Slip Op. 13-59

UNITED STATES COURT OF INTERNATIONAL TRADE

EOS OF NORTH AMERICA, INC., Plaintiff, v. **UNITED STATES**, Defendant.	**Before: Timothy C. Stanceu, Judge** **Consol. Court No. 08-00298**

OPINION

[Determining on cross-motions for summary judgment the tariff classifications of two laser sintering systems]

Dated: May 10, 2013

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Justin Reinhart Miller, Trial Attorney, Commercial Litigation Branch, Civil Division, U.S. Department of Justice, of Washington, DC, for defendant United States. With him on the briefs were *Tony West*, Assistant Attorney General and *Barbara S. Williams*, Attorney in Charge, International Trade Field Office. Of counsel on the briefs was *Yelena Slepak*, Office of Assistant Chief Counsel, U.S. Customs and Border Protection, of New York, NY.

Stanceu, Judge: Plaintiff EOS of North America, Inc. ("EOS") brought three actions, now consolidated,[1] challenging tariff classification decisions that United States Customs and Border Protection ("Customs") made upon liquidating EOS's entries in 2007. Consol. Am. Compl.

[1] Due to the presence of common issues, the court consolidated the following three actions under Consol. Court No. 08-00298: *EOS of North America, Inc. v. United States*, Court No. 08-00298, *EOS of North America, Inc. v. United States*, Court No. 09-00087, and *EOS of North America, Inc. v. United States*, Court No. 09-00185. Order (Mar. 11, 2010), ECF No. 18.

(June 23, 2010), ECF No. 21-1. At issue are the tariff classifications of two models of machines, each known as a "laser sintering" system. *Id*. ¶¶ 18, 24, 38; Commercial Invoices, USCIT Court File (Court Nos. 08-00298, 09-00087, and 09-00185) ("Commercial Invoices"). EOS moves, and defendant United States cross-moves, for summary judgment on the classification of both models. Pl.'s Mot. for Summ. J. (May 27, 2011), ECF No. 38; Def.'s Cross-Mot. for Summ. J. (Sept. 12, 2011), ECF No. 47.

The "Lasersintering system EOSINT M 270" (hereinafter, the "M270") and "Lasersintering system EOSINT P 390" (hereinafter, the "P390"), rapidly manufacture complex, three-dimensional objects. Consol. Am. Compl. ¶ 18; Commercial Invoices. The systems use as a raw material either particles of metal (in the case of the M270) or particles of plastic (in the case of the P390). Consol. Am. Compl. ¶¶ 24, 31, 38. Both systems rely on an automated process EOS describes as "laser sintering," in which a computer, applying data stored therein, directs a built-in laser that selectively heats, and melts together, particles within a "build chamber" to form thin layers shaped according to the stored data. *Id*. ¶¶ 18, 20. The laser sintering process is described as a method of "additive manufacturing" because it uses raw material to make objects, layer by layer, from three-dimensional model data. *Id*. ¶ 19.

The court, exercising jurisdiction under section 201 of the Customs Courts Act of 1980, 28 U.S.C. § 1581(a) (2006), grants in part and denies in part plaintiff's motion for summary judgment and grants defendant's cross-motion for summary judgment. The court determines that there are no genuine issues of fact material to the tariff classification issues presented. The court determines that the M270 is properly classified according to the alternate classification advocated by both parties and that defendant's sole classification position for the P390 is correct.

I. BACKGROUND

A. Entries of the EOSINT M270 (Metal) Laser Sintering System

EOS imported two M270 laser sintering systems from Germany in 2007, filing Entry No. 336-8377783-6 (April 3, 2007) and Entry No. 336-7738167-2 (June 14, 2007) at the port of Chicago, Illinois. Pl.'s Stmt. Of Mat. Facts for which There Is No Genuine Issue to be Tried ¶ 4 (May 27, 2011), ECF No. 38 ("Pl.'s Stmt.").[2] Upon liquidating these two entries, Customs classified the M270 in subheading 8477.80.00, Harmonized Tariff Schedule of the United States ("HTSUS") (2007) ("Machinery for working rubber or plastics or for the manufacture of products from these materials, not specified or included elsewhere in this chapter; Other machinery") at 3.1% *ad. val.*, a classification it does not advocate before the court.[3] *Id*. ¶ 6.

In protesting the liquidation of the April entry (*i.e.*, Entry No. 336-8377783-6) on February 15, 2008, EOS claimed classification of the M270 in subheading 8479.89.98, HTSUS, a residual ("basket") provision applying to "[m]achines and mechanical appliances having individual functions, not specified or included elsewhere in this chapter; Other" at 2.5% *ad val*. Consol. Am. Compl. ¶¶ 26, 29. Customs denied this protest on March 19, 2008, concluding that the M270 was properly classified as a "machine tool" in subheading 8463.90.00, HTSUS ("Other machine tools for working metal or cermets, without removing material; Other"), at 4.4% *ad val*. *Id*. ¶ 30. EOS then filed a timely summons and complaint to contest the protest denial. Summons (Sept. 12, 2008), ECF No. 1; Compl. (Aug. 31, 2009), ECF No. 7.

[2] All facts stated in this Opinion are undisputed except where otherwise noted.

[3] Because all entries at issue in this case occurred in 2007, the court's citations to the Harmonized Tariff Schedule of the United States ("HTSUS") are to the 2007 version.

On September 2, 2008, EOS protested the liquidation of the June entry (Entry No. 336-7738167-2), claiming classification of the imported M270 as a "laser welding machine" in subheading 8515.80.00, HTSUS ("Electric . . . , laser or other light or photon beam . . . soldering, brazing or welding machines and apparatus, whether or not capable of cutting; . . . Other machines and apparatus"), free of duty. Consol. Am. Compl. ¶ 36. Notwithstanding the action it took in denying the protest of the previous entry, and even though the M270 uses metal, not rubber or plastic, Customs concluded when denying the protest on November 25, 2008 that the classification determined upon liquidation, subheading 8477.80.00, was correct. *Id*. ¶ 37. EOS filed a timely summons and complaint to contest the protest denial. Summons (Feb. 23, 2009), ECF No. 1 (Court No. 09-00087); Compl. (Aug. 31, 2009), ECF No. 11 (Court No. 09-00087).

B. Entry of the EOSINT P390 (Plastic) Laser Sintering System

EOS imported a P390 system into the United States on September 4, 2007 through the Port of Norfolk, Virginia on Entry No. 336-8542789-3. Pl.'s Stmt. ¶ 5. In liquidating this entry, Customs classified the P390 in subheading HTSUS 8477.80.00 (2007) as "[m]achinery for working rubber or plastics or for the manufacture of products from these materials, not specified or included elsewhere in this chapter . . . other machinery" at 3.1% *ad val*. *Id*. ¶ 8. On September 29, 2008, EOS protested the liquidation of the entry, claiming that the proper classification of the P390 was as a "laser . . .beam . . . welding machine" in subheading 8515.80.00, HTSUS (2007), free of duty. Consol. Am. Compl. ¶ 40. After Customs denied the protest on May 6, 2009, EOS filed a timely summons and complaint. Summons (May 7, 2009), ECF No. 1 (Court No. 09-00185); Compl. (Aug. 31, 2009), ECF No. 5 (Court No. 09-00185).

C. Proceedings in this Court

In its consolidated complaint, plaintiff claimed that the M270 and P390 should be classified as laser beam welding machines in subheading 8515.80.00, HTSUS (2007) free of duty. Consol. Am. Compl. ¶¶ 43-44. For both systems, plaintiff also claimed, in the alternative, the residual provision of subheading 8479.89.98, HTSUS, which applies to "other . . . machines and mechanical appliances having individual functions, not specified or elsewhere included in this chapter [chapter 84]; Other" at 2.5% *ad val*. *Id*. ¶¶ 46-47. Defendant asserted classification of the two M270 entries in subheading 8463.90.00, HTSUS as "[o]ther machine tools for working metal or cermets, without removing material: Other," dutiable at 4.4% *ad val.* in its amended answer to plaintiff's consolidated complaint, filed on July 13, 2010. Answer to Consol. Am. Compl. 8-9, ECF No. 23.

On May 27, 2011, plaintiff moved for summary judgment under USCIT Rule 56 on the classification of the M270 and P390, claiming classification of both in subheading 8515.80.00, HTSUS (2007) as laser beam welding machines, free of duty. Pl.'s Mot. for Summ. J.; Mem. in Supp. of Pl.'s Mot. for Summ. J. 2 (May 27, 2011), ECF No. 38 ("Pl.'s Mem."). In seeking summary judgment, plaintiff claimed that if the M270 is not properly classifiable as a laser beam welding machine in subheading 8515.80.00, HTSUS, then it is classifiable in subheading 8479.89.98, HTSUS, "machines and mechanical appliances having individual functions, not specified or elsewhere included in this chapter [chapter 84]; Other," at 2.5% *ad val*. Pl.'s Mem. 5-6. Plaintiff also conceded, without asserting as an alternate claim, that if the P390 is not properly classifiable as a laser beam welding machine in subheading 8515.80.00, HTSUS, then it is classifiable in subheading 8477.80.00, HTSUS, "[m]achinery for working rubber or plastics or for the manufacture of products from these materials, not specified or included elsewhere in this

chapter . . . other machinery," at 3.1% *ad val.*, under which it was liquidated by Customs. *Id.* at 21 n.11.

On September 12, 2011, defendant cross-moved for summary judgment under USCIT Rule 56.[4] Def.'s Cross-Mot. for Summ. J. Defendant argued that the M270 is properly classified as a "machine tool" in subheading 8463.90.00, dutiable at 4.4% *ad val.*, and in the alternative, argued for classification in subheading 8479.89.98, the Chapter 84 residual provision, at 2.5% *ad val*. Def.'s Mem. in Supp. of its Cross-Mot. for Summ. J. & in Opp'n to Pl.'s Mot. for Summ. J. 2, 36-37 (Sept. 12, 2011), ECF No. 47 ("Def.'s Mem."). In its summary judgment motion, defendant advocated the classification of the P390 in subheading 8477.80.00, HTSUS, ("[m]achinery for working rubber or plastics or for the manufacture of products from these materials, not specified or included elsewhere in this chapter . . . other machinery"), at 3.1% *ad val*. *Id.* at 2, 26.

