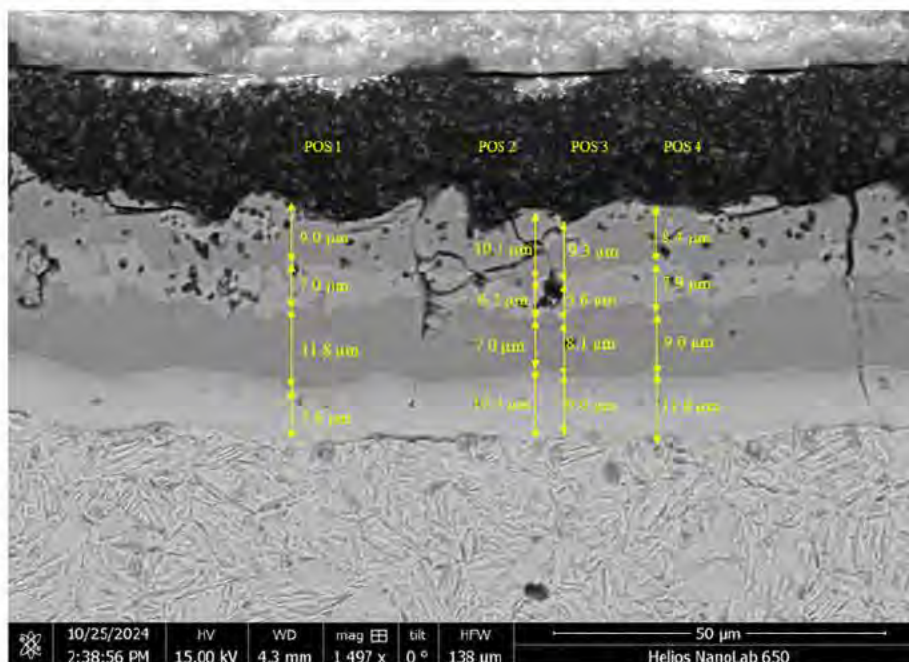
Passat 1049 discloses claim 5 of the '227 patent—interdiffusion layer has a thickness of 15 micrometers or less. Under ArcelorMittal's infringement theory, the cross-sectional SEM micrograph of the Passat 1049 B-pillar shows a coating with interdiffusion layer average thickness of 9.4 μm , which is less than 15 micrometers. CX-0084C (Brown Rpt.) ¶ 968; CX-0083C (Bradley Passat Rpt.) ¶¶ 33-34; RX-0086 (VINFAST1402-00003562).

e. Claim 7

Passat 1049 discloses claim 7 of the '227 patent—mean iron compositions. EDS elemental composition analysis result shows that the Passat 1049 B-pillar interdiffusion layer has a first mean iron composition of 83.3 %; intermediate layer has a second mean iron composition of 45.6%; intermetallic layer has a third mean iron composition of 61.5 %; and superficial layer has a fourth mean iron composition of 45.0 %. CX-0084C (Brown Rpt.) ¶ 970; CX-0083C (Bradley Passat Rpt.) ¶¶ 38-39; RX-0173 (VINFAST1402-00003552). The second mean iron composition 45.6 % of the intermediate layer is less than the first mean iron composition of 83.3 %. The third mean iron composition 61.5 % is less than the first mean iron composition 83.3 %, and greater than the second mean iron composition 45.6 %. The fourth mean iron composition 45.0 % is less than the third mean iron composition 61.5 %, which satisfies this claim. CX-0084C (Brown Rpt.) ¶ 971.

f. Claim 8

Passat 1049 discloses claim 8 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate layer. Under ArcelorMittal's infringement theory, the cross-sectional SEM micrograph of the Passat 1049 B-pillar shows a coating with interdiffusion layer thickness greater than intermediate layer thickness at certain locations of the coating, such as positions 2-4. CX-0084C (Brown Rpt.) ¶ 972.



CX-0083C (Bradley Passat Rpt.) ¶¶ 36-37; RX-0174 (VINFAST1402-00003609).

g. Claim 9

Passat 1049 discloses claim 9 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermetallic layer. Under ArcelorMittal's infringement theory, the cross-sectional SEM micrograph of the Passat 1049 B-pillar shows a coating with an interdiffusion layer average thickness of 9.4 μm, which is greater than the thickness of an intermetallic layer, which has an average thickness of 3.9 μm. CX-0084C (Brown Rpt.) ¶ 973; CX-0083C (Bradley Passat Rpt.) ¶¶ 33-34; RX-0086 (VINFAST1402-00003562).

h. Claim 10

Passat 1049 discloses claim 10 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of superficial layer. Under ArcelorMittal's infringement theory, the cross-sectional SEM micrograph of the Passat 1049 B-pillar shows a coating with an interdiffusion layer average thickness of 9.4 μm , which is greater than the thickness of a superficial layer, which has an average thickness of 9.3 μm . CX-0084C (Brown Rpt.) ¶ 974; CX-0083C (Bradley Passat Rpt.) ¶¶ 33-34; RX-0086 (VINFAST1402-00003562). Certain individual locations of the coating also meet this limitation. *Id.*

i. Claim 11

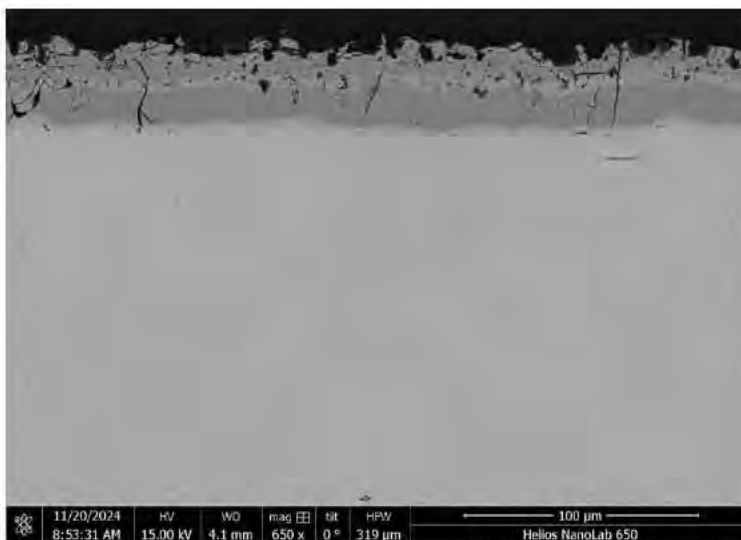
Passat 1049 discloses claim 11 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate, intermetallic, and superficial layers. Under ArcelorMittal's infringement theory, the cross-sectional SEM micrograph of the Passat 1049 B-pillar shows a coating with an interdiffusion layer thickness that is greater than the thickness of intermediate, intermetallic, and superficial layers at certain locations of the coating. CX-0084C (Brown Rpt.) ¶ 975; CX-0083C (Bradley Passat Rpt.) ¶¶ 36-37; RX-0174 (VINFAST1402-00003609).

j. Claim 13

Passat 1049 discloses claim 13 of the '227 patent—interdiffusion layer has a thickness that is more than twice a thickness of an intermetallic layer. Under ArcelorMittal's infringement theory, the cross-sectional SEM micrograph of the Passat 1049 B-pillar shows a coating with an interdiffusion layer average thickness of 9.4 μm , which is more than twice the thickness of an intermetallic layer, which has an average thickness of 3.9 μm . CX-0084C (Brown Rpt.) ¶ 976; CX-0083C (Bradley Passat Rpt.) ¶¶ 33-34; RX-0086 (VINFAST1402-00003562).

k. Claim 15

Passat 1049 discloses claim 15 of the '227 patent—hot stamped coated steel product is fully martensitic. Under ArcelorMittal's infringement theory, the cross-sectional SEM micrograph of the Passat 1049 B-pillar shows that the B-pillar is fully martensitic. CX-0084C (Brown Rpt.) ¶ 977.



RX-0094C (VINFAST1402-00004047); RX-0086 (VINFAST1402-00003562); CX-0083C (Bradley Passat Rpt.) ¶¶ 41-42.

l. Claim 16

Passat 1049 discloses claim 16 of the '227 patent—base steel chemical composition. As evidenced by the elemental composition testing result, the base steel of the Passat 1049 B-pillar has composition that meets the claim limitation: “0.15%<carbon<0.5%; 0.5%<manganese<3%; 0.1%<silicon<0.5%; 0.01%<chromium<1%; titanium<0.2%; aluminum<0.1%; phosphorus<0.1%; sulfur<0.05%; 0.0005%<boron<0.08%; a remainder being iron and impurities inherent in processing.” CX-0084C (Brown Rpt.) ¶ 978; CX-0083C (Bradley Passat Rpt.) ¶ 44; RX-0087 (VINFAST1402-00003594) at 3595.

m. Claim 17

Passat 1049 discloses claim 17 of the '227 patent—base steel chemical composition. As evidenced by the elemental composition testing result, the base steel of the Passat 1049 B-pillar has composition that meets the claim limitation: “0.15%<carbon<0.25%, 0.8%<manganese<1.8%, 0.10%<silicon<0.35%, 0.01%<chromium<0.5%, titanium<0.1%, aluminum<0.1%, phosphorus<0.1%, sulfur<0.05%, 0.002%<boron<0.005%, a remainder being iron and impurities inherent in processing.” CX-0084C (Brown Rpt.) ¶ 979; CX-0083C (Bradley Passat Rpt.) ¶ 44; RX-0087 (VINFAST1402-00003594) at 3595.

n. Claim 24

Passat 1049 discloses claim 24 of the '227 patent—mechanical strength in excess of 1000 MPa. As evidenced by the elemental composition testing result, the Passat 1049 B-pillar has a tensile strength of 1434 MPa, meeting this limitation. CX-0084C (Brown Rpt.) ¶ 981; CX-0083C (Bradley Passat Rpt.) ¶¶ 46-48; RX-0087 (VINFAST1402-00003594).

ii. Cornette

a. Claim 1

Cornette discloses limitation [1pre] of the '227 patent—a hot stamped coated steel product. See § III.D.3.iii.a ('602 patent limitation [1pre]). CX-0084C (Brown Rpt.) ¶¶ 800-11.

Cornette discloses limitation [1a] of the '227 patent—a strip of base steel. See § III.D.3.iii.a ('602 patent limitation [1a]). CX-0084C (Brown Rpt.) ¶ 800-811.

Cornette discloses limitations [1b]–[1d] of the '227 patent— a coating on the base steel resulting from interdiffusion between the base steel and an aluminum or aluminum alloy pre-coating. See § III.D.3.iii.a ('602 patent limitation [1b]). CX-0084C (Brown Rpt.) ¶¶ 800-811.

Cornette discloses limitation [1e] of the '227 patent—an interdiffusion layer (a). *See* § III.D.3.iii.a ('602 patent limitation [1c]). CX-0084C (Brown Rpt.) ¶¶ 800-811.

Cornette discloses limitation [1f] of the '227 patent—an intermediate layer (b). *See* § III.D.3.iii.a ('602 patent limitation [1d]). CX-0084C (Brown Rpt.) ¶¶ 800-811.

Cornette discloses limitation [1g] of the '227 patent—an intermetallic layer (c). *See* § III.D.3.iii.a ('602 patent limitation [1e]). CX-0084C (Brown Rpt.) ¶¶ 800-811.

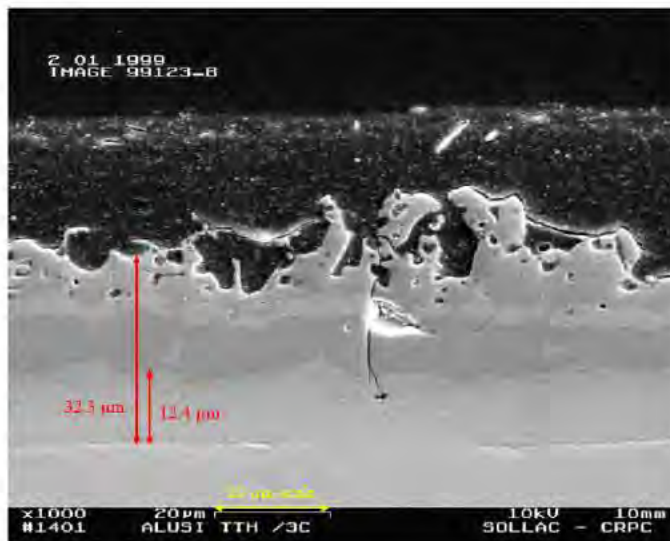
Cornette discloses limitation [1h] of the '227 patent—a superficial layer (d). *See* § III.D.3.iii.a ('602 patent limitation [1f]). CX-0084C (Brown Rpt.) ¶¶ 800-811.

Cornette discloses limitation [1i] of the '227 patent—interdiffusion, intermediate, intermetallic, and superficial layers each having a different mean composition from one another. *See* discussion at § III.D.3.iii.a ('602 patent limitations [1c]-[1f]) of the Cornette disclosing different mean iron compositions for each of the four claimed layers, and discussion at § III.D.3.iii.k ('602 patent limitations [24c]-[24f]) disclosing different mean aluminum compositions for each of the claimed layers, which disclosed this limitation. CX-0084C (Brown Rpt.) ¶¶ 800-811.

Cornette discloses limitation [1j] of the '227 patent—coating thickness greater than 30 µm. *See* § III.D.3.iii.a ('602 patent limitation [1g]). CX-0084C (Brown Rpt.) ¶¶ 800-811.

b. Claim 2

Cornette discloses claim 2 of the '227 patent—interdiffusion layer has a thickness that is less than half of said thickness of the coating. Cornette FIG. 22 illustrates thicknesses for its innermost layer and for the coating as a whole of 12.4 µm and 32.3 µm, respectively. RX-0019 (Cornette) at FIG. 22; CX-0084C (Brown Rpt.) ¶ 853. Because 12.4 is less than half of 32.3, Cornette discloses '227 patent claim 2.



c. **Claim 4**

Cornette discloses claim 4 of the '227 patent—interdiffusion layer has a thickness of **17 micrometers or less**. See discussion above of Cornette disclosing '227 patent claim 2, which shows interdiffusion layer of thickness less than 17 micrometers.

d. **Claim 5**

Cornette discloses claim 5 of the '227 patent—interdiffusion layer has a thickness of **15 micrometers or less**. See discussion above of Cornette disclosing '227 patent claim 2, which shows interdiffusion layer of thickness less than 15 micrometers or less.

e. **Claim 7**

Cornette discloses claim 7 of the '227 patent—mean iron composition inequalities. Cornette discloses this limitation under ArcelorMittal's infringement theory. ArcelorMittal's testing of Usibor 1500 confirms that when the four layers are formed, the mean iron composition of layers is as this limitation requires. CX-0890C (AM-ITC-0102285) at 2338, 2308-311 (identifying Usibor 1500P as the subject material); see, e.g., RX-1277C (Webb Tr.) at 190:6-191:12 ; RX-1281C (Thirion Tr.) at 111:18-113:25.

f. Claim 8

Cornette discloses claim 8 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate layer. Under ArcelorMittal's infringement theory, as shown in the annotated Figure 22 below, there are verticals in Cornette for which layer (a) (at 14.5 μm) is greater than the thickness of layer (b) (at 5.5 μm).



RX-0019 (Cornette) at FIG. 22 (annotated).

g. Claim 9

Cornette discloses claim 9 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermetallic layer. Under ArcelorMittal's infringement theory, as shown in the annotated Figure 22 in claim 8 above, there are verticals in Cornette for which layer (a) (at 14.5 μm) is greater than the thickness of layer (c) (at 3.4 μm).

h. Claim 10

Cornette discloses claim 10 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of superficial layer. Under ArcelorMittal's infringement theory, as shown in the annotated Figure 22 in claim 8 above, there are verticals in Cornette for which layer (a) (at 14.5 μm) is greater than the thickness of layer (d) (at 6.1 μm).

i. Claim 11

Cornette discloses claim 11 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate, intermetallic, and superficial layers. Under ArcelorMittal's infringement theory, as shown in the annotated Figure 22 in claim 8 above there are verticals in Cornette for which layer (a) (at 14.5 μm) is nearly greater than the thickness of layer (b) (at 5.5 μm), layer (c) (at 3.4 μm), and layer (d) (at 6.1 μm). ArcelorMittal's own documentation will show that the thickness of layer (a) is "directly" related to the temperature of the furnace and dwell time in the furnace. Thus, the thickness of the interdiffusion layer (a) is nothing more than a design choice that would be well within the capabilities of a POSITA. CX-0617C (AM-ITC-0094851) at 874; *see also* RX-1282C (Drillet Tr.) at 115:18-22 ("When you say the time and temperature are used to define the maximum interdiffusion layer, do you mean the thickness of the interdiffusion layer? Yes, the thickness.").

j. Claim 13

Cornette discloses claim 13 of the '227 patent—interdiffusion layer has a thickness that is more than twice a thickness of intermetallic layer. Under ArcelorMittal's infringement theory, as shown in the annotated Figure 22 in claim 8 above there are verticals in Cornette for which layer (a) (at 14.5 μm) is greater than twice the thickness of layer (c) (at 3.4 μm). That is, 14.5 μm is greater than 6.8, which is 3.4 μm x 2.

k. Claim 15

Cornette discloses claim 15 of the '227 patent—hot stamped coated steel product is fully martensitic. Under ArcelorMittal's infringement theory, Cornette discloses that after "heat treatment" the mechanical properties of pre-coated boron steel, i.e., Usibor 1500P, has a tensile strength of greater than 1500 MPa, which is consistent with the steel becoming fully martensitic.

