

UNITED STATES COURT OF INTERNATIONAL TRADE

CONTINENTAL AUTOMOTIVE SYSTEMS,  
INC.

Plaintiff,

v.

UNITED STATES,

Defendant.

Before: Jane A. Restani, Judge

Court No. 18-00026

**OPINION**

[In Customs classification matter, Defendant’s cross-motion for summary judgment is granted and Plaintiff’s motion for summary judgment is denied.]

Dated: August 12, 2022

Anastasia P. Cordova, McGuireWoods, LLP, of Washington, D.C. for Plaintiff,  
Continental Automotive Systems, Inc.

Guy R. Eddon, U.S. Department of Justice, International Trade Field Office, and Brandon A. Kennedy, U.S. Department of Justice, International Trade Field Office, of Washington, D.C.,  
for the Defendant.

Restani, Judge: Plaintiff Continental Automotive Systems, Inc. (“Continental”) brought this action contesting U.S. Customs and Border Protection’s (“Customs”) tariff classification of the subject merchandise. The merchandise at issue is the probe elements of a nitric oxide (“NOx”) sensor (“NOx Sensor Probe”). The NOx Sensor Probe determines the concentration of NOx in the exhaust gases of passenger vehicles and trucks. In cross-motions for summary judgment, Plaintiff argues that the NOx Sensor Probes are properly classified under Heading 9026 of the Harmonized Tariff Schedule of the United States (“HTSUS”) and the government argues that Customs properly classified the NOx Sensor Probes under Heading 9027, HTSUS.

For the reasons stated below, the government’s cross-motion for summary judgment is granted and the Plaintiff’s motion is denied.

## I. BACKGROUND

### A. Procedural Background

This case involves NOx Sensor Probes imported in January and February 2017 into the Houston Airport port of entry. Summons, ECF No. 1 (Feb. 22, 2022) (“Summons”). At liquidation, Customs classified the subject merchandise under subheading 9027.10.20, HTSUS,<sup>1</sup> which covers “[i]nstruments and apparatus for physical or chemical analysis (for example, ... gas or smoke analysis apparatus) ...: Gas or smoke analysis apparatus: ...: Electrical.” 9027.10.20, HTSUS; Pl.’s Statement of Material Facts Not in Dispute ¶ 2, ECF No. 54 (Oct. 13, 2021) (“Pl. Facts”); Def.’s Resp. to Pl.’s Statement of Material Facts ¶ 2, ECF No. 63-2 (Dec. 22, 2021) (“Def. Resp. Facts”). Continental timely protested on February 8, 2018, averring that the NOx Sensor Probes were properly classified under subheading 9026.80.20, HTSUS, as “[i]nstruments and apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases ...: Other instruments and apparatus: Electrical.” 9026.80.20, HTSUS; Summons at 1–2. Customs relied on the reasoning from a previously issued ruling, HQ H262310,<sup>2</sup> and held that the NOx Sensor Probe was classifiable under subheading 9027.10.20, HTSUS—denying

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<sup>1</sup> The court notes that the merchandise at issue is subject to the 2017 version of the HTSUS; citations herein to the Harmonized Tariff Schedule of the United States (“HTSUS”) are to the 2017 version unless otherwise noted.

<sup>2</sup> Prior to the time of the importations at issue in this case, Continental imported NOx sensors under subheading 9027.10.20, HTSUS, in accordance with Customs ruling NYJ88011, dated September 11, 2003. Def. Ex. 1, ECF No. 63-3 (Dec. 22, 2021) (classifying various types of sensors, including NOx sensors, under subheading 9027.10.20, HTSUS). On August 1, 2014, Continental made a request for internal advice related to the classification of its NOx Sensor. Def. Ex. 2 at 2, ECF No. 64-1 (Dec. 22, 2021). Continental contended that the NOx Sensor was properly classified under subheading 9026.80.20, HTSUS. On July 11, 2016, Customs published HQ H262310, holding that Continental’s NOx Sensor was properly classified under subheading 9027.10.20, HTSUS. Pl. Addendum Tab 5, ECF No. 56-5 (Oct. 13, 2021).

