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D E C I S I O N
of 5 May 1999

Case Number: T 0189/91 - 3.3.4

Application Number: 83303441.6

Publication Number: 0097484

IPC: A23C 1/05

Language of the proceedings: EN

Title of invention:

Manufacture of an agglomerated powdery mild product

Patentee:

A/S Niro Atomizer

Opponent:

Stork Friesland B.V.
APV Anhydro A/S

Headword:

Milk product/NIRO

Relevant legal provisions:

EPC Art. 54, 55(1), 56, 88(3)

Keyword:

"Entitlement to priority - no"
"Main available to public - yes"
"Evident abuse - no"
"Inventive step -no"

Decisions cited:

G 0003/93, T 0301/87, T 0782/92, T 0799/91

Catchword:

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Case Number: T 0189/91 - 3.3.4

D E C I S I O N
of the Technical Board of Appeal 3.3.4
of 5 May 1999

Appellant:
(Proprietor of the patent)

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Representative:

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Respondent I:
(Opponent)

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Respondent II:
(Opponent)

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Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted 6 November 1990
revoking European patent No. 0 097 484 pursuant
to Article 102(1) EPC.**

Composition of the Board:

Chairwoman: U. M. Kinkeldey
Members: R. E. Gramaglia
S. C. Perryman

Summary of Facts and Submissions

- I. European patent application No. 83 303 441.6, filed on 14 June 1983, claiming priority of 14 June 1982 from the earlier application in Denmark DK 2670/82 resulted in European patent No. 0 097 484.
- II. Notices of opposition were filed against the European patent by Opponents I and II. Revocation of the patent was requested on the grounds of Article 100(a) EPC because of lack of novelty and/or of inventive step according to Articles 54 and 56 EPC. In addition, Opponent II maintained that certain features in claims 1 and 2 of the patent as granted were not disclosed in the priority document, and thus said claims were not entitled to the priority date of 14 June 1982.
- III. The Opposition Division revoked the patent. Independent claims 1 and 10 as granted read as follows:
- "1. A process for producing an agglomerated powdery milk product, comprising the steps of
- (a) atomizing a liquid derived from milk, in the upper part of a conical downward tapering drying chamber by means of a nozzle into a central downward stream of drying gas at 200-400°C to produce particles,
- (b) maintaining in the lower part of said drying chamber a layer of particles fluidized in an upward stream of gas having a velocity of 0.3-1.5 m/sec, preferably 0.6-1.5 m/sec, whereby the temperature of said gas is adjusted between 10 and 150°C to maintain the temperature required of the fluidized particles for ensuring the agglomeration ability of said particle

with respect to the particles produced in step (a), and the amount of particles in the fluidized layer is adjusted corresponding to a pressure drop of 1.5-4.5 k Pas over the fluidized layer,

(c) adjusting the amount of said liquid to the amount and drying capacity of the downward stream to ensure a moisture content of the particles when reaching the fluidized layer between 2-16% and sufficient for agglomerating said particles by forming clusters thereof, but less than the moisture content which would cause formation of mono-granules, and also to ensure that the downward gas stream have still a substantial drying capacity when reaching the fluidized layer and sufficient kinetic energy for penetrating therein, thereby contributing to the drying process in the fluidized layer and promoting removal of particles and small agglomerates from the fluidized layer to the upper part of the drying chamber for agglomerate-forming contact with wet droplets and moist particles,

(d) withdrawing a stream comprising the gas from said downward stream and the gas from said upward stream at a non-central location in the upper part of the drying chamber,

(e) adjusting the amount of drying gas introduced as a central downward stream to be 2-4 times the amount of the upward stream of fluidizing gas, and

(f) recovering agglomerated particles from said fluidized layer."

"10. A spray drying apparatus comprising

(a) a drying chamber having substantial conical, downward tapering walls forming an angle to the vertical ~~to~~ of 15-30°, preferably 18-24°,

(b) a downward directed nozzle mounted centrally in the upper part of the chamber,

(c) a downward directed gas disperser having an annular opening to the chamber coaxially encircling said nozzle,

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(d) a perforated horizontal plate in the bottom of the chamber for supporting a fluidized particle layer, the distance from said perforated plate to said annular opening of the gas disperser being 10-15 times the maximum diameter of the annular opening,

(e) means for providing hot drying gas to said gas disperser,

(f) means for providing gas to a location below said perforated plate,

(g) means for withdrawing a stream comprising the gas from said downward stream and the gas from said upward stream at a non-central location in the upper part of the drying chamber, and

(h) means for recovering agglomerated particles from a size just above the perforated plate.