Mechanical properties after hot forming process are not guaranteed by USINOR. Following typical values are obtained after austenitization at 900°C during 5 minutes and cooling in the die, for a material with a thickness of 1,5 mm:

ISO 20x80 type	YS (MPa)	UTS (MPa)	E (%)
pre-coated boron steel	1030	1510	5

The Al-Si coating does not significantly alter the heating process (heating speed temperature, dwell time) before forming nor the quenching speed in cooled tools.

RX-0019 (Cornette) at 10.; CX-0669C (AM-ITC-0101925) at 930 (“Usibor® 1500 AluSi Global product file” stating “after hot stamping, the structure will be ‘predominantly martensite.’”).

I. Claim 16

Cornette discloses claim 16 of the ’227 patent—base steel chemical composition.

Cornette discloses this limitation through its disclosure of the chemical composition of Usibor 1500. RX-0019 (Cornette) at 9. (“Chemical Composition of the Base Material”); *see also* CX-0669C (AM-ITC-0101925) at 926; RX-0081 (VINFAST1402-00003251) at 254; RX-0044 (AM-ITC-0023464) at 483; RX-0048 (AM-ITC-0053159); CX-0890C (AM-ITC-0102285) at 309.

m. Claim 17

Cornette discloses claim 17 of the ’227 patent—base steel chemical composition. *See*

discussion above of Cornette disclosing ’227 patent claim 16.

n. Claim 24

Cornette discloses claim 24 of the ’227 patent—mechanical strength in excess of 1000

MPa. Under ArcelorMittal’s infringement theory, Cornette discloses that after “heat treatment” the mechanical properties of pre-coated boron steel, i.e., Usibor 1500P, has a tensile strength of greater than 1500 MPa, which is consistent with the steel becoming fully martensitic. RX-0019

(Cornette) at 10.; CX-0669C (AM-ITC-0101925) at 930 (“Usibor® 1500 AluSi Global product file” stating “after hot stamping, the structure will be ‘predominantly martensite.’”).

iii. Lachmann

a. Claim 1

Lachmann discloses limitation [1pre] of the ’227 patent—a hot stamped coated steel product. *See* § III.D.3.iv.a (’602 patent limitation [1pre]). CX-0084C (Brown Rpt.) ¶¶ 982-1009.

Lachmann discloses limitation [1a] of the ’227 patent—a strip of base steel. *See* § III.D.3.iv.a (’602 patent limitation [1a]). CX-0084C (Brown Rpt.) ¶ 985.

Lachmann discloses limitation [1b]-[1d] of the ’227 patent—a coating on the base steel resulting from interdiffusion between the base steel and an aluminum or aluminum alloy pre-coating. *See* § III.D.3.iv.a (’602 patent limitation [1b]). CX-0084C (Brown Rpt.) ¶¶ 986-988.

Lachmann discloses limitation [1e] of the ’227 patent—an interdiffusion layer (a). *See* § III.D.3.iv.a (’602 patent limitation [1c]). CX-0084C (Brown Rpt.) ¶ 989.

Lachmann discloses limitation [1f] of the ’227 patent—an intermediate layer (b). *See* § III.D.3.iv.a (’602 patent limitation [1d]). CX-0084C (Brown Rpt.) ¶ 990.

Lachmann discloses limitation [1g] of the ’227 patent—an intermetallic layer (c). *See* § III.D.3.iv.a (’602 patent limitation [1e]). CX-0084C (Brown Rpt.) ¶ 991.

Lachmann discloses limitation [1h] of the ’227 patent—a superficial layer (d). *See* § III.D.3.iv.a (’602 patent limitation [1f]). CX-0084C (Brown Rpt.) ¶ 992.

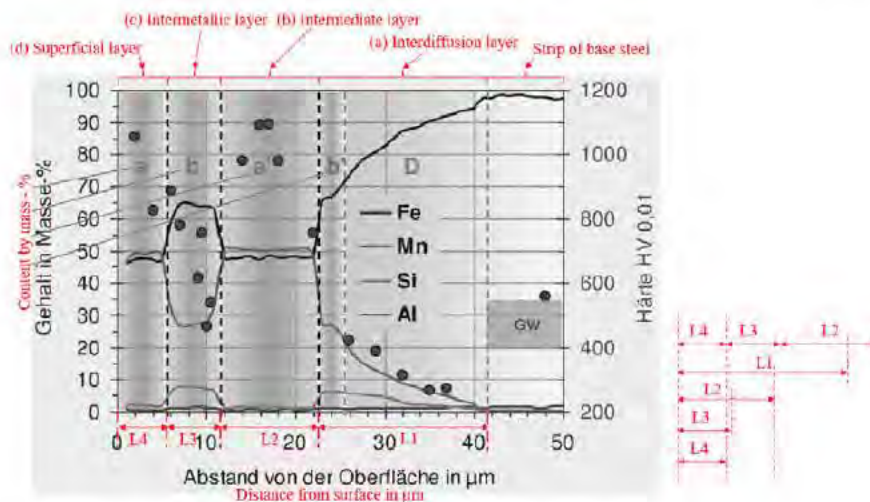
Lachmann discloses limitation [1i] of the ’227 patent—interdiffusion, intermediate, intermetallic, and superficial layers each having a different mean composition from one another. *See* discussion at § III.D.3.iv.a (’602 patent limitations [1c]-[1f]) and discussion at §

III.D.3.iv.k ('602 patent limitations [24c]-[24f]) disclosing different mean aluminum compositions for each of the claimed layers, which disclosed this limitation. CX-0084C (Brown Rpt.) ¶ 993.

Lachmann discloses limitation [1j] of the '227 patent—coating thickness greater than 30 μm . See § III.D.3.iv.a ('602 patent limitation [1g]). CX-0084C (Brown Rpt.) ¶ 994.

b. Claim 2

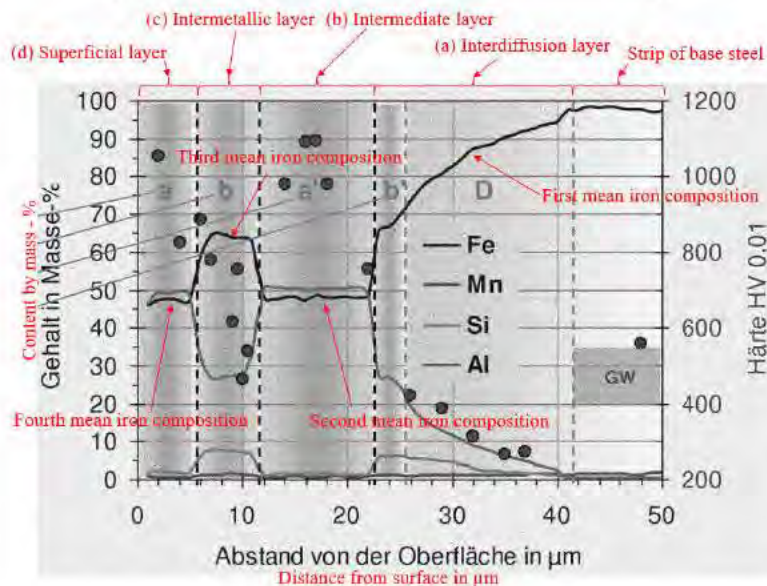
Lachmann discloses claim 2 of the '227 patent—interdiffusion layer has a thickness that is less than half of the thickness of the coating. CX-0084C (Brown Rpt.) ¶ 995. Lachmann's layer b'+D (corresponding to layer (a)) is smaller in thickness than the sum of layers a', b, and a (corresponding to layers (b)-(d)). This means that the thickness of Lachmann's layer b'+D is less than half of the thickness of the coating (the sum of layers a, b, a', and b'+D).



RX-0005 (AM-ITC-0010992) at 11031 (annotated).

c. Claim 7

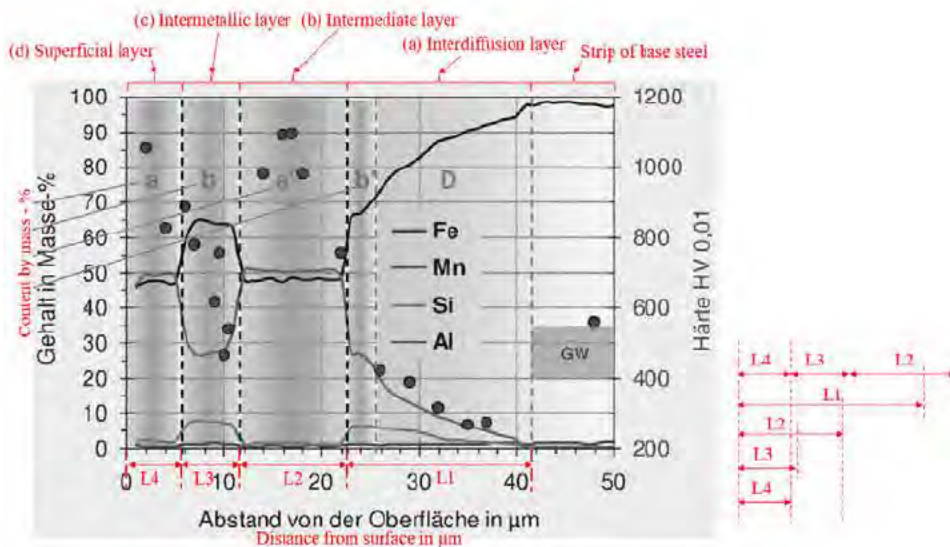
Lachmann discloses claim 7 of the '227 patent—mean iron composition inequalities. Cornette discloses this limitation under ArcelorMittal's infringement theory. CX-0084C (Brown Rpt.) ¶ 998. See discussion at '602 patent claim elements [1c]-[1f] (discussing Lachmann's diagrams).



RX-0005 (AM-ITC-0010992) at 11031; RX-0062 (AM-ITC-0019466) at 19472.

d. Claim 8

Lachmann discloses claim 8 of the '227 patent— interdiffusion layer has a thickness that is greater than a thickness of intermediate layer. CX-0084C (Brown Rpt.) ¶ 999. The thickness (L1) of Lachmann's layer b'+D (corresponding to layer (a)) is greater than the thickness (L2) of Lachmann's layer a' (corresponding to layer (b)).



RX-0005 (AM-ITC-0010992) at 11031 (annotated).

e. Claim 9

Lachmann discloses claim 9 of the '227 patent— interdiffusion layer has a thickness that is greater than a thickness of intermetallic layer. CX-0084C (Brown Rpt.) ¶ 1000. As shown in the annotated diagram in claim 8 above, the thickness (L1) of Lachmann's layer b'+D (corresponding to layer (a)) is greater than the thickness (L3) of Lachmann's layer b (corresponding to layer (c)).

f. Claim 10

Lachmann discloses claim 10 of the '227 patent— interdiffusion layer has a thickness that is greater than a thickness of superficial layer. CX-0084C (Brown Rpt.) ¶ 1001. As shown in the annotated diagram in claim 8 above, the thickness (L1) of Lachmann's layer b'+D (corresponding to layer (a)) is greater than the thickness (L4) of Lachmann's layer a (corresponding to layer (d)).

g. Claim 11

Lachmann discloses claim 11 of the '227 patent— interdiffusion layer has a thickness that is greater than a thickness of intermediate, intermetallic, and superficial layers. CX-0084C (Brown Rpt.) ¶ 1002. As shown in the annotated diagram in claim 8 above, the thickness (L1) of Lachmann's layer b'+D (corresponding to layer (a)) is greater than the thickness (L2) of Lachmann's layer a' (corresponding to layer (b)), the thickness (L3) of Lachmann's layer b (corresponding to layer (c)), and the thickness (L4) of Lachmann's layer a (i.e., layer (d)).

h. Claim 13

Lachmann discloses claim 13 of the '227 patent— interdiffusion layer has a thickness that is more than twice a thickness of intermetallic layer. CX-0084C (Brown Rpt.) ¶ 1003. As shown in the annotated diagram in claim 8 above, the thickness (L1) of Lachmann's layer b'+D

(corresponding to layer (a)) is more than twice the thickness (L3) of Lachmann's layer b (corresponding to layer (c)).

i. Claim 15

Lachmann discloses claim 15 of the '227 patent— hot stamped coated steel product is fully martensitic. CX-0084C (Brown Rpt.) ¶¶ 1004-05. Lachmann describes that the “[f]inished material” has “martensite.” RX-0062 (AM-ITC-0019466) at 19471. Through this, a POSITA would have understood that Lachmann's coated steel parts after hot forming is fully martensitic. The difference between “martensitic” in Lachmann and “fully martensitic” in claim 15 is at most a change in degree, which is obvious absent compelling reasoning otherwise. The cooling rate disclosed by Lachmann (“> 30 K/s”) is the same as the cooling rate of at least 30°C/sec described by the '227 patent. RX-0062 (AM-ITC-0019466) at 19471; JX-0001 ('227 patent) at 7:44-46. Based on Lachmann's disclosure of martensite and teaching that the cooling rate is a result-effective variable for controlling the martensitic transformation, it would have been obvious for a POSITA to optimize the cooling rate to obtain a fully martensitic structure.

j. Claim 24

Lachmann discloses claim 24 of the '227 patent— mechanical strength in excess of 1000 MPa. CX-0084C (Brown Rpt.) ¶¶ 1007-08. Lachmann discloses that the “[f]inished material” has “Rp = 950-1250” and “Rm = 1300-1800” where a POSITA would have readily understood that Rp means a yield strength and Rm means a tensile strength. RX-0062 (AM-ITC-0019466) at 19471. Further, a POSITA would have been aware that USIBOR 1500 is called “USIBOR 1500” specifically because the steel can achieve mechanical strength at or in excess of 1500 MPa. Therefore, a POSITA would have known that mechanical strengths of at least 1500 MPa were attainable using the steel and would have been motivated to achieve those high strengths, e.g., by experimenting with thermal parameters as taught for Lachmann.

iv. Engels

a. Claim 1

Engels discloses limitation [1pre] of the '227 patent—a hot stamped coated steel product. See § III.D.3.v.a ('602 patent limitation [1pre]). CX-0084C (Brown Rpt.) ¶¶ 884-95.

Engels discloses limitation [1a] of the '227 patent—a strip of base steel. See § III.D.3.v.a ('602 patent limitation [1a]). CX-0084C (Brown Rpt.) ¶ 884-95.

Engels discloses limitations [1b]-[1d] of the '227 patent— a coating on the base steel resulting from interdiffusion between the base steel and an aluminum or aluminum alloy pre-coating. See § III.D.3.v.a ('602 patent limitation [1b]). CX-0084C (Brown Rpt.) ¶¶ 884-95.

Engels discloses limitation [1e] of the '227 patent— an interdiffusion layer (a). See § III.D.3.v.a ('602 patent limitation [1c]). CX-0084C (Brown Rpt.) ¶¶ 884-95.

Engels discloses limitation [1f] of the '227 patent—an intermediate layer (b). See § III.D.3.v.a ('602 patent limitation [1d]). CX-0084C (Brown Rpt.) ¶¶ 884-95.

Engels discloses limitation [1g] of the '227 patent—an intermetallic layer (c). See § III.D.3.v.a ('602 patent limitation [1e]). CX-0084C (Brown Rpt.) ¶¶ 884-95.

Engels discloses limitation [1h] of the '227 patent—a superficial layer (d). See § III.D.3.v.a ('602 patent limitation [1f]). CX-0084C (Brown Rpt.) ¶¶ 884-95.

Engels discloses limitation [1i] of the '227 patent—interdiffusion, intermediate, intermetallic, and superficial layers each having a different mean composition from one another. See discussion at § III.D.3.v.a ('602 patent limitations [1c]-[1f]) of the Cornette disclosing different mean iron compositions for each of the four claimed layers, and discussion at § III.D.3.v.i ('602 patent limitations [24c]-[24f]) disclosing different mean aluminum compositions for each of the claimed layers, which disclosed this limitation. CX-0084C (Brown Rpt.) ¶¶ 884-95.

Engels discloses limitation [1j] of the '227 patent—coating thickness greater than 30 μm . See § III.D.3.v.a ('602 patent limitation [1g]). CX-0084C (Brown Rpt.) ¶¶ 884-95.

b. Claim 2

Engels renders obvious claim 2 of the '227 patent—interdiffusion layer has a thickness that is less than half of said thickness of the coating. See § IV.D.2.iv.b ('227 patent claim 2). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 896-97.

c. Claim 4

Engels renders obvious claim 4 of the '227 patent— interdiffusion layer has a thickness of 17 micrometers or less. See § IV.D.2.iv.c ('227 patent claim 4). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 898.

d. Claim 5

Engels renders obvious claim 5 of the '227 patent—interdiffusion layer has a thickness of 15 micrometers or less. See § IV.D.2.iv.d ('227 patent claim 5). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 899.

e. Claim 7

Engels renders obvious claim 7 of the '227 patent—mean iron composition inequalities. See § IV.D.2.iv.e ('227 patent claim 7). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 903.

f. Claim 9

Engels renders obvious claim 8 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate layer. See § IV.D.2.iv.f ('227 patent claim 8). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 904-06.

g. Claim 10

Engels renders obvious claim 10 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of superficial layer. See § IV.D.2.iv.g ('227 patent claim 10). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 907-08.

h. Claim 13

Engels renders obvious claim 13 of the '227 patent—interdiffusion layer has a thickness that is more than twice a thickness of intermetallic layer. See § IV.D.2.iv.h ('227 patent claim 13). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 909-10.

i. Claim 15

Engels renders obvious claim 15 of the '227 patent—hot stamped coated steel product is fully martensitic. See § IV.D.2.iv.i ('227 patent claim 15). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 911-14.

j. **Claim 24**

Engels renders obvious claim 24 of the '227 patent— mechanical strength in excess of 1000 MPa. See § IV.D.2.iv.j ('227 patent claim 24). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 916-919.

