



## PATENTS ACT 1977

APPLICANT	Phillip Sutton
ISSUE	Whether patent application GB1816656.1 complies with section 1(1)(b) and section 76(2) of the Patents Act
HEARING OFFICER	Dr L Cullen

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## DECISION

### Introduction

- 1 Patent application GB1816656.1 (“the application”) entitled “*Recycling method and taggant for a recyclable product*” was filed on 12 October 2018 in the name of “Phillip Sutton” (“the applicant”). It claims priority from two earlier-filed patent applications, GB1804541.9, filed on 21 March 2018, and GB1809713.9, filed on 13 June 2018. The application was published on 25 September 2019 as GB2572233A.
- 2 The period for putting this application in order under Section 20 of the Patents Act 1977 (“the Act”) has been extended as-of-right under rule 108(2) of the Patents Rules 2007 (“the Rules”) and extended thereafter in successive two-month periods under rule 108(3) to 4 June 2023.
- 3 There have been a number of rounds of correspondence between the examiner and the applicant, with the most recent examination report from the examiner, dated 25<sup>th</sup> October 2022, raising an objection of added subject matter (under section 76(2) of the Act) to the amended claims filed with the applicant’s response of 30 September 2022, and also maintaining an objection to lack of inventive step (under section 1(1)(c) of the Act).
- 4 The applicant filed further amended claims with their letter of 8 November 2022, with the request to be heard if these amendments did not overcome the examiner’s objections. The examiner was not persuaded. Outstanding objections to added matter and inventive step were set out in the examiner’s pre-hearing report of 1 December 2022.
- 5 Therefore, as the position remained unresolved, the matter came before me at an oral hearing conducted by video on 21 February 2023. The applicant was represented by their attorney, Leslie Prichard, of Culverstons. Dr Rowena Dinham acted as an assistant to the Hearing Officer.

- 6 In advance of the hearing the applicant provided skeleton arguments in writing dated 17 January 2023 accompanied by two auxiliary claim requests. My thanks to the agent for providing his skeleton arguments in advance of the hearing.

## **The Invention**

- 7 The invention relates to a method of marking the packaging of a product, which allows the product to be tracked throughout its lifecycle, from packaging at the manufacturing plant, through to purchase by the consumer, kerbside recycling and recovery at the Materials Recovery Facility (MRF) or Plastics Recovery Facility (PRF). The packaging is marked using a visible machine readable 2D data matrix code, which contains information including the manufacturer, brand or composition of the product, and this can be read at any point in the lifecycle of the product, where the information can be transferred to a remote database on a corporate network/ cloud. The packaging also contains a second machine readable code which fluoresces under excitation conditions, where the shape or colour of this code is readable during the recycling phase and identifies the manufacturer or brand or composition of the product. The information from this second marker can also be transferred to a remote database on a corporate network/ cloud. A system for tracking the marked product is also provided.
- 8 At the hearing, Mr Prichard very helpfully explained how the marking system worked in practice, particularly focussing on the challenges faced at the MRF/PRF. The visible 2D code can be read at any point in the lifecycle of the product, and Mr Prichard explained that this is akin to a QR code which can be scanned by the consumer, for example using their smartphone. When the code is scanned, the information can be relayed to the manufacturer such that they can have an indication of where the product is in its lifecycle (e.g., purchase, putting out for kerbside recycling). This information allows the manufacturer to keep track of how and where their products are used and whether the packaging is destined for the MRF/PRF. However, whilst the visible code can be read at any point in its lifecycle, its position on the conveyor at the MRF/PRF may not be optimal and so it may not be detected by the scanners. In order to solve this problem, and without impacting on the aesthetics of the packaging, the second code fluoresces under UV light and it is the shape or colour of this code that identifies the manufacturer or brand or composition of the product, and this is more easily detected at the MRF. Once detected, then the information from this second code can be relayed to the manufacturer, informing them that the packaging has been recycled.

## **The claims**

- 9 The latest set of claims, filed on 8 November 2022, consists of 10 claims, with two independent claims, claim 1 to a method and 10 to a system. Claim 1 reads as follows:

*1. A method of marking a product contained in packaging for subsequent tracking of the product throughout its lifecycle, the method comprising the steps of:*

*printing at least a portion of the product's packaging or a label which is subsequently affixed to the product's packaging with a visible machine readable code that uniquely identifies the product, including the manufacturer or brand or composition of the product, the machine readable code being a 2D data matrix, wherein the 2D data matrix is readable at any point in the lifecycle of the product, the data read from the 2D data matrix being transferrable to a remote database on a corporate network or cloud-based system, wherein information from the database is extractable for commercial or regulatory use during any of the manufacture, transportation, distribution, utilisation and/or recycling phases of the product, and*

*printing at least a portion of the product's packaging or a label which is subsequently affixed to the product's packaging with a second machine readable code which fluoresces under excitation conditions, wherein the fluorescing shape or colour of the second machine readable code is readable during the recycling phase of the product to allow the manufacturer or brand or composition of the product to be identified, the data read from the second machine readable code being transferrable to a remote database on a corporate network or cloud-based system.*

Claim 10 reads as follows:

10. A system for tracking a marked product contained in packaging throughout its lifecycle, the system comprises:

*means for printing at least a portion of the product's packaging or a label which is subsequently affixed to the product's packaging with a visible machine readable code that uniquely identifies the product, including the manufacturer or brand or composition of the product, the machine readable code being a 2D data matrix;*

*means for printing at least a portion of the product's packaging or a label which is subsequently affixed to the product's packaging with a second machine readable code which fluoresces under excitation conditions, the fluorescing shape or colour of the machine readable code allows the identification of the manufacturer or brand or composition of the product;*

*means for reading the 2D data matrix at any point in the lifecycle of the product, the data read from the 2D data matrix being transferrable to a remote database on a corporate network or cloud-based system, wherein information from the database is extractable for commercial or regulatory use during any of the manufacture, transportation, distribution, utilisation and/or recycling phases of the product; and*

*means for reading the second machine readable code during the recycling phase of the product, the data read from the second machine readable code being transferrable to a remote database on a corporate network or cloud-based system.*

## Preliminary Matter

### *Presentation of Information*

- 10 In their pre-hearing report, when taking account of the amended claims dated 8 November 2022 referred to above, the examiner observed that the specific information that can be read from the codes amounted to no more than presentation of information (which is excluded matter from patentability under section 1(2)(d) of the Act), rather than defining a technical difference that may distinguish the invention from the prior art. However, this observation from the examiner was not followed-up with a formal objection (or, so far as I can determine, any indication that it was not being pursued).
- 11 Whilst an objection under section 1(2)(d) of the Act to presentation of information was not formally raised following the observation from the examiner on this point, the applicant appears to have taken this observation seriously and devoted a significant effort to dealing with it in their skeleton arguments. Following the test for assessing excluded subject matter as laid out in *Aerotel / Macrossan*<sup>1</sup>, the agent set out in some detail why they considered the claimed invention is not mere presentation of information.
- 12 I further note that the agent also provided arguments using the five signposts set out by Lewison J (as he then was) in *AT&T/CVON*<sup>2</sup>. These signposts are appropriate for assessing whether an invention relates to a computer programme as such under section 1(2)(c) of the Act, which is clearly not the case here. Thus, I am satisfied that I do not need to take further account of these arguments.
- 13 Although it was not raised formally, given the amount of effort that was devoted by the applicant in their skeleton argument to dealing with the observation by the examiner on presentation of information, I feel that I could not ignore this point and I should at least acknowledge that it had been observed upon but was not formally pursued. At the end of the day, this is not a matter that I have to decide in the present case.
- 14 I do however think the comments from the examiner in their pre-hearing report on this issue have confused matters. This is unfortunate. I consider that the examiner has conflated the inventive concept of the claim (for inventive step purposes) with the technical contribution of the invention – the former is considered for the claim as written, the latter in relation to the what the invention has contributed as a whole to the sum of human knowledge. Whilst these are not always mutually exclusive, in the present case the technical contribution lies in marking a product with two codes that allows it to be tracked throughout its lifecycle, the codes providing data on where in its lifecycle the product is and ultimately how it is dealt with at a recycling facility. The contribution is thus not solely in the information provided by the codes, it also includes the purpose of this information.

