PATENTS ACT 1977 BLO / 020/94

IN THE MATTER OF an application under Section 72(1) by Société d'Exploitation de Produits pour les Industries Chimiques SA for the revocation of Patent No 2194743 in the name of Rhone-Poulenc Agrochimie

INTERIM DECISION

The application for the patent in suit was filed on 27 August 1987 having a priority date of 2 September 1986 and the patent was granted to Etablissements Ceres ("Ceres") on 8 August 1990. The present proprietors of the patent are Rhone-Poulenc Agrochimie SA following a merger in 1990. An application for revocation was made on 26 July 1991 by Société d'Exploitation de Produits pour les Industries Chimique SA ("SEPPIC") under sections 72(1)(a), lack of novelty or inventive step, 72(1)(c), insufficiency, and 72(1)(d), added matter.

The patent concerns the film-coating of seeds, for which there are two principal techniques, the "fluidised bed" system, in which seed is suspended in a column of upwardly-directed air whilst being sprayed with the film, and the "rotating pan" system. In the form of the latter technique which is used in the patent, film-coating is effected by placing the seeds in a perforated rotatable drum and spraying them from above with a liquid solution or suspension whilst simultaneously drying them by supplying dry air through the perforations. The temperature of the seeds and moisture content are stated to be monitored throughout the operation, with moisture content being maintained at its initial level. Although most references to moisture content refer to that of the seeds, in the description of the method common to the two particular examples described it is stated that it is the moisture content of the atmosphere in the drum that is being monitored. There are claims to both the method of, and apparatus for, film-coating seed materials. In the recital of the main claims which follows reference letters added by the applicants for revocation in their statement are included for convenience, and in claim 1 I have followed an analysis suggested at the hearing on

behalf of the proprietors in further subdividing one of the features identified in the statement. The claims are otherwise unchanged, including their punctuation.

Claim 1 reads:

"A method of film-coating seed materials with a gas- and moisture-permeable, adhesive film-forming substance, said method comprising the steps of

(a) providing a compact volume of seed materials,

(b) putting said materials into continuous motion,

(c) spraying the film-forming substance on the seed materials and

(d) simultaneously drying the seed materials coated with the film deposited thereon,

(e) at least by passing a stream of dry gas through the compact volume of seed materials

(f) monitoring the temperature within said compact volume of seeds,

(g) (i) monitoring the moisture content of seed material and

(ii) thereby ensuring that the moisture content of the seed materials is maintained substantially constant throughout the entire period of the operation."

Claim 3 reads:

"Apparatus for film-coating seed materials with a gas- and moisture-permeable adhesive film-forming substance, said apparatus comprising

(a) a rotary drum, formed with perforations and rotatable about a horizontal axis,

(b) spraying means positioned in said drum for spraying a liquid solution or suspension based on a film-forming mixture onto a compact volume of seed materials in said drum,

(c) means for simultaneously feeding a dry gas directed through the compact volume of seed material in motion through at least some of the perforations of the drum,

(d) control means for ensuring the feeding of dry gas takes place at the same time as the spraying,

(e) temperature monitoring means within said compact volume of seed materials and

(f) moisture monitoring means for ensuring that the moisture content of seed material is substantially at the same level at the end as it was initially."

The remaining claims are as follows:

"2. A method according to claim 1, in which a stream of dry gas is additionally passed over the surface of the compact volume of seed materials, to provide further drying thereof.

4. Apparatus according to claim 3, in which the dry gas inlet further includes means to feed the dry gas generally radially outwardly from adjacent the drum axis and over the volume of seed material in motion.

5. Apparatus according to claim 3 or 4, in which the spraying means consists of at least one nozzle.

6. A method of film-coating seed materials with a gas- and moisture-permeable, adhesive film-forming substance, said method being substantially as hereinbefore described in any one of the examples.

7. Apparatus for film-coating seed materials with a gas- and moisture-permeable, adhesive film-forming substance, said apparatus being substantially as hereinbefore described in example 1 or 2."

In support of the ground of lack of novelty or inventive step, nine documents of prior art are cited and two instances of prior use are alleged. In support of the ground of insufficiency, deficiencies which relate mainly to insufficient description in respect of the monitoring of temperature and moisture content and the construction and control of the dry gas intake are alleged. In support of the ground of added matter, attention is directed to steps (e), (f) and (g) of claim 1, steps (c), (d), (e) and (f) of claim 3 and the last paragraph on page 7 of the granted patent.

After the filing of the proprietors' counterstatement the applicants filed, in addition to their evidence-in-chief, an amended statement of facts with a request that the Comptroller exercise his discretion to allow its admission. The major amendments requested were the addition of

two US patent specifications to the list of prior art relied upon for the first ground of revocation, and the correction of certain alleged facts relied upon in relation to prior use. In correspondence before the hearing the proprietors contested the introduction of the additional citations, but this objection was not pursued at the hearing, and the requested amendment of the statement was allowed.

The evidence filed with the applicants' amended statement comprises an affidavit by Michel Jean Malandain, manager in charge of pharmaceutical and seed coating products at SEPPIC, accompanied by twelve exhibits. The evidence on behalf of the proprietors comprises an affidavit by Jacques du Puy, Manager of the Ceres division of Rhone-Poulenc Agrochimie, accompanied by five exhibits, and affidavits by Joel Kamoda, a laboratory technician at Ceres, and Michelle Bazin, Research and Quality Control Manager at Ceres, the joint inventors of the patent in suit, which respectively confirm the facts and matters attributed to M.Kamoda and Mme.Bazin in M.du Puy's affidavit. The applicants' evidence in reply comprises a second affidavit from M.Malandain, with one further exhibit.

The application came to a hearing before me on 2 and 3 November 1993, at which the proprietors were represented by Mr Nicholas Pumfrey QC, and the applicants for revocation were represented by their patent agent, Mr K.S.Warren of Baron & Warren.

My first task is to construe the claims, and in this I find myself in sympathy with Mr Warren who, after commenting that the claims appear at first sight fairly clear to follow, went on to admit some difficulties of interpretation. Claim construction is always likely to be critical in revocation proceedings and, as will emerge, I certainly regard it as so in this case.

I regard the correct construction of the features identified above as (a) to (e) in claim 1 as self-evident on the face of the document, notwithstanding that, in order to make sense of the claim I have to conclude that the comma located at the end of feature (d) should instead be at the end of feature (e). Similarly, I see no difficulty in construing features (a) to (c) of claim 3. However, it is worth observing that, whereas the opening words of the method claim, claim 1, make it clear that the claim is limited to a method of film-coating <u>seed materials</u>, the equivalent phrase at the start of the apparatus claim, claim 3, has, I am

satisfied, to be construed as being limited only to apparatus suitable for film coating seed materials. Thus, to anticipate claim 3, unlike claim 1, it is not necessary for a disclosure to refer to the coating of seed materials in particular, as long as the apparatus described has all the features claimed and could be used to coat such materials.

In relation to feature (d) of claim 3 Mr Pumfrey conceded that there may be a degree of repetition of feature (c) as regards the simultaneity of the spraying and dry gas feeding aspects, but he argued that (d) was essentially concerned with timing. Whilst there can be no argument with the view that feature (d) is inter alia about timing, as Mr Pumfrey asserts, Mr Warren directed me to M.Malandain's evidence that, as a person skilled in the art of film coating, he would have read this as implying some special control means to ensure simultaneity of drying and spraying. It seems to me on the plain meaning of the words that M.Malandain's interpretation must be correct, and that feature (d) of claim 3 requires, as it states, specific control means to ensure simultaneity.

A number of issues arise in relation to the use of the term "monitoring", which appears in (f) and (g) of claim 1 and (e) and (f) of claim 3. In seeking to construe this term Mr Warren referred to several dictionary definitions, noting a certain range of accepted meaning between, at one extreme, merely checking or keeping track of a parameter, and, at the other, a more complex process including, in addition to measuring the parameter, regulating or exercising control over it. He concluded, on the basis of his analysis of the references to the term in the specification of the patent in suit, that its proper construction, common to all references throughout the specification, lay at the latter, regulatory end of the range of accepted meaning. Mr Pumfrey observed that there was no suggestion that any of the words used had any special meaning in the art, and that therefore the claims were to be construed as a matter of ordinary English. He acknowledged, however, that "monitoring" was what he described as a "chameleon" word, taking its shades of meaning from the background against which it finds itself, and in attempting to identify the correct meaning in the present case I have found that metaphor particularly apt. "Monitoring" is clearly a word which may have a range of legitimate interpretations, and in which the context must be relied upon to determine the exact use that is being made of it on any occasion.