The court held oral argument on March 8, 2012. At the conclusion of the argument, the court asked the parties a series of questions, which the parties addressed in supplemental briefs filed on April 30, 2012. Suppl. Mem. in Supp. of Pl.'s Mot. for Summ. J. (Apr. 30, 2012), ECF

[4] After filing its cross-motion for summary judgment, defendant moved for leave to file a motion seeking to exclude certain submissions made by plaintiff in moving for summary judgment based on evidentiary grounds. Def.'s Mot. for Leave to File a Suppl. Mem. Setting Forth Evidentiary Objs. to Pl.'s Mot. for Summ. J. 1 & Def.'s Suppl. Mem. Setting Forth Evidentiary Objs. to Pl.'s Mot. for Summ. J. 1-2 (Nov. 29, 2011), ECF No. 61. Plaintiff did not oppose the filing of the supplemental memorandum but contested each of defendant's objections. Pl.'s Resp. to Def.'s Mot. for Leave to File a Suppl. Mem. Setting Forth Evidentiary Objs. to Pl.'s Mot. for Summ. J. 1-2 (Dec. 19, 2011), ECF No. 75. The court granted defendant's motion for filing its memorandum, and, construing the motion as one to exclude the submissions to which defendant objected, granted the motion in part and denied the motion in part. Order (May 10, 2013), ECF No. 96. In discerning the facts about which there is no genuine dispute, the court disregarded certain of plaintiff's assertions on evidentiary grounds; other assertions were not considered as factual assertions because they constituted legal conclusions. The court addresses the parties' statements of material facts in Part II(B) of this Opinion.

No. 92-1 ("Pl.'s Suppl. Mem."); Def.'s Suppl. Mem. in Supp. of its Cross-Mot. for Summ. J. (Apr. 30, 2012), ECF No. 90. In its supplemental brief, plaintiff informed the court that in seeking summary judgment, it no longer wished to pursue its alternative classification claim for the M270, *i.e.*, subheading 8479.89.98, the residual provision of Chapter 84, at 2.5% *ad val.*, arguing that the laser beam welding machine provision, subheading 8515.80.00, HTSUS, which is free of duty, is the correct tariff classification of the M270.[5] Pl.'s Suppl. Mem. 11.

II. DISCUSSION

The court proceeds *de novo* in actions brought under section 515 of the Tariff Act of 1930, 19 U.S.C. § 1515 (2006), to contest the denial of a protest. *See* Customs Courts Act of 1980, § 301, 28 U.S.C. § 2640(a)(1) (2006) (directing the Court of International Trade to "make its determinations upon the basis of the record made before the court"). Summary judgment is appropriate "if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." USCIT R. 56(a). Where tariff classification is at issue, summary judgment is appropriate when "there is no genuine dispute as to the underlying factual issue of exactly what the merchandise is." *Bausch & Lomb, Inc. v. United States*, 148 F.3d 1363, 1365 (Fed. Cir. 1998).

In ruling on a motion for summary judgment, the court must credit the non-moving party's evidence and draw all inferences in that party's favor. *Hunt v. Cromartie*, 526 U.S. 541, 552 (1999) (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986)). "The court may not resolve or try factual issues on a motion for summary judgment." *Phone-Mate, Inc. v. United*

[5] Plaintiff neither formally abandoned its alternate claim for classification of the "Lasersintering system EOSINT M 270" (the "M270") in subheading 8479.89.98, HTSUS, at 2.5% *ad val*., nor did plaintiff seek leave to withdraw its motion for summary judgment as to that claim. Therefore, plaintiff's alternate claim is still before the court in plaintiff's motion for summary judgment.

States, 12 CIT 575, 577, 690 F. Supp. 1048 (1988) (citation omitted), *aff'd*, 867 F.2d 1404 (Fed. Cir. 1989). A dispute as to an immaterial fact does not preclude summary judgment. *See, e.g.*, *Houston North Hosp. Properties v. Telco Leasing, Inc.*, 688 F.2d 408, 410 (5th Cir. 1982). Although no established standard governs the question of what constitutes a material fact, courts have held that "a fact is 'material' to the dispute . . . 'if it tends to resolve any of the issues that have been properly raised by the parties.'" *Allied Int'l v. United States*, 16 CIT 545, 548, 795 F. Supp. 449, 451 (1992) (quoting 10 C. Wright, A. Miller & M. Kane, Fed. Prac. & Proc. § 2725 at 93-95 (2d ed. 1983)).

Classification under the HTSUS is determined according to the General Rules of Interpretation ("GRIs"), and, if applicable, the Additional U.S. Rules of Interpretation ("ARIs"). GRI 1 requires that tariff classification, in the first instance, "be determined according to the terms of the headings and any relative section or chapter notes." GRI 1, HTSUS. The chapter and section notes of the HTSUS are not optional interpretive rules but statutory law. *Libas, Ltd. v. United States*, 193 F.3d 1361, 1364 (Fed. Cir. 1999). Once imported merchandise is determined to be classifiable under a particular heading, a court must then look to the subheadings to find the correct classification of the merchandise in question. *Orlando Food Corp. v. United States*, 140 F.3d 1437, 1440 (Fed. Cir. 1998) (citations omitted).

The Court employs a two-step process in determining tariff classification. *Bausch & Lomb, Inc.*, 148 F.3d at 1365. "[F]irst, [it] construe[s] the relevant classification headings; and second, [it] determine[s] under which of the properly construed tariff terms the merchandise at issue falls." *Id*. (citing *Universal Elecs., Inc. v. United States*, 112 F.3d 488, 491 (Fed. Cir. 1997)). Classifications determined by Customs are not controlling by reason of their authority, and the court "has an independent responsibility to decide the legal issue of the proper

meaning and scope of HTSUS terms." *Warner-Lambert Co. v. United States*, 407 F.3d 1207, 1209 (Fed. Cir. 2005) (citing *Rocknel Fastener, Inc. v. United States*, 267 F.3d 1354, 1358 (Fed. Cir. 2001)). The court first considers whether "the government's classification is correct, both independently and in comparison with the importer's alternative." *Jarvis Clark Co. v. United States*, 733 F.2d 873, 878 (Fed. Cir. 1984). If the court concludes that the government's classification is incorrect, the court has an independent duty to find the correct classification. *Id*.

Tariff acts must be construed to carry out the intent of the legislature, which is determined initially by looking at the language of the statute itself. *Rubie's Costume Co. v. United States*, 337 F.3d 1350, 1357 (Fed. Cir. 2003) (citations omitted). "Absent contrary legislative intent, HTSUS terms are to be construed according to their common and commercial meanings, which are presumed to be the same." *Carl Zeiss, Inc. v. United States*, 195 F.3d 1375, 1379 (Fed. Cir. 1999) (citation omitted). To ascertain these meanings, the court "may consult lexicographic and scientific authorities, dictionaries, and other reliable information" or may rely on its "own understanding of the terms used." *Baxter Healthcare Corp. of Puerto Rico v. United States*, 182 F.3d 1333, 1337-38 (Fed. Cir. 1999). Although not binding law, the Explanatory Notes ("ENs") maintained by the Harmonized System Committee of the World Customs Organization may be consulted for guidance and are generally indicative of the proper interpretation of a tariff provision.[6] *Motorola, Inc. v. United States*, 436 F.3d 1357, 1361 (Fed. Cir. 2006). Decisions under former tariffs are not controlling on decisions made under the HTSUS, but they may be instructive when interpreting similar HTSUS provisions. *See* H.R. Conf. Rep. No. 100-576, 100th Cong., 2d Sess. 549, 550 (1988), *reprinted in* 1988 U.S.C.C.A.N.

[6] All citations to the Explanatory Notes ("ENs") herein are to those in place as of the date of importation.

1547, 1582-83. Where a tariff term has various definitions or meanings and has broad and narrow interpretations, the court must determine which definition best invokes the legislative intent. *Richards Medical Co. v. United States*, 910 F.2d 828, 830 (Fed. Cir. 1990).

A. Summary of the Court's Classification Determinations made upon the Motion and Cross-Motion for Summary Judgment

Plaintiff moved for summary judgment classifying the M270, and also the P390, in subheading 8515.80.00, HTSUS as laser beam welding machines, free of duty and moved in the alternative for summary judgment classifying the M270 in subheading 8479.89.98, HTSUS ("[m]achines and mechanical appliances having individual functions, not specified or included elsewhere in this chapter [ch. 84]"), at 2.5% *ad val*. Defendant moved for summary judgment classifying the M270 as a machine tool in subheading 8463.90.00, HTSUS at 4.4% *ad val.* or, in the alternative, in subheading 8479.89.98, HTSUS. Defendant moved for summary judgment classifying the P390 in subheading 8477.80, HTSUS, *i.e.*, as a machine for manufacturing products from plastics, not specified or included elsewhere in chapter 84, HTSUS, at 3.1% *ad val*.

The court concludes from the statements of material facts submitted by the parties that there is no genuine issue as to any fact material to the tariff classification of the M270. For the reasons discussed in this Opinion, the court grants both motions for summary judgment with respect to the alternate classification positions advocated by plaintiff and defendant for the M270. Because the M270 is not a machine tool for the purpose of tariff classification, it is not properly classified under heading 8463, HTSUS (machine tools for working metal, without removing material). The court rejects plaintiff's primary claim because the M270 is not a welding machine or apparatus so as to allow classification under heading 8515, HTSUS ("Electric . . . laser . . . beam . . . welding machines and apparatus"). The M270 is properly

classified in subheading 8479.89.98, HTSUS (other machines and mechanical appliances having individual functions not specified or included elsewhere in chapter 84; other), the alternate classification sought by plaintiff and defendant.

The court concludes, further, that there is no genuine issue as to any fact material to the classification of the P390. The court determines that the P390, like the M270, is not a welding machine or apparatus within the scope of heading 8515. The court determines that subheading 8477.80.00, HTSUS, which pertains to machines for manufacturing products from plastics, at 3.1% *ad val.*, is the proper classification for the P390. The court, therefore, grants the government's summary judgment motion as to the classification of the P390.

B. Undisputed Facts Pertinent to an Award of Summary Judgment[7]

The M270 and P390 are "laser sintering machines." Def.'s Resp. to Pl.'s Stmt. of Mat. Facts as to which There Are No Genuine Issues to be Tried ¶ 2 (Sept. 9, 2011), ECF No. 47 ("Def.'s Resp. to Pl.'s Stmt."). EOS refers to the M270 as performing a "Direct Metal Laser-Sintering" process and describes the P390 process as "laser-sintering." *Id.* ¶ 17. The M270 and P390 build three-dimensional, solid objects using metal or thermoplastic powder, respectively. *Id.* ¶¶ 37, 47; Def.'s Stmt. of Add'l Mat. Facts as to which There Are No Genuine Issues to be Tried ¶ 20 (Sept. 12, 2011), ECF No. 47 ("Def.'s Stmt."). The M270 and P390 are both powered by electricity. Pl.'s Stmt. ¶ 23. Both machines include the following components: machine housing for gas-tight "build" or "process chamber," optical system with solid-state laser and digital high-speed scanner ("galvanometer"), recoating system, elevator system for a

[7] Below, the court also refers to certain factual allegations that plaintiff made but did not include in its statement of material facts. As discussed *infra*, the court does not reach its classification determinations on the basis of these allegations and concludes that these allegations do not establish that a genuine issue of material fact exists as to the classification of either the M270 or the "Lasersintering system EOSINT P 390" (the "P390").

building platform, heating modules, nitrogen generators, process computer with process control software, compressed air connection, electrical power connection, and additional accessories. Def.'s Resp. to Pl.'s Stmt. ¶¶ 19-20 (citing Def.'s Exs. 4, 8 (M270, P390 Technical Description)). Neither machine includes any part-specific die, jig, or mold. *Id*. ¶¶ 21-22.