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<sup>1</sup> *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2007] RPC 7

<sup>2</sup> *AT&T Knowledge Ventures/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat)

## The issues to be decided

- 15 There are two issues for me to decide in relation to the present application:
- (i) whether the latest set of amended claims on file contains subject matter that extends beyond that which was in the application as filed, and
  - (ii) whether the claims currently on file involve an inventive step.

I will consider these issues in that order in my decision below.

- 16 I will consider the relevance of the auxiliary claim request provided by the agent with their skeleton arguments filed in advance in so far as they address the issue of inventive step and may offer a fruitful way forward.

## The Relevant Law

### *Added Subject Matter*

- 17 Section 76(2) of the Act states:

*No amendment of an application for a patent shall be allowed under section 15A(6), 18(3) or 19(1) if it results in the application disclosing matter extending beyond that disclosed in the application as filed.*

- 18 I can take guidance on how to apply Section 76 from *Bonzel & Schneider*<sup>3</sup>, where Aldous J (as he was then) stated:

*“The decision as to whether there was extension of disclosure must be made on a comparison of the two documents read through the eyes of a skilled addressee. The task of the court is threefold:*

*(1) To ascertain through the eyes of the skilled addressee what is disclosed, both explicitly and implicitly in the application;*

*(2) To do the same in respect of the patent as granted;*

*(3) To compare the two disclosures and decide whether any subject matter relevant to the invention has been added whether by deletion or addition. The comparison is strict in the sense that subject matter will be added unless such matter is clearly and unambiguously disclosed in the application either explicitly or implicitly.”*

- 19 Further guidance is provided in *Richardson-Vicks Inc’s Patent*<sup>4</sup>, where Jacob J (as he was then) noted:

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<sup>3</sup> *Bonzel and Schneider (Europe) AG v Intervention* [1991] RPC 553

<sup>4</sup> *Richardson and Vicks Inc.’s Patent* [1995] RPC 568

*“The test of added matter is whether a skilled man would, upon looking at the amended specification, learn anything about the invention which he could not learn from the unamended specification.”*

*Inventive step*

20 Section 1(1) states that:

*A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say –*

*(a) the invention is new;*

***(b) it involves an inventive step;***

*(c) it is capable of industrial application;*

*(d) the grant of a patent for it is not excluded by subsections (2) and (3) or section 4A below;*

*and references in this Act to a patentable invention shall be construed accordingly.*

Section 3 of the Act defines what is meant by ‘inventive step’ as follows::

*An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).*

21 The examiner and applicant both agree that the approach for assessing inventive step is the structured approach set out in *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*<sup>5</sup>, and reformulated as the “Windsurfing/Pozzoli” test in *Pozzoli SPA v BDMA SA*<sup>6</sup>. This test is as follows:

*(1)(a) Identify the notional “person skilled in the art”;*

*(1)(b) Identify the relevant common general knowledge of that person;*

*(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;*

*(3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed;*

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<sup>5</sup> *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59

<sup>6</sup> *Pozzoli SPA v BDMA SA* [2007] EWCA Civ 588

*(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?*

22 In *SABAF*<sup>7</sup>, Lord Hoffmann held that before you can ask whether the invention involves an inventive step, you first have to decide what is the invention. In particular, the first step is to decide whether you are dealing with one invention or, for the purposes of section 3, two or more inventions. If two integers interact upon each other, if there is synergy between them, they constitute a single invention having a combined effect and one considers section 3 in light of this combined effect. But if each integer performs its own proper function independently of any of the others, and the claim is a mere aggregation or juxtaposition of features, then each integer is, for the purposes of section 3, a separate invention. The combination of a series of known or obvious features, each playing its usual part in the final entity, will be a matter of design or mere collocation, not of invention. In such a situation, objection should be raised under section 3.

23 In *SABAF*<sup>5</sup>, Lord Hoffmann also referred to passages from the EPO Guidelines for Substantive Examination<sup>8</sup> as providing guidance on how to determine whether two features display synergy. This guidance was re-stated, and further explained, in the EPO Technical Board of Appeal decision in T-1054/05<sup>9</sup>:

*"Two features interact synergistically if their functions are interrelated and lead to an additional effect that goes beyond the sum of the effects of each feature taken in isolation. It is not enough that the features solve the same technical problem or that their effects are of the same kind and add up to an increased but otherwise unchanged effect."*

24 According to section 125(1) of the Act, the claims of the application are interpreted as they would be understood by the skilled person in light of the description and any drawings in the application as filed:

*For the purposes of this Act an invention for a patent for which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly.*

## **Arguments and Analysis**

25 I will consider the issue of added matter first. If I find that matter is added, I will need for this to be removed from the claims before I can go on to consider the issue of inventive step.

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<sup>7</sup> *SABAF SpA v MFI Furniture Centres Ltd* [2005] RPC 10, House of Lords

<sup>8</sup> [G-VII, 7. Combination vs. juxtaposition or aggregation - Guidelines for Examination \(epo.org\)](#)

<sup>9</sup> For text of decision see [T-1054/05 \(Information management/NEC\) of 28.5.2008](#)

*Added Subject Matter*

- 26 The examiner considers that there is no support for the printing of a visible 2D data matrix code, and separately providing a code that fluoresces under excitation conditions on the same packaging, and therefore this addition to amended claim 1 constitutes added subject. I note the term fluorescence covers responses that are visible in infra-red (IR), visible and ultraviolet (UV) wavelength spectrum.
- 27 The applicant on the other hand argues that an amendment will only introduce subject matter if it results in the skilled person being presented with information which is not directly and unambiguously derivable from the original application as a whole, even when that matter may be implicit. Whilst not stated in the applicants' arguments, I assume that this point is made following the guidance from *Bonzel* referred to above. The applicant points out that the application at numerous places describes using two or more taggants, and that the paragraph bridging pages 25 and 26 of the description as filed makes it clear that visible printed codes can be utilised.
- 28 The application as filed focusses on the use of fluorescent markers or tags for marking the products. Particular emphasis is placed on the fact that the mark is fluorescent as it does not obscure the branding or impact the aesthetics of the product, and the embodiments disclose the use of UV, near IR (NIR) and / or IR readable markers and the use of UV, NIR or IR detectors at the MRF. There are a number of different embodiments disclosing different types of markers, including 2D data matrix codes as well as markers where the manufacturer, brand etc. are identifiable from the shape or colour of the marker, as well as different combinations of these. These various embodiments are also defined in the claims as filed, and I note that claim 7 and claims appendant thereto do not necessarily require that the marker is fluorescent.
- 29 I consider that there are four different embodiments that arise from the claims as amended. These are (my emphasis added in bold):

