



TC05430

Appeal number: TC/2015/05509

Customs Duty - imports of X Ray sensor substrate mounts and LED wafer substrates - classified within commodity heading 'Miscellaneous chemical products' - whether the products should have been correctly classified as 'Parts of semiconductor devices' - yes - appeal allowed

**FIRST-TIER TRIBUNAL
TAX CHAMBER**

SANDVIK OSPREY LIMITED

Appellant

- and -

**THE COMMISSIONERS FOR HER
MAJESTY'S REVENUE AND CUSTOMS**

Respondents

**TRIBUNAL: JUDGE MICHAEL CONNELL
MEMBER DEREK ROBERTSON**

Sitting in public at Alexandra House, The Parsonage, Manchester on 19 May 2016

Mr Nigel Gibbon Solicitor, for the Appellant

Mr Simon Charles, Counsel, instructed by the General Counsel and Solicitor to HM Revenue and Customs, for the Respondents

DECISION

1. This is an appeal by Sandvik Osprey Limited (“the Appellant”) against Binding
Tariff Information (“BTI”) rulings by the Respondents (“HMRC”) namely
5 GB502437285 relating to a ‘Substrate Mount for an X-Ray Detector’ (CE7F) and
GB502436974 relating to ‘Alloy Wafers used in semi-conductor devices’ (CE6F)
issued on 12 and 18 June 2015 respectively and upheld on review on 3 September
2015.

2. The issue before the Tribunal is whether the products should be classified under
10 heading 3824 90 96 99 ‘(miscellaneous chemical products)’ which has a duty rate of
6.5%, as asserted by HMRC, or under heading 8541 90 00 00 ‘(parts of electrical
equipment)’ which has a duty rate of 0% as asserted by the Appellant.

The Background

3. Sandvik Osprey Limited manufactures components used in the electronics
15 industry, in particular specialty alloys, customized for specific clients. These include
metal alloys, using its proprietary Spray Forming (rapid solidification) technology.
[Spray forming, also known as spray casting, spray deposition and in-situ compaction
is a method of casting near net shape metal components with homogeneous
20 microstructures via the deposition of semi-solid sprayed droplets onto a shaped
substrate]. The technology is primarily used to produce a range of binary silicon-
aluminium alloys called Controlled Expansion (“CE”) Alloys. The two products in
respect of which the appealed classifications were issued are manufactured using this
process.

4. On 31 March 2015, the Appellant’s representative, Logistics & Duty
25 Consultancy, applied for two BT1 decisions on behalf of the Appellant.

5. The following information was provided in relation to the Appellant’s application
for classification of a ‘Substrate Mount for an X-Ray Detector’ (CE7F):

a) The product is a substrate mount for an x-ray detector, sliced and lapped in
30 a plate format. For use in an x-ray. Dimensions 172 mm x 145 mm x 4
mm. Made from silicon aluminium alloy.

b) The product is made up of 70% silicon and 30% aluminium.

The Appellant considered the correct classification to be 8541 90 0000.

6. The following information was provided in relation to the Appellant’s application
for classification of ‘Alloy wafers’ (CE6F)

35 a) The product is an alloy wafer, lapped, sliced, coated and polished for
specific use in photosensitive semiconductor devices. The wafer is only
coated on one side. The backside is left as polished. The wafer is not
subject to masking or pattern generating at the time of import. Dimensions:
150 mm diameter x 650 microns thickness.

- b) The product is made up of 30% silicon and 20% aluminium.

The Appellant considered the correct classification to be 85 41 90 00 00.

7. Chapter 85 of the Combined Nomenclature (as far as may be relevant) relates to 'Electrical machinery and equipment and parts and accessories of such articles'.
- 5 8. Heading 85 41 covers 'Diodes, transistors and other semiconductor devices, photosensitive semiconductor devices including photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes, mounted piezoelectric crystals'.
9. Heading 85 41 90 00 00 covers 'parts of the above commodities'.
- 10 10. Products classified under 85 41 90 00 00 are free from duty.
11. On 13 June 2015, HMRC issued BTI decision GB50243-7285 classifying the Substrate Mount for an X-Ray Detector (CE7F) to tariff 382490699.
12. Heading 38 relates to 'Miscellaneous Chemical Products'.
13. On 22 June 2015, HMRC issued BTI decision GB502436974 classifying the Appellant's Alloy Wafers (CE6F) to tariff 3824909699.
- 15 14. Classification Heading 38 24 covers 'prepared binders for foundry moulds or cores; chemical products and preparations of the chemical or allied industries (including those consisting of mixtures of natural products) not elsewhere specified or included'.
- 20 15. Heading 38 24 90 covers 'Chemical Products or Preparations predominantly composed of organic compounds not elsewhere specified'.
16. Products classified to tariff 38 24 90 96 are charged at a duty rate of 6.5%.
17. The Appellant requested a review on the following grounds:

"BTI GB 502437285 (CE7 Plates)

- 25 *This is a 'made to design' part to be used as a sensor in the x-ray industry. We have spoken to the trade for guidance on this matter. This should not be declared in chapter 38 24 as this is not a chemical product. As per the example supplied this is also not a raw material. We originally showed tariff 90 22 900000 on the BTI application. On speaking to the trade we believe the correct classification is 85 41*
- 30 *900000. The plate which is manufactured specifically to a Teledyne Dalse design, 'made to print'.*

BTI GB 502436974 (CE6 Wafers)

This is also a 'made to design' part to be used as a substrate for high brightness LED manufacture. This should not be declared in chapter 38 24 as this is not a chemical

product. As per the example supplied this is also not a raw material. The correct classification of the CE6 wafer is 85 41 900000 as per the original submission.”

18. On 15 August 2015 at HMRC’s request the Appellant provided the following further information:

5 *“The CE7 X-ray sensor substrate mount we ship to the customer will have a sensor bonded to one side and along with an electronic circuit board at one end. This was shown in the PowerPoint presentation and I attach the appropriate slide below. The sensor substrate mount with the attached sensor and circuit board, along with some other components is then housed in a unit similar to the one in the attached image.*
10 *This is the completed X-ray sensor that our customer sells. To reiterate, the product that we are selling is a finished X-Ray sensor substrate mount that is an essential part of the X-ray sensor unit.*

15 *The CE6 metallised wafer is supplied to the customer as a completed product ready to use. They then attach semiconducting layers to the substrate using a soldering (bonding) process. I have attached an image below which shows a typical production process for a LED die. Firstly, semiconducting layers are grown on a single crystal wafer substrate such as sapphire. A metallic bonding layer is then deposited on top of the semiconducting layers. Our CE6 wafers are not involved in these first steps. A high temperature bonding process is then used to solder Osprey's CE6 wafer to the*
20 *sapphire wafer with the semiconducting layers. A laser process is then used to remove the sapphire wafer and the stack is flipped over so that the CE6; wafer is now the substrate (carrier) material. At this point the wafer will still be its original diameter as supplied by Osprey.*

25 *The wafer and the attached semi-conducting layers are then diced up into many tens of thousands of individual LED devices. Each one of these devices is the light emitting component within an LED bulb and a part of each LED device will be from the CE6 wafer.*

30 *There are semiconducting layers that are attached to the CE6 wafer. The CE6 wafer itself is not a semiconducting material. In fact, it is a very good conducting material and that is one of the reasons it is chosen as the substrate (carrier) for medium and high powder LEDs. As it is not semiconducting it is incorrect to think of it in the terms of a Si wafer where you would deliberately add dopants (impurities) to modify its electrical properties. CE6 wafers are binary Si-Al alloys containing 80% Si and 20% Al.”*

35 19. On 3 September 2015, HMRC’s reviewing officer, Officer Passmore wrote to the Appellant stating that the products had been correctly classified and the BTI decisions were upheld.

20. The Appellant lodged a Notice of Appeal with the Tribunal on 15 September 2015.

40 **The Relevant Legislation**

The Tariff — General Interpretative Rules (GIRs)