The parties concur as to the essential details of the building process used by the M270 and P390. A "job" is prepared by creating the three-dimensional shape of an object to be built on the process computer using computer-assisted design ("CAD"). Def.'s Stmt. ¶ 2; Pl.'s Resp. to Def.'s Stmt. of Add'l Mat. Facts as to which There Are No Genuine Issues to be Tried ¶ 24 (Dec. 6, 2011), ECF No. 62 ("Pl.'s Resp. to Def.'s Stmt."). Once the data are converted, the M270 and the M390 build a three-dimensional object by using a laser to selectively melt metal powder particles, or thermoplastic powder particles, respectively, one layer at a time. Def.'s Resp. to Pl.'s Stmt. ¶ 46; Def.'s Stmt. ¶ 37. As the layers are built up additively, they take on the dimensions of the CAD file. Def.'s Resp. to Pl.'s Stmt. ¶ 47.

The additive manufacturing, or "laser sintering," process for both the M270 and P390 takes place inside an enclosed, atmosphere-controlled "build" or "process" chamber. Def.'s Stmt. ¶¶ 1, 21. During the build process, a recoating "arm" distributes the metal or thermoplastic powder pursuant to the particular pattern of the CAD. *Id*. ¶¶ 6, 28, 34. The galvanometer focuses the light energy of the laser onto an area of the powder. Def.'s Resp. to Pl.'s Stmt. ¶ 37. The laser shoots down upon the powder, elevating the temperature such that the powder fully melts and intermixes. Def.'s Stmt. ¶¶ 7-9, 30-31; Def.'s Resp. to Pl.'s Stmt. ¶ 38. The laser melts more than one particle at a time. Def.'s Stmt. ¶ 11; Pl.'s Resp. to Def.'s Stmt. ¶ 29. The laser applies no physical/electro-magnetic force or pressure upon the metal or thermoplastic powder. Pl.'s Stmt. ¶¶ 51-53. After the laser moves away from the spot being heated, the melted

material cools and solidifies such that it becomes attached to the surface below it. Def.'s Stmt. ¶¶ 13, 36; Pl.'s Resp. to Def.'s Stmt. ¶ 13. After the two-dimensional layer is complete, the laser turns off, the platform on which the article is being built drops, and the recoating arm spreads a fresh layer of powder across the top of the incomplete article. Def.'s Stmt. ¶¶ 33-34; Pl.'s Resp. to Def.'s Stmt. ¶ 15. The process is repeated, one layer at a time, until the object is complete. Def.'s Stmt. ¶¶ 6, 37; Pl.'s Resp. to Def.'s Stmt. ¶ 14.

The parties disagree as to what happens as the laser melts the powder particles during the sintering process, specifically as to whether, during that process, the laser re-melts a portion of the hardened layer below. Def.'s Resp. to Pl.'s Stmt. ¶¶ 42, 45. Defendant asserts that there is sufficient energy and heat transfer not only to melt the layer of powder particles spread on top of the layer below, but also to re-melt a portion of that layer. Def.'s Stmt. ¶¶ 17, 36; Def.'s Resp. to Pl.'s Stmt. ¶ 38. Plaintiff, on the other hand, contends that the fusion or bonding results because the layers below are hardening but not yet fully hardened.[8] Pl.'s Resp. to Def.'s Stmt. ¶ 17. The court concludes that this dispute is not a genuine issue of material fact. The question of which description of the melting and solidifying process, plaintiff's or defendant's, more accurately depicts the reality of that process has no bearing on the court's classification determination. Under either description, the processes performed by the M270 and P390 are not "welding" processes that would enable classification of either system under heading 8515 (laser beam welding machines and apparatus).

[8] Plaintiff asserts with respect to the P390 that the heated thermoplastic material does not settle initially into a solid form but rather settles into a liquid form and remains in that state for some time following the sintering process, relying on the testimony of a witness whom defendant identifies as an expert, Dr. David Bourell. Mem. in Supp. of Pl.'s Mot. for Summ. J. 13 (May 27, 2011), ECF No. 38 ("Pl.'s Mem.") (citing Pl.'s Ex. 9 (Dep. of Dr. David Bourell)).

Next, plaintiff disagrees with defendant's characterizing the application of laser heat to the powder as "working" the material,[9] Pl.'s Resp. to Def.'s Stmt. ¶¶ 29, 32, while defendant disagrees with plaintiff's describing the build process as a "welding"[10] process and plaintiff's describing the subsequently melted metal or plastic particles as "weld pools" or "weld paths," Def.'s Resp. to Pl.'s Stmt. ¶¶ 15-16, 46. Each party objects to the other's use of the respective terms as carrying improper legal conclusions. The court's analysis of whether, for tariff classification purposes, the M270 is a laser beam welding machine or machine tool and whether the P390 is a welding machine is not affected by the parties' use of their respective, suggestive terms. Mere use of such terms does not, as a factual matter, impart the characteristics of a "welding" process or a machine tool that "works" metal. Thus, the use of those terms does not create a genuine dispute as to any fact material to the tariff classification of the subject merchandise.

The parties also disagree as to a detail concerning the operation of the internal CAD computer system of the subject goods. Defendant asserts that the CAD data determines the geometry or shape of the three-dimensional end product and that the software on the M270 or P390 converts that data in a so-called "slice" file comprising the three-dimensional geometry of the end product into "two-dimensional" layers or slices. Def.'s Stmt. ¶¶ 3-4, 24-25. Plaintiff

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[9] Plaintiff's objection to the use of the term "working" as applied by defendant is directed to the P390, as defendant does not employ the term to refer to the M270's laser melting process in its statement of material facts. Pl.'s Resp. to Def.'s Stmt. of Add'l. Mat. Facts as to which There Are No Genuine Issues to be Tried ¶¶ 29, 32 (Dec. 6, 2011), ECF No. 62.

[10] Defendant also raises an objection to plaintiff's proposed definition of the word "welding." Def.'s Resp. to Pl.'s Stmt. of Mat. Facts as to which There Are No Genuine Issues to be Tried ¶ 44 (Sept. 9, 2011), ECF No. 47. However, the scope and meaning of this term as used in the article description of heading 8515 is a question of law and therefore does not give rise to a genuine issue of material fact.

maintains that the M270 and P390 translate the data presented within a CAD model into instructions to guide the building of the three-dimensional end product and that the process control software converts the three-dimensional geometry of the end product into a mathematical representation consisting of three-dimensional layers of a pre-determined thickness. Pl.'s Resp. to Def.'s Stmt. ¶¶ 3-4, 24-25. The question of whose formulation of the process more accurately depicts the CAD process is far too abstract and theoretical, and indeed too remote from the actual classification issues in this case, to have any effect on the court's analysis.

Defendant objects to plaintiff's assertion that the word "sintering" is an historical term and a misnomer when used in the context of "laser sintering" and plaintiff's related assertion that the process employed by the subject goods involves full melting of powders, as opposed to traditional powdered metal sintering using a mold, heat, and/or pressure. Pl.'s Stmt. ¶ 14; Def.'s Resp. to Pl.'s Stmt. ¶ 14. The court sees no merit in this objection. The undisputed fact that the process performed by the M270 and P390 involves the complete melting of particles, *see* Def.'s Stmt. ¶ 9, is a material fact because it is directly relevant to the question of whether the process is a "welding" process, as the court explains later in this Opinion. Plaintiff's view that the term "sintering" or "laser sintering" does not accurately describe the processes of the M270 and P390 because these processes involve full melting of powders does not change this essential fact. Plaintiff's view is merely an opinion on the meaning of the term "sintering," which is not a question of fact. Nor is it a question upon which the court's classification analysis depends; the term does not appear in any of the candidate headings.

Defendant objects to plaintiff's assertion that the M270 and P390 are "laser sintering systems" as opposed to "laser sintering machines." Def.'s Resp. to Pl.'s Stmt. ¶¶ 2, 13. Under the court's analysis of the terms of the competing tariff headings, the question of whether the

subject merchandise is properly described as a "system" is also not one upon which the court's classification decisions depend.

Finally, defendant voices a general objection to plaintiff's labeling the subject merchandise as "state of the art," "cutting-edge," and "at the forefront of the industry." *Id.* ¶¶ 49-50. The court notes that these are merely descriptive terms, the use of which by plaintiff does not create an issue of material fact because it does not alter the actual material facts as to what the M270 and P390 are and how they function.

1. Undisputed Facts Pertaining Specifically to the M270

The parties agree that the M270 normally uses a metal base plate (or "build plate") during the laser sintering process, on top of which the recoating arm distributes the first layer of metal powder. Def.'s Stmt. ¶ 6; Pl.'s Resp. to Def.'s Stmt. ¶ 5. Additionally, if required, the M270 can utilize a support structure, which itself is created on top of the build plate and is made of the same metal powder as that being processed. Pl.'s Stmt. ¶ 43. The M270 is also capable of operating directly upon a partially-fabricated object without a metal build plate, completing the final fabrication of the object. *Id.* ¶ 35. The metal particles used by the M270 are spherical in shape and are completely melted into a "puddle" during the build process. Def.'s Stmt. ¶ 9. The laser sintering process of the M270 does not involve "plastic deformation," *i.e.*, the permanent change to the shape of a metal workpiece through the application of force or pressure. Def.'s Resp. to Pl.'s Stmt. ¶ 59. Following the completion of the sintering process, the end product is unpacked and separated from the build plate and/or support structure (if used during the building process) with a band saw. Def.'s Stmt. ¶¶ 18-19.

The parties disagree as to a detail concerning the heating of the build plate during the sintering process. Plaintiff contends that the metal build plate is heated by an ancillary heating

element prior to the laser's discharge *only* to keep moisture out of the raw metal powder. Pl.'s Stmt. ¶ 34. Defendant, on the other hand, asserts that removing moisture from the metal powder is not the only reason why the platform heating module heats the metal build plate. Def.'s Resp. to Pl.'s Stmt. ¶ 34. The court concludes that the purpose of the heating system for the build plate does not bear on the question of whether the M270 is a machine tool or performs a "welding" function and, therefore, is not a fact material to the tariff classification of the M270.