Embodiment (a)

*(Original claim 7) A method of uniquely identifying a product for subsequent recycling, comprising the step of: marking a surface of the product with a first trace signature being representative of the manufacturer of the product.*

*(Original claim 8) The method as claimed in claim 7, wherein the first trace signature being **any chemical or physical marker capable of being read at a detector**.*

*(Original claim 34) The method as claimed in claim 8, wherein the detector detects the presence of illuminated UV and/or IR light and/or near infrared and/or **visible light** and/ or shape or pattern recognition.*

Embodiment (b)

*(Original claim 7) A method of uniquely identifying a product for subsequent recycling, comprising the step of: marking a surface of the product with a first trace signature being representative of the manufacturer of the product.*

*(Original claim 8) The method as claimed in claim 7, wherein the first trace signature being **any chemical or physical marker capable of being read at a detector**.*

*(Original claim 19) The method as claimed in claim 8, wherein the first trace signature is a dot being printed in **one of a number of shapes and colour that are detectable by the detector**.*

#### Embodiment (c)

*(Original claim 7) A method of uniquely identifying a product for subsequent recycling, comprising the step of: marking a surface of the product with a first trace signature being representative of the manufacturer of the product.*

*(Original claim 8) The method as claimed in claim 7, wherein the first trace signature being **any chemical or physical marker capable of being read at a detector**.*

*(Original claim 21) The method as claimed in claim 8, wherein the first trace signature is detectable by its outer shape and/ or **visible colour** and/ or an alphanumeric identifier*

#### Embodiment (d)

*(Original claim 7) A method of uniquely identifying a product for subsequent recycling, comprising the step of: marking a surface of the product with a first trace signature being representative of the manufacturer of the product.*

*(Original claim 31) The method as claimed in claim 7, further comprising the step of: marking a surface of the product with a plurality of trace signatures being representative of the source of manufacture and/ or base polymer manufacture and/ or polymer material and/ or material grade and/ or brand of product, and which enables subsequent separation of the product based on the detected attributes of the product.*

*(Original claim 32) The method as claimed in claim 31, wherein the plurality of trace signatures are printed as a string of readable dots or **as a 1D, 2D or 3D data matrix**, barcode or QR code, or any other suitable industrial alpha, numerical or alphanumeric coding process*

- 30 In addition to the claimed embodiments above, as pointed out by the applicant, the paragraph bridging pages 25-26 does suggest that a visible marking could be used as an alternative. This paragraph is one of a number of broadening statements found at the end of the specification and it does not specify which of the markers may be visible.
- 31 The present claims disclose the machine readable 2D data matrix code that uniquely identifies the produce as being visible, and it being printed on the product along with a second machine readable code that has a fluorescing shape or colour that allows

the manufacturer or brand or composition to be identified. The combination of a 2D matrix code and a code of a particular shape or colour is disclosed in the application as filed, with the embodiments showing that both these codes, when provided together are detectable using UV, NIR or IR technology.

- 32 I therefore need to decide whether there is disclosure, either explicit or implicit, of a **visible 2D matrix code in combination with a marker identifiable by its fluorescing shape or colour**. Turning first to embodiments (a)-(c) listed above, I note that there is nothing that would explicitly state that the marks detected by visible light are the 2D data matrix codes, although they are not excluded from these embodiments. On the other hand, embodiment (d) does make it explicit that the marker may be a 2D data matrix code, although it does not specify that the marker is visible (or fluoresces, for that matter). None of these embodiments therefore make it explicitly clear that a 2D data matrix code may be visible, but they do suggest that the markers may be visible, and do not exclude the 2D data marker from being so, nor do they exclude a combination of visible or fluorescing markers. The broadening statement bridging pages 25-26 already referred to also does not explicitly state that the 2D data matrix marker is visible, instead it makes a general point that any of the markers could be visible.
- 33 However, the test requires that I determine what is disclosed to the skilled person *implicitly* as well as explicitly, and essentially, as set out in *Richardson-Vicks*<sup>2</sup>, whether they have learnt anything new from the proposed amendments. It is clear to me that the product may have two markers, one of which can be a 2D data matrix code, and the other that conveys information by way of its shape or colour. Taken together, embodiments (a)-(d) as well as the broadening statement bridging pages 25-26, do suggest that any of the markers could be visible, and I consider that, the skilled person reading the application as filed, would appreciate that this could be true of either the 2D data matrix code or the shape / colour marker. Indeed, both of these already individually appear on packaging as visible markers. Therefore, I am satisfied that the skilled person would appreciate that either or both of these being visible is also contemplated within the scope of the invention, in light of the disclosures that I have identified above. As such, I find that I am in agreement with the applicant that there is no added matter.

#### *Inventive Step/Obviousness*

- 34 During the course of the examination process, the examiner has cited a number of documents that he considers render the invention obvious. The weight placed on these documents has varied throughout the process, with further documents that were cited during prosecution in other jurisdictions introduced with the examination report dated 25 October 2022. In total, 11 documents were cited in the examiner's pre-hearing report dated 1 December 2022. I will consider each of these in turn during my assessment below, using the four step "Windsurfing/Pozzoli test".

Step 1(a) and 1(b): Identify the notional "person skilled in the art" and identify the relevant common general knowledge of that person.

- 35 The examiner considers that the person skilled in the art would be a labeller of products or the packaging for the product, and they would be familiar with methods of labelling, either by printing directly onto the product or a label applied to the product.

They would also be familiar with the different types of marking and/or labels that can be used. For the present purposes I will refer to labels or labelling to indicate the application of a marking onto a label (which is then attached to the product) or directly onto the product itself.

- 36 The applicant has not provided any submission on who the person skilled in the art could be, and as such has not disagreed with the examiner's assertion.
- 37 While I agree that the skilled person would be someone familiar with the different types of labels available and the different methods of fixing them to products as well as with methods of marking the product directly, I do not think they are familiar with all types of labelling and marking for all purposes which I think is too broad a characterisation on behalf of the examiner. The purpose of the present invention is to ensure tracking of a product throughout its lifecycle, from manufacture to recycling, and therefore, I consider that the skilled person is someone familiar with the different types of labels that are suitable for this process, how they can be applied and the likely considerations that would prevail when trying to read such labels in different conditions experienced by product through its lifetime including when it is going through the recycling process.

Step 2: Identify the inventive concept of the claim in question, or if that cannot readily be done, construe it.

- 38 There has been much discussion throughout the examination process around what the inventive concept is, and indeed how many inventive concepts exist in claims 1 and 10. There was also some discussion around what are considered to be the limiting features of these claims. This was further expanded upon in the skeleton arguments and at the hearing.

I provide my analysis of independent claims 1 and 10 as currently on file below.

#### *Features of Claim 1*

- 39 There are two types of machine-readable code defined in claim 1:
- (i) The first machine readable code is a visible 2D data matrix code. This is similar to a QR-type code in that it contains information that can be read in any direction. Claim 1 requires that this code is visible and can uniquely identify the product, including manufacturer or brand or composition. The skilled person would understand that such codes are commonly used as unique identifiers and would also be capable of providing more information than just manufacturer or brand or composition of the product, when scanned with an appropriate scanner.
  - (ii) The second code, whilst also being defined as a 'machine readable code', is defined as having a fluorescing shape or colour that is readable during the recycling phase to allow the manufacturer or brand or composition of the product to be identified. From reading the description and the figures it would appear that obtaining information from this code is more simplified than the first; rather than requiring a scanner to extract the information, a particular shape and/ or colour is used to identify a particular manufacturer/ brand etc., and this could be done manually by an operative at the MRF/PRF.

