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Case No: IP-2017-000156

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS OF ENGLAND AND WALES
INTELLECTUAL PROPERTY ENTERPRISE COURT

Royal Courts of Justice, Rolls Building
Fetter Lane, London, EC4A 1NL

Date: 27/03/2019

Before :

HIS HONOUR JUDGE HACON

Between :

BDI HOLDING GmbH	<u>Claimant</u>
- and -	
(1) ARGENT ENERGY LIMITED	
(2) ARGENT ENERGY (UK) LIMITED	<u>Defendants</u>

Richard Davis (instructed by **Beresford Crump LLP**) for the **Claimant**
Alan Johnson and **Luke Maunder** (Solicitor Advocates) (of **Bristows LLP**) for the
Defendants

Hearing dates: 13-14 February 2019

Approved Judgment

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

.....
HIS HONOUR JUDGE HACON

Judge Hacon :

Introduction

1. 'From waste to value' is the mission statement of the Claimant ('BDI'). BDI is an Austrian company which has developed technology to convert waste materials into useful products. One such is biodiesel, a fuel derived from various forms of vegetable or animal fat, including waste oil and grease, which can be used to drive diesel engines.
2. The Defendants are both members of the Hong Kong Swire Group of companies. The First Defendant is registered in England, the Second Defendant in Scotland. I need not distinguish them and will refer to them collectively as 'Argent'.
3. Beginning in 2004 BDI designed and oversaw the construction of a plant for Argent in Motherwell, North Lanarkshire. Argent assumed control of the plant in July 2005. It makes biodiesel from fats, oils and greases recovered from sewers and grease traps.
4. On 19 June 2014 Argent filed two European Patent Applications, which became EPA 3 011 041 and EPA 3 078 724. They progressed in the joint names of the two Defendants, almost to grant to the extent that B specifications were published and a date for notice of grant was given: 16 August 2017.
5. On 10 August 2017, BDI filed the present claim for declarations that it is entitled to the patents to be granted pursuant to the two EP Applications and to related relief. The European Patent Office ('the EPO') stayed the grant process pursuant to rule 14 EPC.
6. On the first day of the trial I was told that these proceedings had settled in relation to EPA 3 078 724. I granted a Tomlin Order. The trial concerned only EPA 3 011 041 ('the Application').
7. Richard Davis appeared for BDI, Alan Johnson and Luke Maunder (solicitor advocates) for Argent.

The witnesses

8. BDI's principal witness was Manfred Baumgartner who is Director of Technology Biodiesel. Mr Baumgartner was an excellent witness who gave clear answers to all questions put to him. The same was true of Martin Reichel, Head of Process Engineering for BDI.
9. Evidence for Argent came from Michael Scott, Group Technical and Compliance Director of the Second Defendant and the named inventor of the Application. Mr Scott was also a good witness. He was sometimes argumentative, but I think only when at cross-purposes with counsel.

The law

The general law on entitlement to a European Patent Application

10. This court has jurisdiction to determine the ownership of a European Application pursuant to art.2 of the EPC Protocol on Recognition and s.82 of the Patents Act 1977 ('the 1977 Act').

11. Ownership is settled under s.12 of the 1977 Act which provides, so far as is relevant:

“(1) At any time before a patent is granted for an invention in pursuance of an application made under the law of any country other than the United Kingdom or under any treaty or international convention (whether or not that application has been made) –

(a) any person may refer to the comptroller the question whether he is entitled to be granted (alone or with any other persons) any such patent for that invention or has or would have any right in or under any such patent or an application for such a patent; or

...

and the comptroller shall determine the question so far as he is able to and may make such order as he thinks fit to give effect to the determination.”

12. Under s.99 of the 1977 Act the court has the same jurisdiction as the Comptroller to decide entitlement.

13. *Yeda Research and Development Co Ltd v Rhone-Poulenc Rorer International Holdings Inc* [2007] UKHL 43; [2008] RPC 1 concerned the determination of entitlement to a granted European Patent. The reference was therefore made under s.37 of the 1977 Act but the principles regarding the resolution of a claim to entitlement are the same. Lord Hoffmann (with whom the rest of their Lordships agreed) set out s.7 of the 1977 Act which states who may apply for a patent:

“7. (1) Any person may make an application for a patent either alone or jointly with another.