Defendant also disagrees with the definition of "machine tool" set forth by plaintiff, arguing that this definition is not complete, accurate, or exhaustive. *Id*. ¶ 54. Because the scope and meaning of the term "machine tools" as used in the article description for heading 8463 is a pure question of law, this disagreement does not create a genuine issue of material fact as to the M270.

Finally, defendant objects to plaintiff's assertion that "plastic deformation" never involves melting of material, *id*. ¶¶ 55, 57, and to plaintiff's non-exhaustive list of machine tools that perform plastic deformation as compared to those that remove material, *id*. ¶¶ 56, 58. The precise details of the nature of plastic deformation might have relevance to a determination of the definition of "machine tool" but is not relevant to the question of what the M270 does. There is no dispute that the M270 does not function by subjecting metal to plastic deformation. *Id*. ¶ 59. Because the scope and meaning of the term "machine tool" is a question of law for the court to decide, this dispute does not preclude a grant of summary judgment.

2. Undisputed Facts Pertaining Specifically to the P390

The parties agree that the P390 requires the atmosphere in the build chamber and the thermoplastic powder to be pre-heated prior to the sintering process by an ancillary radiant heat source. Def.'s Stmt. ¶ 21; Def.'s Resp. to Pl.'s Stmt. ¶ 32. Without heating, the laser would

"shock" the powder, potentially causing deformities in the finished product. Def.'s Stmt. ¶ 22. Nitrogen gas is also pumped into the build chamber prior to the sintering process, without which the atmospheric conditions could cause distortion and degrade the quality of the plastic powder. Pl.'s Resp. to Def.'s Stmt. ¶ 23. The heating modules and nitrogen generators included in the P390 create the aforementioned conditions. Def.'s Resp. to Pl.'s Stmt. ¶ 20 (citing Def.'s Ex. 8 (P390 Technical Description)). Unlike the M270, the P390 does not utilize a build plate, and the first layer of the object being built is created on a plastic powder base. Def.'s Stmt. ¶ 26. When the sintering process is finished, the newly built object is finished and cooled down, and the excess powder is brushed away. *Id*. ¶ 38. The final object removed from the machine is seamless in its composition. *Id*. ¶ 39.

The parties disagree as to a detail concerning the heating of the thermoplastic materials. While defendant asserts that the build layer of material must be warmed to a "predetermined" temperature before the laser can begin applying heat, *id*. ¶ 35, plaintiff asserts that the layer of plastic materials must be heated to the "set point" of the process operating temperature, Pl.'s Resp. to Def.'s Stmt. ¶ 35. This disagreement is not an issue of material fact affecting the tariff classification of the P390 because it does not inform the court's analysis of whether the P390 is a "welding machine or apparatus" within the meaning of the article description for heading 8515, HTSUS.

The parties also disagree as to whether the final structure of the finished object is determined entirely by the heat and movement of the laser, as plaintiff contends, Pl.'s Stmt. ¶ 32, or if other factors, such as the type of plastic material used, have an effect, Def.'s Resp. to Pl.'s Stmt. ¶ 32. This issue does not affect the court's classification analysis. Even were the court to

presume that plaintiff is correct, it still would not conclude that the P390 performs a "welding" function.

C. Tariff Classification of the M270

Section XVI of the HTSUS includes "machinery and mechanical appliances," which are classified generally within chapter 84, and "electrical equipment," which is classified generally within chapter 85. Sec. XVI, ch. 84-85, HTSUS. In their various arguments, the parties identify for the M270 the following candidate headings within these two chapters of the HTSUS: headings 8463 ("Other machine tools for working metal . . . without removing material"), 8479 (the residual heading for "[m]achines and mechanical appliances having individual functions, not specified or included elsewhere in this chapter . . ."), and 8515 (". . . laser . . . beam . . . welding machines and apparatus"). Also, the court has identified 8543 (the residual heading for "[e]lectrical machines and apparatus, having individual functions, not specified or included elsewhere in this chapter . . .") as a heading that merits consideration.

The court concludes that the M270, by application of GRI 1, is properly classified under heading 8479. In brief summary, heading 8463, the preferred heading advocated by defendant, is precluded by GRI 1 because the M270 is not a "machine tool" within the meaning of that term as used in the article description for the heading. Because the government's preferred classification position has been shown to be incorrect, the court proceeds to determine the correct classification. *Jarvis Clark Co.*, 733 F.2d at 878. In doing so, the court concludes that the heading plaintiff advocates, heading 8515, is also incorrect because the M270 does not conform to the term ". . . laser . . . beam . . . welding machines and apparatus" as used in the article description for heading 8515. Of the two residual headings, heading 8479 is correct for the

M270 because chapter 85 does not include machinery and apparatus of a kind covered by chapter 84, which remain classified within chapter 84 even if electric.

1. The M270 Is Not Properly Classified under Heading 8463, HTSUS

In cross-moving for summary judgment, defendant argues that the M270 is properly classified under heading 8463, HTSUS. Answer to Consol. Am. Compl. 8-9; Def.'s Mem. 9. This heading and the immediately preceding and succeeding headings include various types of machine tools. Headings 8456-8465, HTSUS. The article description for heading 8463 is "[o]ther machine tools for working metal or cermets, without removing material." The M270 does not fall within the scope of the term "machine tool" as used in the article description for this heading.

Neither the HTSUS nor the Explanatory Notes contain a succinct definition of "machine tool." According to common (as well as technical) definitions, the term refers to a "machine" that uses "tooling" to shape solid work, either by the removal of material from, or by the deformation of, a solid piece of metal or another rigid or semi-rigid material. A "machine tool" is "a usu[ally] power-driven machine designed for shaping solid work by tooling either by removing material (as in a lathe or milling machine) or by subjecting to deformation (as in a punch press)." *Webster's Third New International Dictionary (Unabridged)* 1354 (1993). A machine tool is also defined as "a stationary power-driven machine for the shaping, cutting, turning, boring, drilling, grinding, or polishing of *solid parts*, especially metals." *McGraw-Hill Dictionary of Engineering* 340 (2d ed. 2003) (emphasis added). "Machine tools" are "tools used to modify the shapes of materials in specific, controlled ways, such as by drilling holes, turning diameters, grinding radii, and performing many more operations *on almost any type of rigid or*

semi-rigid material." *Mc-Graw Hill Encyclopedia of Engineering* 660 (2d ed. 1993) (emphasis added).

The various definitions inform the court that the term "machine tool" is not commonly understood to refer to a machine that performs its operations on particles or powder as opposed to a solid material. The text of the HTSUS illustrates this point. The article description for the heading immediately preceding heading 8463, heading 8462, groups three categories of goods: [1] "[m]achine tools (including presses) for working metal by forging, hammering, or die-stamping; [2] machine tools (including presses) for working metal by bending, folding, straightening, flattening, shearing, punching, or notching;" and [3] "presses for working metal or metal carbides, not specified above." Heading 8462, HTSUS. The article description indicates that certain types of presses, all of which work solid metal objects in specified ways, are machine tools within the scope of the heading while other presses, although for working metal (or also, in this case, for working metal carbides), are classified under the heading even though they might not necessarily fit within a definition of the term "machine tool." The Explanatory Note to heading 8462 specifies two types of presses that do not perform an operation described in either of the first two categories and, therefore, fall within the third category: "**[p]resses for moulding metallic powders** by sintering" and "**[p]resses for compressing metal scrap** into bales."[11] EN 84.62(9), (10). EN 84.62 does not describe these two types of presses as machine tools. The

[11] In *United States v. Kurt Orban Co.*, 47 CCPA 28, C.A.D. 724 (1959), the U.S. Court of Customs and Patent Appeals held that a machine for compressing scrap metal did not "employ[] a tool for work on metal" and therefore was not a 'machine tool' within the meaning of that term as used in paragraph 372 the Tariff Act of 1930 because it did not "even remotely resemble . . . typical basic machine tools . . . the lathe which revolves the work while a cutter is held against it; the planer, which moves the work forward and back under a planing tool; the drilling machine for drilling holes; the miller, in which the work is shaped by the action of revolving toothed cutters, and the grinding machine, in which abrasive wheels are used to remove metal." *Id*. at 31 (citing *Keith Dunham Co. v. United States*, 26 CCPA 250, 254, C.A.D. 24).

M270 is not a "press" and therefore not classifiable under heading 8462; nevertheless, the Explanatory Note for the heading, when read in the context of the heading terms, is an indication of the general principle that the various machines that build objects out of metallic powders, as opposed to solid workpieces, are not "machine tools" for purposes of the Harmonized System nomenclature upon which the HTSUS is based.

The scope of heading 8465 is another example of the principle that machines and systems classified as "machine tools" under the HTSUS are those that perform work on rigid or semi-rigid materials, not particles or granules. That heading encompasses a large variety of machine tools "for working wood, cork, bone, hard rubber, hard plastics or similar hard materials" but, unlike heading 8462, does not include machines falling outside the scope of the term "machine tool." Heading 8465, HTSUS. The Explanatory Note to heading 8465 instructs as follows:

> The heading **excludes** machines for working materials which although referred to in the heading do not possess the characteristics of hard materials at the time work commences on them. For this reason, machines for cutting or slicing supple plastics or unhardened rubber are **excluded (heading 84.77)**. Furthermore, the heading **does not cover** machines for making articles from granules or powder, such as machines for moulding plastic materials **(heading 84.77)**, machines for agglomerating or moulding particles or fibres of wood or other ligneous matter **(heading 84.79)** or other similar machines.

EN 84.65. The Note does not describe as "machine tools" the machines thus excluded from heading 8465, all of which are provided for in headings that do not use the term "machine tool." *See* headings 8477, 8479, HTSUS.

A process of building entire metal objects from metallic particles, such as the process that EOS describes as "laser sintering" and "additive manufacturing," is not one performed by removing material from solid metal forms. Nor is it performed by deforming a metal article. *See* Def.'s Resp. to Pl.'s Stmt. ¶ 59 (concurring with plaintiff that there is no plastic deformation of

the metal particles during the M270 building process). The M270, therefore, is not a "machine tool" classifiable under heading 8463, HTSUS.