- 40 Turning now to the limiting features of claim 1, which is directed to a method of marking a product contained in packaging. The marking method needs to be *suitable for* tracking the product throughout its lifecycle, and this is achieved by printing with both the first visible machine readable 2D data matrix code, and the second fluorescing machine readable code. There is no dispute over the limitation imparted by this printing step. The claim also requires that the data from the 2D data matrix code is *readable* at any point in the lifecycle of the product, whereas the fluorescing shape or colour of the second machine readable code is *readable* during the recycling phase of the product. The data read from each of the two codes referred to in claim 1 is *transferrable* to a remote database on a corporate network or cloud-based system. The data from the 2D data matrix code is *extractable* for commercial or regulatory use during various phases during the product's life cycle.
- 41 It is the reading of these two codes, and the use of the data that these codes contain, that are a source of dispute between the examiner and the applicant. The examiner considers that the uses of the codes to extract and transfer data are not limiting because such functionality is implicit in any code because any code can carry information, depending on the result to be achieved, and any code is capable of being transferred to a remote database. The applicant on the other hand argues that the reading and flow of data is a limiting feature of the invention, and without these data touch points, the invention cannot support the function of counting products at the MRF/PRF. The applicant also argues that known codes are intended to be read only at certain points in a products lifecycle (such as point of sale).
- 42 I can see both sides of the argument here. The examiner is taking a broad construction of the words 'readable', 'transferrable' and 'extractable', in that the data must be capable of being read, capable of being transferred and capable of being extracted, which isn't necessarily incorrect when the words are given their ordinary meaning. However, section 125 of the Act requires that I take a purposive approach when construing the claims of an application, taking into account the description, and what the skilled person would understand the words of the claim to mean. In this regard, I can understand the applicant's point that the reading and flow of data during certain points in the product's lifecycle is a limiting feature of the invention, because the whole purpose of the invention is to track the product from its manufacture through to its recycling. What I cannot accept is that the claim is limited to the counting of products at the MRF/PRF, as suggested by the applicant.
- 43 As I see it, the claim merely requires that either (a) the first (2D data matrix) code can be read at any point in the lifecycle of the product (including during recycling), and the information extracted from it is available for commercial or regulatory use during various points in this lifecycle (including at the MRF/PRF); or (b) the second machine readable code is read at the recycling phase (which would include at the MRF/PRF) to allow the manufacturer or brand or composition to be identified, and this data is sent to a remote corporate network. There is no mention of counting products at the MRF/PRF- the data obtained is to identify the manufacturer/ brand/ product and it can be sent to a remote database. In theory it is possible that counting the products could be part of what happens at the MRF/PRF but I do not consider that the person skilled in the art would consider that this was implicit, not to mind explicit, from the claim.
- 44 I think that it is relevant to note also that the actual step of scanning the product, either at any point in the product's lifecycle, or at the MRF/PRF is not encompassed within

the scope of claim 1, and neither is the actual step of transferring the data from the codes to the remote database. Nevertheless, taking into account the purpose of the invention as disclosed in the description and, as helpfully explained by the agent, Mr Prichard, at the hearing, the method of marking the product must be suitable for providing a visible machine readable 2D matrix code that can be scanned and read at any point during the product's life cycle to provide a range of information about the product that can be sent to a corporate network – otherwise why use a 2D matrix code in the first place? It must also be suitable for providing a code that fluoresces with a particular shape or colour that can be scanned and read at the recycling phase to enable identification of the manufacturer, brand or composition, and this information can also be sent to a corporate network. This identification of the manufacturer/product/ composition using the fluorescing shape or colour of the second code is also essential in order for the packaging to be dealt with appropriately at the MRF/PRF.

45 I therefore construe claim 1 as a method of marking the packaging of a product, suitable for tracking the product throughout its lifecycle, by:

- (1) printing the packaging, itself or its label, with a visible machine readable 2D data matrix code that uniquely identifies the product, including the manufacturer or brand or composition of the product; this 2D data matrix code can be read at any point in the lifecycle of the product and the data read from it can be transferred to a remote database, where information can be extracted for commercial or regulatory use during various points in the lifecycle of the product; and
- (2) printing the packaging or its label with a second machine readable code which fluoresces under excitation conditions, with a fluorescing shape or colour that can be read during the recycling phase of the product to allow the manufacturer, brand or composition of the product to be identified, and the data read from it can also be transferred to a remote database.

#### *Features of Claim 10*

46 Claim 10, to the system, comprises the same limiting and non-limiting features as claim 1, to the method, discussed above, with the addition of means for reading the 2D data matrix at any point in the lifecycle of the product, as well as means for reading the second machine readable code during the recycling phase of the product. As such, claim 10 is construed as a system for tracking a marked product, comprising:

- (1) means suitable for printing the packaging with a visible 2D data matrix code;
- (2) means suitable for printing the packaging with a second fluorescing machine readable code which can identify the manufacturer or brand or composition by its shape or colour;
- (3) means suitable for reading the 2D data matrix code at any point in the lifecycle of the product, where the data is capable of being transferred to a remote database and can be extracted for commercial or regulatory use during various points of the lifecycle of the product; and
- (4) means suitable for reading the second machine readable code during the recycling phase of the product, where the data read from the code is capable of being transferred to a remote database.

*Inventive concepts of claim 1 and claim 10*

- 47 I will now deal with the inventive concepts defined by these independent claims. Claim 1, to the method, requires the printing of two markers onto the label / packaging, one of which is a visible 2D data matrix machine readable code that uniquely identifies the product, including manufacturer, brand or composition, and another machine-readable code which fluoresces under excitation conditions, with a shape or colour which allows the manufacturer or brand or composition to be identified.
- 48 Both the examiner and the applicant have referred to paragraph 3.17 of IPO Manual of Patent Practice (MoPP), which states that it is clear that if two integers interact upon each other, if there is synergy, then they constitute a single invention. However, if each integer performs its own proper function independently of the other (or others), and the claim is a mere juxtaposition of features, then each such integer is a separate invention for the purposes of assessing inventive step. The examiner argues that each code carries its own information and there is no synergistic effect. The applicant, on the other hand, argues that there is synergy because the codes are interrelated.
- 49 Much was made during the hearing about the information contained in the codes, and the skeleton arguments expand upon this. Specifically, the applicants argue that the unique 2D data matrix code can contain large amounts of data about each individual product, including manufacturer, brand, colour, composition as well as a range of other relevant information, and that this information can be useful in terms of managing the flow of recyclable material during its life cycle. The second machine readable code can be read much more easily than the unique code at the recycling facility and contains details of the manufacturer or brand or composition.
- 50 At the hearing, Mr Prichard pointed out that the same or overlapping information may be contained in these codes, where the unique code provides information useful to manufacturers such as usage trends or recycling behaviour (in addition to manufacturer, brand etc), and the fluorescing shape or colour of the second code enables what is a much more limited set of information to be made available, specifically the identity of the manufacturer or brand or composition. The 2D data matrix code can be difficult to read at a recycling facility as the products become damaged or dirty or not in the correct orientation to be read by the scanner, whereas the fluorescing shape or colour can be more easily read, regardless of condition or orientation of the product. In the opinion of the agent, this provides a combined technical effect by minimising the risk of products being mischaracterised or not read at the recycling facility.
- 51 I am inclined to agree with the examiner here. Even though the two codes enable identification of the product, and the presence of the second code acts as a safeguard against mischaracterisation at the MRF/PRF, I cannot see how these codes interact synergistically. The 2D data matrix code contains information that can be read to provide various information about the product, including manufacturer, brand or composition. The code provides this information irrespective of the presence of the second code. The second code that fluoresces with a specific shape or colour also allows the manufacturer, brand or composition to be identified, and this identification takes place irrespective of the presence of the first code. It is therefore my view that the invention, as claimed in independent claim 1 and claim 10 currently on file, comprises two distinct inventive concepts performing two separate purposes:

*Inventive concept A:* A method/system for marking and tracking a product through its lifecycle, including recycling, where the visible first machine readable code is a 2D data matrix that uniquely identifies the product, including the manufacturer or brand readable at any point during the product's lifecycle

*Inventive concept B:* A method/system for marking and tracking a product through its lifecycle, including recycling, where the second machine readable code fluoresces under excitation conditions, with a shape or colour being readable during the recycling phase to allow the manufacturer or brand or composition of the product to be identified.

- 52 As each of these inventive concepts function independently of the other without any synergy between them, I must consider them separately when applying steps 3 and 4 of the *Windsurfer/Pozzoli* approach.
- 53 Step 3: Identify what, if any, differences exist between the matter cited as forming part of the 'state of the art' and the inventive concept of the claim or claim as construed;
- Step 4: Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?
- 54 The arguments around inventive step provided by both the examiner and the applicant in writing and at the hearing focus mostly upon whether the invention relates to a collocation or not, and what is or is not the possible synergy between the identified inventive concepts. There is not a lot of specific detail from either the examiner or the applicant in relation to how the documents cited relate to each of the inventive concepts identified above. At the hearing Mr Prichard stated that the applicant's view of the cited documents is as set out in their skeleton arguments. However, these submissions relate less to difference between the cited prior art and the invention as claimed in the claims currently on file, dated 8 November 2022, and more to the differences between this cited prior art and the two sets of auxiliary claims submitted with the applicant's skeleton arguments on 17 January 2023.
- 55 In my analysis below, I will consider how the documents cited by the examiner apply to inventive concepts A and B above, and the arguments put forward by both the examiner and the applicant that apply to these inventive concepts.
- 56 Of the eleven documents cited by the examiner, three [WO 2017/223099 (MCCLOSKEY), US 2006/033325 (MARUVADA) and US 2010/14953 (TANG)] are concerned with marking of products using multiple tags, usually for security authentication. In their skeleton arguments, the applicant points out that these are not for the same purpose as the invention, because whilst they do use two codes (one visible and one fluorescing) they are for security marking or authentication and not for tracking through to the recycling process. Whilst the claim requires that the method of marking is merely '*suitable for*' tracking the product through its lifecycle, I am inclined to agree with the applicant here. I am not convinced that the codes disclosed in these documents would be suitable for tracking products throughout their lifecycle, particularly as the lifecycle of the product encompasses disposal, and, as is the

purpose of the present invention, recycling. I have already opined that the skilled person would be someone who is familiar with labelling packages, particularly with a view to recycling and disposal, and I cannot see why they would consider these markers, which are used to confirm that a product is authentic, as suitable for tracking products through to recycling and/ or disposal. For this reason, I will not consider these documents further.

- 57 The remaining eight documents, US 2010/185506 (WOLFF1), US 2010/0017276 (WOLFF2), US 2011/225098 (WOLFF3), EP 3244356 (VALIDFILL), GB2330408 (PIRA *et al*), JPH 06297458 (AJIOKA), US 2006/167580 (WHITTIER), and WO 00/44508 (CROWN CORK & SEAL), are all concerned with applying markers to products to track them through the recycling process. WOLFF1, 2 and 3 are members of the same family, with WOLFF1 being a continuation in part of WOLFF2, and WOLFF3 as a continuation in part of WOLFF1. The disclosures of WOLFF1 and WOLFF3 are very similar and expand upon the system of WOLFF2, and therefore for the sake of conciseness I will assess inventive step in light of WOLFF1 only, as the same arguments will apply to the other family members.

*Inventive concept A*

- 58 As discussed above, the first inventive concept broadly defines a method of marking a product for tracking it through its lifecycle, using a visible 2D data matrix that uniquely identifies the product and the data read from it can be transferred to a remote database. I will consider the citations in light of the use of this visible marker only.
- 59 WOLFF1 discloses the printing of a unique identifier onto a product, the identifier can include a 2D data matrix code, and is scannable at various points in the products lifecycle, with data transmitted to a remote database. Whilst it focusses on consumer behaviour by encouraging the use of deposit return schemes or reverse vending machines, the document does point out that the system can be integrated into MRFs to provide data to companies as well as to improve sorting at the point of recycling. The data extracted from the scannable codes can be sent to a remote database and used for commercial or regulatory purposes. The difference between this document and the first inventive concept of claim 1 is that it isn't explicit that the 2D data matrix code is *printed* onto the packaging.
- 60 It is clear from this document that the 2D data matrix code may be etched, whereas other possible codes may be printed. Given that the skilled person would understand that printing the identifiers is an option, and that this extends to the 2D data matrix code, then in my opinion, this inventive concept in claim 1 is obvious in light of WOLFF1. The same arguments apply to the disclosures of WOLFF2 and WOLFF3. Given that the system in these documents also comprises a scanner, the inventive concept of claim 10 also lacks an inventive step.
- 61 VALIDFILL provides a visible matrix barcode printed onto a beverage container that can be scanned and information relayed to a remote server. The applicants point out that this relates to a beverage dispensing system, where the system detects a code on a beverage container, with the examiner arguing that this system is capable of tracking products. It is clear that this document does disclose a beverage dispensing system, but that the markers used are able to convey information regarding the beverage dispensed to a server. It is also able to track dispensing of the beverage

into the container as well as refilling, and so on the face of it, this document does disclose a visible machine-readable data matrix on the beverage container that is readable during the lifecycle of the beverage (i.e. filling, consumption and optionally refilling), with extractable information for commercial use.