Claims 2 to 9 related to special embodiments of the process of claim 1.

IV. The Opposition Division came to the conclusion that, while the claims were novel, they did not involve any inventive step since the claimed process and apparatus could be arrived at by routine steps by combining certain features disclosed by documents

- (1) Lykov, M.V., Tr. NII po Udobr. i Insektofungitsidam, Vol. 237, pages 3-25 (1980) and English translation thereof
- (3) Kessler, H.G., Lebensmittel-Verfahrenstechnik, Weihenstephan, Munich, pages 226-271 (1976)
- (5) US-A-3 956 521
- (6) DE-~~A~~⁰⁵-21 22 237
- (7) Písecký, J., Dairy Industries International, pages 21-24 (April 1983)

V. The Appellant (Patentee) lodged an appeal against this decision. The Respondents (Opponents) filed counterarguments. The following further documents or evidence are referred to in the present decision:

(13) Hols, G., Steenberg, A.E. Procestechologie, pages 18-21 (August 1991) and English translation thereof.

(15) Písecký, J., 20 Years of Instant Whole Milk Powder, Scandinavian Dairy Information 2/90

219

→ (16) A. J. Baldwin "An Examination of Tests for the Measurement of the Solubility Of Instant Whole Milk Powders, 251 Report, pages 1-48 (1983).

→ (17) Declaration of Mr Arne Sklod Petersen

(18) The Prime Minister of New Zealand "Te Rapa Dairy Factory Expansion Project" (3 April 1992)

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(23) ~~D.A.~~ Steenbergen, report from the Nederlands Instituut voor Zuivelonderzoek (NIZO) "NIRO multi-stage drooginstallatie to Condé-sur-Vire", November 1983, pages 1 to 21

→ (37) Report of Mr Per Kilov concerning his visit on 26 January 1983 at U.C-L.A.B (Union des Coopératives Laitières Bretonnes); Zone Industrielle, Lantinou, 29419 Landernau in France, filed at the oral proceedings on 10 September 1996.

(38) Confidentiality Agreement between Niro Atomizer and UCLAB à Landerneau of June 1982.

- (39) Declaration of Mr Per Kilov dated 21 May 1997.
- (41) Full size drawing HE1F 228/F "Ensemble Système à Buses Type 500" dated 4 November 1982/ 14 March 1983
- (53) "La Technique Laitière" No. 972, ³published *pages 13 and 14* 15 January 1983. *
- (54) Declaration of Mr M. M. Welten (ZEV-DMV-Campina) dated 21 February 1997
- (55) Declaration of Mr Van Iperen (ZEV-DMV-Campina) dated 19 February 1997
- (56) Declaration of Mr Niels Hammer (APV Anhydro AS) dated 24 May 1997
- (60) Correspondence between NIZO (Nederlands Instituut voor Zuivelonderzoek) and NIRO Atomizer A/S dated 9 November 1982, 3 December 1982, 17 October 1983 ~~(twice)~~ and 10 January 1984. *

VI. Respondent II submitted document (23) in order to argue that a spray drying apparatus as claimed had already been made available to the public in Condé-sur-Vire (France) before the filing date of the patent in suit. In response thereto the Appellant submitted five letters exchanged between NIZO and NIRO Atomizer A/S (document (60)) for substantiating that any disclosure of the invention which might have been made in connection with the Condé-sur-Vire project, was under confidentiality agreement.