Defendant argues that the term "machine tools" as used in heading 8463 encompasses not only machines performing "traditional machining processes" but also those performing "nontraditional," technically advanced methods of machining, such as that performed by the M270, that "reflect the evolution of the industry." Def.'s Mem. 11-12. Defendant would place in the latter category "electron-beam machining, electrical-discharge machining, electrochemical machining, ion beam machining, laser machining, plasma arc machining, ultrasonic machining, chemical machining, photochemical machining, and water-jet machining." *Id*. at 11 (citing Def.'s Ex. 16 (28 *The New Encyclopedia Britannica* 714 (15th ed. 1998))). Defendant also points out that some modern machine tools "incorporate the technology of computer-aided design and computer aided manufacturing to produce the final work product of the machine." *Id*. at 12 (citation omitted). Defendant advocates that the court apply a definition of "machine tools" developed by the Association for Manufacturing Technology ("AMT"), as follows: "power driven manufacturing machinery, not portable by hand, used in the process of transforming man-made materials into discrete durable goods." *Id*. at 12-13 (citing Def.'s Ex. 19(A) (Bylaws of AMT, Art. I, Sect. 1.01(a))).

Defendant is correct that modern machine tools use various advanced technologies to perform their "machining" functions. But advances in technology do not convince the court to construe the term "machine tools," as used in heading 8463, HTSUS, as broadly as defendant does. The AMT definition defendant favors would encompass a seemingly infinite variety of stationary "power-driven machines" with applications in the manufacturing of "discrete durable goods," including machines that the Harmonized System nomenclature, as addressed in the

Explanatory Notes, would not consider to be machine tools. The court considers the AMT definition too broad and imprecise for use in tariff classification.

Defendant also offers a declaration by Mr. Patrick McGibbon, AMT's Vice President for Strategic Information and Research and Membership, which includes the statement that "[u]sing lasers to sinter materials in an additive process, which adds one very thin layer at a time, represents just another technology in the continuing evolution of both materials and machine tools." *Id*. at 13 (citing Def.'s Ex. 19 (Decl. of Patrick McGibbon)). The quoted sentence from Mr. McGibbon's declaration presents Mr. McGibbon's opinion on the scope of the term "machine tool." The proper meaning of that term as used in the article description for heading 8463, however, is a question of law for the court to decide, not a question of fact. *See Warner-Lambert Co.*, 407 F.3d at 1209. Mr. McGibbon's opinion is not consistent with the common meaning of the term as defined in authoritative sources and as reflected in the Explanatory Notes. Moreover, Mr. McGibbon relies for his opinion, at least in part, on the definition of "machine tool" adopted by his association; as the court has explained, that definition is not useful for the purpose of tariff classification.

Nor is the court persuaded by defendant's argument that the M270 is a machine tool because, like other technically advanced machine tools, it performs a "nonconventional method[] of machining." Def.'s Mem. 11, 18. The HTSUS already reflects technically advanced, nonconventional methods of machining, for example by providing in heading 8456 for machine tools that remove material "by laser or other light or photon beam, ultrasonic, electro-discharge, electro-chemical, electron beam, ionic-beam or plasma arc processes." Heading 8456, HTSUS; EN 84.56. Another example is heading 8458, which includes "computer numerical control" ("CNC") lathes. *See* EN 84.58 (Subheading Explanatory Note[,] Subheadings 8458.11 and

8458.91). CNC work centers are also encompassed by heading 8465. *See* EN 84.65. But no heading within the "machine tool" headings of 8456 to 8465, inclusive, includes a term the court could construe, even futuristically, to encompass the M270 system, which in its principal function does not use a rigid or semi-rigid substance as the starting material and instead manufactures entire articles from raw materials in powdered form.

Defendant also points to the definition of "machine tool" found in *Webster's Ninth New Collegiate Dictionary*: "a machine designed for shaping solid work," Def.'s Mem. 11 (citing Def.'s Ex. 15 (*Webster's Ninth New Collegiate Dictionary* 714 (1985))), arguing that the M270 "shapes" metal particles to form "solid work" and therefore conforms to this definition, *id*. at 15. However, the more complete definition of the term taken from one of Webster's unabridged dictionaries, which the court cited previously, suggests that defendant is misinterpreting the shortened form of the definition. "Shaping" solid work, according to the more complete Webster's definition (and consistent with other established "machine tool" definitions) does not describe processes that form a solid object from powder or particles. As the unabridged Webster's definition shows, the shaping occurs as a result of "tooling" that either removes material from, or deforms, a solid object. *See Webster's Third New International Dictionary (Unabridged)* 1354 (1993).

Further, defendant quotes a "U.S. Customs Informed Compliance Publication" ("ICP") that sets forth five criteria a machine must satisfy to qualify as "machine tool" for tariff classification purposes. Def.'s Mem. 14 (citing Def.'s Ex. 20 (*What Every Member of the Trade Community Should Know About: Machine Tools* (March 2006) ("*ICP*")). The ICP is neither binding on the court nor entitled to deference. Moreover, it does not support the government's position that a machine creating solid objects from particles or granules of metal can be

considered a machine tool for the purpose of tariff classification. As the first criterion, the ICP states that "we conclude that a machine tool is a machine that: [] improves or advances the status of a *workpiece* by shaping or surface working. It may do this by producing a new product or by restoring an old one to its original condition . . ." *ICP* at 11 (emphasis added). The M270 does not begin with a "workpiece." Elsewhere, defendant argues that "there is no requirement that the work be a block of material versus powder particles" and that "[t]he powder particles are in a solid state (*i.e.* , not melted) prior to the laser sintering process." Reply Mem. in Opp. to Pl.'s Mot. for Summ. J. and in Supp. of Def.'s Cross-Mot. for Summ. J. 3 & n.2 (Jan. 23, 2012), ECF No. 81 ("Def.'s Reply Mem."). But under the unabridged Webster's definition for "machine tool" that the court quoted above, and under the Explanatory Notes, there *is* such a requirement, as even the ICP seems to recognize. Defendant argues, further, that "workpiece" is defined as "a piece of work in process of manufacture." Def. Mem 21 (*quoting, inter alia*, *Webster's Ninth New Collegiate Dictionary* 1360 (1985)). Defendant submits that the powder used by the M270 satisfies this definition. *Id.* However, the definition of "workpiece" defendant offers is not in the specific context of a machine tool process and does not overcome the weakness in defendant's argument, which is that the M270 does not apply tooling to remove material from, or to deform, a solid object.

In its reply brief, defendant argues that the inclusion of the term "[o]ther" in subheading HTSUS 8463.90.00, HTSUS, reflects the expansiveness of heading 8463 and congressional intent to include in this heading machines of a type not yet known at the time of enactment. Def.'s Reply Mem. 7-8. Relying on the cases *Sears Roebuck & Co. v. United States*, 22 F.3d 1082 (Fed. Cir. 1994) and *Brookside Veneers v. United States*, 847 F.2d 786 (Fed. Cir. 1988), defendant submits that the HTSUS must be construed to allow for the evolution of the machine

tool industry, consistent with congressional intent, such that a technologically advanced machine such as the M270 should find classification within the scope of heading 8463. *Id*. This argument is not in accord with the principle underlying GRI 1. The inclusion under a heading of a subheading designated "other" is not properly construed as an invitation to expand the scope of the heading beyond the terms expressed in the heading article description. "Only after determining that a product is classifiable under the heading should the court look to the subheadings to find the correct classification for the merchandise." *Orlando Food Corp.*, 140 F.3d at 1440 (citing GRIs 1 & 6, HTSUS).

Also, defendant's reply brief directs the court's attention to deposition testimony of Mr. Andrew Snow, EOS's Regional Director of North America, in which Mr. Snow stated that the M270 can be described as a machine tool for working metal. Def.'s Reply Mem. 8 (citing Def.'s Ex. 12 (Snow Dep. 34-35, Oct. 28, 2010)). Mr. Snow's testimony appears to offer an opinion on the meanings of the tariff terms "machine tool" and "working" as found in the article description for heading 8463, each of which, as previously noted, is a question of law for the court to decide, not a question of fact.[12] There is no dispute of fact that the M270 uses metal particles in performing its "laser sintering" function. This testimony, therefore, does not advance defendant's argument that the M270 is a "machine tool for working metal" within the meaning of heading 8463, HTSUS.

[12] The term "working metal" is used in heading 8463 but also in heading 8462, which, as the court discussed above, includes "presses for working metal or metal carbides" that are not machine tools and that mold metallic particles by sintering. The term "working metal," therefore, appears to have a meaning broader than a construction limiting the concept of "working" to operations performed on solid metal. Because the M270 is not a machine tool, the court need not decide the question of whether the primary function of the M270 is one of "working metal, without removing material." Heading 8463, HTSUS.

Because, for the reasons discussed above, the M270 is not properly classified as a "machine tool" under heading 8463, the court proceeds to consider the other candidate headings within the HTSUS.

2. The M270 Is Not Properly Classified under Heading 8515, HTSUS

Plaintiff claims classification of the M270 under heading 8515. Consol. Am. Compl. ¶ 44; Pl.'s Mem. 5. The court disagrees, concluding that the M270 is not described by any term within the article description for the heading.

Heading 8515 describes three categories of goods in descriptions separated by semicolons: (1) "[e]lectric (including electrically heated gas), laser or other light or photon beam, ultrasonic, electron beam, magnetic pulse or plasma arc soldering, brazing or welding machines and apparatus, whether or not capable of cutting;" (2) "electric machines and apparatus for hot spraying of metal or cermets;" and (3) "parts thereof." Heading 8515, HTSUS. Because the M270 does not operate by hot spraying of metal, and because it is a complete machine, not a part, only the first category of the heading merits further consideration.

It is not disputed that the M270 performs its building function by means of a laser beam. The essential question is whether the M270 is properly described by the term "laser . . . beam welding machines and apparatus" as used in the heading 8515 article description. In considering the meaning of the tariff term, the court first considers the more basic question of what constitutes "welding." A common definition of the verb "weld" is

> to unite or consolidate (as metallic parts) by heating to a plastic or fluid state the surfaces of the parts to be joined and then allowing the metals to flow together with or without the addition of other molten metal or by hammering or compressing with or without previous softening by heat.

Webster's Third New International Dictionary (Unabridged) 2,594 (1993). The noun form of "weld" is used to refer to the joint created by the welding process or to the junction of a welded

piece. *Id*. *The Oxford English Dictionary* defines the verb "weld" as "[to] join together (metal parts) by heating the *surfaces* to the point of melting with a blowpipe, electric arc, or other means, and uniting them by pressing, hammering, etc. . . ." *The Oxford English Dictionary*, *available at* http://oxforddictionaries.com/definition/english/weld (last visited May 10, 2013) (emphasis added).