- 62 This document doesn't explicitly state that the data matrix is a 2D data matrix code, but this would appear to be either implicit or the skilled person would understand that such a code could be used. Therefore the first inventive concept of claim 1 would appear to be obvious in light of VALIDFILL. As a scanner is also disclosed, the same argument applies to claim 10.
- 63 WHITTIER provides details of how materials are sorted at a recycling facility, including by use of barcodes, and the information contained in the barcodes, which includes details of the manufacturer amongst others, is compared with information in a database and is shared across computer networks. The information in the barcodes is used for tracking. In their skeleton arguments, the applicant points out that the information contained in the barcode is *useful for identifying the container* (their emphasis), such that it can be directed to the appropriate densification device in a recycling facility. I am not entirely sure what point the applicant is trying to make by emphasising the tracking of the container, because at the MRF/PRF the present application will also be identifying *the container* and so I do not think that this would distinguish the method of the invention over WHITTIER. Given that WHITTIER discloses the use of a visible barcode that can be scanned at various points in the lifecycle of these containers, including at the MRF/PRF for sorting into the relevant recyclable material, and, given that the information obtained during the recycling phase is captured and transferred to a central facility, the only difference that I can find between the present invention and WHITTIER is the use of a 2D data matrix instead of a barcode. However, a barcode can only be read in a single direction, whereas a 2D data matrix is omnidirectional, and in my opinion, a skilled person reading WHITTIER, especially in light of the challenge highlighted by WHITTIER of the positioning of the barcode, would appreciate that the barcode disclosed therein could be substituted for a 2D data matrix. As such I find the first inventive concept of claim 1 to be obvious in light of WHITTIER, and as a scanner is also present, claim 10 also lacks an inventive step.
- 64 AJIOKA also discloses the use of visible printed barcodes to identify and sort recyclable material, but there is no suggestion that this is used for anything other than identifying the polymer of the packaging to ensure that it is recycled appropriately. Nevertheless, I am mindful of the point made by the examiner that the code can carry any information which is then used according to the desired result. However, the problem to be solved by AJIOKA is the separation of biodegradable from non-biodegradable plastics, and whilst it does disclose the general principle of separating two different types of packaging, I cannot see how the skilled person, without the benefit of hindsight, would consider modifying this to track a product throughout its lifecycle and convey information to a corporate network at various points. Therefore, on balance I feel that the first inventive concept of claims 1 and 10 is inventive in light of AJIOKA.
- 65 Given that PIRA *et al.* discloses the use of fluorescent tracers, without any suggestion of printed visible 2D data matrix codes, I do not consider this document to be relevant to the first inventive concept.

66 Similarly, CROWN CORK & SEAL does not disclose the use of a visible 2D data matrix code that would uniquely identify the product or track it through its lifecycle, as it is concerned with sorting the packaging at the recycling facility. Whilst it does disclose a fluorescent marker, including a fluorescent barcode, I do not think that the skilled person would contemplate the substitution of the fluorescent barcode with a visible barcode to track a product through its lifecycle, as it makes it clear of the importance of using fluorescent ink so that it does not detract from the appearance of the packaging. Therefore I do not find the first inventive concept obvious in light of PIRA *et al.* either.

*Inventive concept B*

67 Turning now to the second inventive concept which broadly requires a method of marking a product for tracking it through its lifecycle, using a machine-readable code which fluoresces, with a fluorescing shape or colour being readable during the recycling phase to allow the manufacturer, brand or composition to be identified and data from this transferrable to a remote database.

68 Starting again with WOLFF1, which does provide, in one embodiment, a fluorescent stripe printed onto the packaging as a form of identification and a means for tracking at various points in the lifecycle, and throughout the examination process the applicant has pointed to this as an alternative to the visible scannable code. Whilst there is little detail provided of this 'stripe' in WOLFF1, I do consider that this is a fluorescent marking that can be read at the recycling phase and therefore can be used to identify the product. However, as discussed above when construing the claims, the skilled person would understand that it is the shape or colour of the fluorescing second marker that provides the information regarding the manufacturer or brand or composition, yet there is no detail in WOLFF1 as to how any information is obtained from this 'stripe', other than possibly that provided in Figure 304c where the 'stripe' appears to be a barcode. As such I conclude that the information regarding the product does not appear to be obtained from the fluorescing shape or colour of the mark. There is, however, an indication at [0077] that the recyclable product can be identified by scanning a mark, including a specific shape, and routed to an appropriate processing location, but this does not appear to provide any information other than whether or not the product is recyclable. Whilst I acknowledge that the purpose of scanning this shape is to separate the product into a recyclable feedstock, similar to that of the present invention, I do not think that the intention is to identify the manufacturer or brand or composition of the product. Moreover, there is no indication that the mark is fluorescing. Therefore, whilst WOLFF1 appears to contain the features required of the second invention, these features appear in different embodiments, and, on balance, I do not consider that it would be obvious to the skilled person to combine them. Therefore, the second invention is, in my opinion, inventive in light of WOLFF1, and, by analogy, WOLFF2 and WOLFF3.

69 Turning to VALIDFILL, as discussed above, this is for tracking the filling of a beverage container, and whilst the container can be recycled, there is no indication that the markers are scanned at the recycling phase to identify the manufacturer or brand or composition of the product. I do not see why the skilled person, without the benefit of hindsight, would utilise the markings on the containers of VALIDFILL to track and read the beverage containers at the recycling phase. Therefore I do not think VALIDFILL is relevant to the second inventive concept.

- 70 WHITTIER discloses methods to separate recyclable containers based on information contained in a barcode printed on the surface of the container. The containers may be separated depending on their composition or their manufacturer, and once identified, the containers are sent to an appropriate densification device. The information obtained through scanning the barcode is sent to different databases including a central facility for transfer for information between computers, including providing information to distributors on the recycling of their products. This would therefore appear to be means for tracking the product through its lifecycle. However, the code in WHITTIER is visible and there is no indication of using fluorescent markers of a particular shape or colour to convey information during the recycling process. Therefore, I do not think that the skilled person reading WHITTIER would contemplate changing the visible barcode for a mark with a fluorescing shape or colour.
- 71 PIRA *et al.* discloses the use of fluorescent tracers, and these can be a combination of tracers with different colours when excited. The tracers are used to identify the type of recyclable material only and not really anything beyond this, and no data is read from it in order to form part of the tracking of the product throughout its lifecycle. Whilst PIRA *et al.* demonstrates that fluorescing colours can be used to convey information around the composition of recyclable materials and its subsequent sorting, it is a very crude system, based on emitted fluorescence only, and would need significant modification in order to read or provide this information and transfer it to a database on a corporate network. Therefore, I consider the second inventive concept of claims 1 and 10 is inventive in light of this document.
- 72 AJIOKA provides fluorescent markers in the form of barcodes for separating packaging according to whether the material is biodegradable or not. The information is obtained from the barcode and not its shape or colour, and as with PIRA *et al.* there would need to be significant changes made to the method, this time to move from a barcode containing the information to a shape or colour that depicts the information. Therefore, I consider the second inventive concept of claims 1 and 10 is inventive over the disclosure in this document.
- 73 The method for sorting recycling in CROWN CORK & SEAL does use a fluorescent marking applied to outside of container, and this also provides information on the products or its use. The fluorescent pattern may be in the form of shapes or colours to depict different information, such as product or composition, and is applied by inkjet printing. The packaging is then sorted according to its composition, contents or use. Whilst this is a simplistic method of sorting recyclable products only, it does use fluorescing shapes and colours to convey information at the MRF. The difference between this document and the second inventive concept is the transmission of the information obtained at the MRF to a remote corporate database. However, there is a detailed description of the detectors and how they interpret the codes from the fluorescing shapes and colours to obtain the information, and I consider that, not only would it be possible to capture this information and transmit it to a remote database, but it would not take any ingenuity on the part of the skilled person to do so. As such, I consider that the second inventive concept of claim 1 is obvious in light of CROWN CORK & SEAL, and it follows that claim 10 is also obvious.