21. The Combined Nomenclature Regulation (Reg (EEC) No.2658/87 of 23 July 1987, OJ L256 of 7.9.87) provides the legal basis for the Community's Tariff. An annual amendment to this Regulation contains the Combined Nomenclature, which is reproduced in the UK Tariff. The Combined Nomenclature provides a systematic classification for all goods in international trade and is designed to ensure, with the aid of the six General Rules of Interpretation ("GIRs"), that any product falls to be classified in one place and one place only.
22. Volume 2 Part 1 Section 3 of the UK Tariff explains the legal procedure for Tariff classification. The first step is to establish the correct 4-digit heading number. General Interpretative Rule 1 states (in pertinent part) that classification shall be determined according to the terms of the headings and any relevant Section or Chapter Notes. It also provides that, where appropriate, classification shall be determined according to the provisions of Rules 2, 3, 4 and 5 provided the headings or notes do not otherwise require. Rule 6 extends the scope of the other Rules to sub-heading level.
23. Rule 2(a) extends the scope of any heading, which refers to a particular article, to cover not only the complete article but also that article incomplete or unfinished provided that, as presented, it has the essential character of the complete or finished article. Rule 2(b) allows for articles presented unassembled or disassembled to be classified in the same heading as the assembled article.
24. Rule 3 provides for the classification of goods which, prima facie, fall to be classified under two or more headings.
25. Rule 3(a) directs that the heading which provides the most specific description is to take precedence over one which provides only a general description. However, if the headings in question each refer only to part of the goods they are to be regarded as equally specific and Rules 3(b) or 3(c) have to be applied.
26. Rule 3(b) states that "mixtures, composite goods consisting of different materials or made up of different components, and goods put up in sets for retail sale which cannot be classified by reference to 3(a), shall be classified as if they consisted of the material or component which gives them their essential character insofar as this criterion is applicable".
27. Rule 3(c) states that "when goods cannot be classified by reference to 3(a) or 3(b) they shall be classified under the heading which occurs last in numerical order among those which equally merit consideration".
28. Rule 4 states that "goods that cannot be classified in accordance with the above rules shall be classified under the heading appropriate to the goods to which they are most akin".
29. Rule 5 allows for cases, boxes and packing materials to be classified together with the goods they contain.

30. There are also Explanatory Notes to the Harmonised System (HSEs) and to the Combined Nomenclature (CNENs). Although the HSEs are not legally binding they have consistently been held by the European Court of Justice to be highly persuasive and in a judgment (*Develop Dr Eisbein GmbH & Co v Hamptzollant Stuggardt-West - Case C-35/93*) it stated that these notes “constitute an important means of ensuring the uniform application of the common customs tariff by the Customs Authorities of the Member States and, as such, may be considered a valid aid to the interpretation of the tariff”. Reference to the HSEs and CNENs is made at paragraph 3.3 of Volume 2 Part 1 of the UK Tariff.

10 HMRC’s Review Decision

31. On 27 July 2015, the initial decision was, at the request of Officer Passmore, also considered by Higher Officer Emma Brown who concurred with Officer Passmore’s classification decision. The reasoning behind this as set out in her witness statement was:

- i. “It is correct that these are not raw products, however Heading 3824 does not cover only raw products, and therefore this does not exclude them from this heading.
- ii. These products are chemical products, they are made up of:
 - CE6 wafers - 80% silicon (Si) and 20 % aluminium (Al)
 - CE7 plates - 70% silicon (Si) and 30 % Aluminium (Al)Both silicon and aluminium are chemical elements, as shown in the periodic table. They are chemical products as they consist of two of the chemical elements.
- iii. Silicon itself is classified in Chapter 28, in Section VI as ‘Products of the chemical or allied industries’. These products are not pure silicon, therefore cannot be classified to Chapter 28. These products therefore fall into Chapter 38 as ‘Miscellaneous chemical products’, and to Heading 3824 as they are ‘chemical products and preparations of the chemical or allied industries (including those consisting of mixtures of natural products), not elsewhere specified or included.
- iv. They cannot be classified to the aluminium in Chapter 76 due to them being predominately silicon — a detailed exclusion from Chapter 76 is noted in due course.
- v. Many believe that to be a chemical product they would be in either liquid or powder form, therefore it seems surprising that these solid products would be classified to Heading 3824, however nowhere in the tariff, notes or HSEs does 3824 exclude solid products.
- vi. The other areas considered during classification were:
 - 2804 – ‘Hydrogen, rare gases and other non-metals’ –The products have been excluded from this heading due to them not being pure silicon. Note 1(a) to Chapter 28 states: Except where the context otherwise requires, the headings of this chapter apply only to: separate chemical elements and separate chemically defined compounds, whether or not containing impurities.

The subject merchandise for both products is a mixture of chemical substances which excludes classification in Chapter 28.

3818 – ‘Chemical elements doped for use in electronics, in the form of discs, wafers or similar forms, chemical compounds doped for use in electronics’ –

5 The products have been excluded from this heading as they are neither chemical elements nor chemical compounds, but alloys (as confirmed by the trader, in email dated 05/12/2014 during the first application of BTI’s, therefore do not meet the terms of the heading under GIR 1. The products also do not meet the terms of this heading as they have not been doped for use in electronics, Our understanding of
10 doping is the process of adding some impurity atoms in the semiconductor, at no point does the trader indicate that doping has been carried out, they have simply been coated.