The parties disagree on whether the laser sintering (additive manufacturing) function performed by the M270 correctly can be termed a "welding" function such that the M270 would answer to the description "welding machine or apparatus" as specified by heading 8515. Plaintiff advocates a definition of the term under which welding is any process that "involves (a) heating of metal or plastic materials to the melting point[] and (b) joining, uniting, or fusing the materials together." Pl.'s Mem. 9 (footnote omitted). This, however, is a broader conception of the term "welding" than those of the dictionary definitions quoted above and broader even than some dictionary definitions upon which plaintiff relies for its argument.[13] Plaintiff's formulation makes no mention of the heating of *surfaces*, is not limiting to "joining" of "parts," and is satisfied by "uniting" or "fusing" of materials, without regard to whether those materials are joined by welds or retain their individual shape or identity.

[13] Plaintiff does not cite any dictionary or other published source for the particular definition it espouses. Plaintiff offers five dictionary definitions of "welding" for the court's consideration, but of the five, two seem too narrow to support the precise definition plaintiff proposes, which plaintiff describes as a "common thread" of those definitions. Pl.'s Mem. 8-9. The two definitions cited by plaintiff that seem not to support plaintiff's proposed definition are: "[t]o unite, as two pieces of metal, with or without pressure, by the application of heat *along the area of contact*," *id*. at 8 (citing *Funk & Wagnall's New Comprehensive Int'l Dict. of the English Language* 1,428 (1978) (emphasis added)); and "[t]o unite or consolidate (as metallic parts) by heating to a plastic or fluid state the *surfaces* of the *parts* to be *joined . . . ,*" *id*. (citing *Am. Heritage Dict. of the English Language* 1,952 (4th ed. 2000)). Plaintiff also offers a sixth definition for which it cites the American Welding Society, *id.* at 9, but this definition refers to "welds," a feature that, in the ordinary sense, objects built by the M270 do not possess.

Although the Explanatory Note to Heading 8515 does not expressly define the verb "weld" or the adjective "welding" as applied to machines and apparatus, it is nonetheless informative on the intended meaning of "welding" as used in the article description for the heading. Consistent with the definitions the court has cited, the Explanatory Note, in several contexts, refers to welding as a process that creates joints between parts. The Note informs the reader that "[b]razing and soldering are operations in which metal parts are joined by means of a filler metal with a lower melting point that wets the parent metal(s). The parent metal(s) does(do) not participate by fusion *in making the joint*." EN 85.15(I)(A) (emphasis added). By implication, the Note contrasts these two methods of joining with various types of welding, in which a joint is formed between parts by melting or fusing the parts together through the application of heat from any of various sources.

Explanatory Note 85.15 describes certain of the heat sources used by various welding apparatus so as to connote that a welding process is one of "joining" pre-existing "parts" or "pieces" (or, as is inapplicable here, one of "cutting"). For example, in describing machines for the resistance welding of metal, the Explanatory Note states that "[t]he heat required for forming *welded joints* is produced by the resistance to the flow of an electric current through the *parts* to be *joined* (Joule heat)." *Id*. at (I)(B) (emphasis added). In discussing electron beam welding machines, the Note explains that "[t]he heat is produced in the *piece(s)* to be *welded* or cut by impact of the electrons of a focussed electron beam generated in vacuum." *Id*. at (I)(E) (emphasis added). For "hot gas welding," the Explanatory Note informs that "[t]he *surfaces* to be joined are warmed by electrically heated gas (generally air) and joined under pressure with or without additives." *Id*. at (I)(H)(1) (emphasis added).

EN 85.15(I)(G) refers to "[m]achines and apparatus for photon beam welding, whether or not capable of cutting" that it subdivides into machines and apparatus for "[l]aser beam welding" and those for "[l]ight beam welding." *Id*. at (I)(G)(1) & (I)(G)(2). Although the Explanatory Note does not define the term "laser beam welding," it describes the heat source for this process as follows:

> The heat is derived from a source of essentially **coherent**, monochromatic radiation, which can be focussed into a high-intensity beam. It is produced by the impact of this beam on the *piece* to be *welded*.

Id. at (I)(G)(1) (emphasis added).[14] Explanatory Note 85.15 clarifies that the heading was intended to include, at least, a class of goods known to commerce as laser beam welding machines, which operate by creating "welded joints" ("welds") that unite pieces of metal at the surfaces through the application of energy from a laser beam. The question this case presents is whether the heading, although including within its scope such "conventional" laser beam welding machines and apparatus, also encompasses machines that use the energy of a laser beam to build entire objects from metal particles. The court concludes that it does not. Construed as a whole, EN 85.15 is more supportive of a narrow definition of "welding" and of "laser beam welding" than of a broader definition such as that posited by plaintiff. Established definitions support this conclusion.

"Laser beam welding" has been defined as a "welding process that produces coalescence with the heat from a laser beam striking the *joint*." *Illustrated Dict. of Metalworking and Mfg. Tech.* 271 (1999) (emphasis added). Another definition is

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[14] The Explanatory Note draws a distinction between laser beam welding and light beam welding, stating of the latter that "[t]he heat is produced by impact of a **non-coherent** focussed light beam." EN 85.15(I)(G)(2).

> A method of joining metals by means of fusion or by solid-state processes. Metals having similar composition may be united in one homogenous piece by fusing together the *edges in contact*, or by additional molten metal of the proper characteristics deposited where it will form a *fused joint* with each *piece*.

Van Nostrand's Scientific Encyclopedia 3007 (6th ed. 1983) (emphasis added). A third definition is "a *joining* process that produces coalescence of materials with the heat obtained from the application of a concentrated coherent light beam impinging on the *surfaces to be welded*." *Joining: Understanding the Basics* 90 (2011) (emphasis added). Here, the parties agree that the metal particles, which are spherical in shape, are fully melted ("liquified") in the M270's additive manufacturing process. Def.'s Stmt. ¶¶ 8-9. As plaintiff admits, the melting of the metal parties "destroy[s] their individual identities, thus rendering them shapeless," and "when the molten metal re-solidifies, the particles coalesce and do not re-acquire their individual shapes or identities, which have been destroyed by the laser." Pl.'s Resp. to Def.'s Stmt. ¶ 10. The definitions of "welding" and laser beam welding" do not explicitly describe a process capable of producing entirely new three-dimensional objects using as a starting material only spherical particles that melt and coalesce, thereby losing individual shape and identity.[15] To the contrary, some of the definitions, discussed above, are flatly inconsistent with such a process.

Plaintiff points out that EOS's German parent was not even founded until 1989, and that therefore, a machine performing the "laser sintering" process of the M270 did not exist at the time the Harmonized System nomenclature was drafted. Pl.'s Mem. 20 (citing Pl.'s Ex. 21

[15] As discussed previously, plaintiff opines that the term "sintering" is a misnomer as applied to the function of the M270. Pl.'s Stmt. of Mat. Facts for which There Is No Genuine Issue to be Tried ¶ 14 (May 27, 2011), ECF No. 38 (citing Pl.'s Ex. 6 (Rosen Rep. 3-4, Jan. 11, 2011)) ("The word 'sintering' is an historical term and a misnomer when used in the context of 'laser sintering' because the process employed by the M270 . . . involves *full melting* of metal and plastic powders, respectively, as opposed to traditional powdered metal sintering using a mold and heat and/or pressure.") (emphasis added).

(Corporate Management, EOS e-manufacturing solutions, *available at* http://www.eos.info/en/about-eos/corporate-management.html (last visited [by plaintiff] May 27, 2011))). Plaintiff urges the court to recognize that tariff terms are "written for the future." *Id.* (citing *Jomac-North, Inc. v. United States*, 63 Cust. Ct. 173, 177, C.D. 3892 (1969)). However, the court finds nothing in the detailed discussion within EN 85.15 by which it may conclude that a laser sintering process such as that performed by the M270, had it existed when the scope of Harmonized System heading 85.15 was defined, would have been considered a "welding" process by the drafters of the Harmonized System. As the court discussed above, any inference would be to the contrary; the EN includes references describing "welding" as the uniting of "parts" by heating of surfaces to form welded "joints." From dictionary definitions and EN 85.15, the court concludes that the laser sintering function of the M270 is not a "welding" function because it does not accomplish the joining of "parts" at their "surfaces" to form "joints" ("welds") and because it constructs entire objects from particles. The latter is a capability that is not expressly contemplated by EN 85.15, that is inconsistent with some established definitions of the term "welding," and that is not definitively encompassed by any established definition of the term "welding" or "laser beam welding" of which the court is aware.

Citing various deposition testimony and an unpublished technical article (a Ph.D. dissertation), plaintiff argues that micrograph pictures taken of metal objects built by the M270 reveal "interfaces," which plaintiff characterizes as the equivalent of welded "joints." Pl.'s Mem. 13-15 (citing Pl.'s Ex. 4 (Rosen Dep. 105, Mar. 18, 2011); Pl.'s Ex. 5 (Ream Rep. 5, Jan. 11, 2011); Pl.'s Ex. 6 (Rosen Rep. 5, Jan. 11, 2011); Pl.'s Ex. 9 (Bourell Dep. 73, 82-86, Feb. 11, 2011); Pl.'s Ex. 10 (Ream Dep. 183, Feb. 23, 2011); Pl.'s Ex. 15 (Jeffrey P. Schultz, Modeling Heat Transfer and Densification during Laser Sintering of Viscoelastic Polymers

(Dec. 18, 2003), *available at* http://scholar.lib.vt.edu/theses/available/etd-01092004-090614/unrestricted/Schultz_Disertation.pdf (last visited [by plaintiff] May 27, 2011))). This argument fails on two grounds. It attempts to make a factual assertion that plaintiff did not include in its statement of material facts—that the objects built by the M270 possess some feature, revealed by micrograph pictures but not, apparently, visible to the unaided eye, that plaintiff characterizes as the equivalent of welded "joints." Moreover, the factual assertion does not establish a genuine dispute as to a material fact pertaining to the tariff classification of the M270, as the assertion does not refute plaintiff's admissions, made in its statements before the court, establishing the critical fact that the spherical metal particles melt entirely and do not regain their original shape or identity in the finished article.

Further, citing a deposition transcript of Mr. Johann Oberhofer, Chief Operating Officer of EOS's German parent, plaintiff states that Mr. Oberhofer's deposition testimony was that the M270 is capable of performing a repair welding function ("laser cladding") upon solid metal objects. Pl.'s Mem. 19-20 (citing Pl.'s Ex. 18 (Oberhofer Dep. 144-46, Jan. 24, 2011)). This argument fails for the same reasons as the previous argument. The fact asserted by Mr. Oberhofer and alluded to in plaintiff's argument—that the M270 performs a repair welding or "laser cladding" function—is not included in any statement of undisputed facts. Second, the assertion does not allow the court to conclude that a material fact is in dispute. The assertion that the M270 is capable of performing the described laser repair welding function is not material to the classification of the M270. The material fact, as definitively established by the undisputed facts stated in the parties' statements of material facts, is that the principal (even if not the sole) function of the M270 is laser sintering/additive manufacturing, a function for which the M270 uses a single material–metal particles–which the M270 builds, layer-by-layer, into finished metal

objects. "Unless the context otherwise requires . . . machines designed for the purpose of performing two or more complementary or alternative functions are to be classified as if . . . being that machine which performs the principal function." Note 3 to sec. XVI, HTSUS; *see also* ch. 84, note 7, HTSUS ("[a] machine which is used for more than one purpose is, for the purposes of classification, to be treated as if its principal purpose were its sole purpose"). In choosing among headings in chapters 84 and 85 of the HTSUS, the court must regard the principal function of the M270 as the controlling function.