### *Overall assessment of claims 1 and 10*

- 74 In light of my discussion above, I find that inventive concept A of claim 1 is obvious in light of any one of WOLFF1, WOLFF2, WOLFF3, VALIDFILL and WHITTIER and inventive concept B of claim 1 is obvious in light of CROWN CORK & SEAL. Therefore, claim 1 does not comprise any inventive feature. The same argument applies to claim 10.
- 75 However, I also need to consider the inventive step of the dependent claims and note that neither the examiner nor the applicant has addressed these claims in their arguments. Claim 2 requires that the product is separated from a mixed feedstock for onward recycling based on the detected fluorescing shape or colour of the second machine readable code, and so is applicable to the second inventive concept identified above. As discussed above, CROWN CORK & SEAL discloses a second machine readable code with a fluorescing shape or colour that is readable during the recycling phase and then the product is separated for onward processing and therefore this claim also lacks an inventive step.
- 76 I find dependent claims 3 and 4 to be unclear and inconsistent with what appears to be the second inventive concept in claim 1 (where information is obtained from the fluorescing shape or colour of the codes), as they require the code to be a barcode, data matrix code etc, thereby suggesting that the information is not obtained from the shape or colour but from the barcode itself. WOLFF1, WOLFF2, WOLFF3 AND AJIOKA disclose fluorescent barcodes providing the relevant information, although these are not of a particular shape or colour to provide separate or overlapping information. However, they would *prima facie* appear to disclose the features of claims 3 or 4 in so far as the information is obtained from the barcodes etc. and not from the shape or colour. Therefore, claims 3 and 4 also lack the required inventive step. The subject matter of the remaining dependent claims is disclosed in WOLFF1, at least, and therefore these claims also lack an inventive step.
- 77 I therefore conclude that the claims currently on file, i.e., those filed on 8 November 2022 do not involve an inventive step, in light of WOLFF1, WOLFF2, WOLFF3, VALIDFILL, WHITTIER and CROWN CORK & SEAL.

### *Auxiliary claim sets provided with the Skeleton Arguments*

- 78 As part of their attempt to overcome the collocation arguments, the applicant provided two sets of auxiliary claims in conjunction with their skeleton arguments of 17 January 2023. At the hearing, I pointed out to Mr Prichard that an application may only formally contain one set of claims at any one time, and therefore these auxiliary claims are not considered formally to be part of the application as yet.
- 79 Nevertheless, whilst there is no obligation for me to do so, as the hearing officer responsible for this case, I may take into account a small number of auxiliary claim sets if they help to resolve the matters at issue.
- 80 The agent acknowledged their lack of familiarity with the procedure before the IPO. While I note that the filing of auxiliary requests for consideration on the day of the oral hearing is common and usual practice before the EPO, it is not so before the IPO.

This point has been explained and discussed in a number of office decisions such as BL O/238/12 (*Fisher-Rosemount Systems, Inc*) and BL O/283/18 (*Emerson Process Management Power and Water Solutions Inc*).

- 81 Given the fact that there were only two such auxiliary requests (and it rapidly become apparent that only one of these requests was likely to be helpful – see below), in the interest of efficiency and taking account of the imminence of the compliance date, I was prepared, in this case, to review these auxiliary requests in more detail to determine if they offered a productive way forward.

*First Auxiliary Request*

- 82 By defining a single label with a single function the claim set of the first auxiliary request are broader than the claims already on file. Therefore, this request would not appear to progress matters or, indeed, be inventive. I will therefore not consider the claim set of this request any further in this decision.

*Second Auxiliary Request*

- 83 The second auxiliary request relates to a claim set which defines a single label (or direct marking) on the product that performs two functions. In my view, it does show that the applicant is attempting to progress the application, even though this claim set has not been formally filed. I explained at the hearing that, given time pressure, I was loathe to ask the applicants to formally file any of these claims if they were not at least progressing matters in a productive manner. As a consequence, I proposed to consider the allowability of this claim set as part of my decision.

- 84 Claim 1 of the second auxiliary request reads as follows:

*1. A method of marking a product contained in packaging for subsequent tracking of the product throughout its lifecycle, the method comprising the step of:*

*printing at least a portion of the product's packaging or a label which is subsequently affixed to the product's packaging with a 2D data matrix which fluoresces under excitation conditions, wherein the data stored on the 2D data matrix comprises the manufacturer or brand or composition of the product,*

*wherein the 2D data matrix is readable during the recycling phase of the product at a Materials Recovery Facility or Plastics recovery facility to allow the manufacturer or brand or composition of the product to be identified, the fluorescing shape or colour of the 2D data matrix also being detectable to allow the manufacturer or brand or composition of the product to be identified, the data read from the 2D data matrix being transferrable to a remote database on a corporate network or cloud-based system, and*

*wherein information from the database is extractable to enable compliance with recycling obligations or legislation.*

- 85 Claim 10 relates to the corresponding system. Thus, if I consider that claim 1 is inventive then claim 10 will also be inventive.

- 86 Claim 1 of this second auxiliary request defines a marking method for tracking a product through its lifecycle, by printing a machine-readable fluorescing 2D data matrix onto the packaging, with the data stored on the matrix comprising the manufacturer, brand or composition, and where the 2D data matrix can be read at the recycling phase at an MRF/PRF to allow the manufacturer, brand or composition to be identified (as well as providing other information), and where the fluorescing shape or colour of the 2D data matrix is detectable to allow the manufacturer brand or composition to be identified, and where the data from the 2D data matrix can be transferred to a remote database.
- 87 I note that the 2D data matrix is 'readable' and thus is not limited to machine-readable. For the purposes of determining if this claim represents a useful way forward I have construed 'readable' as machine readable in line with the claims currently on file and discussed already. While the form of the claim is ultimately a matter for the applicant, if this application was to proceed, this point should be addressed.
- 88 Thus, with the above proviso, I consider that this claim defines a single marker, which provides information in two ways:
- Firstly, by way of a fluorescing 2D data matrix code, and
  - Secondly, by way of the fluorescing shape or colour of that 2D data matrix code.

In this context, fluorescence means that light is absorbed at shorter wavelength and emitted at a longer (more to the visible) wavelength. This property of fluorescence for each can be at different wavelengths (i.e., it does not have to be the same wavelength)

- 89 Before I consider the inventive step of these claims, I need to consider whether they add matter. In their skeleton arguments, the applicant points towards the second paragraph of page 21 as support for this second auxiliary request. I agree with the applicant that this passage does provide the basis for a single 2D data matrix code which is readable at the MRF/PRF and which fluoresces with a particular colour that identifies the manufacturer/ brand for recycling purposes. This passage however does not suggest that the *shape* of the data matrix can also be used as an identifying feature. Nevertheless, passages from page 23, bottom paragraph, to page 24, last paragraph, provide further details of this specific embodiment. This includes details of how the single code can provide the same information (manufacturer, brand, composition) by both the data contained in the 2D data matrix code as well as the shape and / or colour of the 2D data matrix, and also how the 2D data matrix code can additionally comprise more specific data, such as that required for regulatory compliance. I am therefore satisfied that there is basis for this second auxiliary claim set.
- 90 I now turn to the inventive step of this second auxiliary claim set. In their skeleton arguments, the applicant provided a detailed discussion of why the first auxiliary claim set is inventive, and at the hearing Mr Prichard agreed that these arguments should also be applied to the second auxiliary claim set. Whilst the examiner has not had the opportunity to formally examine this specific claim set, I will take account of his existing arguments and apply them, where appropriate, to these claims.
- 91 The applicant has attempted to overcome the collocation argument by defining a single marker with two functions. On balance, I feel that this is sufficient to alter the

consideration of the claimed invention from a collocation to a single invention. Whilst the marker can display two separate pieces of information (as the 2D data matrix may comprise information beyond manufacturer, brand or composition), it also displays the same information (manufacturer, brand or composition) in two different ways. When scanned at the MRF/PRF, the 2D data matrix can be read to provide information on manufacturer, brand or composition, with the shape or colour of the 2D data matrix also providing the same information when exposed to excitation conditions. Therefore, the 2D data matrix necessarily has a specific shape and / or a specific colour in order to carry out its function as a marker; this is a single marker providing information in two different ways. The information provided allows for the separation of the product during recycling and therefore also has a technical effect. Therefore, I consider that the claim defines a single invention, in a marker in the form of a 2D data matrix code which fluoresces under excitation conditions such that the information it contains, including manufacturer or brand or composition, can be read at the MRF/PRF, and where the 2D data matrix code also has a particular overall shape or colour, where this shape or colour also allows the manufacturer or brand or composition to be identified, and where both the information contained in the 2D data matrix and the particular shape or colour allow the manufacturer or brand or composition to be identified.