(2) A patent for an invention may be granted—

(a) primarily to the inventor or joint inventors;

(b) in preference to the foregoing, to any person or persons who, by virtue of any enactment or rule of law, or any foreign law or treaty or international convention, or by virtue of an enforceable term of any agreement entered into with the inventor before the making of the invention, was or were at the time of the making of the invention entitled to the whole of the property in it (other than equitable interests) in the United Kingdom;

(c) in any event, to the successor or successors in title of any person or persons mentioned in paragraph (a) or (b) above or any person so mentioned and the successor or successors in title of another person so mentioned;

and to no other person.

(3) In this Act “inventor” in relation to an invention means the actual deviser of the invention and “joint inventor” shall be construed accordingly.

(4) Except so far as the contrary is established, a person who makes an application for a patent shall be taken to be the person who is entitled under subsection (2) above to be granted a patent and two or more persons who make such an application jointly shall be taken to be the persons so entitled.”

14. Lord Hoffmann stated that s.7(2) and (3) are an exhaustive code for determining who is entitled to the grant of a patent. He continued:

“[19] In my opinion, therefore, the first step in any dispute over entitlement must be to decide who was the inventor or inventors of the claimed invention. Only when that question has been decided can one consider whether someone else may be entitled under paragraphs (b) or (c). In many cases, including the present, there will be no issue about paragraphs (b) or (c). ...

[20] The inventor is defined in s.7(3) as ‘the actual deviser of the invention’. The word ‘actual’ denotes a contrast with a deemed or pretended deviser of the invention; it means, as Laddie J. said in *University of Southampton's Applications* [2005] R.P.C. 11, [39], the natural person who ‘came up with the inventive concept.’ It is not enough that someone contributed to the claims, because they may include non-patentable integers derived from prior art: see *Henry Brothers (Magherafelt) Ltd v Ministry of Defence* [1997] R.P.C. 693, 706; [1999] R.P.C. 442. As Laddie J. said in the *University of Southampton* case, the ‘contribution must be to the formulation of the inventive concept’. Deciding upon inventorship will therefore involve assessing the evidence adduced by the parties as to the nature of the inventive concept and who contributed to it. In some cases this may be quite complex because the inventive concept is a relationship of discontinuity between the claimed invention and the prior art. Inventors themselves will often not know exactly where it lies.”

15. At root, there are two questions to be answered in an entitlement dispute:

- (1) What is the inventive concept?
- (2) Who devised the inventive concept?

The burden

16. It was common ground that the party seeking to be added as an inventor bears the burden of proving that he contributed to the inventive concept. If he seeks to be substituted as the sole inventor, he bears the further burden of proving that the named inventor did not contribute to the inventive concept, see *Yeda* at [21].

The inventive concept

17. The term ‘inventive concept’ has been used in at least three contexts other than entitlement disputes. In two of those the courts have given the term a meaning similar, possibly identical to the meaning adopted by Lord Hoffmann in *Yeda*.
18. The Supreme Court considered the scope of a patent claim in *Actavis UK Ltd v Eli Lilly and Company* [2017] UKSC 48; [2017] RPC 21 and expressed the inventive concept of a claim to be synonymous with ‘the inventive core’ of the claim, to be ascertained by focussing on the problem underlying the invention (at [60], see also [65]).
19. In *Pozzoli SpA v BDMO SA* [2007] EWCA Civ 588; [2007] FSR 37 (at [23]), Jacob LJ restated in modified form the questions first set out by Oliver LJ in *Windsurfing International Inc v Tabur Marine (Great Britain) Ltd* [1985] RPC 59, at 73, to be applied by the court when assessing obviousness. The assessment may be done by reference to the inventive concept of the claim. Jacob LJ characterised the inventive concept this way:

“[17] What now becomes stage (2), identifying the inventive concept, also needs some elaboration. As I pointed out in *Unilever Plc v Chefaro Proprietaries Ltd* [1994] R.P.C. 567 at 580:

‘It is the inventive concept of the claim in question which must be considered, not some generalised concept to be derived from the specification as a whole. Different claims can, and generally will, have different inventive concepts. The first stage of identification of the concept is likely to be a question of construction: what does the claim mean? It might be thought there is no second stage – the concept is what the claim covers and that is that. But that is too wooden and not what courts, applying *Windsurfing* stage one, have done. It is too wooden because if one merely construes the claim one does not distinguish between portions which matter and portions which, although limitations on the ambit of the claim, do not. One is trying to identify the essence of the claim in this exercise.’