3. **Obviousness Under 35 U.S.C. § 103**

i. **Takagi Grounds**

a. **Takagi in combination with Cornette**

1.) **Motivation to combine**

VinFast incorporates by references the motivation to combine Takagi with Cornette as discussed for the '602 patent above as if set forth fully herein.

2.) **Claim 1**

Takagi discloses limitation [1pre] of the '227 patent—a hot stamped coated steel product. See § III.D.4.ii.a.2 ('602 patent limitation [1pre]). CX-0084C (Brown Rpt.) ¶ 718.

Takagi discloses limitation [1a] of the '227 patent—a strip of base steel. See § III.D.4.ii.a.2 ('602 patent limitation [1a]). CX-0084C (Brown Rpt.) ¶ 719.

Takagi discloses limitation [1b]-[1d] of the '227 patent— a coating on the base steel resulting from interdiffusion between the base steel and an aluminum or aluminum alloy pre-coating. See § III.D.4.ii.a.2 ('602 patent limitation [1b]). CX-0084C (Brown Rpt.) ¶¶ 720-22.

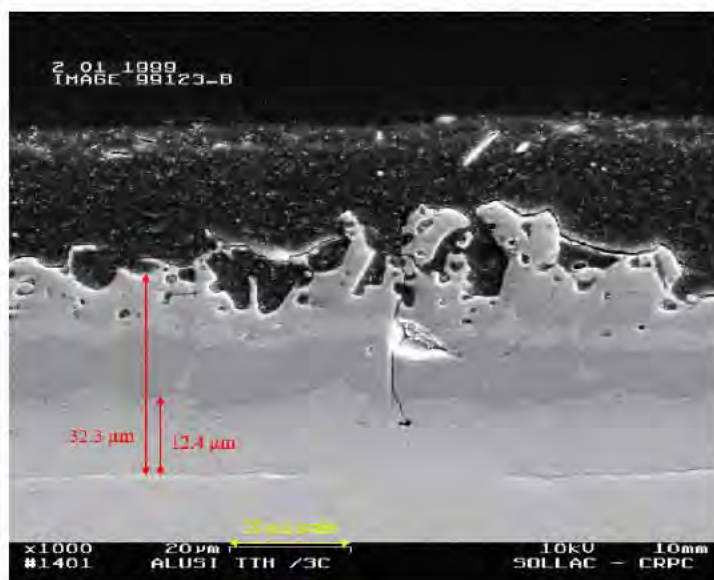
Takagi discloses limitation [1e]-[1h] of the '227 patent— an interdiffusion layer (a), intermediate layer (b), intermetallic layer (c), superficial layer (d). See § III.D.4.ii.a.2 ('602 patent limitation [1c]-[1f]). CX-0084C (Brown Rpt.) ¶ 723-26.

Takagi discloses limitation [1i] of the '227 patent—interdiffusion, intermediate, intermetallic, and superficial layers each having a different mean composition from one another. See § III.D.4.ii.a.2 ('602 patent limitations [1c]-[1f]) discussion of Takagi disclosing different mean iron composition for each of the four claimed layers (a), (b), (c), and (d), and discussion at § III.D.4.ii.a.10 ('602 patent limitations [24c]-[24f]) disclosing different mean aluminum compositions for each of the claimed layers, which disclosed this limitation. CX-0084C (Brown Rpt.) ¶ 727.

Takagi discloses limitation [1j] of the '227 patent—coating thickness greater than 30 μm . See § III.D.4.ii.a.2 ('602 patent limitation [1g]). CX-0084C (Brown Rpt.) ¶ 728.

3.) Claim 2

Takagi renders obvious claim 2 of the '227 patent—interdiffusion layer has a thickness that is less than half of said thickness of the coating. CX-0084C (Brown Rpt.) ¶ 729-30. Cornette's FIG. 22 illustrates thicknesses for its innermost layer and for the coating as a whole of 12.4 μm and 32.3 μm , respectively. RX-0019 (Cornette) at FIG. 22. Moreover, as discussed for the '602 patent, the layers of Cornette FIG. 22 represent obvious morphologies for the layers of the Takagi-Cornette No. 5 coating, such that the thickness of the innermost layer of Cornette's FIG. 22 corresponds to the thickness of layer (a) of the Takagi-Cornette No. 5 coating. Accordingly, because 12.4 is less than half of 32.3, Takagi and Cornette render obvious '227 patent claim 2.



RX-0019 (Cornette) at FIG. 22 (annotated).

4.) Claim 4

Takagi in combination with Cornette renders obvious claim 4 of the '227 patent—interdiffusion layer has a thickness of 17 micrometers or less. CX-0084C (Brown Rpt.) ¶ 731. As discussed above in relation to claim 2, Cornette discloses an interdiffusion layer with thickness of 12.4 µm, which is less than 17 µm. RX-0019 (Cornette) at Fig. 22.

5.) Claim 5

Takagi in combination with Cornette renders obvious claim 5 of the '227 patent—interdiffusion layer has a thickness of 15 micrometers or less. CX-0084C (Brown Rpt.) ¶ 732. As discussed above in relation to claim 2, Cornette discloses an interdiffusion layer with thickness of 12.4 µm, which is less than 15 µm. RX-0019 (Cornette) at Fig. 22.

6.) Claim 7

Takagi in combination with Cornette renders obvious claim 7 of the '227 patent—mean iron composition inequalities. CX-0084C (Brown Rpt.) ¶ 735. See discussion at '602 patent claim elements [1c]-[1f] (discussing Takagi's Table 1). Based on Takagi Table 1, the Takagi-Cornette No. 1, 4, and 5 coatings of the Takagi-Cornette combination have respective first, second, third, and fourth mean iron compositions of: 89.6%, 50.1%, 62.0%, and 44.5%; 90.7%, 46.8%, 63.1%, and 49.8%; and 94.3%, 42.7%, 51.4%, and 38.4%. These values satisfy the relationships recited in claim 7—the second mean iron composition of the intermediate layer being less than the first mean iron composition; the third mean iron composition being less than the first mean iron composition and greater than the second mean iron composition; and the fourth mean iron composition being less than the third mean iron composition.

7.) Claim 8

Takagi in combination with Cornette renders obvious claim 8 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate layer.

[REDACTED]

CX-0084C (Brown Rpt.) ¶ 736-39. First, Takagi teaches the desirability of having a thickness of a “soft layer” “at or near the boundary between the steel and the coating” where “the thickness of this soft layer is made equal to or greater than 50% of the total thickness of the alloy coating layer.” RX-0104 (Takagi) at [0017]. This “thick soft layer extending from a level at or near the boundary with the steel substrate, to or beyond the middle in the depth of the coating layer is effective for preventing progress of crack and securing sufficient corrosion resistance.” *Id.*

It would have been obvious for a POSITA to apply these teachings to obtain coatings having an innermost layer (i.e., layer (a)) having a thickness greater than 50% of the total thickness. CX-0084C (Brown Rpt.) ¶¶ 736-37. For example, in Takagi’s Table 1, each of Takagi’s Nos. 1, 4 and 5 coatings has an innermost layer satisfying this condition (as indicated by the “SOFTER RANGE” column), and a POSITA would have been motivated to try applying Takagi’s corresponding temperatures and hold times to obtain a similarly-proportioned inner layer in Takagi’s coating. RX-0104 (Takagi) at Table 1. Elsewhere, Takagi discloses other detailed process parameters, including heating rate, forming temperature, and cooling rate. RX-0104 (Takagi) at [0026]-[0027], [0037]. As such, obtaining this layer characteristic would have constituted nothing more than routine optimization within the general conditions already set forth by Takagi. With layer (a) being at least 50% of the total thickness of the Takagi-Cornette No. 1, 4, and 5 coatings, layer (a) would necessarily be greater than a thickness of layer (b) (e.g., greater than a thickness of the Inter 1 or Inter 2 layers of the coating). As such, claim 8 is obvious in view of Takagi. CX-0084C (Brown Rpt.) ¶ 738.

The Takagi-Cornette No. 5 coating, which has the layer structure shown in Cornette’s FIG. 22, also satisfies this thickness relationship, thereby rendering obvious claim 8. In the annotated Cornette FIG. 22 below, one measured thickness of the innermost layer (corresponding to layer

(a)) is 14.5 μm , which is greater than a measured thickness of 5.5 μm for the next layer (corresponding to layer (b)).



RX-0019 (Cornette) at FIG. 22 (annotated); CX-0084C (Brown Rpt.) ¶ 739.

8.) Claim 9

Takagi in combination with Cornette renders obvious claim 9 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermetallic layer. CX-0084C (Brown Rpt.) ¶ 740. As discussed above in relation to claim 8, layer (a) having a thickness of at least 50% of the coating, as taught by Takagi, would have a thickness greater than a thickness of layer (c). Further, the Takagi-Cornette No. 5 coating has measured thicknesses for layers (a) and (c) of 14.5 μm and 3.4 μm , respectively, thereby rendering obvious claim 9. *See* discussion at '227 patent claim 8. RX-0019 (Cornette) at FIG. 22; CX-0084C (Brown Rpt.) ¶ 740.

9.) Claim 10

Takagi in combination with Cornette renders obvious claim 10 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of superficial layer. CX-0084C (Brown Rpt.) ¶ 741. As discussed above in relation to claim 8, layer (a) having a thickness of at least 50% of the coating, as taught by Takagi, would have a thickness greater than a thickness

of layer (d). Further, the Takagi-Cornette No. 5 coating has measured thicknesses for layers (a) and (c) of 14.5 μm and 6.1 μm , respectively, thereby rendering obvious claim 10. *See* discussion at '227 patent claim 8. RX-0019 (Cornette) at FIG. 22; CX-0084C (Brown Rpt.) ¶ 741.

10.) Claim 11

Takagi in combination with Cornette renders obvious claim 11 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate, intermetallic, and superficial layers. CX-0084C (Brown Rpt.) ¶ 742. As discussed above in relation to claims 8-10, with layer (a) being at least 50% of the total thickness of the Takagi-Cornette No. 1, 4, and 5 coatings, layer (a) would necessarily be greater than a thickness of layer (b), (c), and (d). RX-0104 (Takagi) at [0017]. In addition, Takagi-Cornette coating has measured thicknesses of 14.5 μm for the interdiffusion layer, which is thicker than 5.5 μm (intermediate layer), 3.4 μm (intermetallic layer), and 6.1 μm (superficial layer). RX-0019 (Cornette) at FIG. 22; CX-0084C (Brown Rpt.) ¶ 739.

11.) Claim 13

Takagi discloses claim 13 of the '227 patent—interdiffusion layer has a thickness that is more than twice a thickness of intermetallic layer. CX-0084C (Brown Rpt.) ¶ 743. Takagi-Cornette coating has measured thicknesses of 14.5 μm for the interdiffusion layer, which is more than twice the thickness of the intermetallic layer at 3.4 μm . RX-0019 (Cornette) at FIG. 22; CX-0084C (Brown Rpt.) ¶ 743.

12.) Claim 15

Takagi in view of Cornette renders obvious claim 15 of the '227 patent—hot stamped coated steel product is fully martensitic. CX-0084C (Brown Rpt.) ¶ 744-45. Takagi suggests the desirability of obtaining a martensitic steel and discloses specific processing parameters for obtaining such a steel, describing that “[w]hen the forming operation is started at a temperature

lower than 700° C., the quenching temperature is too low for martensitic transformation. When the cooling rate after the forming operation is slower than 20° C./sec, the transformation to martensite is insufficient, and the diffusion of Fe proceeds too much.” RX-0104 (Takagi) at [0028]. It would have been obvious to a POSITA to apply these cooling parameters to hot-stamping to obtain a martensitic steel, as a matter of simply applying known techniques and parameters to obtain a predictable result. CX-0084C (Brown Rpt.) ¶ 744.

The difference between “martensitic” and “fully martensitic” is at most a change in degree, and my understanding is that differences in degree are obvious absent compelling reasoning otherwise. CX-0084C (Brown Rpt.) ¶ 745. Notably, the cooling rate disclosed by Takagi as being required for a martensitic transformation (at least 20°C/sec, or a range of “20-100° C./sec”) is similar to the cooling rate of at least 30°C/sec described by the ’227 patent. RX-0104 (Takagi) at [0028]; JX-0001 (’227 patent) at 7:44-46. Indeed, Takagi’s implemented thermal treatment uses a cooling rate of 30°C/sec. RX-0104 (Takagi) at [0037]. Based on Takagi’s suggestion of the desirability of martensite and teaching that the cooling rate is a result-effective variable for controlling the martensitic transformation, it would have been obvious for a POSITA to optimize the cooling rate to obtain a fully martensitic structure. CX-0084C (Brown Rpt.) ¶ 745.

13.) Claim 24

Takagi in view of Cornette renders obvious claim 24 of the ’227 patent— mechanical strength in excess of 1000 MPa. CX-0084C (Brown Rpt.) ¶ 747-48. It would have been obvious to use the well-known USIBOR 1500 steel taught by Cornette, motivated by Cornette’s disclosure that this steel provides “excellent mechanical properties of the material after the press hardening process with good corrosion protection.” RX-0019 (Cornette) at 9. A POSITA would have believed that the use of this steel would result in a mechanical strength in excess of 1500 MPa when processed according to the process parameters described by Takagi and Cornette. For

example, a POSITA would have been aware that USIBOR 1500 is called “USIBOR 1500” specifically because the steel can achieve mechanical strength at or in excess of 1500 MPa. CX-0084C (Brown Rpt.) ¶ 747. By optimization of the parameters disclosed in Takagi and Cornette within the general conditions of the art, it would have been obvious for a POSITA to arrive at Cornette’s mechanical strength of 1510 MPa, which is described as “typical.” RX-0104 (Takagi) at [0026], [0028]; RX-0019 (Cornette) at 10; CX-0084C (Brown Rpt.) ¶ 748.

b. Takagi in combination with Cornette and Vaissiere

1.) Claim 15

Takagi in view of Cornette and Vaissiere renders obvious claim 15 of the ’227 patent— hot stamped coated steel product is fully martensitic. CX-0084C (Brown Rpt.) ¶ 750-53. Vaissiere describes that “pre-coated USIBOR 1500, optimized for the stability of its quenchability, is transformed, at the end of forming, into **pure martensite** thus giving very high mechanical characteristics to then [sic] finished part.” RX-0081 (Vaissiere) (VINFAST1402-00003251) at 9 (emphasis added). A POSITA would have been motivated to obtain these high mechanical characteristics by using pre-coated USIBOR 1500 steel (in agreement with Cornette) and by using the thermal parameters described by Vaissiere as providing the “pure martensite.” CX-0084C (Brown Rpt.) ¶ 751.

Specifically, it would have been obvious to follow Vaissiere’s teaching that “[t]he critical quenching speed enabling a **completely martensitic structure**, under these conditions, is **27°C/s.**” RX-0081 (Vaissiere) at 6 (emphasis added). That is, a POSITA would have found it obvious to use the known technique of cooling with at least this quenching speed, to improve the similar Takagi-Cornette parts and obtain the predictable result of a “completely martensitic structure” with “high mechanical characteristics.” RX-0081 (Vaissiere) at 9. Notably, this quenching speed is within the range of at least 20°C/sec described by Takagi as providing a martensitic structure, such

that the combination with Vaissiere would have constituted only optimization within the range already taught by Takagi. RX-0104 (Takagi) at [0028]. For example, a POSITA would have naturally tried increasing the cooling rate if the microstructure obtained after quenching in the die were not fully martensitic, based on the existing recognition that cooling rate is a key parameter for obtaining martensite. CX-0084C (Brown Rpt.) ¶ 752. As a result of this obvious optimization, a POSITA would have arrived at the “**completely martensitic structure**,” “**pure martensite**,” and “**totally martensitic structure**” described by Vaissiere. RX-0081 (Vaissiere) at 5-6, 9; CX-0084C (Brown Rpt.) ¶ 753.

c. Takagi in combination with Cornette and Laurent

1.) Motivation to combine

VinFast incorporates by references the motivation to combine Takagi with Cornette and Laurent as discussed for the '602 patent above as if set forth fully herein.

2.) Claims 16 and 17

Takagi in view of Cornette and Laurent renders obvious claims 16 and 17 of the '227 patent—base steel chemical composition. See § III.D.4.ii.b.2 ('602 patent claims 3 and 4). CX-0084C (Brown Rpt.) ¶¶ 756-57.

ii. Cornette Grounds

a. Cornette alone

1.) Claim 1

To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 800-11.

Cornette renders obvious limitation [1pre] of the '227 patent—a hot stamped coated steel product. See § IV.D.2.ii.a ('227 patent limitation [1pre]).

Cornette renders obvious limitation [1a] of the '227 patent—a strip of base steel. *See* § IV.D.2.ii.a ('227 patent limitation [1a]).

Cornette renders obvious limitations [1b]–[1d] of the '227 patent— a coating on the base steel resulting from interdiffusion between the base steel and an aluminum or aluminum alloy pre-coating. *See* § IV.D.2.ii.a ('227 patent limitations [1b]–[1d]).