Continental's 2017 protest. Summons at 1; Pl. Facts ¶¶ 4, 21; Def. Resp. Facts ¶¶ 2, 4, 21.

Continental filed a complaint challenging Customs' classification. See Am. Compl., ECF No. 30-1 (Oct. 19, 2021). Continental moved for summary judgment with accompanying brief. See Pl.'s Memo. of L. in Supp. of its Mot. for Summ. J., ECF No. 55 (Oct. 13, 2021) ("Pl. Br."); Pl.'s Mot. for Summ. J., ECF No. 51 (Oct. 13, 2021). The Defendant filed a cross-motion for summary judgment and accompanying brief. Def.'s Mem. of L. in Opp'n to Pl.'s Mot. For Summ. J. and in Supp. Of Def.'s Cross-Mot. for Summ. J., ECF No. 64 (Dec. 22, 2021) ("Def. Br.").

### **B. Description of Subject Merchandise**

The following facts are undisputed. The subject merchandise of this action consists of the probe elements for the NOx sensor. Def.'s Statement of Material Facts ¶ 1, ECF No. 63-1 (Dec. 22, 2021) ("Def. Facts"); Pl.'s Resp. to Def.'s Statement of Material Facts ¶ 1, ECF No. 66 (Jan. 31, 2022) ("Pl. Resp. Facts"). The NOx sensor consists of three elements: the probe, a wiring harness, and a sensor control unit ("SCU"). Def. Facts ¶¶ 1, 3; Pl. Resp. Facts ¶¶ 1, 3. The most common application for the NOx sensor is in a selective catalytic reduction system, which conditions a vehicle's exhaust gas to remove pollutants before it is emitted. Pl. Facts ¶ 4; Def. Resp. Facts ¶ 4.

Exhaust gas contains many elements including O<sub>2</sub>, NO<sub>x</sub>, nitrogen, water vapor, carbon dioxide, carbon monoxide and hydrocarbons. Def. Facts. ¶¶ 10, 12. The NOx Sensor Probe determines the concentration of NO<sub>x</sub> in exhaust gas by means of a cermet electrode. Def. Resp. Facts ¶ 10; Pl. Facts ¶ 10. When the electrode comes in contact with NO<sub>x</sub>, an electrochemical reaction occurs which disassociates oxygen from nitrogen and generates an electrical signal that correlates to the concentration of NO<sub>x</sub> present in the exhaust. Pl. Facts ¶ 10; Def. Resp. Facts. ¶

10. The electrical signal from the NOx Sensor Probe is then sent to the SCU, translated, enhanced, and sent to the Engine Control Unit ("ECU"). Pl. Resp. Facts ¶ 14; Def. Facts ¶ 14. The ECU uses the information from the NOx sensors, in conjunction with information from other components, to calculate the amount of ammonia that must be injected, in the form of a urea solution, into the selective catalyst reduction system. Pl. Facts ¶ 13; Def. Resp. Facts ¶ 13. The ammonia reacts chemically with NOx molecules to create water and carbon dioxide, thus reducing the concentration of pollutant NOx in the exhaust gas. Pl. Facts ¶ 13; Def. Resp. Facts ¶ 13.

The selective catalyst reduction system requires two NOx sensors to operate properly. Def. Facts ¶ 5; Pl. Resp. Facts ¶ 5. One NOx sensor is placed at the entrance of the system to determine the initial NOx concentration in the exhaust gas, and a second NOx sensor is placed at the exit to ensure that the NOx concentration has been reduced and that the selective catalyst reduction system is operating properly. Def. Facts ¶ 5; Pl. Resp. Facts ¶ 5.