It will, I think, be helpful to identify all the references to monitoring in the specification. Apart from those in the claims, which I already recited, and correspondingly in the statements of invention, monitoring is expressly or impliedly referred to in the following passages.

On page 5 at line 23:

> "The pressure and the flow rate of this gas stream may be adjusted to suit the volume of seed materials to be dried, their nature, their moisture content before the film-coating and that aimed at, and the moisture introduced by the spray liquid.
>
> In the course of the operation, the temperature of the compact volume of seed materials in motion should be constantly monitored and the moisture content of the seed materials monitored and [preferably] maintained at its initial level."
>
> [In this passage the word "preferably" was present in the specification as originally filed, but was deleted during the processing of the application to grant.]

On page 8 at line 10:

> "The period of each operation depends on the size of the load, the type of seed materials and their original moisture content and that desired to be obtained."

On page 9 at line 7:

> "The operation is carried out for 40 minutes. The moisture content of the atmosphere in the drum and the temperature within the volume of the seeds are monitored throughout the entire operation."

Mr Warren's conclusion as to the correct interpretation of "monitoring" relied primarily upon the wording of feature (f) of claim 3, and in particular "moisture monitoring means <u>for ensuring</u> ...". This, he argued, necessarily implied that "monitoring" must include some kind of regulation or control in addition to mere checking or measurement. Similarly in feature (g)(i) & (ii) of claim 1, his argument was that "monitoring the moisture content ... <u>thereby ensuring</u> ..." necessarily implied some form of regulation. He saw no inconsistency with this interpretation in any of the other references to moisture monitoring and concluded that he should apply the same common understanding of the term to temperature monitoring

as well, though he acknowledged some difficulty in squaring this interpretation with feature (e) of claim 3, requiring temperature monitoring means within the compact volume of seeds.

In considering the specification of the patent in granted form, I have no difficulty in accepting Mr Warren's construction as it relates to moisture monitoring. The underlined words in the preceding paragraph, and the passages which follow them, in their contribution to the background against which the chameleon word has to be read, seem to me to allow only the interpretation that, as claimed and disclosed in the granted patent, the process of monitoring the moisture content of the seeds includes an element of regulation or control in addition to measurement or other surveillance. In the apparatus claim, claim 3, I interpret the relevant words as requiring the provision of means capable of providing such regulation or control.

Whilst both main claims refer to the moisture content of seed material, the reference on page 9 of the granted specification to monitoring the moisture content of the atmosphere in the drum, and the silence of the corresponding part of the description on any such monitoring being applied more directly to the seed volume itself, persuades me that I have to apply to the relevant passages in the claims a sufficiently broad construction to include this option.

A final point of construction in relation to moisture monitoring was made by Mr Pumfrey when he asserted that "moisture is a matter of water, ... not ... of other liquids". I am not convinced of this. The Shorter Oxford Dictionary (3rd edition) includes "water or other liquid diffused in small quantity through air as vapour, or through a solid substance, or condensed upon a surface" in its definition of "moisture", and in the absence of clear guidance in the specification itself, or in the evidence, that the skilled reader would conclude that it is only the water content of the seed material which is of importance, especially given the various other liquids with which the process and apparatus of the invention is concerned, for example in the sprayed material, I am unable to conclude that water content alone is covered by the term "moisture".

The background against which the references to monitoring of temperature appear in the granted patent contains nothing comparable to the passages I have underlined above in

relation to moisture monitoring, and nothing, in my judgement, to oblige the skilled reader to conclude that the word must be given the same shade of meaning as in relation to moisture monitoring. I am therefore unable to follow Mr Warren in concluding that regulation or control of temperature is a necessary feature of the invention as claimed or disclosed in the granted patent. Rather, I conclude that the claims must be construed sufficiently broadly to cover the full spectrum of possible meanings of the term "monitoring" as it relates to temperature. In this I follow Mr Pumfrey's reasoning when he argued that "as a matter of English, this relates to ascertaining what or controlling what or checking what the temperature is within the compact volume of seeds". Of these alternative constructions "checking" and "controlling" probably represent the two opposite extremes of the legitimate range of meanings of "monitoring", and I am satisfied that, in relation to temperature, that full range lies within the terms of the claims.

Another issue of construction also relates to temperature monitoring, and concerns feature (e) of claim 3. In the granted patent this requires "temperature monitoring means within said compact volume of seeds". I am satisfied that, on a straightforward reading of the words, and as Mr Pumfrey submitted, this requires the actual location of means for carrying out the monitoring to be located within the seed volume. In this I differ from what I understood to be Mr Warren's contention, namely that, if "monitoring" in feature (e) of claim 3 was to be construed to include regulation (as he argued was a necessary limitation of the claim, and as I have concluded is covered by it, among other things), feature (e) does not also require the monitoring means to be physically located within the seed volume. I accept that in the equivalent provision of claim 1, feature (f) of that claim, this less precise construction is possible on a straightforward reading of the wording of the claim, but claim 3 is, in my judgement, precise in its limitation in this respect.

A final matter of construction which I need briefly to address concerns the final words of feature (f) of claim 3 - " ... the moisture content of the seed material is at the same level at the end as it was initially." Although the proprietors assert in their counter-statement that, on a true construction of feature (f) of claim 3, the moisture content of the seed materials is to be maintained substantially constant throughout the period of operation, it was apparently agreed by both parties at the hearing that this provision covered not only a situation in which

the moisture content remained constant throughout the process, but also one in which moisture content varied during the course of the process, as long as it was the same at the finish as it had been at the start. On the plain meaning of the words I have no doubt that this is the correct construction of this passage.

Although this is not the order in which the grounds for revocation were addressed at the hearing, it is convenient for me to consider first the ground of added subject matter. The relevant ground as set out in section 72(1)(d) is that:

> "the matter disclosed in the specification of the patent extends beyond that disclosed in the application for the patent, as filed ..."

In the statement the following allegations were made in relation to section 72(1)(d).

(i) Step (e) of claim 1 and the equivalent step of the corresponding statement of invention set forth that the simultaneous drying of the seed materials is achieved "at least by passing a stream of dry gas through the compact volume of seed materials," whereas the application as filed provided for drying means capable of directing a dry gas only in any one of three ways, that is over and through, solely over, or solely through the volume of seed material.

(ii) There is no disclosure in the application as filed of steps (f) and (g) of claim 1 or the equivalent steps of its corresponding statement of invention.

(iii) In so far as concerns integer (c) of claim 3 and its corresponding statement of invention, there is no disclosure in the application as filed of feeding the dry gas through the compact volume of seed material in motion through at least some of the perforations of the drum.

(iv) There is no disclosure in the application as filed of integers (d), (e) or (f) of claim 3 and the equivalent integers of its corresponding statement if invention.

(v) Integer (f) of claim 3 and the equivalent integer of the corresponding statement of invention set forth that the moisture content of the seed material is substantially at the same level at the end as it was initially. The application as filed described maintaining the moisture content of the seed materials substantially constant throughout the entire period of the operation. Hence, so far as integer (f) does not require that the level of the moisture content be maintained substantially constant throughout the entire period of the operation, it constitutes an unallowable extension of the original disclosure.

(vi) The paragraph beginning at page 7 line 4 of the patent specification adds to the structure described in the preceding paragraph the feature that one or more gas inlets may be located substantially along the axis of the drum, which allows drying of the mass of seed material along the entire length of the drum. In the application as filed this was presented as an alternative arrangement to the structure described in the preceding paragraph.

At the hearing Mr Warren elected not to pursue allegations (i), (ii) and (iii), and I will therefore consider them no further, except to the extent that one of them overlaps with allegations which Mr Warren did pursue, as will emerge below.

In approaching section 72(1)(d) Mr Warren drew my attention to the test which Aldous J applied in Bonzel(T) & anr v Intervention & anr Ltd (No 3) [1991] RPC 553, namely to compare the application for the patent and the patent as granted as read through the eyes of the skilled addressee. In that authority it was made clear that the comparison was to be strict in the sense that subject matter found in the granted patent would be found to have been added unless such matter was clearly and unambiguously disclosed in the application either explicitly or implicitly. I accept that this is the approach I must bring to the consideration. In Bonzel Aldous J applied the reasoning he had used earlier in A.C.Edwards Ltd v Acme Signs & Displays Ltd [1990] RPC 621, including the observation, made during the course of consideration of the nature of disclosure in claims, that "not everything within (the scope of) a claim is disclosed although it may fall within the ambit of the claim". This reasoning

was implicitly endorsed by the Court of Appeal ([1992] RPC 131), to which authority Mr Pumfrey referred me.