Cornette renders obvious limitation [1e] of the '227 patent—an interdiffusion layer (a). *See* § IV.D.2.ii.a ('227 patent limitation [1e]).

Cornette renders obvious limitation [1f] of the '227 patent—an intermediate layer (b). *See* § IV.D.2.ii.a ('227 patent limitation [1f]).

Cornette renders obvious limitation [1g] of the '227 patent—an intermetallic layer (c). *See* § IV.D.2.ii.a ('227 patent limitation [1g]).

Cornette renders obvious limitation [1h] of the '227 patent—a superficial layer (d). *See* § IV.D.2.ii.a ('227 patent limitation [1h]).

Cornette renders obvious limitation [1i] of the '227 patent—interdiffusion, intermediate, intermetallic, and superficial layers each having a different mean composition from one another. *See* § IV.D.2.ii.a ('227 patent limitation [1i]).

Cornette renders obvious limitation [1j] of the '227 patent—coating thickness greater than 30 μm . *See* § IV.D.2.ii.a ('227 patent limitation [1j]).

2.) Claim 2

Cornette renders obvious claim 2 of the '227 patent—interdiffusion layer has a thickness that is less than half of said thickness of the coating. *See* § IV.D.2.ii.b ('227 patent claim 2). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 812-14.

3.) Claim 4

Cornette renders obvious claim 4 of the '227 patent—interdiffusion layer has a thickness of 17 micrometers or less. See § IV.D.2.ii.c ('227 patent claim 4). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 815.

4.) Claim 5

Cornette renders obvious claim 5 of the '227 patent—interdiffusion layer has a thickness of 15 micrometers or less. See § IV.D.2.ii.d ('227 patent claim 5). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 816.

5.) Claim 7

Cornette renders obvious claim 7 of the '227 patent—mean iron composition inequalities. See § IV.D.2.ii.e ('227 patent claim 7). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 818-19.

6.) Claim 8

Cornette renders obvious claim 8 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate layer. See § IV.D.2.ii.f ('227 patent claim 8). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 820.

7.) Claim 9

Cornette renders obvious claim 9 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermetallic layer. See § IV.D.2.ii.g ('227 patent

claim 9). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 821.

8.) Claim 10

Cornette renders obvious claim 10 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of superficial layer. See § IV.D.2.ii.h ('227 patent claim 10). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 822.

9.) Claim 11

Cornette renders obvious claim 11 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate, intermetallic, and superficial layers. See § IV.D.2.ii.i ('227 patent claim 11). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 823.

10.) Claim 13

Cornette renders obvious claim 13 of the '227 patent—interdiffusion layer has a thickness that is more than twice a thickness of intermetallic layer. See § IV.D.2.ii.j ('227 patent claim 13). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 824.

11.) Claim 15

Cornette renders obvious claim 15 of the '227 patent—hot stamped coated steel product is fully martensitic. See § IV.D.2.ii.k ('227 patent claim 15). To the extent Cornette

does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 825-26.

12.) Claim 16

Cornette renders obvious claim 16 of the '227 patent—base steel chemical composition. See § IV.D.2.ii.l ('227 patent claim 16). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 827-29.

13.) Claim 17

Cornette renders obvious claim 17 of the '227 patent—base steel chemical composition. See § IV.D.2.ii.m ('227 patent claim 17). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 830.

14.) Claim 24

Cornette renders obvious claim 24 of the '227 patent—mechanical strength in excess of 1000 MPa. See § IV.D.2.ii.n ('227 patent claim 24). To the extent Cornette does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 831.

iii. Suehiro II Grounds

a. Suehiro II in combination with Cornette

1.) Motivation to combine

VinFast incorporates by references the motivation to combine Suehiro II with Cornette as discussed for the '602 patent above as if set forth fully herein. CX-0084C (Brown Rpt.) ¶ 841.

2.) Claim 1

Suehiro II discloses limitation [1pre] of the '227 patent—a hot stamped coated steel product. See § III.D.4.iv.a.2 ('602 patent limitation [1pre]). CX-0084C (Brown Rpt.) ¶ 842.

Suehiro II discloses limitation [1a] of the '227 patent—a strip of base steel. See § III.D.4.iv.a.2 ('602 patent limitation [1a]). CX-0084C (Brown Rpt.) ¶ 843.

Suehiro II discloses limitation [1b]-[1d] of the '227 patent—a coating on the base steel resulting from interdiffusion between the base steel and an aluminum or aluminum alloy pre-coating. See § III.D.4.iv.a.2 ('602 patent limitation [1b]). CX-0084C (Brown Rpt.) ¶¶ 844-46.

Suehiro II discloses limitations [1e]-[1h] of the '227 patent—interdiffusion layer (a), intermediate layer (b), intermetallic layer (c), superficial layer (d). See § III.D.4.iv.a.2 ('602 patent limitations [1c]-[1f]). CX-0084C (Brown Rpt.) ¶ 847-50.

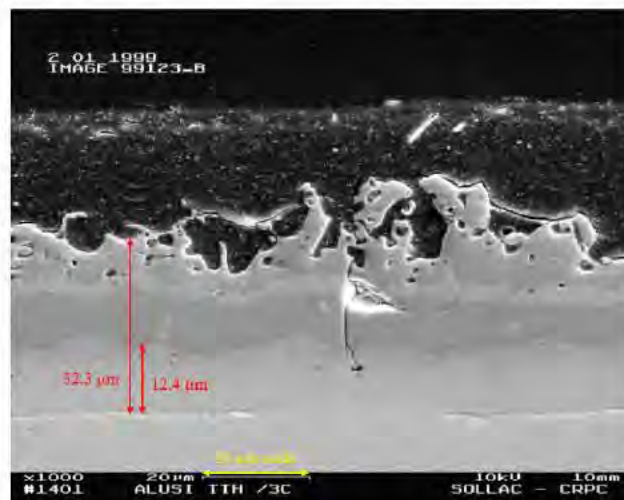
Suehiro II discloses limitation [1i] of the '227 patent—interdiffusion, intermediate, intermetallic, and superficial layers each having a different mean composition from one another. See § III.D.4.iv.a.2 ('602 patent limitations [1c]-[1f]) discussion of Suehiro II disclosing different mean iron composition for each of the four claimed layers (a), (b), (c), and (d), and discussion at § III.D.4.iv.a.12 ('602 patent limitations [24c]-[24f]) disclosing different mean aluminum compositions for each of the claimed layers, which disclosed this limitation. CX-0084C (Brown Rpt.) ¶ 851.

Suehiro II discloses limitation [1j] of the '227 patent—coating thickness greater than 30 μm . See § III.D.4.iv.a.2 ('602 patent limitation [1g]). CX-0084C (Brown Rpt.) ¶ 852.

3.) Claim 2

Suehiro II and Cornette each discloses claim 2 of the '227 patent—interdiffusion layer has a thickness that is less than half of said thickness of the coating. CX-0084C (Brown Rpt.)

¶¶ 853-54. Cornette FIG. 22 illustrates thicknesses for its innermost layer and for the coating as a whole of 12.4 μm and 32.3 μm , respectively. RX-0019 (Cornette) at FIG. 22; CX-0084C (Brown Rpt.) ¶ 853. Because 12.4 is less than half of 32.3, Suehiro II in combination with Cornette discloses '227 patent claim 2. RX-0019 (Cornette) at FIG. 22 (annotated); CX-0084C (Brown Rpt.) ¶ 853.



Suehiro II alone also discloses this claim. Measurements in Suehiro II's FIGS. 12 and 13 confirms that Suehiro II's sub-layers (4)+(5), which corresponds to layer (a), has a thickness that is less than half of the thickness of the Suehiro II coating.

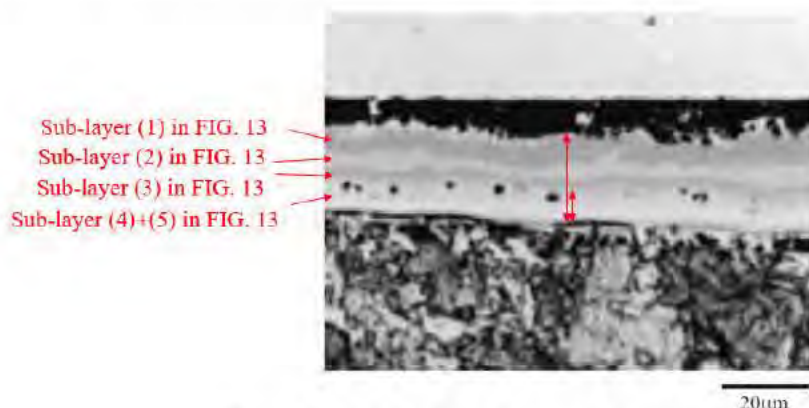


Fig. 12 Sectional optical micrograph showing plating layer structure after heated at 950°C for 30 s

RX-0022 (Suehiro II) at Fig. 12 (annotated); CX-0084C (Brown Rpt.) ¶ 854.

4.) Claim 4

Suehiro II in combination with Cornette renders obvious claim 4 of the '227 patent—interdiffusion layer has a thickness of 17 micrometers or less. CX-0084C (Brown Rpt.) ¶ 855.

As discussed above in relation to claim 2, Cornett discloses an interdiffusion layer with thickness of 12.4 μm , which is less than 17 μm . RX-0019 (Cornette) at Fig. 22.

5.) Claim 5

Suehiro II in combination with Cornette renders obvious claim 5 of the '227 patent—interdiffusion layer has a thickness of 15 micrometers or less. CX-0084C (Brown Rpt.) ¶ 856. As discussed above in relation to claim 2, Cornett discloses an interdiffusion layer with thickness of 12.4 μm , which is less than 15 μm . RX-0019 (Cornette) at Fig. 22.

6.) Claim 7

Suehiro II discloses claim 7 of the '227 patent—mean iron composition inequalities. CX-0084C (Brown Rpt.) ¶ 859. See discussion at '602 patent claim elements [1c]-[1f] (discussing Suehiro II's FIG. 13). Suehiro II Fig. 13 reproduced below discloses a second mean iron composition of the intermediate layer that is less than the first mean iron composition. The third mean iron composition is less than the first mean iron composition, and greater than the second mean iron composition. The fourth mean iron composition is less than the third mean iron composition, which satisfies this claim.

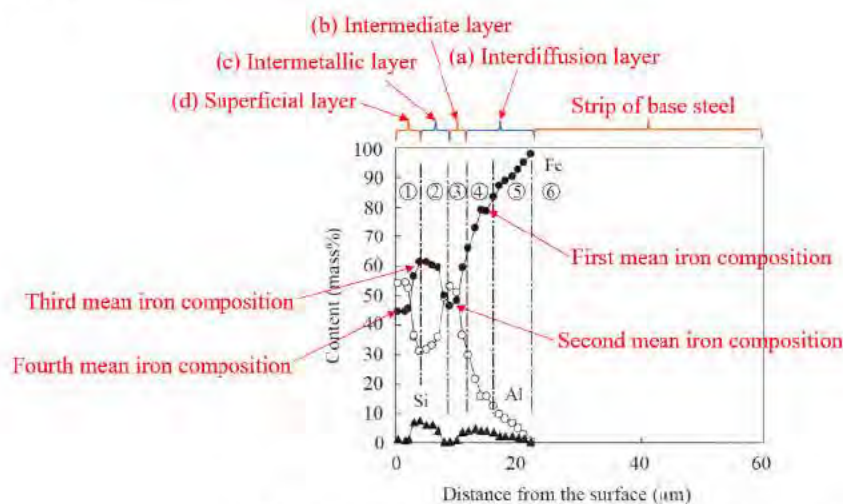


Fig. 13 Change of Fe, Al, and Si concentrations in thickness direction of sample corresponding to Fig. 12

RX-0022 (Suehiro II) at 4; CX-0084C (Brown Rpt.) ¶ 859.

7.) Claim 8

Suehiro II and Cornette each discloses claim 8 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate layer. CX-0084C (Brown Rpt.) ¶¶ 860-61. First, referring to Suehiro II FIGS. 12 and 13, Suehiro II's sub-layers (4)+(5), which correspond to layer (a), is thicker than Suehiro II's sub-layer (3), which corresponds to layer (b).

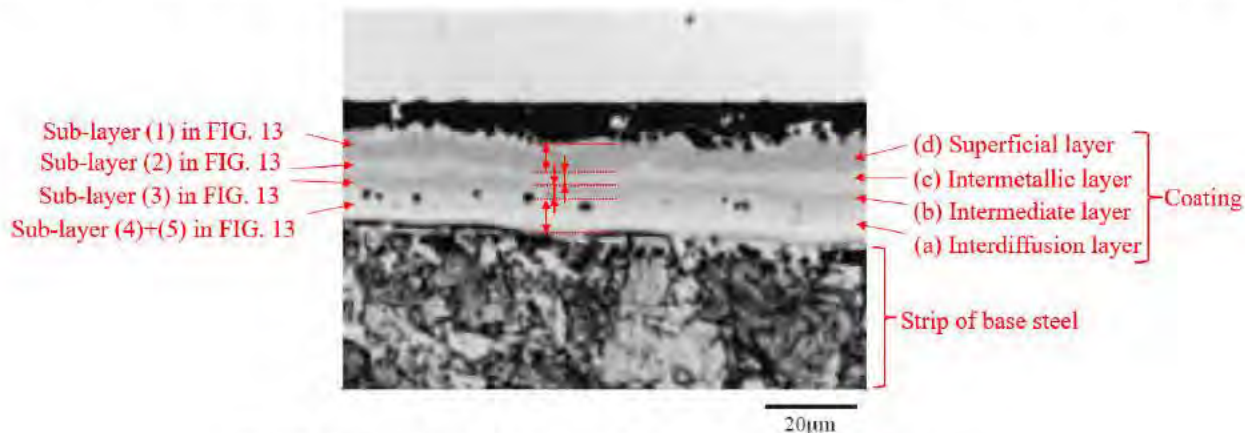


Fig. 12 Sectional optical micrograph showing plating layer structure after heated at 950°C for 30 s

RX-0022 (Suehiro II) at 4; CX-0084C (Brown Rpt.) ¶ 859.

In addition, the Suehiro II-Cornette coating, which has the layer structure shown in Cornette FIG. 22, also satisfies this thickness relationship, thereby rendering obvious claim 8. As reflected in the annotated Cornette FIG. 22 below, one measured thickness of the innermost layer (corresponding to layer (a)) is 14.5 μm, which is greater than a measured thickness of 5.5 μm for the next layer (corresponding to layer (b)). CX-0084C (Brown Rpt.) ¶ 861.



RX-0019 (Cornette) at FIG. 22 (annotated); CX-0084C (Brown Rpt.) ¶ 820.

8.) Claim 9

Suehiro II and Cornette each discloses claim 9 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermetallic layer. CX-0084C (Brown Rpt.) ¶¶ 862-63. As discussed above in relation to claim 8, first referring to Suehiro II FIGS. 12 and 13, Suehiro II's sub-layers (4)+(5), which correspond to layer (a), is thicker than Suehiro II's sub-layer (2), which corresponds to layer (c). RX-0022 (Suehiro II) at 4; CX-0084C (Brown Rpt.) ¶ 862. In addition, the Suehiro II-Cornette coating has measured thicknesses for layers (a) and (c) of 14.5 μm and 3.4 μm, respectively, rendering obvious claim 9. RX-0019 (Cornette) at FIG. 22; CX-0084C (Brown Rpt.) ¶ 820.

9.) Claim 10

Suehiro II and Cornette each discloses claim 10 of the '227 patent— interdiffusion layer has a thickness that is greater than a thickness of superficial layer. CX-0084C (Brown Rpt.) ¶¶ 864-65. As discussed above in relation to claim 8, first referring to Suehiro II FIGS. 12

and 13, Suehiro II's sub-layers (4)+(5), which correspond to layer (a), is thicker than Suehiro II's sub-layer (1), which corresponds to layer (d). RX-0022 (Suehiro II) at 4; CX-0084C (Brown Rpt.) ¶ 864. In addition, the Suehiro II-Cornette coating has measured thicknesses for layers (a) and (c) of 14.5 µm and 6.1 µm, respectively, thereby rendering obvious claim 10. *See* discussion at '227 patent claim 8. RX-0019 (Cornette) at FIG. 22; CX-0084C (Brown Rpt.) ¶ 820.

10.) Claim 11

Suehiro II and Cornette each discloses claim 11 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate, intermetallic, and superficial layers. CX-0084C (Brown Rpt.) ¶ 866. As discussed above in relation to claims 8-10, first referring to Suehiro II FIGS. 12 and 13, Suehiro II's sub-layers (4)+(5), which correspond to layer (a), is thicker than Suehiro II's sub-layers (3), (2), and (1), which correspond to the intermediate, intermetallic, and superficial layers, respectively. RX-0022 (Suehiro II) at 4. In addition, Suehiro II-Cornette coating has measured thicknesses of 14.5 µm for the interdiffusion layer, which is thicker than 5.5 µm (intermediate layer), 3.4 µm (intermetallic layer), and 6.1 µm (superficial layer). RX-0019 (Cornette) at FIG. 22; CX-0084C (Brown Rpt.) ¶ 820.