VII. Oral proceedings were held on 10 September 1996, during which the Appellant filed a new request based on a sole apparatus claim in replacement of any previous request (amendments over claim 10 as granted are shown in bold):

"A **milk or whey** spray drying apparatus comprising

- x of H
- (a) a drying chamber having substantial conical, downward tapering walls forming an angle to the vertical ~~to~~ 15-30°, preferably 18-24°,
 - (b) a downward directed nozzle mounted centrally in the upper part of the chamber,
 - (c) a downward directed gas disperser having an annular opening to the chamber coaxially encircling said nozzle,
 - (d) a perforated horizontal plate in the bottom of the chamber for supporting a fluidized particle layer, the distance from said perforated plate to said annular opening of the gas disperser being 10-15 times the maximum diameter of the annular opening,
 - (e) means for providing hot drying gas **at a temperature of 200-400°C** to said gas disperser,
 - (f) means for providing gas to a location below said perforated plate, **at a temperature of 10-150°C in an amount of 25-50 percent of the amount of gas providable by (e) and sufficient for obtaining an upward gas stream at a velocity immediately above the perforated plate of 0.6-1.5 m/sec.,**
 - (g) means for withdrawing a stream comprising the gas from said downward stream and the gas from said upward stream at a non-central location in the upper part of the drying chamber, and

(h) means for recovering agglomerated particles from a site just above the perforated plate,

wherein a downward directed gas stream can be supplied from the gas disperser having a kinetic energy 1000-15000 times the kinetic energy of the upward gas stream through plate (d)."

During the first oral proceedings of 10 September 1996, the Board addressed the issue of novelty, in particular of the question of whether document (7), published between the priority date and the filing date of the patent in suit, represented prior art according to Article 54(2) EPC, depending upon whether or not the patent in suit could rely on the claimed date of the priority document DK 2670/82. Within the debate on the novelty issue, Respondent II provided evidence (document (37)) of a further instance of prior use of the claimed spray drying apparatus at U.C.L.A.B, Lantinou, 29419 Landernau (France). In order to evaluate the relevance of document (37) and to allow the Appellant sufficient time to consider and to respond to it, the Board decided to prosecute the appeal proceedings in writing. As a condition for the Board's consideration of the lately presented document, Respondent II agreed to pay the costs incurred by the Patentee in respect of preparing for and attending the oral proceedings on 10 September 1996.

Oral proceedings were held for a second time on 5 May 1999. As already announced in a letter dated 22 March 1999, the Appellant was not represented.

The submissions by the Appellant can be summarized as follows:

Right to priority (Article 88(3) EPC) and citability of document (7)

- By virtue of the findings of Decision T 301/87 (OJ EPO 90, 335), only the subject-matter of an intermediate document (i.e. published between the priority date and the filing date) which went beyond the content of the priority document could be cited against the claims. Therefore, document (7) relating to a partial publication of the invention made after the filing date of the priority document DK 2670/82, but before the filing date of the patent in suit, was not prior art. Document (7) comprised matter going beyond the content of the priority document, since it dealt not only with multi-stage drying (MSD) but also with compact drying (CD). That part of the disclosure dealing with CD was not relevant, while the subject-matter dealing with MSD could not be cited against the present claims.

Novelty

- Since the Respondents argued that the claim under consideration related to a different invention than the priority document DK 2670/82 because feature (d) recited in the claim was not disclosed therein, document (7) could not affect the novelty of the claim because it was also silent about said feature (d).

- The five letters exchanged between NIZO and NIRO Atomizer A/S (document (60)) substantiated that any disclosure of the invention which might have been made in connection with the Condé-sur-Vire project, was under confidentiality agreement.
- Document (38), the Confidentiality Agreement between Niro Atomizer and UCLAB à Landerneau of June 1982 reading (translation by the Board):

"It is agreed that UCLAB à Landerneau, hereinafter referred to as the Client, desires to investigate with Niro Atomizer, hereinafter referred to as NA, the possibilities of applying processes, equipment and technology ~~of~~ the property of NA, to achieve certain results or produce diverse milk products.

~~Ld~~

(1) NA will keep secret and confidential all information and technical know-how or other matter that NA might acquire directly or indirectly from the Client on the occasion of these trials. This obligation will remain in force for a period of three years from the date of execution of this agreement.

x / C

(2) This confidentiality clause does not apply to:

(a) information ~~of~~ which it is clear that NA already possessed before receiving the same from the Client or its associates.

~~Ld~~

(b) information which it is well established that it is in the public domain provided this is not as a result of an act or omission by NA,

(c) information received from third parties in lawful possession thereof, without any restriction forbidding it being passed on or used.

x /c (3) The client undertakes to respect the same clause as far as concerns information or know-how which it might acquire from NA."

showed that UCLAB were not entitled to show third parties the apparatus installed.