Allegations (iv) and (v) argue that features (d), (e) and (f) of claim 3 as granted include various elements not disclosed in the application as filed. It is convenient to deal first with feature (e), the allegation here being that the application as filed did not disclose temperature monitoring means within the seed volume. I note in this respect that Mr Warren accepted that if his proposed construction of this passage was accepted, then this objection would fall. However, I have already construed claim 3 as granted, contrary to Mr Warren's view, to mean in this respect that the monitoring means are necessarily located within the seed volume, and in these circumstances Mr Warren considered that the objection would stand. It follows from my construction of feature (e) of claim 3 that I conclude that this arrangement of the temperature monitoring means being located within the seed volume is explicitly disclosed in the granted patent. The application as originally filed disclosed monitoring of the temperature of the volume of seeds but, as can be seen from the passages I have quoted, there was no explicit indication of how this was effected and, in particular, of where any monitoring means might be located. In fact, if I understood Mr Pumfrey correctly, he made the point that the temperature could even be derived by inference by measuring some other quantity. Mr Pumfrey appeared to argue that if, on reading a specification, a skilled person was able to deduce an obvious way of carrying out the invention, that amounted to a conclusion that that obvious way was implicitly disclosed. Mr Warren did not share this view, and I agree with him in this. In my judgement Mr Pumfrey's approach runs counter to the reasoning used in A.C.Edwards and Bonzel. In the present circumstances I am satisfied that in the application as filed, although the location of temperature monitoring means within the volume of seed material might have been regarded as an obvious option to the skilled reader, there was no disclosure of it, explicit or implicit, in the specification as filed, and its inclusion in the granted patent constitutes the addition of new matter.

Mr Warren argued that feature (d) of claim 3 contains added matter in that it requires "control means for ensuring the feeding of dry gas takes place at the same time as the spraying". I have already concluded that this implies as a necessary requirement the provision of specific control means. M.Malandain's evidence is that he would have read the

corresponding passages in the application as filed to mean no more than that the supply of drying air was switched on at the same time as spraying liquid was provided. There appears to be no evidence from the other side to counter this claim, the counter-statement simply asserting that the subject matter of feature (d) was disclosed in the specification as filed in the words "spraying the film-forming substance on the seed materials and simultaneously drying the seed materials coated with the film deposited thereon". I am satisfied that this passage does not disclose, either explicitly or implicitly, specific control means, and I therefore cannot avoid the conclusion that, in integer (d) of claim 3 as granted, the words "control means for ensuring" constitute new matter not present in the application as filed.

Feature (f) of claim 3 is subject to two separate allegations that it discloses matter not present in the application as filed. First, Mr Warren argued that, on the construction of the words "for ensuring" which I have already accepted, namely that they, and the passage following them, imply the presence of monitoring means providing an element of regulation or control in addition to measurement or other surveillance of moisture content, this represents added matter since the application as filed contained no such regulation or control. I note that, although the applicants' statement of facts contained the same allegation against the corresponding provision of claim 1, Mr Warren chose not to pursue this at the hearing. I have difficulty in distinguishing between the two claims in the way the principle of this objection applies to them, and Mr Warren did not seek to explain the distinction to me. The counter-statement simply asserts that the matter concerned was disclosed in the specification as filed in the words " ... the moisture content of the seed materials [should be] monitored and preferably maintained at its initial level". Mr Pumfrey did not address this point directly, but when he said, in the context of construing the reference in claim 3 as granted to monitoring moisture, that "the word 'monitoring' was there for the very clear purpose ... of making it possible to ensure that you keep the moisture content of the seeds substantially constant during the operation of the film coating", I understood him to imply that this applied equally in the specification as filed.

There is no dispute that neither the linking words "for ensuring" in feature (f) of claim 3, nor the corresponding "thereby ensuring" in feature (g)(ii) of claim 1, were present in the specification as originally filed. However, the document as filed did contain clear references

both to monitoring of the moisture content and to maintenance of that content constant throughout the operation, and I consider that the skilled reader of the specification as filed would inevitably conclude that the two elements were linked in such a way as to imply that the purpose of monitoring, at least in what was then the preferred performance of the invention, was to achieve constant moisture content. Indeed I do not think that the specification lends itself to any other sensible interpretation. It follows that I do not regard the addition of the linking words "for ensuring" or "thereby ensuring" as amounting to the extension of matter disclosed beyond that disclosed in the application as filed.

The second allegation of added matter against feature (f) of claim 3 is set out in item (v) from the statement, namely that the reference to the moisture content at the end of the operation being at the same level as it was initially constituted added matter. I have already construed this passage as meaning that claim 3 covers a situation in which the moisture content varies during the course of the operation. There is no dispute that the only relevant passage in the application as filed referred to the moisture content of the seed materials preferably being maintained at its initial level. The issue hinges on whether this alteration amounts to the addition of new matter. I am not persuaded that the applicants for revocation have discharged the onus upon them to establish that, on the balance of probabilities, this is so. As the Court of Appeal confirmed in Edwards v Acme, it is not sufficient for the applicants merely to establish that the claim now covers the situation not disclosed in the application as filed, as I am satisfied they have done. Claim 3 as granted does not, in my judgement, either explicitly or implicitly, disclose variation of the moisture level during the course of the operation, and therefore, on the arguments and evidence before me, I find that this particular allegation of added matter fails.

The final allegation of added matter is that identified as (vi) above. Mr Warren relied for his argument in relation to this allegation upon M.Malandain's evidence, in which he sets out his understanding of page 5 of the specification as filed to mean that drying gas may be supplied either through an inlet located along the axis of the drum or through the perforated wall-jacket of the drum, whereas the passage in question of the granted patent presents the first as an addition to the second. This interpretation of the latter passage is not disputed, but Mr Pumfrey argued in response that the two inlet methods were not originally presented

as alternatives, but "just examples", given that one "started with the overruling part of the disclosure ... that the gas supply may be located in different ways". As far as the body of the specification as filed is concerned, I cannot agree with Mr Pumfrey in this. The matter is presented in the specification as filed as follows:

> "The gas supply may be located in different ways. Firstly one or more gas inlet(s) may be located substantially along the axis of the drum, which allows drying of the mass of seed materials along the entire length of the drum.
>
> In a second arrangement, the gas supply is carried out through the wall-jacket of the drum which may thus be partially or completely perforated."

I cannot see this as relating to anything other than alternatives. However, although this was not drawn to my attention at the hearing, claim 5 of the application as filed does refer to the drying means being "capable of directing a dry gas over and/or through the volume of seed materials in motion", and, notwithstanding my having taken due account of the rulings in Edwards v Acme in relation to claims not necessarily disclosing everything they cover, I cannot escape the conclusion that the original claim 5 did, in its use of "and/or", explicitly disclose the two gas inlet means being present together. I therefore find that allegation (vi) fails.

This completes my consideration of the grounds for revocation raised under section 72(1)(d), and I can summarise my findings by saying that, whilst I have found most of the allegations of added subject to be unsubstantiated, I have found the following matter in the specification of the granted patent to extend beyond that disclosed in the application for the patent as filed:

> (1) in claim 3, the reference to "temperature monitoring means within said compact volume of seed materials";
>
> (2) in claim 3, the reference to "control means for ensuring the feeding of dry gas takes place at the same time as the spraying".

The specification includes on page 6 a statement of invention corresponding to claim 3, and it follows that my finding of added subject matter also applies to this statement.

To this extent, then, the application for revocation of the patent in suit succeeds under section 72(1)(d), and I find the patent invalid for the reasons given. In this respect I note that, in Harding's Patent [1988] RPC 515, it was held in the Patent Office, and not altered in the Patents Court, that, in the absence of evidence of bad faith on the part of the patentee, the Comptroller has discretion to allow an opportunity for amendment of the patent under section 75 when he has found the patent invalid under section 72(1)(d). I shall return to this later.

Turning now to the charge of insufficiency, the relevant ground set out in section 72(1)(c) is that:

> "the specification of the patent does not disclose the invention clearly enough and completely enough for it to be performed by a person skilled in the art".