11.) Claim 13

Suehiro II and Cornette each discloses claim 13 of the '227 patent—interdiffusion layer has a thickness that is more than twice a thickness of intermetallic layer. CX-0084C (Brown Rpt.) ¶¶ 867-68. First, referring to Suehiro II FIGS. 12 and 13, Suehiro II's sub-layers (4)+(5), which correspond to layer (a), is more than twice in thickness than Suehiro II's sub-layer (2), which corresponds to layer (c). RX-0022 (Suehiro II) at 4. In addition, Suehiro II-Cornette coating has measured thicknesses of 14.5 µm for the interdiffusion layer, which is more than twice the thickness of the intermetallic layer at 3.4 µm. RX-0019 (Cornette) at FIG. 22; CX-0084C (Brown Rpt.) ¶ 820.

12.) Claim 15

Suehiro II discloses or renders obvious claim 15 of the '227 patent—hot stamped coated steel product is fully martensitic. CX-0084C (Brown Rpt.) ¶¶ 869-70. Suehiro II states that “it is presumed that the steel sheet product, which has an as-quenched metallographic structure *mainly consisting of a martensitic phase* when it is finally used,” RX-0022 (Suehiro II) at 3 (emphasis added). A POSITA would have understood from such disclosure that Suehiro II’s coated steel parts after hot forming is fully martensitic. CX-0084C (Brown Rpt.) ¶ 869.

The difference between “martensitic” or “mainly consisting of a martensitic phase” in Suehiro II and “fully martensitic” in claim 15 is at most an obvious change in degree. CX-0084C (Brown Rpt.) ¶ 870. Notably, the cooling rate disclosed by Suehiro II as being required for “an as-quenched metallographic structure mainly consisting of a martensitic phase” (“roughly 20°C/s or higher” or “equal to or higher than 30°C/s”) is the same as the cooling rate of at least 30°C/sec described by the '227 patent. RX-0022 (Suehiro II) at 3, FIG. 4 (“Influence of cooling rate on hardness”); JX-0001 ('227 patent) at 7:44-46. Based on Suehiro II’s suggestion of the desirability of martensite and teaching that the cooling rate is a result-effective variable for controlling the martensitic transformation, it would have been obvious for a POSITA to optimize the cooling rate to obtain a fully martensitic structure. Indeed, Suehiro II clarifies that “[t]he cooling rate for quenching is determined by the conditions for avoiding the transformations of austenite into ferrite, pearlite and bainite during cooling. As the grain size of austenite becomes smaller, or the heating temperature becomes lower, the transformations into these phases take place quicker and as a consequence, the cooling rate for the quenching must be higher.” RX-0022 (Suehiro II) at 3.

13.) Claim 24

Suehiro II discloses claim 24 of the '227 patent—mechanical strength in excess of 1000 MPa. CX-0084C (Brown Rpt.) ¶ 872-74. Suehiro II discloses that its hot forming process

produces “[t]ensile strength over than 1,500MPa.” RX-0022 (Suehiro II) at Abstract, 1, 2 (“Steel sheets of 490- and 590-MPa classes were quenched by the dies to a strength of 1,500 MPa or more.”), Table 2, 6 (“A yield strength of 1,280 MPa, a tensile strength of 1,530 MPa and an elongation of 8% can be obtained after the hot forming.”).

b. Suehiro II in combination with Cornette and Laurent

1.) Motivation to combine

VinFast incorporates by references the motivation to combine Suehiro II with Cornette and Laurent as discussed for the ’602 patent above as if set forth fully herein.

2.) Claims 16 and 17

Suehiro II renders obvious claims 16 and 17 of the ’227 patent—base steel chemical compositions. See § III.D.4.iv.b.2 (’602 patent cls 3 and 4). CX-0084C (Brown Rpt.) ¶¶ 881-82.

c. Suehiro II in combination with Cornette and Vaissiere

1.) Claim 15

Suehiro II in combination with Cornette and Vaissiere renders obvious asserted claim 15 of the ’227 patent, which recites “The hot stamped coated steel product according to claim 1, wherein the hot stamped coated steel product is fully martensitic.” CX-0084C (Brown Rpt.) ¶¶ 876-79. Similar to Suehiro II and Cornette, Vaissiere describes that “pre-coated USIBOR 1500, optimized for the stability of its quenchability, is transformed, at the end of forming, into **pure martensite** thus giving very high mechanical characteristics to then [sic] finished part.” RX-0081 (Vaissiere) (VINFAST1402-00003251) at 9 (emphasis added). A POSITA would have been motivated to obtain these high mechanical characteristics by using pre-coated USIBOR 1500 steel (in agreement with Suehiro II and Cornette) and by using the thermal parameters described by Vaissiere to provide the “pure martensite.” CX-0084C (Brown Rpt.) ¶ 877.

Specifically, it would have been obvious to follow Vaissiere's teaching that "[t]he critical quenching speed enabling a **completely martensitic structure**, under these conditions, is **27°C/s**." RX-0081 (Vaissiere) at 6 (emphasis added). That is, a POSITA would have found it obvious to use the known technique of cooling with at least this quenching speed, to improve the similar Suehiro II-Cornette parts and obtain the predictable result of a "completely martensitic structure" with "high mechanical characteristics." RX-0081 (Vaissiere) at 9. Notably, this quenching speed is within the range of "roughly 20°C/s or higher" described by Suehiro II as providing a martensitic structure, such that the combination with Vaissiere would have constituted only optimization within the range already taught by Suehiro II. RX-0022 (Suehiro II) at 3. For example, a POSITA would have naturally tried increasing the cooling rate if the microstructure obtained after quenching in the die were not fully martensitic, based on the recognition that a POSITA has two levers to target a desired microstructure: composition and thermal history (including cooling rate as a primary factor). CX-0084C (Brown Rpt.) ¶ 878.

As a result of this obvious optimization, a POSITA would have arrived at the "completely martensitic structure," "pure martensite," and "totally martensitic structure" described by Vaissiere. RX-0081 (Vaissiere) at 5-6, 9; CX-0084C (Brown Rpt.) ¶ 879.

iv. Lachmann Grounds

a. Lachmann alone

1.) Claim 1

To the extent Lachmann does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 983-94.

Lachmann renders obvious limitation [1pre]-[1h] of the '227 patent. See § IV.D.2.iii.a ('227 patent limitation [1pre]-[1h]).

2.) Claim 2

Lachmann renders obvious claim 2 of the '227 patent. See § IV.D.2.iii.b ('227 patent claim 2). To the extent Lachmann does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 995.

3.) Claim 7

Lachmann renders obvious claim 7 of the '227 patent—mean iron composition inequalities. See § IV.D.2.iii.c ('227 patent claim 7). To the extent Lachmann does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 998.

4.) Claim 8

Lachmann renders obvious claim 8 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate layer. See § IV.D.2.iii.d ('227 patent claim 8). To the extent Lachmann does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 999.

5.) Claim 9

Lachmann renders obvious claim 9 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermetallic layer. See § IV.D.2.iii.e ('227 patent claim 9). To the extent Lachmann does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 1000.

6.) Claim 10

Lachmann renders obvious claim 10 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of superficial layer. See § IV.D.2.iii.f ('227 patent claim 10). To the extent Lachmann does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 1001.

7.) Claim 11

Lachmann renders obvious claim 11 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate, intermetallic, and superficial layers. See § IV.D.2.iii.g ('227 patent claim 11). To the extent Lachmann does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 1002.

8.) Claim 13

Lachmann renders obvious claim 13 of the '227 patent—interdiffusion layer has a thickness that is more than twice a thickness of intermetallic layer. See § IV.D.2.iii.h ('227 patent claim 13). To the extent Lachmann does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 1003.

9.) Claim 15

Lachmann renders obvious claim 15 of the '227 patent—hot stamped coated steel product is fully martensitic. See § IV.D.2.iii.i ('227 patent claim 15). To the extent Lachmann does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 1004-05.

10.) Claim 24

Lachmann renders obvious claim 24 of the '227 patent— mechanical strength in excess of 1000 MPa. See § IV.D.2.iii.j ('227 patent claim 24). To the extent Lachmann does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 1007-08.

b. Lachmann in combination with Cornette

1.) Motivation to combine

VinFast incorporates by references the motivation to combine Lachmann with Cornette as discussed for the '602 patent above as if set forth fully herein.

2.) Claim 4

Lachmann in combination with Cornette renders obvious claim 4 of the '227 patent— interdiffusion layer has a thickness of 17 micrometers or less. CX-0084C (Brown Rpt.) ¶ 1011. As discussed above in relation to claim 2, Cornette discloses an interdiffusion layer with thickness of 12.4 µm, which is less than 17 µm. RX-0019 (Cornette) at Fig. 22.

3.) Claim 5

Lachmann in combination with Cornette renders obvious claim 5 of the '227 patent— interdiffusion layer has a thickness of 15 micrometers or less. CX-0084C (Brown Rpt.) ¶ 1012. As discussed above in relation to claim 2, Cornette discloses an interdiffusion layer with thickness of 12.4 µm, which is less than 15 µm. RX-0019 (Cornette) at Fig. 22.

c. Lachmann in combination with Vaissiere

1.) Claim 15

Lachmann in view of Vaissiere renders obvious claim 15 of the '227 patent— hot stamped coated steel product is fully martensitic. CX-0084C (Brown Rpt.) ¶¶ 1013-16. Vaissiere describes that “pre-coated USIBOR 1500, optimized for the stability of its quenchability,

is transformed, at the end of forming, into **pure martensite** thus giving very high mechanical characteristics to then [sic] finished part.” RX-0081 (Vaissiere) (VINFAST1402-00003251) at 9 (emphasis added). A POSITA would have been motivated to obtain these high mechanical characteristics by using pre-coated USIBOR 1500 steel (in agreement with Cornette) and by using the thermal parameters described by Vaissiere as providing the “pure martensite.” CX-0084C (Brown Rpt.) ¶ 1014.

Specifically, it would have been obvious to follow Vaissiere’s teaching that “[t]he critical quenching speed enabling a **completely martensitic structure**, under these conditions, is 27°C/s.” RX-0081 (Vaissiere) at 6 (emphasis added). That is, a POSITA would have found it obvious to use the known technique of cooling with at least this quenching speed, to improve the similar Takagi-Cornette parts and obtain the predictable result of a “completely martensitic structure” with “high mechanical characteristics.” RX-0081 (Vaissiere) at 9. Notably, this quenching speed is within the range of “roughly 20°C/s or higher” described by Lachmann as providing a martensitic structure, such that the combination with Vaissiere would have constituted only optimization within the range already taught by Lachmann. For example, a POSITA would have naturally tried increasing the cooling rate if the microstructure obtained after quenching in the die were not fully martensitic, based on the existing recognition that cooling rate is a key parameter for obtaining martensite. CX-0084C (Brown Rpt.) ¶ 1015. As a result of this obvious optimization, a POSITA would have arrived at the “completely martensitic structure,” “pure martensite,” and “totally martensitic structure” described by Vaissiere. RX-0081 (Vaissiere) at 5-6, 9; CX-0084C (Brown Rpt.) ¶ 1016.

d. Lachmann in combination with Laurent

1.) Motivation to combine

VinFast incorporates by references the motivation to combine Lachmann with Laurent as discussed for the '602 patent above as if set forth fully herein.

2.) Claims 16 and 17

Lachmann in view of Laurent renders obvious claims 16 and 17 of the '227 patent—base steel chemical composition. See § III.D.4.v.c.2 ('602 patent claims 3 and 4). CX-0084C (Brown Rpt.) ¶ 1017-19.

v. Engels Grounds

a. Engels alone

1.) Claim 1

To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 884-95.

Engels renders obvious limitation [1pre]-[1h] of the '227 patent. See § IV.D.2.iv.a ('227 patent limitation [1pre]-[1h]).

2.) Claim 2

Engels renders obvious claim 2 of the '227 patent—interdiffusion layer has a thickness that is less than half of said thickness of the coating. See § IV.D.2.iv.b ('227 patent claim 2). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 896-97.

3.) Claim 4

Engels renders obvious claim 4 of the '227 patent—interdiffusion layer has a thickness of 17 micrometers or less. See § IV.D.2.iv.c ('227 patent claim 4). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 898.

4.) Claim 5

Engels renders obvious claim 5 of the '227 patent—interdiffusion layer has a thickness of 15 micrometers or less. See § IV.D.2.iv.d ('227 patent claim 5). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 899.

5.) Claim 7

Engels renders obvious claim 7 of the '227 patent—mean iron composition inequalities. See § IV.D.2.iv.e ('227 patent claim 7). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 903.

6.) Claim 9

Engels renders obvious claim 9 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermetallic layer. See § IV.D.2.iv.f ('227 patent claim 9). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 904-06.

7.) Claim 10

Engels renders obvious claim 10 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of superficial layer. See § IV.D.2.iv.g ('227 patent

claim 10). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 907-08

8.) Claim 13

Engels renders obvious claim 13 of the '227 patent—interdiffusion layer has a thickness that is more than twice a thickness of intermetallic layer. See § IV.D.2.iv.h ('227 patent claim 13). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶ 909-10

9.) Claim 15

Engels renders obvious claim 15 of the '227 patent—hot stamped coated steel product is fully martensitic. See § IV.D.2.iv.i ('227 patent claim 15). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 911-14

10.) Claim 24

Engels renders obvious claim 24 of the '227 patent— mechanical strength in excess of 1000 MPa. See § IV.D.2.iv.j ('227 patent claim 24). To the extent Engels does not expressly disclose each of the limitations sufficient to show anticipation under § 102, any modifications would be obvious to a POSITA. CX-0084C (Brown Rpt.) ¶¶ 916-919.

b. Engels in combination with Cornette

1.) Motivation to combine

VinFast incorporates by references the motivation to combine Engels with Cornette as discussed for the '602 patent above as if set forth fully herein. CX-0084C (Brown Rpt.) ¶ 922.

2.) Claim 8

Engels in view of renders obvious claim 8 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate layer. CX-0084C (Brown Rpt.) ¶¶ 923-24. As discussed with reference to the Engels-Cornette combination for the '602 patent, it would have been obvious for a POSITA to obtain an Engels-Cornette coating having the layer compositions of the Engels FIG. 5 coating and the layer thicknesses of the Cornette FIG. 22 coating. RX-0019 (Cornette) at FIG. 22; RX-0063 (Engels) at FIG. 5. As shown in the annotated figure here, the bottom layer of the Engels-Cornette coating has a measured thickness of 14.5 μm , and the second layer has a thickness of 5.5 μm . These layers correspond to layers (a) and (b), respectively. RX-0019 (Cornette) at FIG. 22 (annotated).



3.) Claim 11

Engels in view of Cornette renders obvious claim 11 of the '227 patent—interdiffusion layer has a thickness that is greater than a thickness of intermediate, intermetallic, and superficial layers. CX-0084C (Brown Rpt.) ¶ 925. As discussed above in relation to claim 8, layers of the Engels-Cornette coating corresponding to layers (a)-(d), respectively, have measured thicknesses of 14.5 μm , 5.5 μm , 3.43 μm , and 6.1 μm . This combination of thicknesses satisfies claim 11.

4.) Claim 13

Engels in view of Cornette renders obvious claim 13 of the '227 patent—interdiffusion layer has a thickness that is more than twice a thickness of intermetallic layer. CX-0084C (Brown Rpt.) ¶ 926. As shown in the above discussion at '227 patent claims 8 and 13, the measured thicknesses for layers (a) and (c) of the Engels-Cornette coating, 14.5 μm and 3.4 μm , satisfy claim 13.

5.) Claim 24

Engels in view of Cornette renders obvious claim 24 of the '227 patent—mechanical strength in excess of 1000 MPa. CX-0084C (Brown Rpt.) ¶ 927, 747-48. *See* Section § IV.D.3.i.a.13 (discussion at '227 patent claim 24 for the Takagi-Cornette combination). For the same reasons, it would have been obvious to try using, in combination with Engels, the USIBOR 1500 steel disclosed by Cornette, and optimizing hot-stamping process parameters based on Cornette, to achieve the “typical” mechanical strength of 1510 MPa disclosed by Cornette. RX-0019 (Cornette) at 10

c. Engels in combination with Vaissiere

1.) Claim 15

Engels in view of Vaissiere renders obvious claim 15 of the '227 patent—hot stamped coated steel product is fully martensitic. CX-0084C (Brown Rpt.) ¶¶ 947, 750-53. *See* Section § IV.D.3.i.b.1 (discussion at '227 patent with respect to the Takagi-Cornette-Vaissiere combination). For the same reasons, it would have been obvious to apply Vaissiere’s disclosed “critical quenching speed [of] 27°C/s” to Engels to obtain the “completely martensitic structure,” “pure martensite,” and “totally martensitic structure” described by Vaissiere. RX-0081 (Vaissiere) at 5-6, 9. The obviousness of this modification is particularly clear in view of Engels’ existing disclosure that “controlled cooling” can be performed to obtain a “martensitic transformation”

associated with an “increase in strength.” RX-0063 (Engels) at 135-136. *See* Section § IV.D.2.iv.i (’227 patent at claim 15 with respect to Engels).

d. Engels in combination with Laurent

1.) Motivation to combine

VinFast incorporates by references the motivation to combine Engels with Laurent as discussed for the ’602 patent above as if set forth fully herein.

2.) Claims 16 and 17

Engels in view of Laurent renders obvious claims 16 and 17 of the ’227 patent—base steel chemical composition. *See* § III.D.4.vi.c.2 (’602 patent claims 3 and 4). CX-0084C (Brown Rpt.) ¶¶ 950-51.