Plaintiff acknowledges that the laser sintering process is not a "traditional" laser welding process but cites the deposition testimony of individuals, whom plaintiff identifies as experts, to the effect that the M270 can be described as a "laser beam welding machine."[16] Pl.'s Mem. 18-19 (citing Pl.'s Ex. 4 (Rosen Dep. 52, 58, Mar. 18, 2011); Pl.'s Ex. 10 (Ream Dep. 185-87, 217, 218-19, Feb. 23, 2011)). Plaintiff also directs the court's attention to an article in a trade publication describing additive manufacturing as a welding process. *Id.* at 18 n.8 (citing Pl.'s Ex. 20 (Patrick Waurzyniak, Lasers in Medical Device Manufacturing, Manufacturing Engineering (May 2010), *available at* http://sme.org/cgi-bin/find-articles.pl?&ME10ART19&ME& 20100501&&SME& (last visited [by plaintiff] May 27, 2011))). However, the court must construe the term "laser beam welding machines and apparatus" as used in heading 8515, the meaning of which is a question of law, according to legislative intent. In doing so, the court consults the Explanatory Notes, dictionary definitions,

[16] In his deposition testimony, Dr. Stanley Ream referred to a machine produced by the Huffman Corporation, the "Huffman HP-115 Laser Welding System," as a "laser welding machine," and indicated that like the M270, the HP-115 is capable of performing "'build-up' welding [laser cladding]" and "freeform fabrication." Pl.'s Mem. 18-19 (citing Pl.'s Ex. 17 (Huffman Corporation Marketing Brochure for Model Number HP-115)). The fact that the HP115 has purported functional similarity to the M270 does not establish that the M270 is a laser welding machine classifiable under heading 8515, HTSUS.

and other publicly available sources demonstrating the common and popular meaning of the term, which, absent a showing to the contrary, is also presumed to be the commercial meaning of the term. *See Carl Zeiss, Inc.*, 195 F.3d at 1378-79 (citations omitted). The testimony and technical publication on which plaintiff relies do not demonstrate that a definition of "welding" or "laser beam welding" broad enough to include the M270 laser sintering process has come into general use.

In summary, plaintiff has not put forth, and the court has not been able to identify, a published definition of "welding," "laser welding," or "laser beam welding" that definitively encompasses a machine that performs the laser sintering function of the M270. As the court discussed previously, that function arguably might appear to fall within the literal definition of some, but not all, definitions of "welding," but even the broader definitions that arguably could be read literally to encompass the laser sintering process do not *definitively* include that process. Such definitions do not refer to the fact that laser sintering, unlike what plaintiff describes as "conventional" laser beam welding, manufactures entire objects from powders. In that respect, laser sintering as performed by the M270 is more akin to a molding or casting process that determines the entire shape of a finished object than to a conventional welding process. As no term of heading 8515, properly construed, describes the M270, GRI 1 precludes classification of the M270 therein.

3. The M270 Is Properly Classified under Heading 8479, HTSUS

The court determines that heading 8479, HTSUS is the correct heading for classification of the M270. This residual heading includes the term "[m]achines and mechanical appliances having individual functions, not specified or included elsewhere in this chapter." Heading 8479, HTSUS.

The laser sintering/additive manufacturing function performed by the M270 is not specified by any heading within chapter 84 and is not included within any heading of chapter 84 other than heading 8479. The M270, therefore, is described by the terms of heading 8479. Because the function it performs is not specified by any heading of chapter 85, the court also must consider heading 8543, another residual provision, which carries the article description "[e]lectrical machines and apparatus, having individual functions, not specified or included elsewhere in this chapter." Heading 8543, HTSUS. The court concludes that, as between these two residual headings, heading 8479 takes precedence in the case of a system such as the M270; the court, therefore, applies GRI 1 in determining that heading 8479 is correct. The court's reasoning is as follows.

The Explanatory Notes to chapter 84 provide that "**[s]ubject** to the provisions of the General Explanatory Note to Section XVI, this Chapter covers all machinery and mechanical appliances, and parts thereof, not more specifically covered by **Chapter 85** . . . ." EN, Gen. Note (A), Gen. Content of [] Ch. [84]. The M270 performs a function not specified by any heading of chapter 85. What is more, the terms "machine" and "machinery" must be read broadly. "For the purposes of these notes, the expression '*machine*' means any machine, machinery, plant, equipment, apparatus or appliance cited in the headings of chapter 84 or 85." Note 5 to sec. XVI, HTSUS (emphasis added). Further supporting the court's interpretation of the relationship between the two residual headings are the Explanatory Notes to chapter 85, which instruct that "[t]his Chapter covers all electrical machinery and equipment, **other than**: . . . [m]achinery and apparatus of a kind covered by **Chapter 84**, which remains classified there even if electric (see the General Explanatory Note to that Chapter)." EN, Gen. [Note] (A), Scope and Structure of [] Ch. [85].

> The Explanatory Note to heading 8543 provides as follows:
>
> > Most of the appliances of this heading consist of an assembly of electrical goods or parts (valves [*i.e.*, in the electrical context, "vacuum tubes"], transformers, capacitors, chokes, resistors, etc.) operating wholly electrically. However, the heading also includes electrical goods incorporating mechanical features **provided** that such features are subsidiary to the electrical function of the machine or appliance.

EN 85.43. The above-quoted text must be read narrowly as an exception to the broad principle stated in the general explanatory notes to chapters 84 and 85, quoted previously. Moreover, because the mechanism by which the M270 builds objects is, in significant part, mechanical in nature (requiring, *e.g.*, a recoating system with a re-coating "arm," an elevator system for the building platform, and a compressed air system), the undisputed facts of this case do not allow the court to conclude that the mechanical features are subsidiary to an "electrical function."

4. The M270 Is Properly Classified in Subheading 8479.89.98, HTSUS

The only remaining question pertinent to the classification of the M270 is the determination of the appropriate subheading under heading 8479. Defendant seeks, as an alternate classification, subheading 8479.89.98, HTSUS, a provision plaintiff also identified in Count II of its complaint and motion for summary judgment as an alternate classification for the M270.[17] Def.'s Mem. 36-37; Consol. Am. Compl. ¶ 47; Pl.'s Mem. 20-21. The court determines that this is the correct subheading of the HTSUS for classification of the M270.

[17] Plaintiff identified in its Motion for Summary Judgment an alternate classification for the M270 in "HTSUS subheading 8479.80.00 ('other machines and mechanical appliances: other:')." Pl.'s Mem. 20-21. The court notes that there is no subheading 8479.80.00 within heading 8479 and that the text of the subheading specified by plaintiff, "other machines and mechanical appliances: other:", closely corresponds to the text of subheading 8479.89.98, the alternative classification advanced by plaintiff in Count II of its Consolidated Amended Complaint. Consol. Am. Compl. ¶ 47 (June 23, 2010), ECF No. 21-1. The court also notes that plaintiff's Motion elsewhere cites heading 8479.89.00 as plaintiff's alternate classification of the M270, even though citation to such a subheading is not valid. Pl.'s Mem. 5. However, in its (continued…)

As required by GRI 6, the court determines the appropriate subheading from among the subheadings of heading 8479 "according to the terms of those subheadings and any related subheading notes and, *mutatis mutandis*, to the above rules [GRIs 1 through 5, HTSUS], on the understanding that only subheadings at the same level are comparable." GRI 6, HTSUS. The terms of the first four of the six-digit subheadings under heading 8479 are clearly inapplicable to the M270.[18] The fifth, subheading 8479.50.00, applies to "[i]ndustrial robots, not elsewhere specified or included." The court concludes that this subheading is also inapplicable to the M270.

It might be argued that the M270 is a type of robot based on the computer-controlled operations carried out by the internal mechanism. Such a characterization of the M270 would be questionable, but even were the court to consider the M270 a robot, the court still would conclude that subheading 8479.50.00 is inapplicable. EN 84.79 clarifies that this subheading is limited to "industrial robots capable of performing a variety of functions simply by using different tools" and that industrial robots specifically designed to perform specific functions are classified "in the heading covering their function (e.g. **heading 84.24** [mechanical appliances . . . for projecting, dispersing or spraying liquids or powders], **84.28** [lifting, handling, loading or unloading machinery], **84.86** [various machines for manufacturing semiconductors, integrated

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(continued…)

enumeration of the tariff provisions at issue, plaintiff's Motion lists "8479.89.98," but not "8479.80.00" or "8479.89.00." *Id*. at 2. It appears, therefore, that plaintiff's citations are typographical errors and that plaintiff's alternate classification is subheading 8479.89.98, HTSUS.

[18] *See* subheadings 8479.10.00 (machinery for public works, building or the like), 8479.20.00 (machinery for processing certain fats and oils), 8479.30.00 (presses and other machinery for treating wood and cork), and 8479.40.00 (rope or cable-making machines), HTSUS.

circuits or flat panel displays], or **85.15** [certain soldering, brazing or welding machines and apparatus; machines and apparatus for hot spraying of metals and cermets])". EN 84.79(I)(7). There is no heading of the HTSUS—whether encompassing robots or not—that "covers" the specific function the M270 performs.

Subheading 8479.81.00 applies to "[o]ther machines and mechanical appliances . . . for treating metal, including electric-wire coil winders." Subheading 8479.81.00, HTSUS. It might be argued that the function of the M270 is, broadly speaking, one of "treating" metal so as to make this subheading a plausible classification.[19] The intent of the drafters of the Harmonized System nomenclature, as expressed in EN 84.79, indicates otherwise. In addition to electric wire coil-winders, the EN gives as examples for this subheading "[c]rucible vice-presses for alumino-thermic welding of rails, machine parts, etc.," "[m]achinery for scouring or pickling metals," "[r]otating drums for de-sanding, de-scaling or polishing metal goods," "[m]achines for tin-plating by dipping," "[p]ig iron breakers and special stamping mills for breaking up cast iron scrap," and "[s]pecial machines for winding or covering electric cables . . . ."
EN 84.79(II)(E)(1)-(6). The conversion of metal powders into solid, complete articles, including articles of complex geometries, is more extensive than any of these examples, which refer to processing, not complex manufacturing.