## II. JURISDICTION AND STANDARD OF REVIEW

The court has jurisdiction under 28 U.S.C. § 1581(a). The court will grant summary judgment if “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). Summary judgment is appropriate in tariff classification cases where “there is no genuine dispute as to the nature of the merchandise and the classification turns on the proper meaning and scope of the relevant tariff provisions.” Deckers Outdoor Corp. v. United States, 714 F.3d 1363, 1371 (Fed. Cir. 2013). The court decides classification de novo. See 28 U.S.C. § 2640(a)(1); Telebrands Corp. v. United States, 865 F. Supp. 2d 1277, 1279–80 (CIT 2012).

## III. DISCUSSION

### A. Legal Framework

The Plaintiff has the burden of demonstrating that the government’s classification is incorrect but does not bear the burden of establishing the correct classification; instead the court has an independent duty to determine the “correct result, by whatever procedure is best suited to the case at hand.” See Jarvis Clark Co. v. United States, 733 F.2d 873, 878 (Fed. Cir. 1984) (emphasis in original). The meaning of a tariff term is a question of law and whether subject merchandise falls under a given tariff term is a question of fact. Wilton Indus. v. United States, 741 F.3d 1263, 1265–6 (Fed. Cir. 2013) (citations omitted). The General Rules of Interpretation (“GRIs”) and, if applicable, the Additional U.S. Rules of Interpretation, guide classification decisions under the HTSUS. Id. at 1266. The court applies the GRIs in numerical order and only continues to a subsequent GRI if “proper classification of the imported goods cannot be accomplished by reference to a preceding GRI.” Id. GRI 1 requires classification to “be determined according to the terms of the headings and any relative section or chapter notes.” GRI 1, HTSUS.<sup>3</sup> The HTSUS chapter and section notes are considered binding statutory law. See BenQ Am. Corp. v. United States, 646 F.3d 1371, 1376 (Fed. Cir. 2011). Unlike the section and chapter notes, the Explanatory Notes (“ENs”) to the Harmonized Commodity Description and Coding System are not legally binding or dispositive, but they may be consulted for guidance and are generally indicative of the proper interpretation of the various HTSUS provisions. Id. Once the correct heading is identified, the court determines which subheading correctly identifies the merchandise in question. Orlando Food Corp. v. United States, 140 F.3d 1437, 1440 (Fed. Cir. 1998) (citing GRI 1). The primary dispute here is at the heading (GRI 1) level.

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<sup>3</sup> Generally, headings do not overlap. They are intended to cover different articles, and most conflicts can be resolved under GRI 1. See Telebrands Corp., 865 F. Supp. 2d at 1279–80.

**B. Competing Tariff Provisions**

Customs classified the NOx Sensor Probe under subheading 9027.10.20, HTSUS. The relevant portions of Chapter 90 of the HTSUS read:

Heading 9027            Instruments and apparatus for physical or chemical analysis (for example, polarimeters, refractometers, spectrometers, gas or smoke analysis apparatus); instruments and apparatus for measuring or checking viscosity, porosity, expansion, surface tension or the like; instruments and apparatus for measuring or checking quantities of heat, sound or light (including exposure meters); microtomes; parts and accessories thereof:

9027.10                Gas or smoke analysis apparatus:

9027.10.20            Electrical

Continental contends that the NOx Sensor Probe should enter free of charge under subheading 9026.80.20, HTSUS, as:

Heading 9026            Instruments and apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases (for example, flow meters, level gauges, manometers, heat meters), excluding instruments and apparatus of heading 9014, 9015, 9028 or 9032; parts and accessories thereof:

9026.80                Other instruments and apparatus:

9026.80.20            Electrical

**C. Tariff Classification of the NOx Sensor Probe****1. Application of GRI, HTSUS to determine the correct heading**

The controlling issue in this case is whether the NOx Sensor Probe is properly classified under Heading 9027, HTSUS, as “[i]nstruments and apparatus for physical or chemical analysis” or under Heading 9026, HTSUS, as “instruments and apparatus for measuring or

checking.”<sup>4</sup> The government asserts that the NOx Sensor Probe was properly classified under Heading 9027, HTSUS, because the subject merchandise is an instrument or apparatus that performs the functions of “chemical analysis.” Def. Br. at 23. The parties argue that explanatory notes EN 90.26 and EN 90.27 should guide the court’s analysis here. First, the government argues that the NOx Sensor Probe cannot be classified under Heading 9026 because EN 90.26,<sup>5</sup> consistent with the statute, counsels an exclusion for “instruments or apparatus for physical or chemical analysis, etc.” EN 90.26, HTSUS.<sup>6</sup> Second, the government argues that the NOx Sensor Probe was properly classified under Heading 9027, HTSUS, because the design and function of the NOx Sensor Probe mirrors the language of EN 90.27(8)(viii) by performing “chemical analysis” through an “[e]lectrochemical reaction in cells with solid (especially zirconium oxide for oxygen analysis) or liquid electrolytes.” EN 90.27, HTSUS. Continental denies that the NOx Sensor Probe performs “chemical analysis” and asserts instead that the subject merchandise is an instrument for “measuring or checking.” Pl. Br. at 8–9. Thus, if the

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<sup>4</sup> The court’s own review found no other possible candidate headings. See Jarvis Clark, 733 F.2d at 874 (holding that this court has an independent obligation to determine the proper tariff classification).

<sup>5</sup> Apart from instruments or apparatus more specifically covered by other headings of the Nomenclature, such as:

- (a) Pressure-reducing valves and thermostatically controlled valves (heading 84.81)
- (b) Anemometers (wind gauges) and hydrological level gauges (heading 90.15)
- (c) Thermometers, pyrometers, barometers, hygrometers and psychrometers (heading 90.25)
- (d) Instruments and apparatus for physical or chemical analysis, etc. (90.27),

this heading covers instruments and apparatus for measuring or checking the flow, level, pressure, kinetic energy or other process variables of liquids or gases.

EN 90.26, HTSUS (emphasis added).

<sup>6</sup> The Plaintiff does not address the exclusionary language of EN 90.26. See Pl. Br. at 8–9.

NOx Sensor Probe conducts “chemical analysis,” then the subject merchandise was properly classified under Heading 9027 and not Heading 9026, as claimed by the Plaintiff.

2. Common meaning of “chemical analysis”

Unless there is evidence of “contrary legislative intent, HTSUS terms are construed according to their common and commercial meanings.” La Crosse Tech., Ltd. v. United States, 723 F.3d 1353, 1358 (Fed. Cir. 2013) (quoting Carl Zeiss, Inc. v. United States, 195 F.3d 1375, 1379 (Fed. Cir. 1999)). The common meaning of a tariff term is a question of law to be decided by the court, while the determination of whether a particular item fits within that meaning is a question of fact. E.M. Chems. v. United States, 920 F.2d 910, 912 (Fed. Cir. 1990) (citation omitted).

The HTSUS includes no defined term for “chemical analysis” or “analysis” in Headings 9027 and 9026. When a tariff term is not clearly defined by either the HTSUS or legislative history, as here, the court “may consult lexicographic and scientific authorities, dictionaries, and other reliable information” or may rely on its “own understanding.” See Quaker Pet Grp, LLC v. United States, 43 CIT \_\_\_, \_\_\_, 374 F. Supp. 3d 1375, 1378 (2019) (citation omitted). Where a tariff term has various definitions or meanings and has broad and narrow interpretations, the court must determine which definition best expresses the congressional intent. See Richards Med. Co. v. United States, 910 F.2d 828, 830 (Fed. Cir. 1990).