18. So what one is seeking to do is to strip out unnecessary verbiage, to do what Mummery L.J. described as make a *précis*.”

20. Use of the inventive concept for assessing obviousness is optional, but Kitchin LJ pointed out in *Medimmune Ltd v Novartis Pharmaceuticals UK Ltd* [2012] EWCA Civ 1234; [2013] RPC 27 at [86]:

“... it has the advantage of limiting the obviousness analysis to the essence of the invention.”

21. If the meaning given to ‘inventive concept’ differs at all as between *Yeda*, *Actavis* and *Pozzoli*, it is not by much.

The relevance of art.82 EPC

22. There is a fourth context where the term has been used. Mr Davis referred to art. 82 EPC in support of his argument. Art. 82 refers to the general inventive concept of a group of inventions. I do not believe that this is the same thing as the inventive concept

considered in *Yeda*, *Actavis* and *Pozzoli*. Nor do I believe that it offers any guide to the meaning in any of the latter contexts.

23. Art. 82 provides:

“Unity of the invention

The European patent application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept.”

24. Art.82 and unity of invention may be considered only during the prosecution of a patent application. If an objection is raised by the Search or Examining Division of the EPO the applicant is invited to delete the relevant parts of the specification to meet the objection. The applicant may then file one or more divisional applications, paying the appropriate fees, including further search fees where necessary. Ensuring that the EPO is not stinted on fees is presumably one of the policy considerations behind the requirement of unity of invention in art.82, possibly the main reason for it.

25. Rule 44 EPC defines the requirement of unity under that art.82:

“(1) Where a group of inventions is claimed in a European patent application, the requirement of unity of invention under Article 82 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression ‘special technical features’ shall mean those features which define a contribution which each of the claimed inventions considered as a whole makes over the prior art.

(2) The determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim.”

26. The general inventive concept of art.82 is an overarching relationship between two or more inventions in a single European patent application, involving one or more special technical features in common.

27. The inventive concept discussed in *Yeda*, *Actavis* and *Pozzoli* is part of a single invention. Guiding metaphors have been used to signal what this means: the inventive concept has been described as the core, the essence and the heart¹ of the invention. In *Regen Lab SA v Estar Medical Ltd* [2019] EWHC 63 (Pat), I suggested that in *Actavis* the Supreme Court had in mind the new technical insight conveyed by the invention (at [222]).

28. Those who drafted art.82 and rule 44 EPC had in mind a ‘general inventive concept’ which is not similar to the inventive concept contemplated by the House of Lords in *Yeda*.

¹ See *Actavis* and *Pozzoli*. In *Markem Corp v Zipher Ltd* [2005] EWCA Civ 267 Jacob LJ said at [102] “What one is normally looking for is ‘the heart’ of the invention.”

Whether the inventive concept may be found outside the claims

29. *Markem Corp v Zipher Ltd* [2005] EWCA Civ 267; [2005] RPC 31 was concerned with a UK patent application and thus s.8 of the 1977 Act. The inquiry under s.8 is whether a person other than the applicant is entitled to be granted a patent for the invention claimed in the application. This requires identification of the ‘invention’ of s.8, or what Lord Hoffman later characterised in *Yeda* as ‘the inventive concept’. Jacob LJ said that the inquiry is not limited to looking at the claims:

“[101] Accordingly, we think one is driven to the conclusion that s.8 is referring essentially to information in the specification rather than the form of claims. It would be handy if one could go by the claims, but one cannot. Section 8 calls for identification of information and the rights in it. Who contributed what and what rights if any they had in it lies at the heart of the inquiry, not what monopolies were actually claimed.”