Finally, subheading 8479.82, HTSUS (mixing, kneading, crushing, grinding, screening, sifting, homogenizing, emulsifying or stirring machines) is plainly inapplicable. The residual six-digit subheading 8479.89 ("Other:"), the only other subheading available under heading 8479

[19] EN 84.79 connotes a rather broad meaning of the term "for treating" as used in the context of wood and similar materials, giving as an example "[m]achinery for treating wood or similar materials" [subheading 8479.30.00], EN 84.79(II)(C), a category of machines that includes "[s]pecial presses for agglomerating wood fibre, wood chips, sawdust or cork dust," *id.* at (II)(C)(2).

other than subheading 8479.90 (which is limited to "[p]arts"), is therefore correct. Within subheading 8479.89 are the eight-digit subheadings 8479.89.10 ("[a]ir humidifiers or dehumidifiers"), 8479.89.20 ("[f]loor polishers"), 8479.89.55 ("[t]rash compactors), and the residual subheading 8479.89.65 ("Other"), all of which are described as "[e]lectromechanical appliances with self-contained electric motor." Subheading 8479.89, HTSUS. Because the M270 would not commonly or commercially be described as an "appliance," these subheadings are inapplicable. The M270 does not answer to the description "[c]arpet sweeper[]," subheading 8479.89.70, HTSUS, or "[m]achine[] for the manufacturing of optical media," subheading 8479.89.83, HTSUS. The only remaining classification is the residual subheading 8479.89.98 ("Other:"), HTSUS, which is the correct tariff classification of the M270.

D. Tariff Classification of the P390

From the parties' arguments and the court's examination of the HTSUS, the court identifies the following candidate headings for the P390: headings 8477 ("Machinery for working rubber or plastics or for the manufacture of products from these materials, not specified or included elsewhere in this chapter [ch. 84]"); 8479 (residual heading for "[m]achines and mechanical appliances having individual functions, not specified or included elsewhere in this chapter [ch. 84] . . ."), 8515 (". . . laser . . . beam . . . welding machines and apparatus"), and 8543 (residual heading for "[e]lectrical machines and apparatus, having individual functions, not specified or included elsewhere in this chapter . . .").

1. The P390 Is Described by a Term in Heading 8477, HTSUS

Tariff terms using the term "for" in the way that it is used in heading 8477 have been considered to be provisions "controlled by use" governed by Additional Rule of Interpretation 1(a). *See* ARI 1(a); *see also BenQ America Corp. v. United States*, 646 F.3d 1371,

1379-80 (Fed. Cir. 2011); *Warner-Lambert Co. v. United States*, 425 F.3d 1381, 1385 (Fed. Cir. 2005); *Orlando Food Corp.*, 140 F.3d at 1441. The inquiry is whether the P390 is a member of the class or kind of goods described by a term in the tariff heading, based on principal use, which, for tariff classification purposes, is the controlling use. *Id.*; *see also Primal Lite, Inc. v. United States*, 182 F.3d 1362, 1364-65 (Fed. Cir. 1999). It is undisputed in this case that the *function* of the P390 is to manufacture entire articles from plastic powder. The undisputed facts do not allow the court to conclude that the P390 has any *use* other than this. The P390, therefore, falls literally within the common meaning of the tariff term "[m]achinery . . . for the manufacture of products" from "plastics," whether or not it is also considered to be a machine "for working . . . plastics." Heading 8477, HTSUS.

Goods classified under heading 8477 are those "not specified or included elsewhere in this chapter." Heading 8477, HTSUS. The parties do not argue that the P390 is specified by another heading within chapter 84, and the court has not identified any such heading. The only chapter 84 heading that arguably "includes" the P390 is heading 8479 ("[m]achines and mechanical appliances having individual functions, not specified or included elsewhere in this chapter . . ."). The article descriptions for both heading 8477 and heading 8479 use the limiting term "not specified or included elsewhere in this chapter." However, heading 8477, not heading 8479, is the correct heading for classification of the P390 by operation of GRI 1. The scope of heading 8479 is properly construed to be limited to "machines and mechanical appliances not covered by any *preceding* heading of the Chapter." General Explanatory Note to Chapter 84, [B] General Arrangement of the Chapter (4) (emphasis added); s*ee also* EN 84.79 (explaining that heading 8479 is restricted to machinery that "[c]annot be classified in any other particular heading of this Chapter since: (i) [n]o other heading covers it by reference to its

method of functioning, description or type[]" and (ii) [n]o other heading covers it by reference to its use or to the industry in which it is employed").

Plaintiff argues that the P390 is described by a term in heading 8515 (laser beam welding machines and apparatus) and that heading 8515 takes precedence over heading 8477 by operation of GRI 3(a) because, according to plaintiff, heading 8515 offers the more specific description. Pl.'s Suppl. Mem. 14-15. This argument fails because the P390 does not answer to the description "welding machine or apparatus" or "laser beam welding machine or apparatus" and, therefore, is not described by any term of heading 8515.

As the court discussed previously when analyzing the function of the M270, common definitions of "welding" identify a uniting of parts by heating such parts at their surfaces to form "joints" (or "welds"). As the court also discussed, even definitions of "welding" so broad seemingly as to describe the laser sintering process do not mention the creation of entire three-dimensional objects from powders or particles. The P390 is described by EOS as a "[p]lastic laser-sintering system for the direct manufacture of series, spare parts, functional prototypes and patterns for vacuum casting." Def.'s Ex. 10 (EOS Marketing Brochure). The laser sintering process performed by the P390 is analogous to that of the M270 in all respects material to tariff classification, except that the starting material is thermoplastic powder instead of metal powder. Def.'s Resp. to Pl.'s Stmt. ¶¶ 37, 47. Both machines create entire objects, including objects of complex geometries, using only a powdered starting material rather than already-formed parts or components. *Id*. The plastic particles by which the P390 forms complete objects are melted during the process and, as plaintiff admits, do not retain their original shape or identity. Def.'s Stmt. ¶¶ 30-31; Pl.'s Resp. to Def.'s Stmt. ¶ 32. Because the laser sintering process performed by the P390 is not correctly described as "welding," and

because no other term of heading 8515, properly construed, describes the process employed by the P390, classification of the P390 within heading 8515 is precluded by GRI 1.

In conclusion, the P390 is described by a term in heading 8477, *i.e.*, machinery for the manufacture of products from plastics, not specified or included elsewhere in chapter 84. The P390 is not described by any term in heading 8515. Because the P390 is specified and included in heading 8477, residual heading 8479 is precluded by GRI 1. Residual heading 8543 is also precluded by GRI 1. *See* Explanatory Note to Ch. 85 ("This Chapter covers all electrical machinery and equipment, **other than**: . . . [m]achinery and apparatus of a kind covered by Chapter 84, which remains classified there even if electric (see the General Explanatory Note to that Chapter)"). Therefore, heading 8477 is the correct heading for classification of the P390.

2. The P390 Is Properly Classified in Subheading 8477.80.00, HTSUS

The final determination is the correct tariff subheading for the P390. *See* GRI 6. The following six-digit subheadings of heading 8477 are plainly inapposite: subheadings 8477.10 (injection-molding machines), 8477.20 (extruders), and 8477.30 (blow molding machines). Subheading 8477.40.01 includes vacuum molding machines and other "thermoforming" machines, classes of goods to which the P390 does not belong, the latter referring to certain machines that manufacture plastic objects from plastic sheets, not plastic powders.[20] There follow two subheadings, 8477.51.00 and 8477.59.01, for "[o]ther machinery for molding or otherwise forming." Subheading 8477.51.00 is limited to machinery "[f]or molding and

[20] "Thermoforming" has been defined as:

> a process of shaping thermoplastic sheet into a product through the application of heat and force. In most cases, the heat-softened plastic assumes the shape by being forced against the mold until it cools and sets up. Forming force may be developed by vacuum (atmospheric pressure), positive air pressure, or mating matched molds.

The Wiley Encyclopedia of Packing Technology 1228 (3d ed. 2009).

retreading pneumatic tires or for molding or otherwise forming inner tubes." Subheading 8477.51.00, HTSUS. Subheading 8477.59.01 is a residual subheading ("Other") for machinery "for molding or otherwise forming" other than the machinery of subheading 8477.51.00. Because the P390 is not a molding machine, the question presented is whether the P390 is properly described as "machinery for . . . otherwise forming" a material described in the heading, *i.e.*, rubber or plastics.

The verb to "form" has, of course, multiple meanings, but in the context of plastics manufacturing, a machine for "forming" a product from a plastic material is one that "shape[s] thermoplastic stock or billet plastics to produce a wide variety of marketable products in a wide size range." *Concise Encyclopedia of Plastics* 291 (2000). The terms "thermoplastic stock and billet plastics" refer to solid materials, which are distinct from plastics in the form of powders or particles. *See, e.g.*, Ashish Kumar Sen, *Coated Textiles: Principles and Applications* (2d ed. 2008) (referring to "[t]hermoplastic polymers in the form of granules, dry powder, *or plastic stock*" as the feedstock for a plastic coating machine) (emphasis added); 28 *Encyclopedia of Chemical Processing and Design* 153 (1988) ("To fabricate equipment from *sheet plastic stock*, [polyvinyl chloride, chlorinated polyvinyl chloride, polypropylene, polyvinylidene fluoride, or teflon] must be *cut, shaped (or formed), and joined*.") (emphasis added). Specific "forming" techniques include "thermoforming," discussed above, in addition to "cold forming or forging, postforming, stamping, [and] scrapless forming." *Concise Encyclopedia of Plastics* 291 (2000). None of the aforementioned processes utilize plastic powders or particles, nor do they operate by selectively melting plastics, layer by layer, into a finished object. Thus, the manufacturing processes used in plastics "forming" is of a different class than that of laser sintering machines such as the P390. Accordingly, the court concludes that the residual eight-digit subheading

("Other machinery"), the only remaining subheading that is not limited to "[p]arts," is therefore correct, resulting in classification of the P390 in subheading 8477.80.00, HTSUS, at 3.1 % *ad val*.

III. CONCLUSION

For the reasons stated above, the M270 is properly classified in subheading 8479.89.98, HTSUS, subject to duty at 2.5% *ad val.*, and the P390 is properly classified in subheading 8477.80.00, HTSUS, subject to duty at 3.1 % *ad val*. Judgment will be entered accordingly.

/s/ Timothy C. Stanceu
Timothy C. Stanceu
Judge

Dated: May 10, 2013
New York, New York