4. Secondary Considerations of Non-Obviousness

VinFast incorporates by references the no secondary considerations argument for the ’602 patent above as if set forth fully herein.

5. Indefiniteness Under 35 U.S.C. § 112

VinFast incorporates by references the indefiniteness argument for the term “layer” for the ’602 patent above as if set forth fully herein.

6. Subject Matter Under § 101

VinFast incorporates by references the Section 101 argument for the ’602 patent above as if set forth fully herein.

V. NO ECONOMIC DOMESTIC INDUSTRY

ArcelorMittal is a huge vertically integrated, international steel company with revenues over \$68 billion and more than 126,000 employees worldwide (as of the end of 2023). RX-1261 at 202, 246. Its commercial operations include iron ore mining, coal mining, and steelmaking at dozens of locations across the globe, the vast majority of which are outside the United States.

[REDACTED]

ArcelorMittal asserts domestic industry investments of more than a [REDACTED] U.S. dollars, based largely on alleged investments undertaken by third parties within the United States that manufacture aluminized steel (which ArcelorMittal calls the “DI Precursor Products”) and a number of “Tier 1” manufacturers that “hot stamp” this steel to manufacture automobile parts (which ArcelorMittal calls the “DI Direct Products”). In asserting total domestic industry investments of more than a [REDACTED] U.S. dollars, ArcelorMittal makes sweeping statements and assumptions about the alleged investments and their relationship to articles that supposedly practice the Asserted Patents. The evidence ArcelorMittal is likely to introduce will fall short of standard necessary to for a Complainant to show a U.S. domestic industry in articles that actually practice the Asserted Patents, much less one that is significant or substantial.

The Tariff Act requires Complainants show that they have made a significant investment “relat[e] to the articles protected by” each asserted patent. *Id.*, § 1337(a)(2); *Zircon Corp. v. ITC*, 101 F.4th 817, 826 (Fed. Cir. 2024). Complainants in a Section 337 Investigation bear the burden to show a domestic industry under 19 U.S.C. § 1337(a)(c) “must pertain to products covered by the [asserted] patent.” *Hyosung TNS Inc. v. Int’l Trade Comm’n*, 926 F.3d 1353, 1361 (Fed. Cir. 2019); *see also InterDigital Commc’ns, LLC v. Int’l Trade Comm’n*, 707 F.3d 1295, 1298 (Fed. Cir. 2013) (“the ‘plant or equipment’ referred to in subparagraph (A) must exist with respect to articles protected by the patent.”). “The investments or employment must only be ‘with respect to the articles protected by the patent.’” *Motorola Mobility, LLC v. Int’l Trade Comm’n*, 737 F.3d 1345, 1351 (Fed. Cir. 2013). It follows that “in cases in which the complainant’s products or groups of products each practice different patents, the complainant would need to establish separate domestic industries for each of those different groups of products.” *Zircon Corp. v. Int’l Trade Comm’n*, 101 F.4th 817, 824 (Fed. Cir. 2024).

The Commission does not credit investments in unrelated or unprotected products, and the methodology complainants employ to allocate investments to a particular patent must be reasonable. *Id.* at 826; *see also In the Matter of Certain Dimmable Compact Fluorescent Lamps & Prods. Containing Same*, Inv. No. 337-TA-830, 2013 WL 1491916, at *43 (Feb. 27, 2013) (“Neptun, like the complainant in *Computer Forensic Devices*, improperly included expenses of non-domestic industry products in its investments allocated under prongs A and B.”); *see also In the Matter of Certain Computer Forensic Devices & Prods. Containing the Same*, Inv. No. 337-TA-799, 2012 WL 5942392, at *8. (Oct. 26, 2012) (rejected Complainants’ aggregation of domestic industry data, holding “Commission precedent requires that expenses be allocated to each of the products covered by the asserted patents.”); *Certain Video Game Systems and Wireless Controllers*, Inv. No. 337-TA-770, Comm’n Op. at 67-73 (Oct. 28, 2013) (rejecting investments that were “far removed from the technology protected by the patent”).

A Complainant that aggregates investments in articles protected by the asserted patents and unprotected investments must provide evidence sufficient to disaggregate those investments to show a domestic industry. *In the Matter of Certain Subsea Telecomm. Sys. & Components Thereof*, Inv. No. 337-TA-1098, 2020 WL 9312366, at *88-89 (Feb. 1, 2020); *Zircon Corp.*, 101 F.4th at 825 (“[E]ven though Zircon might have been able to show the substantial or significant investment requirement was met by its investment in the 14 products that practice all three asserted patents, Zircon provided no way for the Commission to assess the significance of Zircon’s investment in that product group because Zircon presented its investments in the aggregate for all 53 products.”); *see also id.* at 287 (“The Commission did not err in finding that Zircon failed to meet that burden when it relied on aggregated evidence of its investments in all domestic industry products without allocating those investments among products or product groups relating to each

asserted patent, or product groups relating to all the asserted patents”).

A Complainant cannot establish that an article is protected by the asserted patents by showing the “mere possibility” that it practices the patents. *In the Matter of Certain Mobile Devices, Associated Software, & Components Thereof*, Inv. No. 337-TA-744, 2011 WL 6916539, at *127 (Dec. 20, 2011) (“The law is clear that the mere possibility of infringement is not enough.” (citing *ACCO Brands, Inc. v. ABA Locks Mfr. Co.*, 501 F.3d 1307, 1313 (Fed. Cir. 2007))). A Complainant bears the burden to show that the domestic industry products actually implement the claimed inventions. *Id.* In sum, “[a] company seeking section 337 protection must therefore provide evidence that its substantial domestic investment ... relates to an actual article that practices the patent[.]” *Microsoft Corp. v. Int’l Trade Comm’n*, 731 F.3d 1354, 1362 (Fed. Cir. 2013); *Broadcom Corp. v. Int’l Trade Comm’n*, 28 F.4th 240, 250 (Fed. Cir. 2022).

Here, ArcelorMittal will be unable to show the existence of a domestic industry protected by the Asserted Patents in this Investigation. For starters, ArcelorMittal cannot demonstrate that any of the products it tested is an “article protected by” the Asserted Patents, and thus fails to show the tested products are domestic industry products. *See* §§ III.C, IV.C. Further, ArcelorMittal cannot show that these tested products—which are not actually domestic industry products—are representative of the countless other untested products that ArcelorMittal relies on to show economic domestic industry. ArcelorMittal’s contention that the tested products are representative of hundreds, if not thousands, of other untested products is unreasonable due to the variations in the manufacturing parameters for the products and variations in the products themselves. §§ III.C.1. Dr. Fekete’s own testing of hot-stamped parts from a Tier 1 hot-stamper subpoenaed in this Investigation confirms this reality. *Id.* The tested products (which appear to cover only certain Usibor-based products) are also not representative of products allegedly made from the other DI

[REDACTED]

Precursor Products—Ductibor or Ultralume. Because the tested products are not representative of all DI Precursor and DI Direct Products, ArcelorMittal will fall far short of its burden.

The differences in the alleged domestic industry products matters because ArcelorMittal and its expert, Mr. James Malackowski, offer only two methodologies for quantifying cognizable domestic industry investments. The “primary” method captures investments for “[a]ll of the [DI Precursor P]roduct that is sold into the market,” both tested and untested, that an entity called AM/NS Calvert manufactures on behalf of ArcelorMittal. RX-1288C (Malackowski Tr.) at 44:5-7. The “alternative” method “is intended to zero in on just the portion of AM/NS Calvert’s production that flows to the six subpoenaed hot stampers[.]” *Id.* at 44:10-13. Mr. Malackowski explained, “The alternative method limits investments further in case ALJ finds DI Precursor Products are limited only to the 6 hot stampers that were subpoenaed.” RX-1168C at 1. Notably Mr. Malackowski does not rely on investments from the purported Ultralume manufacturer, [REDACTED] See CX-0118C, CX-0081C (Malackowski Rpt.) at Fig. 1. Thus, if the ALJ concludes that evidence ArcelorMittal advances is only sufficient to show certain products practice the claims, *e.g.*, tested versus untested or Usibor versus Ductibor or Ultralume, then both allocation methods overstate the alleged domestic industry investments, and disaggregation is impossible.

ArcelorMittal and its expert Mr. Malackowski made a half-hearted attempt at a third method, which attempts to limit the investments to only the tested products. CX-0122C. Respondents’ economic expert, Ms. Julia Rowe, reviewed this opinion and explained that Mr. Malackowski’s third methodology was still overstated by more than [REDACTED] (despite identifying only \$ [REDACTED] alleged investments). After Ms. Rowe provided her opinions, Mr. Malackowski disparaged his third method in his deposition stating it was “a very specific anecdotal analysis” and “when you’re just talking about six parts, in my opinion those allocation methodologies no longer hold.”

RX-1288C (Malackowski Tr.) at 95:3-96:18.

In addition to suffering from allocation problems, ArcelorMittal's alternative (and third) allocation methods are also insufficient for additional reasons. ArcelorMittal and its expert fail to offer any contention or analysis showing that the alleged investments under the alternative and third methods are significant or substantial. That third analysis results in cognizable investments of, at most, less than \$ [REDACTED] which, although still overstated, amounts to a rounding error in the context of ArcelorMittal's business. CX-0122C; *Lelo Inc. v. Int'l Trade Comm'n*, 786 F.3d 879, 885 (Fed. Cir. 2015); *Certain Carburetors & Prods. Containing Such Carburetors*, Comm'n Op., Inv. No. 337-TA-1123, 2019 WL 5622443, at *10-15 (Oct. 28, 2019).

A. The Tested Domestic Industry Products Are Not Representative of Untested Products Made Using Usibor, Ductibor, and Ultralume with an AS150 Coating (or Equivalent)

ArcelorMittal will be unable to meet its burden to show the alleged investments are tied to articles that practice the Asserted Patents due to significant allocation problems. First, ArcelorMittal will be unable to meet its burden to show that any of the tested products are, in fact, domestic industry products. Second, ArcelorMittal will be unable to show that the tested products are representative of other, untested products within the same product line of DI Precursor Products (*i.e.*, Usibor). Third, ArcelorMittal will be unable to show that the tested products made using one product line of DI Precursor Product (*i.e.*, Usibor), are representative of untested products made using a different product line of DI Precursor Products (*i.e.*, Ductibor or Ultralume). Because ArcelorMittal aggregates the economic investments for all DI Precursor Products and DI Direct Products, any allocation failure results in ArcelorMittal being unable to meet its burden to show existence of a domestic industry for the Asserted Patents.

1. None of the Tested Products Is a Domestic Industry Product

First, none of the tested products that ArcelorMittal relied upon to show technical domestic

[REDACTED]

industry are, in fact, proper domestic industry products. ArcelorMittal and its expert tested about 16 allegedly domestic industry products for this Investigation. ArcelorMittal will be unable to establish that any of these products are actually domestic industry products. *See Microsoft Corp. v. Int'l Trade Comm'n*, 731 F.3d 1354, 1361 (Fed. Cir. 2013) (“ALJ determined that Microsoft failed to make that domestic-industry showing because it did not offer sufficient proof of articles that were actually protected by the patent.”). As explained for each of the tested products, ArcelorMittal fails to show that any are articles actually protected by the Asserted Patents:

- (1) [REDACTED] The evidence will show that ArcelorMittal does not supply the underlying precursor product that [REDACTED] hot-stamps into the [REDACTED] [REDACTED] CX-0349C.
- (2) [REDACTED] The evidence will show that steel substrate is not any one of Usibor, Ductibor, or Ultralume. CX-0349C; CX-0157C.
- (3) [REDACTED] The evidence will show that ArcelorMittal’s own testing confirmed that these three products do not practice the Asserted Patents.
- (6) [REDACTED] The evidence will show that coating weight for this product is AS80, which is not the coating weight for DI Precursor Products. CX-0349C. The coating weight for DI Precursor Products is AS150.
- (7) [REDACTED] The evidence will show that ArcelorMittal’s experts contend that underlying steel substrate is not any one of Usibor, Ductibor, or Ultralume. CX-0157C.
- (8) [REDACTED] To the extent the ALJ does not strike and preclude ArcelorMittal from relying on this sample, ArcelorMittal will be unable to identify any evidence showing the coating weight, underlying steel substrate, or source of supply for this product.
- (9) [REDACTED] To the extent the ALJ does not strike and preclude ArcelorMittal from relying on this sample, ArcelorMittal will be unable to identify any evidence showing the coating weight, underlying steel substrate, or source of supply for this product.
- (10-13) [REDACTED] ArcelorMittal will be unable to show evidence establishing whether these components use Usibor, Ductibor, or Ultralume as the steel substrate.
- (14) [REDACTED] To the

extent the ALJ does not strike and preclude ArcelorMittal from relying on this sample, the evidence will show this product is manufactured in [REDACTED] and therefore not a domestic industry product.

- (15) [REDACTED] The evidence will show that the underlying steel substrate is manufactured in [REDACTED] CX-0874C.
- (16) [REDACTED] ArcelorMittal will be unable to show whether the underlying steel substrate is made from Usibor, Ductibor, or Ultralume.

Thus, ArcelorMittal will be unable to establish that any product is actually an article protected by the Asserted Patents. Moreover, ArcelorMittal will be unable to show that it tested at least one Usibor, Ductibor, and Ultralume sample in this Investigation—much less a sample of each of the variations within those product lines (*e.g.*, Ductibor 450 versus Ductibor 1000).

2. None of the Domestic Industry Products Is Representative of Untested Products Based on the Same DI Precursor Products

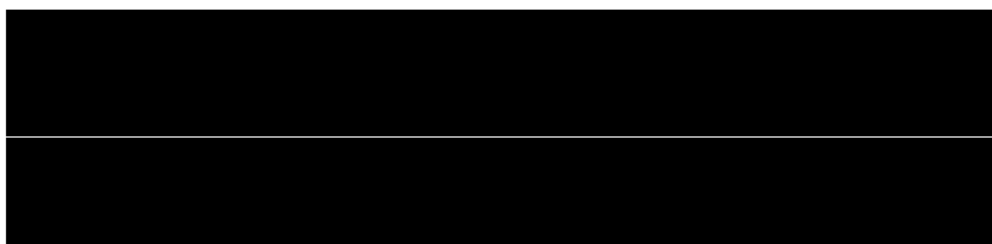
Second, even if some of the tested products were properly technical domestic industry products and ArcelorMittal shows the tested product meets the claims, the tested products are not representative of other “untested products” made using the same DI Precursor Product, *e.g.*, tested Usibor 1500 as representative of untested Usibor 1500. As explained above, (*see* § III.C.1.i on lack of representativeness), ArcelorMittal’s representative products analysis based on testing performed on a small subset is highly flawed and should be disregarded. The evidence from the subpoenaed Tier 1 manufacturers make clear that hot stamping process parameters vary on a product-by-product basis in a material way for the claimed features. *See, e.g.*, RX-1278C ([REDACTED] Tr.) at 80:21-82:21, 85:21-86:8;¹² RX-1273C ([REDACTED] Tr.) at 118:18-119:9; RX-1279C ([REDACTED] Tr.) at 85:23-86:13; RX-1277C ([REDACTED] Tr.) at 171:10-172:2; RX-1280C ([REDACTED] Tr.) at 57:2-58:13. In many cases, the hot

¹² Further, the process parameters in the [REDACTED] produced by [REDACTED] were redacted. RX-1278C ([REDACTED] Tr.) at 79:20-84:14.

stamping process parameters are specified by process windows.

3. A Tested Product Made Using One DI Precursor Product Is Not Representative of Untested Products Made Using a Different DI Precursor Product

Even if a tested product were representative of untested products made using on the same “DI Precursor Product” (and it is not), ArcelorMittal cannot establish representativeness for different, untested products made using different DI Precursor Products within the same product line, *i.e.*, tested Usibor 1500 as representative of untested Usibor 2000. ArcelorMittal offers the Usibor product in at least two different versions, Usibor 1500 and Usibor 2000. Similarly, ArcelorMittal offers the Ductibor product in at least three versions Ductibor 450, Ductibor 500, and Ductibor 1000. And Ultralume appears to be provided in multiple versions as well. CX-0778. ArcelorMittal alleges that all of these are DI Precursor Products that are used to make DI Direct Products, but the evidence shows material differences in these products with respect to the claims. For example, ArcelorMittal’s documentation shows that the number after the DI Precursor Product name (e.g., “1500”) relates to the tensile strength of the material after hot stamping:



CX-0563C at 110. That is, the tensile strength for Usibor 1500 is about 1500 MPa. Products like Ductibor 450, therefore, would not satisfy Claim 24 of the '227 patent (a DI claim) which requires a strength “in excess of 1000 MPa.” JX-0001 at cl. 24. Likewise, several claims relate to the underlying chemical composition of the steel substrate, which is different even within a given product line. *E.g.*, JX-0001 ('227 patent) cls. 7, 16, 17, JX-0002 ('602 Patent) cls. 3, 4, 7, 8. Second, ArcelorMittal cannot establish representativeness between product lines, *e.g.*, between

Usibor and Ductibor or Ultralume. The underlying composition of the base steel for these products is different and is material to the claims. *Compare* CX-0669C (Usibor 1500 Alusi Global Product File) at 1, *with* CX-0671C (Ductibor 500 AS Global Product File) at 1, *and* CX-0672C (Usibor 2000 Global Product File). ArcelorMittal has not produced a “Global Product File” for each of the DI Precursor Products. In fact, the naming of the products is based on the intended use—not underlying composition. RX-1281C (Thirion Tr.) at 58:15-59:25; CX-0547C (Thirion Dep. Ex. 2) at 792; CX-0778. For invalidity, ArcelorMittal contends that differences in the composition of the base steel is material to whether a product practices the claims. But ArcelorMittal and its expert rely on nothing more than *ipse dixit* for the contention that dozens of different coating specifications are “equivalent” to AS150.