- 92 As this second auxiliary claim request, relates to combining the two inventive concepts discussed above in relation to claims currently on file so that a single label (or direct marking) on the product performs two functions, I am satisfied that the search conducted will have covered this aspect. As such I consider that it is appropriate to review whether the marker of this second auxiliary claim request is inventive over the prior art identified.
- 93 My first observation is that such a marker requires the 2D data matrix code to be fluorescent and of a particular shape or colour, with information obtained by reading the 2D data matrix and from detecting the shape or colour. This is a combination of both inventive concepts defined in the claims of 8 November 2022 (see Inventive concept A and B above), and it is clear from my analysis of these claims (see above) that none of the prior art documents disclose both of these features. WOLFF1, WOLFF2 and WOLFF3 do disclose the presence of the 'Blue dot' symbol as an indicator for recyclable materials, where the barcode is incorporated into the blue dot and therefore has a circular shape. However, as noted by the applicant in their skeleton arguments, this is a *visible* indicator to the consumer that the material is recyclable, and therefore I do not consider that it would be obvious to modify this particular shaped data matrix code such that it was not visible to the naked eye, i.e. printed with an ink which fluoresces under excitation conditions. This is despite the alternative embodiment disclosed in WOLFF1 of a fluorescent stripe which can be used to track the product through its life cycle; little detail is provided in WOLFF1 of this stripe, it appears that it may be a barcode or the like, but there is no indication that there is any information received from the shape or colour of the stripe itself as the information regarding the product is obtained from the barcode only. I also do not see any motivation to adapt this marker such that information can be obtained from both the barcode and the shape or colour of the stripe. Therefore, claim 1 of the claim set in the second auxiliary request would appear to be inventive in light of WOLFF1, WOLFF2 and WOLFF3, when read in isolation.

94 As further explained in the IPOs Manual of Patent Practice at paragraph 3.40 et seq., combining any of the prior art, be it published documents, instances of prior use or common knowledge, is permitted in order to make an argument that a claim is obvious. This includes combining disclosures from one document with that of another. However, as cautioned by Laddie J (as he was then) in *Pfizer Ltd's Patent*<sup>10</sup> at [66], it must be likely that the skilled person would have considered both teachings, in this case the disclosure of both documents from the prior art, together:

*“When any piece of prior art is considered for the purposes of an obviousness attack, the question asked is “what would the skilled addressee think and do on the basis of the disclosure?” He will consider the disclosure in the light of the common general knowledge and it may be that in some cases he will also think it obvious to supplement the disclosure by consulting other readily accessible publicly available information. This will be particularly likely where the pleaded prior art encourages him to do so because it expressly cross-refers to other material. However, I do not think it is limited to cases where there is an express cross-reference. For example if a piece of prior art directs the skilled worker to use a member of a class of ingredients for a particular purpose and it would be obvious to him where and how to find details of members of that class, then he will do so and that act of pulling in other information is itself an obvious consequence of the disclosure in the prior art”.*

95 It is clear that there are documents that disclose, individually, some but not all features of the claims. WOLFF1, WOLFF2, WOLFF3 disclose the use of fluorescent barcodes containing various information regarding the product, its packaging, its manufacturer etc, and this information can be used to track the product throughout its lifecycle and can be transferred to a corporate network. CROWN CORK & SEAL discloses the use of fluorescent markers on the packaging, with the shape or colour of these markers depicting information such as product or composition. But would the skilled person consider providing the fluorescent barcode of WOLFF in a shaped or coloured marker such as exemplified in CROWN CORK & SEAL?

96 In my opinion, the answer to this question is finely balanced. While I note that WOLFF1 already has a visible shaped and coloured QR code disclosed therein, the shape and colour does not provide information regarding the manufacturer, brand or composition of the product and so, even if it was obvious to modify this to a fluorescent code (which I have already decided it is not), it would certainly not be obvious to obtain information from it other than the recyclable nature of the packaging. Even when reading WOLFF1 in light of CROWN CORK & SEAL, I do not see the motivation for the skilled person to provide the data matrix code in a specific shape or colour that can identify the manufacturer or brand or composition, because this information is already provided within the QR code itself. As explained by Mr Prichard at the hearing, the purpose of providing this information in the shape or colour of the QR code is to provide a ‘back up’ of this information at the MRF/PRF should the QR code itself be spoiled and unreadable. Whilst WOLFF1 does suggest some form of identification marker at the MRF/PRF in addition to the QR codes, it does not provide enough detail and this marker appears to merely be used to separate recyclable products.

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<sup>10</sup> *Pfizer Ltd's Patent [2001] FSR 16*

- 97 Therefore, taking account of all of the above, on the balance of probabilities, I do not think that the skilled person would combine these features to arrive at a method of marking a product for tracking it through its lifecycle using a fluorescent 2D data matrix of a particular shape or colour, where information including details of the manufacturer, brand or composition is obtained from the 2D data matrix, and where the manufacturer or brand or composition is also identifiable from the fluorescing shape or colour of the same 2D data matrix. Therefore, I consider claims 1 and 10 of the second auxiliary request presented at the hearing to be inventive over the cited prior art.
- 98 In relation to the dependent claims 2-9, I note that claim 3 will require attention, i.e. deletion, as it would appear to be redundant now in light of the amendments to claim 1 in this second auxiliary claim set.

### **Conclusion**

- 99 I find that claims 1-10 currently on file lack an inventive step in light of the disclosure in US 2010/185506 (WOLFF1), US 2010/0017276 (WOLFF2), US 2011/225098 (WOLFF3), EP 3244356 (VALIDFILL), US 2006/167580 (WHITTIER) and WO 00/44508 (CROWN CORK & SEAL). However, I am of the opinion that independent claim 1 and claim 10 of the second auxiliary request (and the related dependent claims (with the above-mentioned exception)) represent a fruitful way forward. Based on my analysis above, I consider that the cited prior art does not render the invention as claimed obvious.
- 100 As the compliance period for this application under section 20 of the Act and rule 30 of the Rules expired on 4 June 2023, it will be necessary for the applicant to seek a further discretionary extension to this period in order to file the second auxiliary claim request formally. I am satisfied that the Comptroller's discretion should be exercised to accept such a request, if made. The application would then need to be remitted to the examiner for further processing.
- 101 However, if the application remains as it is at present, and the final date for seeking a further extension to the compliance date passes (i.e. 4 August 2023), this application will be refused under Section 18(3) for failing to meet the requirements of the Act to demonstrate an inventive step under section 1(1)(a).

### **Appeal**

- 102 Any appeal must be lodged within 28 days after the date of this decision.

**Dr L Cullen**

Deputy Director, acting for the Comptroller