In their amended statement it was submitted by the applicants for revocation that there is no or insufficiently clear description of the following matters:

(i) how the temperature of the compact volume of seeds is monitored and the temperature monitoring means is disposed within the volume of seed materials to achieve such monitoring;

(ii) how the moisture content of the seed material is monitored and the moisture monitoring means utilised for this purpose;

(iii) how it is ensured that the moisture content of the seed materials is maintained substantially constant, at its initial level, throughout the entire period of operation of the film-coating process;

(iv) the construction and operation of the control means for ensuring that the feeding of dry gas takes place at the same time as the spraying;

(v) what is the dry gas inlet referred to in claim 4;

(vi) how the dry gas inlet is constructed further to include means to feed the dry gas generally radially outwardly from adjacent the drum axis, as set forth in claim 4;

(vii) as to which gases, other than air, the film forming substance can be permiable, having regard to the fact that the description ... indicates that it is essential that the film coating be permeable to air, whereas the invention claimed makes reference to the film coating being a gas-permeable adhesive film forming substance.

In their counter-statement the proprietors contended that it would be within the general skill and knowledge of the skilled addressee to determine how to perform the invention on the basis of the disclosure of the specification in each of these respects. At the hearing Mr Warren withdrew objections (v), (vi) and (vii), so I will not consider these any further. Moreover, I have found that the reference in claim 3 to "control means for ensuring that the the feeding of dry gas takes place at the same time as the spraying" constitutes impermissible added matter which must be removed if the patent is to survive, and that the same comment applies to the location of "temperature monitoring means within the volume of seeds". It follows that I do not regard it as necessary to determine the issues of sufficiency arising from objection (iv) or from the second half of objection (i), beyond saying that I am satisfied that, were these passages permissible, I would have no reason to reach any different conclusion in relation to them from the broad conclusions I reach below on the other outstanding issues of sufficiency.

Mr Warren drew my attention to the Court of Appeal's analysis in Mentor Corporation & anr v Hollister Inc [1993] RPC 7 of how the issue of insufficiency was to be approached under the 1977 Act. The first point stressed in that judgement is that in each case sufficiency is a question of fact and degree, depending on the nature of the invention and the other circumstances of the case. Lloyd LJ concluded that the Court of Appeal's analysis under the 1949 Act in Valensi v British Radio Corporation Ltd [1973] RPC 337 still applies under the 1977 Act, namely:

"that the hypothetical addressee is not a person of exceptional skill and knowledge, that he is not to be expected to exercise any invention nor any prolonged research,

> inquiry or experiment. He must, however, be prepared to display a reasonable degree of skill and common knowledge of the art in making trials and to correct obvious errors and omissions in the specification if a means of correcting them can readily be found."

Lloyd LJ then approved the words of Aldous J to the effect that the addressee

> "should not be required to carry out any prolonged research, enquiry or experiment. He may need to carry out the ordinary methods of trial and error, which involve no inventive step and generally are necessary in applying the particular discovery to produce a practical result."

He went on to indicate that an even surer test of what is expected of the skilled addressee is that, with the teaching of the patent available, only routine trials which are neither unusually arduous nor prolonged should be required to enable the invention to be performed.

Mr Warren took me at length through M.Malandain's contentions that, despite the fact that M.du Puy's evidence describes a prolonged period of experimentation and modification undertaken by Michelle Bazin and Joel Kamoda in order to develop, from equipment designed primarily to coat pharmaceutical products such as pills or capsules, a machine and method capable of film coating seeds, the patent specification makes no mention of some very important considerations. In fact, though, the charge of insufficiency has reduced to the questions of how temperature and moisture content are monitored, and how the latter content is maintained constant throughout the film-coating process, and arguments and evidence which do not address these questions specifically do not assist me in determining the matter before me.

From the passages I have already quoted from the specification it is apparent that there is very little description of how monitoring is to be effected. Nevertheless, as Mr Pumfrey pointed out, there is no direct evidence from M.Malandain that, on the basis of the teaching of the patent, he would be unable to perform the invention. Indeed, on the contrary, the chief impact of M.Malandain's evidence appears to be to suggest that the skilled person in

the field would have little difficulty in arriving at the invention. This is certainly so, in my view, in relation to the outstanding objections raised under (i) and (ii) above, regarding how temperature and moisture content are to be monitored. Given that temperature and moisture monitoring in general have been well known since long before the priority date of the patent in suit, and that M.Du Puy states that seed companies are familiar with testing for moisture content of seed materials using either official methods or equipment designed for rapid testing, I am satisfied that the applicants for revocation have failed to establish that the ordinarily skilled addressee would have to undertake more than routine trials in order to determine how to carry out the monitoring steps required to perform the invention.

The issue is a little less clearcut with regard to objection (iii), relating to the maintenance of the moisture content of the seed substantially constant throughout the film-coating operation, if only because this is inherently a somewhat more stringent requirement than mere monitoring. M.Du Puy's evidence, in seeking to refute the suggestion that the prior art cited under section 72(1)(a) anticipated or rendered obvious the claims of the patent, stresses the difficulty of achieving constant moisture content, referring inter alia to the need "to write exact thermodynamic equations of mass and thermic balances in the system". He exhibits a 1987 article which discusses an empirical model, but says that he is not aware of this approach being known before the priority date of the patent in suit. I am not altogether sure that Mr Pumfrey presented his strongest possible argument on this issue when he said, in relation to objection (iii), that "there is no evidence from M.Malandain suggesting that this [the maintenance of constant moisture content] is impossible". Impossibility is not, after all, the issue. Nevertheless, given that I have found that moisture monitoring per se would present no special difficulties to the ordinarily skilled addressee, I am not convinced that the applicants have discharged the onus upon them to establish that that addressee would require to do more than routine trials in order to determine how to adjust the various process parameters so as to maintain the required constant moisture content level. M.Du Puy's evidence, on the contrary, is to the effect that during the perhaps quite lengthy research stage leading to the application of the invention to a new variety of seed or a new coating, a recipe of process parameters is established which enables the moisture content, sampled at several stages during the process, to be maintained constant. In the outcome, therefore, I find that the grounds for revocation raised under section 72(1)(c) all fail.

In their amended statement the applicants relied upon the following eleven documents in support of allegations under section 72(1)(a) of lack of novelty and/or inventive step:

(i) a factsheet dated March 1985 issued by SEPPIC;

(ii) the cover and index page of the periodical "Semences et Progres" No.47, quarterly review, April - June 1986;

(iii) an advertising leaflet entitled "Driacoater - perforated turbine with counterflow air drier" published by Driam Metallprodukt GmbH & Co KG ("Driam"), allegedly in or about 1982 ("Driam I");

(iv) an advertising leaflet entitled "Driacoater Laboratory Unit" published by the same company as (iii), allegedly also in or about 1982 ("Driam II");

(v) an advertising leaflet entitled "Installation for Pharmaceutical Coating and Film Coating IDA-X" published by Ets F.Dumoulin et Cie, allegedly in or about 1984 ("Dumoulin");

(vi) an advertising leaflet entitled "Laboratory Hi-Coater for Research and Development, Film Coating - Sugar Coating" published by Gebrüder Lödiger Maschinenbau-GmbH ("Lödige"), allegedly in or about 1980 ("Lödige I");

(vii) an advertising leaflet entitled "Hi-Coater the modern low-cost tablet coating system published by the same company as (vi), allegedly in or about 1982 ("Lödige II");

(viii) German Patent Specification No 2517494, published 4 March 1976 ("Freund");

(ix) USSR Author's Certificate 1123563A, published 15 November 1984 ("Matekonis");

(x) US Patent Specification No 3947996, published 6 April 1976 ("Dow");

(xi) US Patent Specification No 3383236, published 14 May 1968 ("Merck").

Two accusations of prior use were also made, namely (in the amended statement):

(a) "the use, before the priority date of the invention and from a date comencing in 1983, by Driam, at its works at Aspenweg 19-21, D-7991 Eriskirch/Bodensee, Germany, of a Driacoater 500 film coating machine, as described in the "Driam I"

and "Driam II" leaflets, for film coating seed material with air- and moisture-permeable, adhesive film forming substances. The process of operating the machine consisted in disposing a compact volume of seed material within the drum of the machine, rotating the drum, spraying an aqueous film forming solution onto the seed material within the drum and simultaneously and continuously circulating hot drying air through the seed material via the perforated bosses in the lower segment of the drum. The inlet and outlet temperatures of the drying air was [sic] controlled, thereby controlling the moisture content of the seed material being treated in the drum. In particular, it will be established in evidence that in or about September 1983 the above described machine and process were used for film coating seeds, such as beet seeds, with SEPIFILM and SEPISPERSE products manufactured by the applicant for revocation and dispersed in water. Furthermore it will be established that in or about 25 September 1985, in cooperation with Driam, the applicant for revocation used the above-described machine and process for film coating onion seeds with the applicant's SEPIFILM products for the Dutch seed merchant Royal Sluis of NL-1600AA Enkhuizen, Holland;"

(b) "the supply, before the priority date of the invention, to the Dutch seed merchant Zaadunie BV of Westeinde 62, 1610 BK Enkhuizen, Holland, by Ets F.Dumoulin et Cie of 41 avenue de Bonneuil, 94210, la Varenne-Saint-Hilaire, France, of one of the latter's IDA 30X film coating machines, as that described in the "Dumoulin" leaflet, for the purposes of film coating seed materials with air- and moisture-permeable adhesive film forming substances. The machine was supplied in response to a purchase order dated 13 December 1983 placed by Zaadunie BV. The machine included a perforated coating turbine fitted with a low pressure atomisation system, a control cabinet permitting control of the temperature of the seed material and registering of the temperature of the seed material, and a ventilation system for circulating hot air continuously through the seed material and having a thermometer for monitoring the outlet temperature of the air and means for controlling the heating of the air."