B. Plant and Equipment / Labor and Capital Investments: DI Precursors

ArcelorMittal cannot show that its investments in DI Precursor Products are significant.

1. AM-NS Calvert

ArcelorMittal alleges that AM/NS Calvert is a joint venture between ArcelorMittal (AM) and Nippon Steel (NS) that produces certain DI Precursor Products. As explained above, ArcelorMittal advances two methods for allocating investments related to AM/NS Calvert. The “primary” method captures investments for “[a]ll of the [DI Precursor P]roduct that is sold into the market,” both tested and untested. RX-1288C (Malackowski Tr.) at 44:5-7. The “alternative” method “is intended to zero in on just the portion of AM/NS Calvert’s production that flows to the six subpoenaed hot stampers[.]” *Id.* at 44:10-13. Mr. Malackowski explained, “[t]he alternative method limits investments further in case ALJ finds DI Precursor Products are limited only to the 6 hot stampers that were subpoenaed.” CX-0469C at 1. Buried in one exhibit to Mr. Malackowski’s expert report is a third allocation method, which attempts to quantify only the investments tied to the tested products. CX-0122C.

[REDACTED]

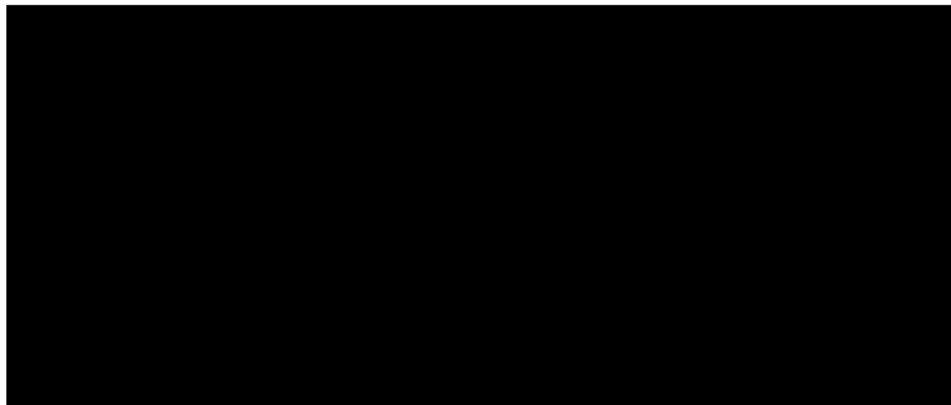
ArcelorMittal alleges that AM/NS Calvert manufactures the following DI Precursor Products: Usibor 1500 and Ductibor 500 and 1000 with AS150 coatings (and equivalents), and may also include Usibor 2000, Ductibor 450. *See* CX-0663C (AM-ITC-0101879); CX-0042C (Compl., Ex. 35) at 12.

ArcelorMittal does not and cannot disaggregate the investments in specific DI Precursor Products manufactured in AM/NS Calvert under any of Mr. Malackowski's approaches. Under the primary method, Mr. Malackowski aggregates "all of the cognizable investments attributable to the DI precursor products are linked to AM/NS Calvert." RX-1288C (Malackowski Tr.) at 33:8-14; *see also id.* at 44:5-9 ("Q. So the primary approach would include all of the DI precursor products that are manufactured by AM/NS Calvert, correct? A. All of the product that is sold into the market, correct."). As for the alternative method—allegedly tied to the six subpoenaed hot stampers—Mr. Malackowski's notes confirm that it uses the same approach as the primary method but "uses DI Precursor Product volume sold only to the 6 Hot Stampers ... as the numerator instead of total DI Precursor Product volume." RX-1168C at 1. And for the third approach, it too relies on total investments in DI Precursor Products—which is the same value in the primary method. *See* CX-0122C; CX-0118C. Mr. Malackowski does not offer any opinions or any methodology to disaggregate the investments to specific DI Precursor Products (such as only Usibor 1500 or Ductibor 500). Nor could he. The source material amounts to little more than private conversations with ArcelorMittal employees and interrogatory responses that disclosed unspecified, unsourced values.

With respect to Mr. Malackowski's third method, the calculation involved allocating approximately [REDACTED] in "Calvert DI Investments" to the six subpoenaed hot stampers and [REDACTED] then estimating the portion of each hot stamper's allocated investments attributable to the

[REDACTED]

tested DI Direct Products. CX-0122C. But, Mr. Malackowski did not separate the investments between sub-prongs (A) and (B). Approximately [REDACTED] of the amounts Mr. Malackowski estimated pertained to sub-prong (A) and the remaining [REDACTED] was included under sub-prong (B). Mr. Malackowski also assumed that the [REDACTED] in “Calvert DI Investments” pertained only to the six subpoenaed hot stampers and [REDACTED]. Mr. Malackowski estimated [REDACTED] to include: (i) [REDACTED] in plant and equipment allocated to all DI Precursor Products;¹³ (ii) [REDACTED] in labor allocated to all DI Precursor Products; and (iii) [REDACTED] in capital allocated to all DI Precursor Products. These estimates for the Calvert investments were based on all DI Precursor Products, not just investments relevant to the subpoenaed hot stampers and [REDACTED]. See CX-0118C. Under Mr. Malackowski’s estimates, the subpoenaed hot stampers and [REDACTED] comprised just [REDACTED] of overall Calvert shipments of DI Precursor Products with the AS150 coating weight. Based on estimates provided in Mr. Malackowski’s work papers, the amounts allocable to the six subpoenaed hot stampers comprised just about [REDACTED] of overall Calvert investments. This is shown in the below table:



¹³ CX-0081C (Malackowski Report) at 48 (describing a calculation of “AM/NS Calvert’s investments attributable to the DI Precursor Products”) and Exhibit 4.0.0 (showing [REDACTED] in “All DI Precursor” plant & equipment costs).

[REDACTED]

This indicates that Mr. Malackowski's estimates are about [REDACTED] times too high, if he is estimating amounts specific to the six subpoenaed hot stampers. Using a total of [REDACTED] in investments in Calvert instead of Mr. Malackowski's [REDACTED] reduces Mr. Malackowski's estimates for investments in the tested products by [REDACTED] (*i.e.*, less than [REDACTED] for plant and equipment and less than [REDACTED] for labor and capital). Further, Mr. Malackowski's investments and allocations related to AM-NS Calvert are unreliable because they include shipments of alleged DI Precursor Parts manufactured abroad.

i. Plant and Equipment

ArcelorMittal's plant and equipment values are overstated. As an initial matter, ArcelorMittal failed to adduce evidence showing the relationship between the plant and equipment and the DI Precursor Products (much less the DI Direct Products) or supporting ArcelorMittal's assertion that the alleged investments in this plant and equipment should be fully attributed to the domestic industry. In addition, Mr. Malackowski relies on acquisition value rather than book value. Acquisition value refers the "purchase cost" of the asset or its "undepreciated amount." RX-1288C (Malackowski Tr.) at 62:9-14. Book value is "a reflection of acquisition cost less accumulated depreciation." *Id.* at 63:3-9. In the context of the plant and equipment expenses, the acquisition value is typically higher than book value—and often significantly so. *Id.* at 63:10-16.

Mr. Malackowski agreed that he relied on the acquisition value for purposes of his analysis rather than book value, even though much of the alleged plant and equipment was purchased many years ago. *Id.* at 77:6-10; 122:9-15; 130:9-13; 138:19-25; 153:5-7. Indeed, some of the assets were already fully depreciated by [REDACTED]. See CX-0688C (AM-ITC-0102351). This indicates that at least some of the plant and equipment was purchased well before the complaint in this Investigation. Mr. Malackowski did not explain how assets purchased well before the complaint are indicative of a domestic industry at the time of the complaint. The net book value of the assets

██
██
included in Mr. Malackowski's estimates for plant and equipment was ██████████ (compared to Mr. Malackowski's total acquisition cost of ██████████). Using net book value instead of acquisition cost reduces Mr. Malackowski's estimates for plant and equipment for tested products by approximately ██████████. Making that adjustment and correcting to only include plant and equipment allocated to the six subpoenaed hot stampers yields ██████████, a reduction of ██████████.

ii. Labor and Capital

ArcelorMittal's labor and capital values are overstated at least because it includes "indirect" labor costs for each of the Tier 1 hot stampers. As an initial matter, ArcelorMittal failed to adduce evidence showing the relationship between the labor and capital and the DI Precursor Products (much less the DI Direct Products) or supporting ArcelorMittal's assertion that the alleged investments in this labor and capital should be fully attributed to the domestic industry. Indeed, the indirect labor values relate to activities that merely support the manufacturing of DI Precursor and DI Direct Products, which amounts to about ██████████ of the total labor values ArcelorMittal relies upon.

2. ██████████

As for ██████████ ArcelorMittal and its experts do not rely on a quantification of investments in the DI Precursor Product allegedly produced by ██████████ called ██████████ in support of its domestic industry theory, as a comparison between Mr. Malackowski's Exhibit 3.0.0 and Figure 1 show. *See* CX-0118C, CX-0081C (Malackowski Rpt.) at Fig. 1. In the row for ██████████ investments in DI Precursor Products in Exhibit 3.0.0, Mr. Malackowski states "Not calculated" for all the investments in Subsections A and B. *See* CX-0118C. Then in the summary of his opinions in Figure 1, Mr. Malackowski's "DI Precursor Investments" are the same

as the “Calvert” investments in DI Precursor Products. Thus, ArcelorMittal does not incorporate any [REDACTED] investments into a quantifiable domestic industry analysis.

C. Plant and Equipment / Labor and Capital: DI Direct Products

Even if ArcelorMittal had shown that all products hot stamped with the DI Precursor Products steel practice the Asserted Patents (and it has not), ArcelorMittal’s allegations based on the alleged investments of the subpoenaed Tier 1 hot stampers falls short of the specificity and reliability the Commission requires for showing domestic industry. As a threshold matter, ArcelorMittal has not shown that any Tier 1 hot stamper that manufactures any DI Direct Product has any license rights to the Asserts Patents; ArcelorMittal has produced no evidence of any such license rights. *See, e.g.*, RX-1276C (LeBlanc Tr.) at 41:11-42:5, RX-1279C ([REDACTED] Tr.) at 147:10-22. Further, as discussed below, ArcelorMittal’s estimates of each Tier 1 hot stamper’s alleged domestic industry investments are overstated and uncorroborated.

1. [REDACTED] (Cannon Automotive Solutions)

At the heart of his analysis, Mr. Malackowski makes the unsupported assumption that “[REDACTED] % of hot stamping activities” undertaken by [REDACTED] in [REDACTED] [REDACTED] are “directly related to the DI Direct Products.” The evidence Mr. Malackowski cites does not support this assumption. Mr. Malackowski relies on the testimony of [REDACTED] corporate deponent [REDACTED] that [REDACTED] [REDACTED] RX-1279C ([REDACTED] Tr.) at 23. However, Mr. [REDACTED] was being asked only about the [REDACTED], and his testimony was just that out of all the activities conducted there (including [REDACTED] [REDACTED]), the hot-stamping activities are the ones that relate to aluminized steel. *Id.* Nowhere in Mr. [REDACTED] deposition was he presented with any list of the specific list of DI Precursor Products at issue in this investigation, nor did he

[REDACTED]

profess to have knowledge of them. Indeed, Mr. [REDACTED] testified that beyond knowing it was aluminized steel, he was not familiar with the *specific* aluminized steel that is hot stamped at the [REDACTED] RX-1279C ([REDACTED] Tr.) at 126-27. Mr. [REDACTED] further testified about numerous different coating weights for the aluminized steel that [REDACTED] hot stamps, none of which are the “AS150” coating weights alleged to be found on the DI Direct Products,¹⁴ and agreed that the [REDACTED] *Id.* at 118-121. Mr. Malackowski’s assumption that all of the aluminized steel hot stamped by Cannon is a DI Direct Product is unsupported.

In addition, to allocate certain [REDACTED] investments to hot stamping (as opposed to other activities like cold stamping), Mr. Malackowski relied on annotations that were added to [REDACTED] financial statements for purposes of litigation to indicate an alleged [REDACTED] for certain time periods. There is no foundation whatsoever for how alleged [REDACTED] was calculated. [REDACTED] corporate deponent [REDACTED] testified that he did not know how the calculation was performed. *Id.* at 143-45. His understanding was that someone named [REDACTED] (who was neither deposed nor offered for deposition) performed the calculations [REDACTED] but Mr. [REDACTED] did not know the details of [REDACTED] calculations. *Id.* at 145-146.

2. [REDACTED]

Mr. Malackowski relies on unsupported assumptions about the percentage of hot stamped parts produced at the [REDACTED] facilities that are allegedly attributable to DI Direct Products. For example, Mr. Malackowski assumes that

¹⁴ Mr. Malackowski attempts to partially fill this gap by claiming that one of the coating weights for aluminized steel hot stamped by [REDACTED] which he claims is “equivalent” to AS150. However, ArcelorMittal never claimed that the DI Direct Products include aluminized steel with a coating weight “equivalent” to AS150.

because [REDACTED]

Similarly, Mr. Malackowski assumes that because [REDACTED]

[REDACTED] There is no evidence, however, that the DI Precursor Products are used for [REDACTED] hot stamping of aluminized steel. For example, notably missing is any citation to or discussion of evidence showing that ArcelorMittal supplies *all* of aluminized steel hot stamped at the [REDACTED]. Mr. Malackowski also makes the further unsupported assumption that: “Because I am unaware of information produced by [REDACTED] to determine the personnel specifically attributable to each hot stamping line, at a minimum, it is reasonable to attribute at least [REDACTED] of the hot stamping personnel labor costs to work performed relating to hot stamped aluminized steel (with the other [REDACTED] attributable to uncoated material).”

3. [REDACTED]

ArcelorMittal and Mr. Malackowski simply assume that all of [REDACTED] hot stamping activity uses DI Precursor Products (as opposed to other precursor steel), without relying on any [REDACTED] documents to support this assumption. Mr. Malackowski relies on the testimony of [REDACTED] witness Mr. [REDACTED] but he was unable to confirm that all of [REDACTED] hot stamping activity makes use of DI Precursor Products. *See* RX-1278C ([REDACTED] ([REDACTED] Tr.) at 78 [REDACTED]

Mr. Malackowski relies on Mr. [REDACTED]

statement that ArcelorMittal was the only supplier he was [REDACTED] of, but Mr. [REDACTED] was not prepared with [REDACTED] knowledge on that topic and said that he would need to go to [REDACTED] to determine which suppliers [REDACTED] uses. *See id.* Indeed, Mr. [REDACTED] job responsibilities relate to [REDACTED], not [REDACTED] supply chain. *Id.* at 60:4-25. Mr. [REDACTED] said he was [REDACTED] with the specific companies that supply steel to [REDACTED] for hot stamping. *Id.* at 77:21-78:7. Mr. Malackowski further relies on Mr. [REDACTED] uncorroborated statement that hot stamped aluminized parts “probably” represent approximately [REDACTED] of [REDACTED] revenues, but [REDACTED] produced no documents (and ArcelorMittal relies on none) to substantiate Mr. [REDACTED] supposition. *Id.* at 14:4-11. Further, Mr. [REDACTED] estimate was only that [REDACTED] of [REDACTED] revenues are derived from hot stamping “coated” steel, not hot stamping DI Precursor Products in particular. *Id.*

4. [REDACTED]

Mr. Malackowski relies on the total metric tons of steel that [REDACTED] purchases as an input to his analysis, taken from a made-for-litigation document [REDACTED] produced. *See* RX-0963C. In deposition, however, [REDACTED] corporate representative Mr. [REDACTED] testified that he was [REDACTED] [REDACTED] RX-1286C ([REDACTED] Tr.) at 51:3-14. Mr. [REDACTED] could also not identify what portion of the [REDACTED] research and development budget was actually related to the alleged DI Precursor Products. *Id.* at 54:22-25. For [REDACTED] produced labor investments (reflected in RX-0965C), Mr. [REDACTED] did not know where the data came from (RX-1286C ([REDACTED] Tr.) at 38:8-11, the number of years that the estimate was reliable for, (*id.* at 38:22-39:2), what activities it related to or any additional specificity (*id.* at 39:10-22). The investments are also unreliable because Mr. Malackowski simply “assumed” that [REDACTED] of the Ultralume purchased by [REDACTED] comprised an AS150 coating,” without any underlying support beyond the

figure that [REDACTED] of [REDACTED] investments relate to DI Precursor Products and uses that value in the remainder of his analysis.