The jurisdiction of the court in relation to a European Application

30. Mr Davis made the point that the relief which the court or the comptroller may order under s.12 of the 1977 Act is limited. Section 12 on its face gives the tribunal a discretion as to the appropriate relief (see s.12(1)). But once the national court has decided the question of entitlement, the consequences that follow are solely the preserve of the EPO and determined by rules 14 to 18 and art.61 EPC.
31. In brief, subject to a time limitation and provided the EPO has not in the meantime granted the patent, if the national court decides that the patent application should be transferred to another party, that other party can (a) prosecute the application as his own, (b) file a new application or (c) request that the application is refused. If the other party is entitled to part of the patent application, it can pursue any of options (a) to (c) in relation to that part. If the national court decides that the existing applicant should retain ownership entirely, the EPO will resume the proceedings for grant.
32. I must reach a view as to which party is entitled to the Application, but I have no jurisdiction over what should happen to the Application as a consequence.

Whether the court may consider validity

33. In *Markem* the Court of Appeal considered whether the tribunal may determine the validity of the claims of a patent in proceedings solely concerned with rival assertions of entitlement to the patent. Jacob LJ said:

“[87] This brings us to the next point. Mr Watson submits that under s.8 the validity of the patent is completely irrelevant. The only question is: who is entitled? Mr Thorley accepted that s.8 proceedings cannot turn into a full-scale inquiry into validity in a difficult case but that where an unanswerable case of validity was raised, the Comptroller can act upon it. He drew an analogy with proceedings for amendment of a patent where a roving inquiry into validity is not permitted but one can inquire as to whether a proposed amendment dealt with the reason advanced for making it, *Great Lakes Carbon Corp's Patent* [1971] R.P.C. 117.

[88] We have no doubt that Mr Thorley is right. If the patent or part of it is clearly and unarguably invalid, then we see no reason why as a matter of convenience, the Comptroller should not take it into account in exercising his wide discretion. The sooner an obviously invalid monopoly is removed, the better from the public point of view. But we emphasise that the attack on validity should be clear and unarguable. Only when there is self-evidently no bone should the dogs be prevented from fighting over it.”

The approach to entitlement in the present case

34. The foregoing principle in *Markem* would seem to be particularly applicable to a s.12 case. There is even less reason for the tribunal to engage in an inquiry as to validity since it has no power to refuse the patent application even where the claims are obviously invalid.
35. However, in the present instance there was a difficulty. Both sides argued that the inventive concept advanced by the opposing side could not qualify as such because it was obvious at the priority date. Argent argued that BDI’s inventive concept was not even novel. I therefore had two rival inventive concepts, each said by the opposing side to be an uninventive concept.
36. This was not apparent at the case management conference. Neither side had by that stage pinned down its case on the inventive concept. I directed that this should be done and gave the parties permission to return to the court if difficulties emerged. I was told by Mr Johnson that after the exchange of inventive concepts BDI floated in correspondence the idea of returning to the court to seek an order for expert evidence, which Argent opposed. For whatever reason BDI took this no further. I cannot say now whether I would have allowed expert evidence to deal with each side’s allegation that the other was relying on an uninventive concept had an application been made, and if so how restricted it would have been, given Jacob LJ’s ruling in *Markem*. By the time of the trial this was water under the bridge.
37. Fortunately, Mr Davis and Mr Johnson were agreed as to how I should deal with the conflicting views on the inventive concept. I should decide what the inventive concept is by reading the Application through the eyes of the skilled person. That is the approach I have taken.
38. This approach had consequences. As was common ground the skilled person would read the Application with his (hereafter alternatively her) common general knowledge in mind. I could take into account common general knowledge agreed between the parties but there was no evidential basis for adding anything.
39. Mr Davis occasionally referred to the evidence of the witnesses in support of his contentions as to what was or was not obvious at the priority date. As I reminded him, these were witnesses of fact and neither side was entitled to draw from the evidence opinions which had a bearing on obviousness, no matter how well informed the witness might be. Their role was to state who had done what; once I had identified the inventive concept, their evidence would help me decide who had devised it.
40. That said, where both sides’ witnesses stated that some technical matter would be known to the skilled person, I have treated it as an agreed fact.