Chapter 76 –

15 The trader has highlighted that both of these products are binary silicon - aluminium alloy, however neither can be considered as aluminium alloys due to subheading note (b) (2) to Chapter 76 - this indicates that to be an aluminium alloy which consists of aluminium and silicon the aluminium must predominate by weight over the silicon, which in these products it does not, they are therefore excluded from Chapter 76.

20 8541 – ‘Diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light-emitting diodes; mounted piezoelectric crystals’ –

25 These products have been excluded from the envisaged heading of 8541 as they have not been extensively worked. HSEN to Heading 3818 states: ‘Those more extensively worked (e.g. selective diffusion) fall in heading 8541 as semiconductor devices’.

30 As explained above, these products do not meet the terms of Heading 3818, indicating that they also do not meet 8541 as they haven’t been even further worked than that of 3818. The literature provided by the trader indicates that at the time of import, these are not finished products of Heading 8541. The CE7 plate is further worked and machined to the customers design within the UK and the CE6 is purchased by their customer and they then further work it by bonding it to an epitaxial layer and dice the wafer to produce many thousands of LED dies.

35 At the time of import these products are not worked to the extent to meet the terms of Heading 8541. HSEN Note (iii) to heading 8541 states ‘the heading also excludes chemical elements (for example silicon and selenium) for use with electronics in the form of discs, wafers or similar, polished or not, whether or not coated with a uniform epitaxial layer, provided they have not been selectively
40 doped or diffused to create discrete regions’ further supports the exclusion from this heading.”

HMRC’s Case

45 32. Mr Charles for HMRC said that heading 38 24 9006 99, applies only to “...products and preparations not elsewhere specified or included” within the

combined nomenclature. It is therefore necessary to explain why the products in question do not fall for classification elsewhere.

33. HMRC have considered the combined nomenclature broadly and have considered whether the products fall to be classified under a broad range of headings.

5 34. Firstly, HMRC considered whether the products fall to be classified under heading 2804 which relates to “Hydrogen, rare gasses and other non-metals”. The products do not fall under this heading as they not made of pure silicon. Note 1(a) to Chapter 28 states:

10 “1. Except where the context otherwise requires, the headings of the Chapter apply only to:
(a) separate chemical elements and separate chemically defined compounds, whether or not containing impurities”

15 35. Secondly, HMRC considered whether the products could be classified under heading 3818 which relates to “Chemical elements doped for use in electronics, in the form of discs, wafers or similar forms: chemical compounds doped for use in electronics”. Upon reconsideration, HMRC concluded that the products did not fall to be classified under this heading by reason of the fact that they are neither:

- 20 i. Chemical elements doped for use in electronics; nor,
ii. Chemical compounds doped for use in electronics.

36. It follows, by application of GIR 1, that the products cannot be classified under heading 3818.

25 37. HMRC submit that the products which are the subject of this appeal have not been sufficiently worked to be classified under heading 3818. When considering this point it is important to bear in mind that the products must be classified with reference to the state which they were/will be in when imported and not with reference to the state into which they are transformed when incorporated into the Appellant’s client’s
30 products. As is clear from the Appellant’s own literature, both of the products undergo further work after being imported.

38. Further, the HSEs to heading 3818 states as follows:

35 “Those more extensively worked (e.g. by selective diffusion) fall in heading 85.41 as semiconductor devices.”

39. Thirdly, HMRC considered whether the products could be classified within Chapter 76 which relates to “Aluminium and articles thereof” but concluded that they could not by reference to subheading note (b)(2) which stipulates that aluminum must predominate by weight over each of the other elements in the alloy. In both products
40 relevant to this appeal, silicon predominates over aluminum.

40. Fourthly, HMRC considered whether the products could be classified under heading 85.41 (as contended for by the Appellant) and concluded that they could not for the following reasons:

5 a. Given that HMRC have concluded that the products have not been sufficiently 'worked' to be classified under heading 3818 it follows, in light of the HSEN to heading 3818 that they cannot fall under heading 8541 which is reserved for products which have been more extensively worked.

10 b. Further, HSEN note (iii) to Heading 8541 excludes the products which are the subject of this Appeal from the heading given that it reads as follows:

15 "The heading also excludes chemical elements of Chapter 28 (for example, silicon and selenium) doped for use in electronics, in the form of discs, wafer, or similar forms, polished or not, whether or not coated with a uniform epitaxial layer, provided they have not been selectively doped or diffused to create discrete regions."

Thus excluding the silicon alloy products.