5. [REDACTED]

Mr. Malackowski relied on the deposition testimony of Ms. [REDACTED] to substantiate the alleged investments [REDACTED] made. Ms. [REDACTED] however, repeatedly testified she was unsure about the source of the underlying data, contradicted her own testimony, and generally lacked a sufficiently reliable basis for her testimony. For example, she testified her knowledge was limited to [REDACTED] facility. RX-1283C ([REDACTED] Tr.) at 11:9-15. She could not identify relevant equipment that Mr. Malackowski incorporates into his analysis. *Id.* at 25:17-17. She lacked knowledge about costs (*id.* at 40:10-22, 47:8-15), the basis accounting system used to track the relevant data (*id.* at 56:19-21), whether certain costs for an entire assembly line of only part (*id.* at 57:8-14), could not differentiate between [REDACTED] description of “fixtures” or “equipment,” (*id.* at 57:25-58:7), when asked about the “leasehold improvements,” Ms. [REDACTED] simply stated [REDACTED] *Id.* at 60:3-4. As for the source of the material, Ms. [REDACTED] did not even have an understanding of who AM/NS Calvert was. *Id.* at 17:11-14. And Ms. [REDACTED] testimony regarding the technical aspects of [REDACTED] product development was similarly lacking in specifics. Even Mr. Malackowski was forced to admit that Ms. [REDACTED] vacillated stating, [REDACTED]

[REDACTED]

[REDACTED]

6. [REDACTED]

[REDACTED] corporate designee explained that the [REDACTED] allocation of investments in plant, equipment, labor, capital was a [REDACTED] which he later explained is just a guess. RX-1273C ([REDACTED] Tr.) at 16:12-18, 17:23-18:2, 18:23-19:18, 26:21-24, 31:2-10, 33:13-15, 37:14-17, 43:8-10, 67:3-

[REDACTED]
[REDACTED]
7, 84:16-85:16, 82:20-23. Moreover, Mr. Malackowski relies on certain [REDACTED] documents that were produced *after* the deposition, which lack any foundation whatsoever such as RX-1008C (TA000077).

7. [REDACTED]

[REDACTED] produced no business records in this case supporting any of its alleged investments in plant, equipment, labor, or capital. RX-1280C ([REDACTED] Tr.) at 61-64. For the alleged investments, Mr. Malackowski relies entirely on an out-of-court declaration from the [REDACTED] of [REDACTED] Mr. [REDACTED] declaration makes unsubstantiated assertions about [REDACTED] alleged investments in salaries for employees that “support” hot stamping or in plant and equipment used to manufacture hot stamped parts. ArcelorMittal failed to obtain any business records to verify any of Mr. [REDACTED] out-of-court statements. Mr. [REDACTED] declaration notes that the alleged labor costs include [REDACTED]

[REDACTED] There is otherwise no information about the number of employees, their respective job functions, or their relationship to the alleged domestic industry activities. Mr. [REDACTED]’s declaration includes a conclusory list of some examples of the alleged equipment [REDACTED]

[REDACTED] but there is no list of each item of equipment at issue, its cost, or its association to the alleged domestic industry activities—much less a complete list of all such equipment. None of the amounts in Mr. [REDACTED] declaration can be parsed on a per product basis. *Id.* ([REDACTED] Tr.) at 68. Further, Mr. [REDACTED] testified that [REDACTED]

[REDACTED], and he was unable to say how much of the total was associated with each item or type of equipment. *Id.* at 44-46. With respect to the [REDACTED] facility, the information that Mr. Malackowski relied upon is even less reliable. For the [REDACTED] facility, Mr. [REDACTED] did not have personal knowledge of the information

[REDACTED]

in his declaration and did not personally collect it. Instead, it was relayed to him from yet another out-of-court declarant, Mr. [REDACTED], the [REDACTED] of [REDACTED] who was neither deposed nor offered for deposition. *Id.* at 64-66. Mr. [REDACTED] statements not only lack any details or supporting business records but are even more unreliable hearsay than Mr. [REDACTED]

D. Alleged Exploitation in ER&D

ArcelorMittal's alleged investments under Subsection C are similarly overstated. ArcelorMittal relies on certain "ER&D" investments in labor and equipment at ArcelorMittal's East Chicago facility related to Usibor, Ductibor, or PHS. Mr. Malackowski asserts investments of approximately [REDACTED] in ER&D labor over a ten-year period from 2014 to 2024, and of approximately [REDACTED] in ER&D equipment for equipment acquired as far back as 1999. However, Mr. Malackowski does not allocate the alleged investments to articles that practice the Asserted Patents. Mr. Malackowski acknowledges that these alleged investments in labor/equipment are not exclusively related to the DI Precursor Products, and he makes no attempt to perform an allocation to show the portion of the alleged labor/equipment investments specifically attributable to the DI Precursor Products. Nor does Mr. Malackowski allocate the alleged investments to DI Direct Products associated with the six subpoenaed hot stampers, much less to the tested DI Direct Products. For the reasons discussed above, ArcelorMittal has failed to show that all hot-stamped products made using the DI Precursor Products practice the Asserted Patents.

E. Significance / Substantiality

ArcelorMittal has failed to show that any cognizable domestic industry investments are significant or substantial. Indeed, ArcelorMittal and Mr. Malackowski do not even allege that the alleged domestic industry investments associated with "tested" products under Mr. Malackowski's

[REDACTED]

alternative (and third) allocation methods are significant or substantial; they are not. That third analysis results in cognizable investments of only [REDACTED], which amounts to a rounding error in the context of ArcelorMittal's overall business. *Lelo Inc. v. Int'l Trade Comm'n*, 786 F.3d 879, 885 (Fed. Cir. 2015); *Certain Carburetors & Prods. Containing Such Carburetors*, Comm'n Op., Inv. No. 337-TA-1123, 2019 WL 5622443, at *10-15 (Oct. 28, 2019). For example, Mr. Malackowski's estimate of [REDACTED] related to the tested products only accounts for [REDACTED] of the total domestic investments he calculated for the Calvert facility:

[REDACTED]

Adjusted to account for Mr. Malackowski's erroneous methodology (discussed above with respect to the claimed investments by AM-NS Calvert, these amounts are even lower.

[REDACTED]

Because ArcelorMittal's approach "does not appropriately evaluate" the significance of its alleged investments, "as opposed to their absolute value," the ALJ should find that ArcelorMittal failed to show economic domestic industry. *Certain Movable Barrier Operation Sys.*, Inv No. 337-TA-1118, Ord. Vacating & Remanding Ord. No. 38 (May 4, 2020).

In addition, Mr. Malackowski's estimates for investments in tested products are also not significant when compared with Calvert's revenue for the DI Precursor Products. Using Calvert's "net realized price average per metric ton" to estimate the revenue derived from the DI Precursor Products yields [REDACTED] from 2019 to 2023. RX-1275C (Richards Tr.) at 78. Mr. Malackowski's estimates for domestic investments in tested products, which included investments from 2018 through 2023, made up only [REDACTED] of this revenue.¹⁵ Calvert's revenue from the six subpoenaed hot stampers was approximately [REDACTED] from 2019 to 2023. Mr. Malackowski's estimates for the tested products, when limited to the six subpoenaed hot stampers, made up only [REDACTED] of this revenue.¹⁶

In addition, ArcelorMittal has failed to provide comparative analysis showing that the alleged domestic industry investments are significant or substantial in context. As noted, ArcelorMittal is a large conglomerate with revenues over \$68 billion and more than 126,000 employees worldwide (as of the end of 2023). RX-1261 at 202, 246. ArcelorMittal's global operations dwarf the alleged domestic industry investments, which ArcelorMittal has attempted to cobble together from various alleged plant, equipment, labor, and capital investments not only of ArcelorMittal but numerous third parties (which in some cases go back more than 25 years). ArcelorMittal has failed to provide context for how the alleged investments compare to ArcelorMittal's global operations, much less how they compare to the overall global (or even U.S.)

¹⁵ Calculated as: [REDACTED]

¹⁶ Calculated as: [REDACTED]

operations of the various third-party steel manufacturers and/or hot stampers.

With respect to Subsection C, Mr. Malackowski offers a comparison of the alleged ER&D labor at East Chicago to what he alleges to be ArcelorMittal's worldwide "ER&D" labor with respect to Usibor, Ductibor, and PHS (Press Hardened Steel). CX-0081C at 168-69. However, Mr. Malackowski does not explain how he calculated the amounts he alleges to be ArcelorMittal's worldwide "ER&D" labor with respect to Usibor, Ductibor, and PHS. Further, Mr. Malackowski acknowledges that ArcelorMittal actually has an annual worldwide R&D budget of [REDACTED], and that at least a [REDACTED] of that relates to automotive. Moreover, ArcelorMittal's global head of research and development testified that less than [REDACTED] percent of its annual budget is attributable to research and development for "press hardened steels" of which the DI Precursor Products are only part, within the United States. RX-1281C (Thirion Tr.) at 51:15-52:13. ArcelorMittal has failed to show that the alleged "ER&D" investments are substantial in the context of ArcelorMittal's worldwide R&D investments.

VI. REMEDY AND BONDING¹⁷

A. Limited Exclusion Order

ArcelorMittal has not shown any violation of Section 337 in this Investigation. For example, ArcelorMittal has not shown infringement, the technical prong of the domestic industry requirement, the economic prong of the domestic industry requirement. If the Commission finds no violation, it should not issue an LEO. *See* 19 U.S.C. § 337(d). ArcelorMittal has also failed to show that an LEO should issue in view of public interest considerations. Because the Commission declined to delegate public interest issues to the Administrative Law Judge, Respondents will present public interest arguments to the Commission. Respondents reserve all rights to argue that

¹⁷ The Commission did not delegate public interest issues to the ALJ. Thus, VinFast will present public interest evidence and arguments to the Commission.

the Commission should tailor, delay, or suspend remedial orders, if it finds a violation. *See Certain Lithium Ion Batteries, Battery Cells, Battery Modules, Battery Packs, Components Thereof, and Processes Therefor*, Inv. No. 337-TA-1159, Comm’n Op. at 3-4, 41-89 (Mar. 4, 2021) (tailoring orders); *Certain Wearable Electronic Devices with ECG Functionality and Components Thereof*, Inv. No. 337-TA-1266, Comm’n Op. at 86-87 (Jan. 20, 2023) (suspending enforcement of orders) (“*Wearable Electronic Devices*”).

If the Commission finds a violation, it should enter a warranty-and-repair exemption and a standard certification requirement. The Commission should permit VinFast to continue servicing, repairing, and replacing products that consumers in the U.S. have already purchased. *See Certain Fitness Devices*, Inv. No. 337-TA-1265, Comm’n Op. at 90 (Mar. 23, 2023); *Certain Network Devices*, Inv. No. 337-TA-944, Comm’n Op. at 53-54 (Apr. 19, 2017); <https://vinfastauto.us/service> (discussing VinFast warranty); CX-0931 (VINFAST1402-00000150) (VinFast 20-F) at 184. Additionally, the Commission should also include its standard certification provision, since there is no dispute that infringement cannot be determined by visual inspection. *See Certain Wearable Electronic Devices with ECG Functionality*, Inv. No. 337-TA-1266, Comm’n Op. at 50 (Jan. 20, 2023). Additionally, if the Commission determines that particularized products do not infringe (including if Complainant has not satisfied its burden of showing that certain accused products infringe), it should include an explicit carve out for specific products where Complainant failed to show infringement. *See Certain Human Milk Oligosaccharides and Methods of Producing the Same*, Inv. No. 337-TA-1120, Comm’n Op. at 27 (June 8, 2020) (including a carve out for products found not to infringe).

B. Cease and Desist Order

“CDOs are generally issued when, with respect to the imported infringing products, respondents maintain commercially significant inventories in the United States or have significant

[REDACTED]

domestic operations that could undercut the remedy provided by an exclusion order.” *Certain Light-Based Physiological Measurement Devices and Components Thereof*, Inv. No. 337-TA-1276, Comm’n Op. at 74 (Nov. 14, 2023). “Complainants bear the burden on this issue: ‘[a] complainant seeking a [CDO] must demonstrate, based on the record, that this remedy is necessary to address the violation found in the investigation so as to not undercut the relief provided by the exclusion order.’” *Id.* (quoting *Certain Table Saws Incorporating Active Injury Mitigation Technology and Components Thereof*, Inv. No. 337-TA-965, Comm’n Op. at 13-14 (Feb. 1, 2017) (“*Table Saws*”)). CDOs are issued on a respondent-by-respondent basis and not to respondents as a group. *See, e.g., Certain Road Construction Machines and Components Thereof*, Inv. No. 337-TA-1088, Comm’n Op. at 51-53 (issuing a CDO to Wirtgen America, but not two affiliates). As to domestic operations, inventory, or the ability to replenish inventory, is needed to undercut an exclusion order. *See Certain Power Inverters and Converters, Vehicles Containing the Same, and Components Thereof*, Inv. No. 337-TA-1267, RD at 8 (Aug. 26, 2022) (recommending a CDO directed to General Motors because “the significant domestic manufacturing operations of General Motors could be used to circumvent an exclusion order by importing infringing inverters and converters before remedial orders issue”).

ArcelorMittal has not shown that any CDO is warranted under the facts and circumstances at issue here. ArcelorMittal points to various activities that it alleges are performed in the United States with respect to the Accused Products. CX-0081C at 171-72. ArcelorMittal also points to parties’ stipulation that as of September 2024, Respondents maintained [REDACTED] of VF 8s [REDACTED]. ArcelorMittal claims this amount is significant by comparing it to total sales of VinFast automobiles (which have been [REDACTED] [REDACTED]). However, ArcelorMittal fails to show that VinFast’s inventory or alleged

domestic operations would undercut any remedy, particularly when compared to the millions of automobiles sold in the U.S. per year from OEMs that source automobile parts from ArcelorMittal-affiliated steel manufacturers and hot stampers. Put simply, ArcelorMittal has failed to show that any remedy provided by an LEO would be undercut in the absence of a CDO. ArcelorMittal also fails to identify the specific respondent(s) to which any CDO should be issued, based on the foregoing. The same carveouts discussed in the LEO section also apply to any CDO, to the extent the ALJ and/or Commission determine that a CDO is warranted.

C. Bond

Section 337(j) caps the bond rate at “an amount . . . *sufficient* to protect the complainant from any injury.” 19 U.S.C. § 1337(j) (emphasis added). “The purpose of the bond is to offset any competitive advantage resulting from the unfair method of competition or unfair act enjoyed by persons benefiting from the importation of the article, rather than to serve as a deterrent to such importation.” *Accord Certain Roller Units*, Inv. No. 337-TA-44, USITC Pub. No. 944, Comm’n Op. at 12 (Feb. 14, 1979) (“*Roller Units*”); *Certain Dynamic Random Access Memories, Components Thereof and Products Containing Same*, Inv. No. 337-TA-242, USITC Pub. No. 2034, Comm’n Op. at 95 (Sep. 21, 1987). When assessing bond rate, the Commission has traditionally considered (1) the difference in sales price between the domestic industry product and the imported accused product or (2) the reasonable royalty rate that a complainant would have been able to command had they licensed the asserted patents. *See Certain Table Saws Incorporating Active Injury Mitigation Technology and Components Thereof*, Inv. No. 337-TA-965, Comm’n Op. at 13-14 (Feb. 1, 2017) (“*Table Saws*”). The complainant bears “the burden of supporting any proposition it advances, including the amount of the bond.” *Certain Rubber Antidegradants, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-533,

Comm'n Op. at 39-40 (July 21, 2006) ("*Rubber Antidegradants*") (setting no bond where the complainant failed to show that a bond was necessary "to offset any competitive advantage").

Here, ArcelorMittal has not shown a bond is needed or what amount would be appropriate. ArcelorMittal's expert Mr. Malackowski offers no price differential analysis. To the extent the Commission finds any amount of bond is appropriate, it should not exceed the royalty rate flowing from ArcelorMittal's licenses. For example, ArcelorMittal generally licenses the Asserted Patents for [REDACTED] of U.S. dollars per metric ton, whereas it is overreaching here by seeking a bond in the tens of *thousands* of dollars per automobile (where VinFast's VF9 weighs around 3 metric tons total, predominantly comprised of non-aluminized steel parts): CX-0031C (AM-ITC-0005393); CX-0034C (AM-ITC-0005439); CX-0034C (AM-ITC-0005449); CX-0032C (AM-ITC-0005457); CX-0034C (AM-ITC-0005469); CX-0035C (AM-ITC-0005479); CX-0035C (AM-ITC-0005495); CX-0031C (AM-ITC-0005548); CX-0031C (AM-ITC-0005553); CX-0031C (AM-ITC-0005558); CX-0031C (AM-ITC-0005563); CX-0031C (AM-ITC-0005567); CX-0031C (AM-ITC-0005571); CX-0031C (AM-ITC-0005576); CX-0031C (AM-ITC-0005581); CX-0031C (AM-ITC-0005584); CX-0031C (AM-ITC-0005589); CX-0031C (AM-ITC-0005594); CX-0031C (AM-ITC-0005597); CX-0031C (AM-ITC-0005601); CX-0031C (AM-ITC-0006634); CX-0031C (AM-ITC-0010990), CX-0031C (AM-ITC-0051310); and CX-0033C (AM-ITC-0051315).

VII. CONCLUSION

Based on the forgoing, ArcelorMittal will fail to show any violation of Section 337 or that its proposed remedies are warranted.

Dated: January 29, 2025

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the foregoing document:

PUBLIC VERSION OF RESPONDENTS' CORRECTED PRE-HEARING BRIEF

have been filed and served on this 7th day of February, 2025, on the following:

The Honorable Lisa R. Barton Secretary to the Commission U.S. INTERNATIONAL TRADE COMMISSION 500 E Street, S.W., Room 112-A Washington, D.C. 20436	☐ Via First Class Mail ☐ Via Hand Delivery ☐ Via FedEx ☐ Via Electronic Mail ☒ Via Electronic Filing (EDIS)
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