The Application

41. The description of the Application begins with a general statement about what the invention is intended to be:

“[0001] This invention relates to a biodiesel composition and process for producing biodiesel and related products. The invention also relates to fuels and fuel blends comprising biodiesel. In particular, the invention relates to a biodiesel composition prepared from a mixture comprising fats, oils and greases from sewer waste.”

42. Accordingly, the reader is informed from the start that the focus of the invention is a biodiesel composition. The description continues, setting out the background state of the art. It introduces characteristics of biodiesels including their fatty acid methyl ester (‘FAME’) content and their ‘cetane number’. The cetane number of a diesel fuel is a measure of how quickly it ignites. The higher the cetane number, the faster the ignition and the better the fuel, especially for high speed engines. The description informs the reader that the starting material (‘the feedstock’) used to make the fuel is important to the qualities of the fuel obtained:

“[0009] In general, the starting material used has a large impact on the quality of the diesel obtained, and FAME and the cetane number. In particular, low quality starting materials are normally associated with fuels having low FAME and low cetane number. A number of other measurements determine overall diesel fuel quality including: density, lubricity, cold-flow properties (cold filter plugging point), mono-glyceride content, and sulphur content. These measurements are also typically affected by the quality of the starting material used.”

43. Of the further measurements of quality there mentioned, the cold filter plugging point came to have significance at the trial. It is a measure of the temperature at which the biodiesel will cease to flow freely.
44. The background section of the description ends by suggesting that the invention provides a practicable means of using sewer grease as the starting point for making biodiesel fuel:

“[0013] Therefore, due to the impure and unpredictable nature of sewer grease, it has not been practicable to use sewer grease as a source of fats, oils and greases for producing fuels such as biodiesel.

[0014] It is an object of the present invention to overcome or mitigate at least some of the problems of the prior art.”

45. There follows a section headed ‘Summary of the Invention’ which largely sets out the claims. The claims are all product claims being biodiesel compositions containing particular esters by weight, plus two claims at the end, one a fuel and the other a fuel blend. Again, the reader is given to understand that the invention or inventions are products, specifically biodiesel compositions.

46. After a description of the drawings, there is a long section headed ‘Detailed Description’ which continues up to the claims. BDI relied on the first three paragraphs:

“[0031] Obtaining biodiesel from sewer grease involves first purifying the sewer waste. This involves filtering the sewer waste to minimise the aqueous phase, remove any solid particulates, and maximise the organic phase (i.e., the sewer grease fraction). This is described in more detail below under the Purification heading.

[0032] After purification, it may be necessary to reduce the free fatty acid (FFA) content of the mixture. Typically this is done using high pressure esterification as is known in the art. For example, high pressure esterification may be carried out at approximately 190°C to 260°C and approximately 65 bar (6.5 MPa) to 100 bar (10 MPa) in the presence of methanol.

[0033] After purification, and optional high pressure esterification, the biodiesel production process may commence. The biodiesel production process is broken down into two areas, namely esterification (referred to as pre-esterification) and trans-esterification. The pre-esterification and trans-esterification processes as further described below under the appropriate headings, and are illustrated in the flow diagram of Figure 3.”

47. The process stages of purification, pre-esterification and trans-esterification are described in detail. Examples are given with tables setting out their properties. The description then identifies advantages of the biodiesels having the compositions claimed. Paragraphs [0089] to [0091] state the biodiesel compositions of the invention derived from sewer grease provide a relatively high cetane number, a high cold filter plugging point and low density.
48. Paragraph [0094] says that a further advantage of the composition of the invention is that it provides a biodiesel fuel made from a material that would otherwise be waste material, i.e. sewer grease. In similar vein, paragraph [0095] states that the process described enables the use of feedstocks which to date had been impracticable for use in making biodiesel fuels. The description concludes with paragraph [0096] which tells the reader that the process described provides a reduction in throughput time for making biodiesel from a feedstock.

The claims

49. I need set out only claim 1:

“1. A biodiesel composition comprising a mixture of esters, wherein the ester mixture comprises from 7% by weight to 10.5% by weight methyl octadecenoate, and from 39% by weight to 41% by weight methyl *cis*-9-octadecanoate.”