20 41. Mr Charles said that with regard to both products we must distinguish between what product is imported and what it becomes. The customer has specific requirements, so what is clear is that the customer's specification is paramount. This means that the product could not be used by customers in the form in which it is imported. The reality is that the whole process is specialised and the products had not been completed at the time of import. The products had not been sufficiently worked.

25 42. With regard to the CE7 X-ray plates, the Appellant is saying that the imported item is sold as manufactured and it can only be used as part of a given customer specification. HMRC say that if that is that is the case it should be capable of being sent on to the customer when received from the USA and cannot be 'a part' within classification 85 at the stage of import.

30 43. With regard to the CE6F wafer Mr Charles accepted that there is no additional machining or coating, but again the product could not be sent straight to the customer. Mr Charles accepted that although the two items CE6F and CE7F have different processing methods, the CE6F has less than the CE7F. Nonetheless it still needed testing. He argued that if a customer asks for something which is very precise, the product if unfinished cannot necessarily be 'a part' of the classification claimed by the Appellant.

40 44. HMRC referred to a German BTI which classified semi-insulating gallium arsenide wafers to 38 24 909699. He accepted that it is a different product and has a different end use but nonetheless generically it shared characteristics with the Appellant's product and both belonged to the same commodity classification.

45. Finally Mr. Charles referred to the case of *Inseto v HMRC* TC/2015/00930. The issue there was whether the product should be classified as 'wire'. Its end use was in semiconductor devices. The case established that whether or not the product will be

used in the eventual end product is not the test. The test is what provides the best description. You do not ask whether it is to be part of a LED. You look at what is actually imported

5 46. In all the circumstances HMRC argued that the only viable classification is under heading 38 24 90 96 99.

The Appellant's Case

47. The Appellant's case, as initially set out in the Notice of Appeal, is as follows:

10 "It is our opinion that the classification from HMRC is incorrect and that the correct tariff code for both the CE6 wafers and the CE7 X-ray detector plates is 841900000. We are appealing against this decision for the reasons outlined below.

Tariffs highlighted for consideration in the departmental review:

15 *Chapter 38*

Chapter 3818 - chemical elements doped for use in electronics in the form of discs, wafers or similar forms; chemical compounds doped for use in electronics. HMRC excluded Osprey's products from this category stating that, "they are neither chemical elements nor chemical compounds, but alloys...." which we accept is a correct reason for excluding the goods from this Chapter. In addition the products are not doped so do not meet the criteria for this category.

Chapter 76 - aluminium and articles thereof.

25 It is agreed that this Chapter is not pertinent to the goods in question i.e. wafers and x-ray detectors and are made from metal containing 70 – 80% silicon. These goods cannot be categorised as aluminium alloy because aluminium is a minority constituent, not the majority.

30 *Chapter 85* - diodes transistors and similar semiconductor devices; photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes; mounted piezoelectric crystals.

35 Chapter 8541 - HMRC excludes the goods in question from this tariff stating that the goods have not been worked on extensively and also that silicon is excluded from Chapter 85. Both of the reasons for excluding the goods in question from Chapter 8541 are invalid, as outlined below.

40 1. The HMRC review concludes that "silicon is excluded from Chapter 85". This is erroneous as the notes in Chapter 85 do not advise silicon is excluded. In fact under note 8 (b) (1) silicon is clearly listed as an example of a semiconductor material and hence are goods which are made from silicon alloys should be allowed in this category.

45 2. HMRC excluded the goods in question from 8541 as they are "not extensively worked" which we dispute. Firstly, the reasoning given by HMRC for excluding the products in question from this tariff code are that the products have not been worked enough to be included in Chapter 3818. The products in question are not chemical elements or chemical compounds, but are alloys so cannot be considered for Chapter 3818. This is the reason for exclusion from Chapter 3818 but should not preclude them from being considered for Chapter 8541. Secondly, the definition of extensively

worked is not clear. Both the CE6F and the CE7F alloys are manufactured by Sandvik Osprey using proprietary rapid solidification technology to produce metal billets. These are then Hot Isostatically Pressed and sawn to generate the material from which the products in question can be produced.

5 In the case of the CE6F wafers, these billets are exported where they are sliced before multistage lapping and polishing processes are performed to meet the demanding customer specification. The parts are then coated with a multilayer metallic coating in several steps as per the customer design to generate a metallised wafer for the specific use as a Light Emitting Diode (LED) substrate mount. The processes are outlined in the technical literature enclosed. We consider this to be extensive work which is why we believe these goods to qualify for categorisation in Chapter 8541.