Common dictionary definitions divide the term “analysis” into two categories. The first is qualitative analysis. See Robert Denton Braun, Qualitative Chemical Analysis, Encyc. Britannica (Aug. 8, 2022), <https://www.britannica.com/science/qualitative-chemical-analysis> (defining “qualitative chemical analysis” as “the identification of elements or groping of elements present in a sample” (emphasis added)). The second is quantitative analysis. See



Qualitative Analysis, Merriam-Webster Online Dictionary, <https://www.merriam-webster.com/dictionary/qualitative%20analysis> (last visited Aug. 9, 2022) (defining “quantitative analysis” as “chemical analysis designed to determine the amounts or portions of the components of a substance” (emphasis added)); see also Robert Denton Braun, Quantitative Chemical Analysis, Encyc. Britannica (Aug. 1, 2022), <https://www.britannica.com/science/quantitative-chemical-analysis> (defining “quantitative chemical analysis” as “the determination of the amount or percentage of one or more constituents of a sample.”).

Additional common dictionary definitions of “chemical analysis” contain elements of either one or both categorical approaches. See Robert Denton Braun, Chemical Analysis, Encyc. Britannica (Aug. 1, 2022), <https://www.britannica.com/science/chemical-analysis> (defining “chemical analysis” as a pure qualitative “determination of the physical properties or chemical composition of samples of matter”); see also Analysis, Oxford Eng. Dictionary (June 2022), <https://www.oed.com/view/Entry/7046?> (defining analysis under the specialized use for chemistry as mixed qualitative and quantitative “identification and measurement (by chemical or instrumental means) of the constituents of a substance, specimen, etc., or of a particular component (e.g. a contaminant) within it” (emphasis added)). Continental does not proffer a definition of “chemical analysis” but instead asks the court to consider the definition of “analyze” as: “a detailed examination of anything complex in order to understand its nature or to determine its essential features: a thorough study.” Pl. Br. at 14; see Analyze, Merriam-Webster Online Dictionary, <https://www.merriam-webster.com/dictionary/analyze> (last visited Aug. 9, 2022) (further defining “analyze” to mean “to study or determine the nature and relationship of the parts of (something) by analysis”).

The predecessor to the U.S. Court of International Trade, the U.S. Customs Court, endorsed elements of such a multi-categorical approach to define “chemical analysis.” Customs Court decisions have instructive value to the extent that they are not inconsistent with later statutory law. Relevant to our inquiry here the Customs Court determined that the common meaning of the term “chemical analysis” applies to an instrument or analysis if it:

Determines one or more ingredients of a substance either as to kind or amount; or if it performs a detailed examination of a complex chemical substance for the purpose of enabling one to understand its nature or to determine an essential feature; or if it determines what elements are present in a chemical substance.

Burrows Equip. Co. v. United States, 300 F. Supp. 455, 458 (Cust. Ct. 1969) (emphasis added).<sup>7</sup>

Where an instrument or apparatus’ function meets elements of both quantitative chemical analysis and qualitative chemical analysis by determining both the kind and amount of one or more ingredients of a substance—it falls squarely within the common meaning of the term “chemical analysis.” See id.

Here, the subject merchandise meets both categorical prongs of chemical analysis. First, the NOx Sensor Probe can determine one of more kind of ingredients of a substance by identifying NOx within the exhaust gas. The exhaust gas is comprised of many different chemical substances: O<sub>2</sub>, NOx, nitrogen, water vapor, carbon dioxide, carbon monoxide and hydrocarbons. Def. Facts. ¶ 12. The NOx Sensor Probe’s ability to separate and identify NOx

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<sup>7</sup> The Burrows Court found that the vitascope, an instrument for determining the germinating capacity of seeds, was properly classified as an instrument or apparatus for “chemical analysis” under Tariff Schedule of the United States (“TSUS”) item 711.88. Burrows Equip. Co., 300 F. Supp. at 455–56. Schedule 7, Part 2, Subpart D: Item 711.88 of the TSUS examined in Burrows contained similar language to Subheading 9027.10.20 of the HTSUS. Compare Item 711.88, TSUS (“Polarimeters, refractometers, spectrometers, gas analysis apparatus and other instruments or apparatus for physical or chemical analysis . . . all the foregoing, and parts thereof: 711.88 Other.”), with 9027.10.20, HTSUS (“Instruments and apparatus for physical or chemical analysis (for example, . . . gas or smoke analysis apparatus) . . . : Gas or smoke analysis apparatus . . . : Electrical.”).