The pleaded inventive concepts

50. Argent’s pleaded inventive concept was:

“The inventive concept of EP ‘041 is a biodiesel composition having a specific ester profile. The principal feature of the said profile is that it includes a unique relative amount of methyl octadecenoate (from 7% by weight to 10.5% by weight) and methyl cis-9-octadecanoate (from 39% by weight to 41% by weight) ... (The said composition thereby having a relatively low density and, unusually, both a relatively high cetane number and a relatively low cold filter plugging point.)”

51. This is the composition set out in claim 1 dressed up a little. Argent also argued that there are six ‘secondary’ inventive concepts devised by Mr Scott, being the compositions set out in claims 2 to 7. These were peripheral to the parties’ arguments.

52. BDI pleaded that the inventive concept was as follows:

“1. A method of processing high impurity feedstock (specifically feedstock comprising 20%+ FFA content and/or that colloquially known as ‘sewer grease’) so as to produce a useable biodiesel composition, including the steps of purification, optional high pressure esterification, pre-esterification and trans-esterification wherein:

- a. the purification step uses the necessary means to render the resultant mixture usable for the high pressure esterification step;
- b. the high pressure esterification step (if necessary) reduces the FFA content in the mixture so as to make it suitable for the subsequent steps; and
- c. the pre-esterification step involves the catalysed esterification of the FFA with an alcohol to provide an ester (and reduces the FFA content in the mixture to 3% by weight or less); and
- d. the trans-esterification step converts triglycerides to fatty acid methyl esters and includes such purification / separation / distillation steps as are necessary to produce a useable biodiesel composition.

2. The claim relates to a biodiesel composition defined by generalising the product compositions resulting from performing the process on two particular feedstocks, both of which include sewer grease. Claim 1 includes the weight percentages of two of the various methyl esters present in the claimed biodiesel composition, but there is no technical rationale for such a choice and no technical rationale is taught by the application.”

Argent’s case

53. Mr Johnson’s overall argument was simple. The inventive concept consisted of the claim 1 to 7 compositions. These were devised by Mr Scott and therefore Argent was entitled to the ownership of the Application.

BDI’s case

54. Mr Davis' argument was more developed. It is enough for me to consider the argument as directed to claim 1. Mr Davis submitted that the skilled person reading the Application would realise that the composition of claim 1 could not be an inventive concept because, self-evidently, it was not inventive. It was no more than the obvious idea of a biodiesel fuel composition with arbitrary ranges of two C18 esters, esters which were known to be common constituents of such fuels.
55. In a reference under s.12 of the 1977 Act the tribunal has no power to reject a claim as invalid. Consequently, the argument continued, the skilled person must be taken to have assumed that claim 1 is valid. He would perforce seek an inventive concept other than the composition of claim 1, one which nonetheless supported a valid invention as claimed.
56. A credible inventive concept lay in paragraphs [0031] to [0033] (quoted above). The skilled reader would realise that the inventive concept was a process, being three preparatory steps before the main stage of esterification followed by transesterification. These three preliminary steps are (here I quote from Mr Davis' skeleton argument):
- “(1) Filtering to remove debris (although the precise form of filtering is unimportant);
 - (2) phase separating;
 - (3) high pressure esterification.”
57. Pausing there, Mr Davis in effect amended his pleaded inventive concept, adopting instead this much shorter version. No objection to the change was taken by Mr Johnson.
58. I return to Mr Davis' contention. An inventive concept which takes the form of a new process will support a claim to a product, even if it was obvious to make the product at the priority date and the product's properties could have been identified (so the product itself could not be the inventive concept), provided the product is new and the process was not obvious. Mr Davis referred me to the judgment of Lord Hoffmann (with whom Smith and Jacob LJ agreed) in the Court of Appeal in *H. Lundbeck A/S v Generics (UK) Ltd* [2008] EWCA Civ 311; [2008] RPC 19. The central issue was insufficiency and the correct application of the law as stated in *Biogen Inc v Medeva plc* [1997] RPC 1. Lord Hoffmann said this (at [40]):
- “*Biogen* should therefore not be read as casting any doubt upon the proposition that an inventor who finds a way to make a new product is entitled to make a product claim, even if its properties could have been fully specified in advance and the desirability of making it was obvious.”
59. There was an appeal to the House of Lords. Their Lordships did not direct their attention to Lord Hoffmann's point just quoted, but the judgment of the Court of Appeal was unanimously upheld: [2009] UKHL 12; [2009] RPC 13.
60. Mr Davis submitted that the skilled person, having rejected the claim 1 composition as the putative inventive concept, would draw on *Lundbeck* and realise that the inventive concept could take the form of a process. The answer was the three-step process set

out above. This had been devised by BDI which was therefore solely entitled to the ownership of the Application.