At the hearing, and in response to Mr Pumfrey's submission, Mr Warren conceded that document (v), "Dumoulin", was not in fact published before the priority date of the patent in suit, and could therefore not contribute to an argument of prior publication. He reserved the right to use the document in support of the prior use claim, but conceded that it constituted his only evidence as to how the machine in question was constructed. In view of its admitted late publication date I am satisfied that it can provide no support for such an argument, and I will therefore consider it no further, and find the second prior use accusation to be unsupported. Mr Pumfrey accepted that all the other documents were published as alleged.

The applicants' statement alleges that "the aforementioned prior documents anticipate all the claims" of the patent in suit, and that "insofar as there are integers in the claims ... which are not specifically described in the ... documents, ... such integers do not involve an inventive step and are obvious in the light of common general knowledge in the art relating to the film coating of materials". It goes on to allege that "the invention claimed in all the claims ... was prior used before the priority date of the claims" and that "insofar as there are any differences between the equipment used and the method and apparatus claimed in the claims ... any such differences do not involve an inventive step and are obvious in the light of common practices in the art relating to the film coating of materials". However, at the hearing I found it less easy than is implied by these comprehensive pleadings to distinguish in practice, for example, between charges of prior publication and prior use, and furthermore, Mr Warren did not appear to sustain the allegations in so comprehensive a manner. I will attempt, nevertheless, to address each of the allegations that appear to have been pressed under section 72(1)(a).

Mr Warren and Mr Pumfrey both drew my attention to the test for novelty expounded under the 1949 Act in General Tire & Rubber Co v Firestone Tyre & Rubber Co. Ltd [1972] RPC 457 and reiterated under the 1977 Act in Helitune Ltd v Stewart Hughes Ltd [1991] FSR 171 that:

> "To anticipate the patentee's claim the prior publication must contain clear and unmistakable directions to do what the patentee claims to have invented".

In deciding obviousness it is well established that the problem should be analysed in the manner indicated by Oliver LJ in Windsurfing International Inc v Tabur Marine (GB) Ltd [1985] RPC 59 by:

(i) identifying the inventive concept embodied in the patent;

(ii) imputing to a normally skilled but unimaginative addressee what was common general knowledge in the art at the priority date;

(iii) identifying the differences if any between the matter cited and the alleged invention; and

(iv) deciding whether those differences, viewed without any knowledge of the alleged invention, constituted steps which would have been obvious to the skilled man or whether they required any degree of invention.

In view of my findings above under section 72(1)(d) in relation to claim 3 I will, in considering novelty and obviousness in relation to this claim, concentrate mainly on the form the claim would take if the two items of added matter were removed, namely if the reference to control means for ensuring that spraying and supply of drying gas take place simultaneously were absent (ie feature (d) deleted), and the reference in feature (e) to temperature monitoring means within the seed volume instead referred to "means for monitoring the temperature within the seed volume".

The main attack under section 72(1)(a) concerns alleged prior publication and prior use of Driam's Driacoater apparatus, described or otherwise referred to in documents (i), (ii), (iii) and (iv).

Document (i), a factsheet produced by SEPPIC in March 1985, gives the results of film-coating onion seeds with SEPPIC products using, inter alia, a "perforated Driam turbine with hot air counterflow" and "2 BINKS 460 spray guns". It specifies values for the air inlet temperature, air outlet temperature, seed temperature, atomizing pressure, solution flow and speed of turbine. Whilst it is agreed that the value given for the seed temperature is in error, this sheet indicates which parameters are monitored during film-coating. M.Malandain states that the factsheet was mailed to prospective customers from March 1985 both as unsolicited

advertising and in response to specific enquiries, on a non-confidential basis. He exhibits an example of a covering letter dated September 1985 to one such customer, Zaadunie BV.

According to Mr Warren document (ii) shows a journal cover photograph, dated April - June 1986, of a Driacoater 800 machine in the context of film-coating. The proprietors' counterstatement admits that the machine is a Driacoater modified by Ceres by the inclusion of a Ceres spraying bar, and that the material illustrated in the machine comprises pellets of sugar beet seed. Attached to the counterstatement is a copy of an article which appeared in the same journal edition, and which inter alia referred to film-coating of seeds as a relatively new and promising technique which, if it is to be developed fully, requires greater availability of specially adapted machines.

Document (iii) ("Driam I") is a leaflet showing the range of Driacoater machines, including Driacoater 500 and Driacoater 800. It describes (in translation from French) a perforated turbine with counterflow drying with dry air supplied via a rotary distributor and ducts mounted on the walls of the turbine, passing through perforated bosses and hence penetrating into the mass of the product. The flow of incoming and outgoing air is stated to be continuous. It shows thermostats and air regulating valves in the air inlet and outlet ducts, a control box for the automatic air and temperature control and an air flow gauge. It is stated to have a measurement and recording system.

Document (iv) ("Driam II") is a leaflet describing the Driacoater 500 Laboratory Unit. It states that it operates on the same principle as large production machines. The leaflet specifies the technical data for the apparatus, which includes gauges in the control cabinet for indicating inlet and outlet air temperature, differential pressure in the drum and air volume, as well as equipment for controlling switching of the spray, air supply and exhaust, and heater, and control of the air supply and temperature. The drying air may be supplied either through the top perforations and down through the product bed or through the lower perforations and up through the bed.

As I understood his submission, the only allegations of prior publication in respect of any of these four documents that Mr Warren maintained at the hearing were to the effect that

claims 3, 5 and 7 were anticipated by documents (iii) and (iv), Driam I and Driam II. In limiting my consideration to these charges, I would only remark that I have seen nothing to suggest that, on the basis of the General Tire test, I could have found any other allegation of prior publication concerning any of these four documents to be sustainable. It is not contested that Driam I and II had been made available to the public before the priority date of the patent in suit.

It is not easy to separate the arguments and evidence before me in relation to the charge of prior publication by Driam I and II from those relating to the remaining charge of prior user. However, Mr Warren's submission in the former regard appears to be that M.Malandain, as a skilled reader of the relevant documents, would have concluded that Driam I and II anticipated claims 3, 5 and 7.

Driam I, in translation, describes the Driacoater system as "for the film coating of pharmaceutical products, such as pills, soft capsules, microgranules, or chemical products, in organic or aqueous solutions, and confectionery items", and goes on to refer to the Driacoater 1600/1 and 1600/2 as being "for sugar enrobing of large quantity items such as chewing gum, tablets and chocolate pastilles". Driam II describes the Driacoater 500 as being "for film coating of tablets, capsules, granules and pellets with organic solvents and aqueous dispersions", and the leaflet also states that "the unit is suitable also for sugar and suspension coating". Neither leaflet refers to the film coating of seed materials, but Mr Warren argued that it was quite plain that the apparatus described would be suitable for that purpose, supporting this with an assertion that both M.Malandain and the inventors of the patent in suit had actually used it for this purpose. In fact, as Mr Pumfrey pointed out, M.Du Puy's evidence shows that the inventors had to modify a Driam machine before it worked properly for seed coating, but Mr Warren's response to this was to observe that "(the inventors) looked at and decided that the Driam machines would be suitable for coating seeds". It is not clear from this whether his point is that the inventors looked at the machines themselves or at the Driam leaflets, but I note there is no evidence to support the latter contention. Mr Warren referred to passages from M.Du Puy's evidence concerning visits the two inventors paid to Driam's premises, where they saw and used a Driacoater machine. However, in deciding the issue of prior publication I must have regard to the

General Tire criterion that the prior publication itself [my insertion, which I believe to be implicit in the General Tire test] must contain clear and unmistakable directions to do what the patentee claims to have invented. In the present circumstances I take this to mean that, to anticipate the claims of the patent in suit, Driam I and II must clearly and unmistakably describe apparatus which could be used to coat seeds.