molecules from within a mixed gaseous substance demonstrates its qualitative chemical analytical capabilities. Continental argues that the NOx Sensor Probe is not an analytical instrument because it can sense only a combined concentration of NOx, and that it cannot accurately determine the individual components of nitric oxide (“NO”), nitrogen dioxide (“NO2”), or ammonia. Pl. Reply Br. at 7. The determination of every individual component of a substance, however, is not necessary to meet the common definition of an instrument or apparatus for chemical analysis. The identification of one or more ingredients in a mixed chemical substance is sufficient. See Burrows Equip. Co., 300 F. Supp. at 458. The NOx Sensor Probe’s ability to separate NOx from the combined elements of the exhaust gas meets the qualitative definition of chemical analysis.

Second, the NOx Sensor Probe can quantify the amount of NOx in the exhaust gas, thereby producing an electrical signal proportionate to the concentration. The primary purpose of the NOx Sensor Probe is to detect and determine the concentration of NOx in the exhaust gas to ensure that the selective catalytic reduction system operates properly. See Pl. Resp. Facts ¶¶ 12, 14. Specifically, after the NOx Sensor Probe identifies the presence of NOx molecules, it disassociates the oxygen atoms to calculate the concentration of NOx in the exhaust gas and sends a corresponding electrical signal. See Pl. Facts ¶ 10. The NOx Sensor Probe accordingly meets the quantitative definition of “chemical analysis” because through an electrochemical process it generates information on the concentration or amount of NOx within the exhaust gas. See Burrows Equip. Co., 300 F. Supp. at 458.

Continental argues that the NOx Sensor Probe is a measurement device, and that the concentration of NOx is the measurement of a “process variable.” Pl. Reply Br. at 15. Further, Continental argues that according to EN 90.26, Heading 9026 “covers instruments and apparatus

for measuring or checking the flow, level, pressure, kinetic energy or other process variables of liquids and gases.” EN 90.26, HTSUS; Pl. Reply Br. at 11. The HTSUS includes no defined term for “process variable.” Continental, however, asks the court to consider the definition of a “process” variable to include a substance’s “chemical composition” or concentration. See McGraw-Hill Dictionary of Scientific and Technical Terms, 1677 (6th ed. 2003). Continental’s interpretation, however, fails because it does not address the language of the explanatory notes which excludes “[i]nstruments and apparatus for physical or chemical analysis, etc. (heading 90.27)” from Heading 9026. EN 90.26, HTSUS. Supported by EN 90.26 and consistent with Heading 9027, the NO<sub>x</sub> Sensor Probe is appropriately classified as an instrument for chemical analysis because of its ability to identify NO<sub>x</sub> and determine its concentration from within exhaust gas through an electrochemical reaction. Further, whatever the dictionary definition of process variable, if it is determined via a chemical analysis, it does not fit within Heading 9026. Thus, Continental’s argument fails, and the court finds that the NO<sub>x</sub> Sensor Probe conducts chemical analysis under both categorical approaches to the common understanding of the term.

### 3. Application of Explanatory Note 90.27

For its final argument Continental attempts to rebut the government’s assertion that EN 90.27(8) requires the subject merchandise to be classified under Heading 9027. See Pl. Reply Br. at 16. The relevant language of EN 90.27(8) states:

(8) Gas or smoke analysis apparatus. These are used to analyze combustible gases or combustion by-products (burnt gases) in coke ovens, gas producers, blast furnaces, etc., in particular, for determining their content of carbon dioxide, carbon monoxide, oxygen, hydrogen, nitrogen or hydrocarbons. Electrical gas or smoke analysis apparatus are mainly for determining and measuring the content of the following gases: carbon dioxide, carbon monoxide and hydrogen, oxygen, hydrogen, sulphur dioxide, ammonia.