Discussion

61. I begin with Argent's argument. This followed the suggestion made in the Application that a biodiesel containing the two identified esters within the stated ranges has technical advantages over other biodiesels. I think that the inventive concept being advanced by Mr Johnson can be more clearly expressed as the following technical insight:
- A biodiesel composition comprising 7-10.5% by weight methyl octadecanoate and 39-41% by weight methyl cis-9-octadecanoate has the following advantages over biodiesels of a different composition: (i) a higher cetane number, (ii) a lower cold filter plugging point, (iii) a lower density and (iv) it can be made from sewer grease.
62. Mr Davis argued that these so-called advantages would have been dismissed as nonsense by the skilled person. They could not, therefore, form the basis of the inventive concept.
63. His reasoning began with the following propositions, which he said had been established on the evidence:
- (1) The identity and proportions of the esters in a biodiesel (the ester profile) are determined by the hydrocarbon profile of the feedstock used to make the biodiesel.
 - (2) The hydrocarbon profile of sewer grease is dependent on its source.
 - (3) The cetane number for a biodiesel can be predicted from its constituents.
 - (4) The cetane number of the two example biodiesels in the Application was entirely predictable.
 - (5) Neither the cetane value nor the cold filter plugging point is determined by the proportion of methyl octadecanoate and methyl heptadecanoate as suggested in the Application.
64. Propositions (1) and (2) were agreed by Mr Baumgartner and Mr Scott. I will treat them as agreed facts, known to the skilled person as Mr Davis submitted.
65. Mr Scott was cross-examined about proposition (3). It was clear from his answer that he did not have the expertise to answer this even if he had been entitled to give expert evidence. He sent samples to an accredited laboratory and the laboratory would send him the cetane result. Neither did Mr Scott have the expertise to comment on proposition (4).
66. Mr Baumgartner said in his witness statement that the cetane number of a biodiesel can be predicted from the proportions of fatty acid esters present. I was invited to treat this, in effect, as expert evidence regarding the predictability of cetane numbers. It was inadmissible as such. There was no support for propositions (3) and (4).

67. Mr Baumgartner was cross-examined on a related topic. He was asked whether he found the cetane and cold filter plugging point values of examples 1 and 2 in the Application (both within claim 1) surprising. He said that he did. In re-examination he was asked to give the reason for his surprise regarding the cetane number. He stated two reasons, which were not quite reasons for his surprise, more possible explanations for the cetane number which had apparently occurred to him at the time. One was that the cetane number was within analytical error and the other was that the wrong sample had been given to the laboratory. This was admissible evidence as to what Mr Baumgartner had thought when he was surprised by the cetane number, but not admissible as expert evidence regarding the accuracy of the cetane number.
68. Proposition (5) is irrelevant to claim 1. Methyl heptadecanoate is an ester required in claim 2 and subsequent claims.
69. Mr Scott was cross-examined about the selection of esters for claims 1 and 2 and the proportions chosen. He said that having received cold filter plugging point and cetane results, these were the esters and proportions which he had decided to use for the claims.
70. The first two agreed propositions lead me to the view that the skilled person reading the Application would believe that in order to make a claim 1 biodiesel from sewer grease it would be necessary to start with a sewer grease having a hydrocarbon profile that matched the ester profile of claim 1. These first two propositions would not result in the skilled person rejecting out of hand the idea that claim 1 biodiesels have the stated advantages over other biodiesels.
71. Propositions (3) to (5) were not established on the evidence. Propositions (3) and (4) were in any event double-edged. Mr Baumgartner's surprise at the cetane and cold filter plugging point values stated in the Application was consistent with Argent's case that they were two of the surprising advantages of claim 1 biodiesels.
72. It was my impression that Mr Baumgartner did not believe that they were the correct values for those biodiesels. Mr Davis invited me to assume that those values were indeed wrong and conclude that the skilled person would have known this and would consequently have rejected an inventive concept based on the alleged cetane and cold filter plugging point advantages of the claim 1 products. Although not mentioned, I think that he was asking me to decide the same in respect of density. In the absence of evidence on which I could reach that conclusion Mr Davis submitted that it was common sense.
73. I am neither able nor entitled to treat Mr Davis' proposed assumption and conclusion as common sense.
74. The argument was put another way. Mr Davis said that paragraphs [0094] and [0095] of the Application were very important to the skilled person's understanding of the inventive concept. I will set them out:

“[0094] A further advantage of the biodiesel composition of the present invention is that it provides a biodiesel that is useable as a fuel and/or as part of a fuel blend, and that is derived from a starting material that would otherwise be a waste material. This is the case irrespective of whether the biodiesel of the present invention has improved physical properties over known biodiesels. For

example, if the biodiesel of the present invention was identical or similar in physical properties to known biodiesels, it would still be advantageous given the impurity and low cost of the starting material.

[0095] The improved processes as described herein enable the use of impure and poor quality feedstocks to produce high quality biodiesel. To date, it has been otherwise impracticable to use such feedstocks as a source of fats and oils (and greases) for producing fuels such as biodiesel.”

75. Mr Davis submitted that these paragraphs teach that the process described in the Application allows the use of poor quality feedstocks, hitherto impractical as a starting point for making biodiesels. This process is presented as a surprising advantage quite aside from the advantages of the claimed biodiesels. Therefore the inventive concept could and would have been derived from that process.
76. I agree that the skilled person would have understood from those paragraphs that a new process was being suggested. I think that two possible inferences would have initially occurred to the skilled person. The first was that the method for making biodiesel set out in the Application was intended to be of general applicability to all poor quality feedstocks, sewer grease being the prime example. But if that were the case, the skilled person would have expected to see a claim to the method.
77. The skilled person is taken to know some patent law, derived from professional advice, see *Virgin Atlantic Airways Ltd v Premium Aircraft Interiors UK Ltd* [2009] EWCA Civ 1062; [2010] RPC 8, at [10]-[15]. Indeed, part of Mr Davis’ argument was that the reader of the Application has a sophisticated understanding of key passages of the judgment of the Court of Appeal in *Lundbeck* (see above). I think a skilled person of that sophistication reading paragraphs [0094] and [0095] would have expected a claim to a general method for processing sewer grease into biodiesel if it was indeed a general method. He might also have thought that there could have been claims to such a method at an earlier stage of the prosecution of the Application, but these had not survived the scrutiny of the EPO examiner.
78. The second possible inference was that paragraphs [0094] and [0095] were teaching the reader that a sewer grease having a hydrocarbon profile corresponding to the ester profile of the claim 1 biodiesel surprisingly may be used as a feedstock. In other words, a fourth advantage of the claim 1 biodiesel composition is that it can be made from sewer grease because sewer grease with an equivalent hydrocarbon profile can be processed. This second inference would have been consistent with the claims and in my view would have been the interpretation of paragraphs [0094] and [0095] that the skilled person would have adopted.
79. Neither line of thought would have led the skilled person towards a belief that the inventive concept was the three-stage process for making biodiesels proposed by Mr Davis.
80. I would add that even if the skilled person were to think about a process of that nature as the inventive concept, it is not clear to me why he would fasten on to the three steps identified in Mr Davis’ skeleton. For example, why not all the steps set out in BDI’s pleaded case on the inventive concept? Or alternatively some other supportable generalisation?

81. Finally, Mr Davis relied on Mr Reichel's evidence in his witness statement in support of the contention that the three-step process was invented by BDI employees. Mr Reichel did not say that. His evidence was that in the course of the Motherwell project for Argent BDI personnel carried out those three steps, among others. He did not say that a process consisting of the three steps was newly devised by anyone at BDI.

Conclusion

82. I am satisfied that the skilled person, having read the Application, would identify the inventive concept to be that set out in paragraph 61 above. It was common ground that this concept was devised by Mr Scott. Argent is entitled to maintain ownership of the Application.