Although M.Du Puy's evidence, confirmed by that of the inventors themselves, indicates that Ceres introduced over a period of time many modifications of the Driacoater machine before they were satisfied with its large-scale performance in relation to seed coating, I note that M.Du Puy also states that in December 1980 Michelle Bazin and Antoine Depeyre visited Driam's premises and used a Driacoater 500 machine to test the coating of a small batch seeds, and that the test results "were satisfactory". Given that the two Driam leaflets, while not referring specifically to the coating of seed materials, do mention the suitability of the equipment to the coating of quite a wide range of materials, which would, in my view, point to a prima facie presumption that it could also be used with seeds, and given that the evidence, at least as it relates to the Driacoater 500, confirms that it had been so used some time before the date of publication of the leaflets, then I am satisfied that the two leaflets disclose apparatus suitable for film coating seed materials. It has not been suggested that the limitation of claim 3 to the use of "a gas- or moisture-permeable, adhesive" film forming substance imposes any special requirements on the equipment which would not be met by the apparatus described in Driam I and II, and I conclude that the apparatus so described is suitable for this purpose. I find, therefore, that Driam I and II anticipate the opening passage of claim 3.

As to the other features of claim 3, notwithstanding that Mr Pumfrey made a general comment that "there are no clear and unambiguous directions to do anything within the claim in either of these documents", there appears to be no real dispute, and it seems to me that there can be no doubt, that both Driam I and Driam II clearly and unmistakably disclose each of features (a) and (b). As regards feature (c), both leaflets clearly disclose apparatus suitable for feeding dry gas through at least some of the perforations in the rotating drum, and hence through a seed volume in motion within the drum. If there is any question here it can only be whether the apparatus of Driam I and II discloses means for feeding the dry

gas simultaneously with the spraying of the film-forming liquid. M.Malandain asserts in his first affidavit that it would have been self-evident to him, on reading Driam I, that the dry air was intended to be supplied at the same time as the spraying system is operated, inter alia because the leaflet states that the apparatus uses a counterflow air drying system in which the drying air flows in the opposite direction to the atomized solution, and Mr Warren reiterated this. There appears to have been no challenge to this assertion, and, particularly when I note also that Driam I states that "the flow of incoming and outgoing air is continuous", I have no doubt that simultaneity of spraying and drying is sufficiently clearly implied in Driam I to meet the General Tire criterion. The question was less directly addressed in relation to Driam II, and it must be acknowledged that this leaflet does not expressly use any of the above phrases that persuade me that simultaneity is implicit in Driam I. Nevertheless, the overall description, including the references to the options of direct and reverse air flow, leave me in no doubt that the apparatus described in Driam II at least allows the possibility of simultaneous spraying and drying and, in fact, on its most obvious reading, is intended to be used in this way.

I have already found that feature (d) of claim 3 as granted is impermissible, and it is therefore not strictly necessary for me to decide whether Driam I or II discloses control means for ensuring simultaneity of drying and spraying. For completeness, however, I note that I am unable to find any implication in either leaflet that such a feature is provided in any of the Driacoater range, and were this feature to be allowed to remain in claim 3, I would have to conclude that neither leaflet anticipated it.

Feature (e) of claim 3, in a form which I have found to be allowable, requires means for monitoring the temperature within the volume of seed materials, but does not require (though it covers) the means themselves to be within the volume. It is easily decided that neither Driam I nor Driam II discloses temperature monitoring means actually within the volume, but it is equally clear that a schematic diagram in Driam I shows thermostats in the drying air flow both upstream and downstream of the rotating drum, as well as "automatic air and temperature control", and that Driam II lists, under "control cabinet", gauges for "temperature air supply" and "temperature air exhaust", and mentions that "built-in temperature control serves to stabilize the preset air supply temperature". I am satisfied that

the provision of temperature monitoring means upstream and downstream of the drum within which a volume of seeds could be treated fully meets the permissible scope of feature (e) of claim 3, in that it provides means suitable for monitoring the temperature within the seed volume. Both Driam I and Driam II therefore anticipate this feature in its permissible form.

In deciding the issue of prior publication of claim 3 by Driam I and II, this leaves only feature (f) of the claim, namely the requirement of "moisture monitoring means for ensuring that the moisture content of seed material is substantially at the same level at the end as it was initially". I have already construed this passage as requiring the presence of means capable of providing regulation or control of the moisture content of the seeds. Mr Warren argued that the disclosure in Driam I of means for controlling the pressure and flow-rate of the drying gas stream implied the presence of moisture monitoring means. Similarly, in relation to Driam II, he argued that the various control gauges and equipment described provide means for monitoring moisture. Since he had already construed "monitoring" as including regulation or control, then he was clearly arguing that this was also disclosed in Driam I and II in relation to moisture content. In response to my questioning, Mr Warren confirmed that it was his contention that, once he had demonstrated the presence of moisture monitoring means, in accordance with his construction of that term, in the prior documents, then he had necessarily also demonstrated disclosure of means capable of ensuring that the moisture content was the same at the end of the process as at the beginning. Mr Pumfrey's submissions on this matter were brief, and in fact were directed primarily towards document (i), the SEPPIC factsheet, though he repeated the observation in relation to Driam I and II. His argument appears simply to be that there is nothing in the cited documents to ensure maintenance of moisture content. His comment was that, as anticipations, the documents were "dead in the water".

As I have indicated, the test for me in relation to claim 3 is not whether maintenance of constant moisture content, at least at the beginning and end of the process, is disclosed in the cited documents, but whether the documents disclose means capable of providing such maintenance. I am persuaded by Mr Warren's submissions that Driam I and II do in fact contain such disclosure. I have already noted, in relation to the alleged ground of insufficiency, that the specification of the patent in suit does not itself point to any particular

means for maintaining control of the moisture content, but I have concluded in that regard that it had not been established that the addressee of the specification would have to carry out more than routine trials in order to determine how to adjust the various process parameters so as to obtain the required moisture content. The range of controls, of drying and spraying as well as of the turbine drive, required to perform these trials are, I am satisfied, in fact more plainly disclosed in the two cited leaflets than in the specification of the patent in suit. Mr Pumfrey sought to persuade me that a "squeeze" argument could not be used legitimately in this case, but it appears to me that, having decided on the balance of probabilities that, notwithstanding the relatively slight disclosure of the patent in suit, the skilled addressee could nevertheless perform the invention claimed, including specifically as it relates to moisture content, then I must equally conclude that the same addressee would find in the somewhat more extensive disclosure of control and monitoring means to be found in Driam I and II all the provision he would need to exercise the necessary monitoring of moisture content.

I therefore conclude that claim 3 of the patent in suit, in the form in which I have found it would be allowable in relation to added matter, is not new in that all of the features it contains were published before its priority date in the two leaflets designated Driam I and Driam II. Claim 5 adds to claim 3 only the requirement that the spraying means consists of at least one nozzle, and Mr Pumfrey conceded that if claim 3 failed for lack of novelty then claim 5 would fail also. I am bound to agree with him. Mr Warren maintained the charge of absence of novelty against claim 7, the apparatus omnibus claim. Although Mr Pumfrey did not make the same concession in relation to this claim as in relation to claim 5, neither did he seek to argue that the question of its novelty raised any different issues from those relating to claim 3. In view of the very limited disclosure of the specification, any additional features which this claim might add to claim 3 are, in my judgement, insignificant in relation to the novelty consideration relative to Driam I and II, and I therefore conclude that claim 7 is equally not new.

The outstanding allegation of prior use concerns the use of Driacoater apparatus of the type described in Driam I and II, and it is therefore convenient to consider it at this stage. Once again, at the hearing Mr Warren maintained this allegation only with respect to claims 3, 5

and 7, and it is therefore worth noting that, if established, it will not add significantly to the finding I have already made of lack of novelty against these three claims. Nevertheless, I need to address the allegation.