(emphasis added).

Continental contends that the list of combustible gases under EN 90.27(8) is exhaustive because the EN language does not include the conjunction “or.” Pl. Reply Br. at 16. Continental argues that because NO<sub>x</sub> is not included on the list of combustible gases, the NO<sub>x</sub> Sensor Probes must be excluded from Heading 9027. Id. Continental’s position fails for two reasons.

First, Continental misunderstands the role of the ENs. They are explanatory in nature and while they are not legally binding, they are “persuasive” and are “generally indicative” of the proper interpretation of the tariff provision. Lemans Corp. v. United States, 66 F.3d 1311, 1316 (Fed. Cir. 2011). Generally, definitions in the ENs are more persuasive than dictionary definitions, but absent a definition of “analysis” in the relevant ENs the court’s reliance on dictionary definitions here is appropriate. See Schlumberger Tech. Corp. v. United States, 91 F. Supp. 3d 1304, 1312 (Fed. Cir. 2015); supra Part C, 2. Explanatory Note 90.27(8) lists numerous examples of the types of gases that a “gas or smoke analysis apparatus” may analyze. Absent limiting language in Heading 9027 or EN 90.27, Continental’s assertion that this list is exhaustive fails.

Here, Continental ignores the expansive language of EN 90.27(8) “etc.,” and “in particular” which describe the list combustible gases. This language indicates that the list of gases is not a closed or enumerated list, but rather several examples of combustible gases. Heading 9027 further contains no restriction as to the type of gases that a “gas or smoke analysis apparatus” can analyze. Thus, the court concludes that the gases listed under EN 90.27(8) are merely examples of the most common types of gases that gas analysis apparatus could analyze at the time the EN was drafted.

Second, Continental fails to address the language of EN 90.27(8)(viii). EN 90.27(8)(viii) explains that Heading 9027 includes instruments and apparatus for gas and smoke analysis that conduct an “[e]lectrochemical reaction in cells with solid (especially zirconium oxide for oxygen analysis) or liquid electrolytes.” EN 90.27(8)(viii), HTSUS. Here, the NOx Sensor Probe conducts chemical analysis by determining the concentration of NOx in the exhaust gas. In particular, the NOx Sensor Probe generates an electrical signal proportional to the concentration of NOx in the exhaust gas. Similar to oxygen analysis using zirconium oxide, the NOx Sensor Probe determines the concentration through an electrochemical reaction by heating up oxygen molecules to produce electrically charged oxygen ions and pumping those ions through a solid zirconia electrolyte. See Pl. Resp. Facts ¶¶ 8–12. The description of instruments and apparatus covered under EN 90.27(8)(viii) closely aligns with the design and function of the NOx Sensor Probe.

Accordingly, the court finds that Customs properly classified the NOx Sensor Probes under Heading 9027, HTSUS, because they perform chemical analysis.

#### 4. Application of GRI 6, HTSUS to determine the correct subheading

Having determined that NOx Sensor Probe is properly classified under Heading 9027, HTSUS, the court next addresses which subheading best encompasses the merchandise. “For legal purposes, the classification of goods in the subheadings of a heading shall be determined according to the terms of those subheadings and any related subheadings notes and, mutatis mutandis, to the [GRIs], on the understanding that only subheadings at the same level are comparable.” GRI 6, HTSUS. Within Heading 9027, HTSUS, the government’s proffered subheading 9027.10.20 describes “[g]as or smoke analysis apparatus ...: Electrical.” This subheading most appropriately describes the subject merchandise.

**IV. CONCLUSION**

For the foregoing reasons, the court grants the government's cross-motion for summary judgment, denies Plaintiff's motion for summary judgment, and holds that the government properly classified the subject merchandise under subheading 9027.10.20, HTSUS. Judgment will be entered accordingly.

/s/ Jane A. Restani  
Jane A. Restani, Judge

Dated: August 12, 2022  
New York, New York