10 The wafers are imported as a finished part and the only work undertaken after importation is a final inspection and cleaning prior to shipping to the customer. The wafers are shipped to the customer in the photosensitive industry who uses them as a substrate to which the light emitting layers are bonded in the manufacture of LED devices. Each wafer, with the light emitting layers attached, is diced to produce many tens of thousands of individual LED devices. Each device will have a piece of CE6F alloy at its base which forms an integral part of the LED acting as a mechanical support, a heat sink and an electrode. Without the CE6F alloy the LED device would not function as a medium or high brightness LED.

20 Given this, it is our opinion that the CE6F wafer is an integral part of an LED and should thus be classified as a part with a tariff code under Chapter 85419000.

25 In the case of the X-ray detector plates, the following process of extensive work applies. CE7F alloys are manufactured by Sandvik Osprey using proprietary rapid solidification technology to produce metal billets. These are then Hot Isostatically Pressed and sawn to generate the material from which the products in question can be produced. The sawn parts are then sawn again using a wire slicing operation to generate plates which then undergo precision lapping prior to being returned to the UK. They are then CNC machined in multiple steps to a customer design before being plated with a multilayer metallic coating. The plated components are supplied to the customer specifically for use as an x-ray detector substrate to which a sensitive CMOS X-ray detector and electronic chip is attached. The CE7F component we supply forms an integral part of the X-ray detector supplying a stiff thermal expansion matched substrate without which X-ray detector would not function. We consider this to be extensive work which is why we believe the goods qualify for categorisation in Chapter 8541.

40 *Chapter 3824 - miscellaneous chemical products.*

Chapter 3824 - prepared binders for foundry moulds or cores; chemical products and preparations of the chemical or allied industries (including those consisting of mixtures of natural products) not elsewhere specified or included.

45 HMRC concluded that the products in question should be included under this tariff code. There are three main points we dispute from the departmental review.

1. HMRC concluded that “your products are chemical products of the chemical or allied industries”. This is factually incorrect. The products in question are machined components made to customer designs for specific applications as outlined above. They are not chemical products.

50 2. HMRC concludes that heading 3824 covers the products that “by their nature cannot be classified anywhere else within the tariff”. It is our opinion that the items in question can be classified under 8541. It is nonetheless very surprising to learn that

HMRC are prepared to classify the items in question under heading 3824 simply because it is unable to find a more suitable classification. We do not understand how this is an acceptable means for classifying products.

5 3. Our final concern with this application is that the products in question were ruled out of being classified under 3818 by HMRC as they are “not chemical elements or chemical compounds, but alloys..”. How is it possible that they could then be ruled into Chapter 3824 under the statement, “your products are chemical products of the chemical or allied industries”? This is contradictory and for the reasons provided above and as concluded by HMRC, Sandvik’s products are not chemicals. In conclusion, it is clear that the products do not fit any part of the text defining category 3824, not in terms of the product or the industry.
10 Enclosed is the original technical literature supplied showing what the parts are and how they are used. It is our opinion and of the industries the components are supplied to, that both the CEF7 X-ray detector plates and CE6F wafers should be classified under 8541900000.”
15

48. At the hearing, Mr Richard Park managing director of the Appellant Company, gave evidence for the Appellant. He said:

20 The products the Appellant Company manufactures are ‘made to print’. They produce many niche and specialised applications. They are not experts in the use of the applications. The customer designs the parts, the specifications and the drawings, coatings and tolerances which make up the material characteristics of the products. They are unique and proprietary to each customer. They do not for example have a stock of the goods ordered. They ship against the order which is then closed.
25

The CE6F and the CE7F are not doped products. Some elements are intrinsically semi-conductors. Pure silicon has a macro crystalline structure and is a semiconductor, so by deliberately introducing other elements e.g. aluminium you can influence it’s electrical and conductivity characteristics. The wafer is a metal alloy. It is not pure silicon, but it is not doped. You could not dope it anyway because it is poly crystalline. It is a highly conductive material. It cannot be doped.
30

Neither the CE6 nor the CE7 are organic compounds. They do not fulfil the definition of organic compounds. Carbon is an essential part of an organic compound. That would, in Mr Park’s view mean that they could, not by definition, fall within HMRC’s classification. They are not chemical products or preparations predominantly made up of organic compounds.
35

Mr Park said that he recognised the product in the German BTI Classification. The material is used for growing semi-conductor layers specifically single crystal, not poly crystal. The suppliers use a single crystalline structure. It is very different to the CE7F. The Appellant’s product is a mechanical carrier, which performs the function of a heat sink and an electrical conductor.
40