The specific allegation is that, from 1983, Driam used a Driacoater 500, as described in Driam I and II, at their German premises to coat seed material with air- and moisture-permeable, adhesive film forming substances. Two specific instances are relied upon in particular, one in or about September 1983 when SEPIFILM and SEPISPERSE products made by the applicants for revocation were allegedly coated onto at least beet seeds, and the other in or about 25 September 1985, still about a year before the priority date of the patent in suit, when the applicants allegedly cooperated with Driam to coat SEPIFILM onto onion seeds for Royal Sluis. Some of the evidence apparently directed towards the allegation of prior use does not in fact relate to the specific charges contained in the pleadings - for example, one of M.Malandain's exhibits concerns a reported demonstration of SEPIFILM using the Driacoater 500 at an exhibition in New York in 1982. I am satisfied that it is right for me to take account only of evidence going to the pleaded grounds.

M.Malandain's exhibit MJM 9 comprises correspondence between M.Malandain and a representative of a Dutch company, Technessen BV. It includes a letter from M.Malandain dated 2 September 1983 with which he enclosed a sheet summarising data on a test run on beet seed using a Driacoater 500. The data includes seed weight, spray pressure and flow rate, inlet air temperature, average seed temperature, coating time and weight increase. The formulation includes SEPIFILM 002 and SEPISPERSE M. The letter also states that SEPPIC have worked in the same conditions on lettuce seeds. In his first affidavit M.Malandain states that Driam made a Driacoater, as described in Driam I and II, available at their premises for free use by prospective customers and anyone alse who wished to conduct tests of any nature using the machine. He confirms that the tests he reported to Technessen had been carried out using this facility, and states that the data sent to Technessen had been for their use as they saw fit, and was not confidential.

M.Malandain's exhibit MJM 11 includes an exchange of letters from July 1985 between M.Malandain and a representative of another Dutch company, Royal Sluis. The Royal Sluis

letter refers to some tests of seed coating using variously a non-perforated pan and a fluid bed coater, but the letter also states that Royal Sluis had asked Driam to filmcoat a sample of onion seed with SEPISPERSE YELLOW using "their Driacoater". M.Malandain's reply did not refer to use of a Driacoater, but the exhibit also includes a SEPPIC report by M.Malandain headed "Paris, 4 October 1985" and entitled "Coating test on Driacoater on onion seeds from Royal Sluis". The equipment used is described as a Driacoater 500 with a Binks 460 air spray gun, and the data summarised includes inlet and outlet air temperatures and spray rate and pressure. Three tests are described, two using SEPIFILM and one using a Royal Sluis formulation. The report concludes with a remark that it is necessary to check the moisture content in seeds after coating. Also included in the exhibit is a letter dated 1 October 1985 from a representative of Driam to Royal Sluis, stating that enclosed with it are samples and reports of tests carried out on 25 September 1985 in Driam's Driacoater 500 Laboratory Unit in collaboration with M.Malandain of SEPPIC. It seems apparent from the summary of the formulations listed in Driam's letter that the tests referred to are those reported in M.Malandain's report of a few days later, though Driam's own report of the tests is not attached to this exhibit. Exhibit MJM 12, however, includes, attached to a much more recent letter from a Mr L Nohynek of Driam, a Driam report dated 25 September 1985 of what appear plainly to be the same tests. It is nowhere expressly stated that this is the report which was sent to Royal Sluis, but this appears to be the implication. In his affidavit M.Malandain confirms that he was contacted by Royal Sluis and that the ensuing tests were carried out in his presence on 25 September 1985 at Driam's works using the Driacoater 500. There is perhaps a little confusion as to who actually conducted the tests, since later in his affidavit M.Malandain states that, in the date in question, he treated onion seeds for Royal Sluis using the Driacoater 500, whereas Mr Nohynek's letter, which makes no express mention of SEPPIC or M.Malandain, states that "we", clearly meaning Driam, carried out the tests, but this does not appear to be critical.

At one point in his affidavit, in referring inter alia to the tests carried out for Royal Suis, M.Malandain comments that it was common knowledge at the priority date of the patent in suit that temperature and moisture content would need controlling when coating seeds, and that he in fact did this when conducting seed coating tests. Elsewhere, in general reference to the seed coating tests he carried out at Driam's works using the Driacoater facility between

the second half of 1983 and the end of 1985, he is more specific and states that "the inlet and outlet temperatures of the drying air were controlled together with the rate of flow of the spray material, thereby enabling the moisture content of the seed material to be controlled with a view to maintaining the moisture content of the atmosphere in the drum constant" [my emphasis]. Since Mr Warren did not in fact pursue the charge of prior use in relation to the method claim, claim 1, which includes the feature of maintaining constant moisture content, I do not need to consider this aspect of the alleged prior use any further, but I note that M.Malandain's claim to have maintained constant moisture content during his tests using the Driacoater facility is not corroborated in the exhibits.

Mr Pumfrey was prepared to "assume", by which I take him to mean that he conceded, that the Driacoater machine was available to the public. I think in any case that this is not in contention, on the basis of the evidence. However, he argued that the use of the method was not made available to the public, and more particularly that what was done by M.Malandain and "Royal Sluis" was not made available to the public. I take it that he really intended to refer here to what was done for Royal Sluis by M.Malandain and/or Driam. His contention was that the supplying of test results did not make the tests themselves available to the public, and that to have made the method available to the public M.Malandain should either have performed the tests "for them", so that they could "avail themselves of the method", or "he must describe it on a piece of paper". There may be some semantic confusion here, since Mr Pumfrey was plainly aware that M.Malandain and/or Driam did in fact perform tests for Royal Sluis, but I fortunately do not need to try to understand his exact meaning, since it seems to me that he may not have taken cognisance of the fact that Mr Warren was only pursuing the allegation of lack of novelty through prior use in relation to apparatus claims, and not in relation to method claims. Mr Pumfrey argued that it was common ground that the machine made available to the public by Driam did not have the apparatus features required in the apparatus claims, and in particular that it did not have means for monitoring temperature or means for monitoring moisture. I must observe that I cannot understand his point about an absence of temperature monitoring means, since the reports expressly refer to temperature. His point on moisture monitoring seems to me essentially the same one as I have already dealt with in relation to the disclosure of documents Driam I and II, and my conclusion is the same, namely that the control and monitoring facilities

available in the Driacoater 500 used for the tests in question meet the terms of claim 3 in constituting means capable of providing the required maintenance of moisture content.

Furthermore, I have also noted that M.Malandain's report of the tests for Royal Sluis included a mention of the necessity of checking the moisture content in the seeds after coating, and Driam's own report of these tests also refers to the moisture of the incoming and outgoing air. Mr Pumfrey sought to persuade me that the first of these references was a clear indication that there was no monitoring carried out during processing, and he contrasted this with what he asserted was the patent's requirement for "continuous monitoring". There is, in my understanding, no such requirement. After raising a number of questions as to the status of Mr Nohynek's letter and its enclosure, Mr Pumfrey asserted that the report contained no reference to the moisture in the seed, but I find this unconvincing relative to the contents of the patent in suit. I have already mentioned that the Driam report mentions moisture in the incoming and outgoing air, and by comparison the patent in suit, despite referring in its claims to the moisture content of the seed materials, actually refers in the description only to the moisture content of the atmosphere of the drum. If the latter disclosure is sufficient to support the wording used in the claim, then I am satisfied that the former discloses sufficient to anticipate the relevant feature of the claim. The "squeeze" argument once again operates against Mr Pumfrey's position.

Mr Pumfrey cited Quantel Ltd v Spaceward Microsystems Ltd [1990] RPC 83, which in turn cited Boyce v Morris Motors Ltd 44 RPC 105, as support for the proposition that it was necessary to scrutinise with the greatest possible care allegations of prior use against a commercially successful invention, especially prior use by a direct rival of the proprietors. Whilst I have no difficulty with the proposition, I do not think that this assists Mr Pumfrey's case. It seems to me that, at the same time as seeking to persuade me that such careful scrutiny of the evidence of prior use would result in my failing to find features essential to claim 3, he has in effect tried to persuade me to exercise a more rigorous scrutiny in this process than in considering the issue of the sufficiency of the description of the patent in suit, and I do not believe that this can be justified. In summary, I find that the applicants for revocation have established that the apparatus claimed in claim 3, in a form which I have found would be allowable in relation to my findings of added matter, was made available to

the public by prior use before the priority date of the invention of the patent in suit, and that the claim in that form therefore lacks novelty in that respect. Again, I conclude that claims 5 and 7 add nothing patentable to claim 3.

Notwithstanding the breadth of the pleadings of the applicants for revocation, I understood at the hearing that the only other documents in relation to which Mr Warren was pressing an argument of lack of novelty were documents (vi) and (vii) (Lödige I and II), both of which are leaflets relating to the Lödige Hi-Coater equipment. Lödige I is specific to to the Hi-Coater HCT 20 mini machine, while Lödige II covers the whole Hi-Coater range, mentioning the HCT 20 mini amongst others. The first leaflet is in German and the second in French, translations being provided for both. Mr Pumfrey admitted that both documents were published as alleged, Lödige I in or about 1980 and Lödige II in or about 1982, both well before the priority date of the patent in suit. Once again Mr Warren pursued these documents only in respect of claims 3, 5 and 7 of the patent in suit and, since I have already found these three claims in a form which is otherwise allowable to be deficient for lack of novelty relative to the Driam leaflets and the charge of prior use, and since the Lödige leaflets are in my view less informative in relation to the matter of the patent in suit than those from Driam, I will deal with them much more briefly.

Both Lödige I and II describe apparatus for film coating and sugar coating, and both mention only pharmaceuticals as regards applications. In this their disclosures are narrower than the Driam leaflets. Furthermore, the evidence that the apparatus described is capable of being used to coat seed materials is far more ambivalent than that relating to the Driam machines. M.Du Puy, in fact, reports that in 1981 M.Depeyre visited Lödige and some tests were conducted on a Hi-Coater turbine - we are not told which model was used or even whether it was one of those disclosed in Lödige I or II. We are, however, told that the tests did not produce satisfactory results. Although M.Malandain exhibits documents purporting to show, for example, that Lödige offered SEPPIC a Hi-Coater machine for sale in 1981, and he also claims that it would have been obvious to him by about 1983 to try the Lödige apparatus, amongst others, for coating seeds, he has produced nothing specifically to show that the apparatus as described in the two Lödige leaflets could be used for this purpose, and in particular to counter M.Du Puy's evidence to the contrary. Applying the General Tire test

of "clear and unmistakable directions" to this disclosure appears to leave me some way short of conviction that either leaflet even gets past the first hurdle of qualification as an anticipation of claim 3.

Both Lödige I and Lödige II clearly disclose features (a), (b) and (c) of claim 3, simultaneity of spraying and drying being specifically referred to. However, as regards feature (e) in allowable form, the first leaflet (in translation) merely refers to "adaptability for changing parameters such as temperature ...", and the second (also in translation) refers to "modification of parameters such as temperature ...". Other adjustible parameters mentioned in both leaflets are drum rotation rate and solution feed rate. Neither expressly shows or describes temperature monitoring means at any point within the apparatus, and in this respect is far less effective in attacking claim 3 than either of the Driam leaflets. By the time I reach feature (f) of claim 3 I am satisfied that both the Lödige leaflets have fallen well short of passing the General Tire test, to the extent that I do not consider it necessary for me to discuss them further here, beyond saying that I have applied to them essentially the same analysis in relation to feature (f) as I have to the Driam leaflets. Neither document, therefore, in my judgement, contributes further to the charge of lack of novelty of claim 3 or of any other claim.

I turn finally to the allegation of obviousness. The pleadings apply this allegation equally to all claims, submitting that any integers in the claims not specifically described in the cited documents or used in the alleged prior uses are obvious in the light of common general knowledge or common practices in the film coating art. At the hearing Mr Warren took me at length through the four Windsurfing steps in relation to all the cited documents and the evidence of M.Malandain with a view to establishing what constituted the common general knowledge at the relevant time, how this differed from the invention as claimed, principally in claims 1 and 3, and whether the differences would have been obvious to the skilled man. I propose, however, to deal with the matter much more briefly.

In the first place, having found claims 3, 5 and 7 anticipated by the documents relating to, and the prior use of, the Driacoater 500, I do not intend to analyse these claims in respect of obviousness. Claim 4, which is appendant to claim 3, includes the additional feature "in

which the dry gas inlet further includes means to feed the dry gas generally radially outwardly from adjacent the drum axis and over the volume of seed material in motion". This is only disclosed in document (v) which, as I have already noted, Mr Warren conceded as having been published after the priority date of the patent. Furthermore, I was shown no evidence to suggest that the addition of this feature to claim 3 would have been obvious, and consequently I conclude that there is no sustainable ground of obviousness against this claim.

I can therefore turn my attention entirely to the method claims in relation to the charge of obviousness, and the key consideration here is whether the single feature of claim 1 which is not disclosed in the documents relating to the use of the Driacoater 500, namely feature (g)(ii) - maintenance of the moisture content substantially constant throughout the entire operation - is obvious. It is worth observing that none of the cited documents which I have not already discussed in this decision contribute significantly to this consideration. Of them, "Freund", "Matekonis" and "Merck" are, in my view, too far from the present invention to warrant further mention. "Dow" does at least disclose film-coating of seeds in which the inlet air temperature and coating composition feed rate are controlled so that the temperature within the seeds is maintained between about 80 to 120°F as determined by a thermocouple probe in the bed. However, the evidence does not prove that the pan is perforated or that coating and spraying occur simultaneously. More significantly, "Dow" contains no teaching whatever as to the maintenance of the seed moisture content during the process.

In the field of film-coating of seeds I have been shown no evidence to indicate that moisture content has been kept constant throughout the process, or even to suggest that anyone other than the inventors of the patent in suit have thought of doing so. Maintenance of moisture content constant is not mentioned in any of the documents and Mr Warren admitted when he withdrew his "prior use" objection to claim 1 that M.Malandain himself did not do this. There was dispute between the parties as to what was common general knowledge at the priority date of the patent and as to who should be considered the addressee to whom the Windsurfing test should be applied. However, as Mr Warren admitted, whether or not M.Malandain's knowledge was greater than is necessary for this test, there is no evidence that it occurred to him to maintain constant moisture content. In fact in his evidence he states that "moisture content is closely related to temperature control and I do not consider

controlling both temperature and moisture to be an improvement in film coating methods", which would appear to indicate that he did not consider it obvious to do so. As pointed out by Mr Pumfrey, M.Malandain's evidence is directed to demonstrating how straightforward it would be to maintain moisture content constant once he had had the idea of controlling it in the manner called for by claim 1. Mr Warren conceded that there is no evidence to show that the skilled man would recognise that maintaining constant moisture content throughout the process produced the best result.

Mr Pumfrey drew my attention to the Court of Appeal judgement in Hickton's Patent Syndicate v Patents and Machine Improvements Company Ltd 26 RPC 339, where the Master of the Rolls stated:

> "When once the idea of applying some well known thing for a special and new purpose is stated, it may be very obvious how to give effect to that idea, and yet none the less is that a good subject-matter for a Patent."

Whilst I have found above that the Driacoater 500 provided suitable apparatus for performing the steps required by the method of claim 1, there is no evidence that before the priority date of the patent the performance of these steps would have been obvious. As stated by Mr Pumfrey, it is one of those cases where, once you have the idea, the putting of it into effect is routine, with the apparatus all available.

I am therefore satisfied that the applicants for revocation have failed to establish a charge of obviousness against any of the claims which I have not found to be lacking in novelty.

In summary, then, I have found that the revocation action succeeds on certain counts. Under section 72(1)(d), the matter disclosed in the patent extends beyond that disclosed in the application for the patent as filed, the added matter, in claim 3 and in the corresponding statement of invention on page 6 of the specification, being:

(1) the reference to "temperature monitoring means within said compact volume of seed materials";

(2) the reference to "control means for ensuring the feeding of dry gas takes place at the same time as spraying".

Under section 72(1)(a), the invention claimed in claims 3, 5 and 7 is not a patentable invention in that, in a form (as regards claim 3) which would be allowable relative to the preceding finding, these claims are not new.

I have already indicated that, under Harding's Patent, the Comptroller has discretion to allow an opportunity for amendment under section 75 when the patent has been found to fail under section 72(1)(d). Furthermore, since I have found only certain of the claims, in notionally amended form, to fail for lack of novelty, it follows that deletion of those claims, and of the corresponding statement from the body of the specification, would leave the patent intact against the grounds raised in the revocation action. I therefore allow the proprietors of the patent a period of two months from the date of this decision within which amendments may be submitted to the Patent Office. Any proposed amendments should be shown in red ink on a copy of the B specification, and a copy should be sent to the applicants for revocation, who will then have a period of one month to submit any comments thereon to the Patent Office, copied to the proprietors. I will then determine how matters should proceed. In the event that no amendments are submitted I will issue a final decision revoking the patent.

I will defer the consideration of costs in the action to date until the final decision. Any appeal against this decision must be lodged within six weeks of the date of the decision.

Dated this 7 day of Febmary 1994

PATENT OFFICE

Dr P FERDINANDO

Superintending Examiner, acting for the Comptroller

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