Mr Park agreed with Mr Charles that, after taking delivery from the USA, the Appellant drills holes in the CE7F sliced block which is also then also slightly reduced in width before undergoing quality checks.
45

With regard to the CE6F, the raw material in a cylinder shape is sent to the USA for slicing, grinding, lapping (a form of polishing) and metallisation (coating) before the product is returned to the UK for further polishing and treating with metallic coating.
50

The product goes into a clean room for checking for contamination. The product itself however does not change. They supply the results of the metrology (measurements flatness and wafer thickness) with the customer. Absolute precision is the key. It is manufactured to exact tolerances.

5

He said that the CE6F and CE7F are metal alloys and as such cannot be categorised under Tariff heading 3824 which is defined as “chemical products or preparations of the chemical or allied industries (including those consisting of natural products)”.

10

The parts imported into the UK after processing in the US are only suited to the applications described. The final products produced by Sandvik Osprey are finished parts ready for assembly into the applications described, i.e. LED’s and X-ray equipment.

15

49. Mr Gibbon, for the Appellant, said that the Appellant’s products are not products of the chemical or allied industries. They are therefore not miscellaneous chemical products or parts thereof.

20

50. He said that the CE7F products are essential components to ensure the functionality of sensors for X-Ray CMOS (Complementary Metal Oxide Semiconductor) sensors which are semiconductor devices. They are therefore “parts of” semi-conductor devices which are themselves classified in chapter 8541.

25

51. The CE6F wafers act as the substrate mount, heat sink and one of two electrodes in LED devices, which are themselves semi-conductor devices. They are essential components to ensure the functionality of the LEDs. They are therefore also “parts” of semi-conductor devices which are themselves classified in chapter 8541.

52. HMRC have classified the two products under heading 38.24.90.9699 because they say the products are “products of the chemical or allied industries” and cannot be classified elsewhere in the Tariff.

30

53. However, HMRC initially said that the two products are neither chemical elements nor chemical compounds, which is why they do not qualify for inclusion in heading 3818. To say that the products are products of the chemical or allied industries, whilst at the same time saying that they are not chemical elements or chemical compounds, is contradictory and unacceptable. The Appellant agrees that the products are not products of the chemicals industry or chemical compounds. The products are metal alloys not chemical products. However HMRC now appear to agree that they are not chemical elements but still maintain that the products fall within the miscellaneous chemical products heading.

35

40

54. The Appellant Company is not involved in the chemical industry or allied to it. It is a manufacturer and processor of metals and as such belongs to the Metals Industry or General Engineering Industry. The Appellant is a member of the Non-Ferrous Metals Association. The products are not products of the chemical or allied industries and cannot therefore be classified anywhere within Section VI (Products of chemical and allied industries) of the Integrated Tariff.

55. HMRC object to classification of the products in heading 8541 for two reasons:

- The HSEs to Chapter 85 exclude the products; and
- The products have not been “worked enough to fit into heading 3818 and cannot therefore sit in 8541 which demands further working”.

5

Mr Gibbon argued that HMRC’s objections both contain serious errors.

56. As is agreed between the parties, the products are not chemical elements and this HSEN does not therefore apply. Further, it is agreed between the parties that the products are not “doped”. This HSEN exclusion only applies to chemical elements which have been “doped”.

10

57. The HSEN for 3818 states that chemical elements which have been more “extensively worked” fall in heading 8541 as semi-conductor devices. It categorically does not say what HMRC assert, namely that if a product does not fit into 3818 then it cannot fit into 8541.

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58. It is true that some further work is carried out on both products after re-importation from the USA, but that further work does not disqualify them from being classified under 8541 as contended by HMRC.

59. The further work required to configure both products for assembly into their respective semi-conductor devices (the X-Ray Sensors for CE7F and LEDs for CE6F) is so minimal, as to be “de minimis”. In any event, as is confirmed by Mr Park in his witness statement, at the point of importation, neither of the products will be used for any other purpose than as constituent components of the specific semi-conductor devices for which they have specifically been made. Indeed, given that the products have been manufactured using the customers’ own designs and specifications they could not be sold to anyone else for contractual reasons. They are therefore “parts” for semi-conductor devices and should properly be classified as such under heading 85 41 900000.

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60. The CE7F product does need some further work but it is still “a part” of an x-ray detector. It was a piece of metal before being sent to the USA, albeit a highly engineered piece of metal alloy. When it arrives back in the UK, it is an item manufactured to exact customer specifications. He said that the real work had been done in the USA.

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61. Mr Gibbon said that his arguments apply even more to the CE6F which needed even less refinement. The products were just checked and cleaned. They were actual finished parts of the LED device at that stage. The Appellant did no more than ensure that the goods would not be rejected, on the arrival with the customer in Singapore.

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62. Mr Gibbon referred to the German BTI case relied upon by HMRC, which classified semi-insulating gallium arsenide wafers to 38 24 909699. The German product had a different function. As Mr Park said it was used to build the parts which

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go into the device rather than actually being a part. The German product was classified as a chemical product but we had no information as to whether it was a product of the chemical industry.

5 63. With regard to the *Inseto* case the aluminium wire had no other practical use. It was not possible to know from the decision exactly what specifications were required by the customer. Had the goods being designed to the customer's exact specification? Further the BTI tariff provides a specific classification for aluminium wire. The case had no relevance to the present appeal.

10 64. He referred to two UK BTI's which he said supported the Appellant's case. In one case Molybdenum discs used in the assembly of power semi-conductor diodes and thyristors as the silicon wafer substrate were given Classification 854190000. In another, Molybdenum discs used as a substrate to support semiconductor wafers with a ceramic housing providing electrical contact and to assist heat dissipation were also given Classification 854190000.

15 **Conclusion**

20 65. We do not agree with HMRC's assertion that the HSENs to Chapter 85 exclude the products. The products are clearly not chemical elements and the HSEN does not therefore apply. Further the products are not "doped". In fact they are manufactured from an alloy material which had been specifically chosen for its excellent conductivity properties. The HSEN exclusion only applies to chemical elements which have been "doped".

25 66. HMRC assert that the products are excluded from heading 8541 as they have not been extensively worked, their reasoning being that the HSEN to Heading 3818 states: "Those more extensively worked (e.g. selective diffusion) fall in heading 8541 as semiconductor devices". In our view the HSEN to Heading 3818 does not state that a product has to be extensively worked in order to fall within heading 8541. If a product has been extensively worked it does not fall in 3818. The HSEN says no more than that.

30 67. In any event, at the time of import the products are virtually finished products save for some de minimus work, final inspection and cleaning prior to shipping to the customer. In the case of the CE6F wafers, they become parts of light emitting diodes within Heading 85.41.90.00.00. The wafers are sold as a completed component manufactured to the client's specifications. They are, as described by the Appellant,
35 not semi-conducting material. They are not chemicals and do not contain dopants. They are in fact made up of a very good conducting material. The wafer is fabricated so as to form the carrier of the semi-conducting layers. The wafers cannot be used for any other purpose than as constituent components of the specific semi-conductor devices for which they have specifically been made. The customer further works the
40 wafers but only to bond them to semi-conducting layers and ultimately, when diced, to form part of the LED. They are therefore "parts of light emitting diodes" within heading 8541 90 00 00.

5 68. The CE7F plate is fabricated from metal billets manufactured by the Appellant. These are then 'Hot Isostatically Pressed' and further fabricated to generate plates which then undergo precision lapping prior to being returned to the UK. They are then
10 machined to the customer's design before being plated with a multilayer metallic coating and supplied to the customer specifically for use as an X-ray detector substrate to which a sensitive CMOS X-ray sensor and circuit board chip is attached. So again, the substrate mounts cannot be used for any other purpose than as constituent components of the Teledyne Dalsa X-ray Sensors for which they have specifically been made. Any additional work undertaken by the Appellant is minimal, which does not disqualify them from 8541.

15 69. It is made clear by rule 3(a) that "The heading which provides the most specific description shall be preferred to headings providing a more general description". In our view the heading in 8541 90 00 00 is expressly worded for both the CE6F and the CE7F products.

70. We conclude that the products should have been classified under heading 8541 90 00 00.

71. The appeal is accordingly allowed.

20 72. This document contains full findings of fact and reasons for the decision. Any party dissatisfied with this decision has a right to apply for permission to appeal against it pursuant to Rule 39 of the Tribunal Procedure (First-tier Tribunal) (Tax Chamber) Rules 2009. The application must be received by this Tribunal not later than 56 days after this decision is sent to that party. The parties are referred to "Guidance to accompany a Decision from the First-tier Tribunal (Tax Chamber)"
25 which accompanies and forms part of this decision notice.

MICHAEL CONNELL
TRIBUNAL JUDGE

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