- Even if no confidentiality arrangement were made with the sold machines, the term "commercial sale" had a different meaning when the object comprised a pioneering prototype equipment than when conventional equipment was dealt with and thus the pioneering apparatuses were covered by tacit confidentiality. Decisions T 782/92 of 22 June 1994 and T 799/91 of 3 February 1994 confirmed that tacit confidentiality agreements could prevent a prior use from qualifying as novelty destroying.
- The alleged prior use took place no earlier than six months before the filing date of the patent in suit. Therefore, the requirements of Article 55(1)(a) EPC for an evident abuse were fulfilled.
- No document provided by Respondent II demonstrated that anybody had actually seen and been able to understand the invention, more so as inspection of the machines while working rendered impossible seeing details of the inner part.

- Documents (41) and (54) provided by Respondent II for demonstrating a prior use related to machines not meeting the requirements set out in the claim at issue.

Inventive step

- The layout of the apparatus according to the sole claim at issue (Multi Stage Drying apparatus; hereafter MSD), i.e. the arrangement of the fluid bed at the bottom of the spray drying chamber made possible an interaction between the drying and agglomeration zone (spray drying zone and fluid bed zone) and yielded milk product agglomerates rather than monogranular milk granules.
- Feature (a) of the claim was not disclosed by document (1). Feature (d) of the claim, namely the ratio between the distance from the perforated plate to the annular opening as being 10-15 times the maximum diameter of said annular opening was not obvious over documents (1) and (6). The MSD produced highly agglomerated milk powder that could not be obtained in an apparatus made according to document (1), in which said ratio was below 10, while it was doubtful whether the process disclosed by document (6) could be workable at all.
- The products produced by the claimed apparatus exhibited surprisingly improved physical properties. Table I of document (15) showed a comparison between the properties of whole milk powders obtained by conventional drying methods and by the process according to the present invention. The mean particle size was higher, the percentage of the fines, i.e., particles below 125 μm , was less than the amount present in

conventional powders. The flowability of the MSD product was 3-4 times better than that of the powders of the prior art. Table 2 on page 11 of document (13) also illustrated the superior properties of the MSD powders over the conventional ones.

- A declaration by the Sales Director of A/S Niro Atomizer was filed (see document (17)) for demonstrating that the claimed apparatus had been a substantial commercial success. Also document (18) emphasized that the MSD apparatus according to the patent in suit was particularly suitable for powders with a high fat content and outlined the superior properties of products obtained through said process.

- To a person skilled in the art, document (1) was dealing with the manufacture of monogranular fertilizers. Although the document mentioned on page 22 that also products of the food industry could be handled, there was no reason to interpret this passage as relating to the manufacture of agglomerated milk products. It could not be predicted that by combining the teachings of documents (1), (6) and (7), an apparatus as the one defined in the claim would have enabled the manufacture of agglomerated milk products having very special, advantageous properties such as a hitherto not obtainable flowability (due to a high sphericity and even surface), a high mean size and a very small percentage of fines.

XI. The submissions by the Respondents can be summarized as follows:

Right to priority (Article 88(3) EPC) and citability of document (7)

- The fact that as required by feature (d) of the sole claim, the ratio between the distance from the perforated plate to the annular opening and said annular opening had to be between 10 and 15 was not disclosed in the priority document, and thus said claim was not entitled to the priority date of 14 June 1982. Therefore, as document (7) was published before the actual date of filing at the European patent office, it was prior art for the purposes of Articles 54 and 56 EPC.

Novelty

- The claimed apparatus lacked novelty over document (7) which disclosed and gave details about the MSD principle.
- Apparatus RKSG-1.25 of Table 4 (page 22 of document (1), English translation) was provided with the single nozzle of Fig. 10a (page 18 of document (1), original version). This machine also had a ratio height/diameter of 13.7 falling within the range recited in the claim at issue. The claimed apparatus thus lacked novelty over document (1).
- A spray drying apparatus as claimed had already been sold by the Patentee and made available to the public before the filing date of the patent in suit at U.C.L.A.B, Lantinou, 29419 Landernau (France). Mr Per Kilov, accompanied ^{by} ~~with~~ Mr

by

Hoepffner, had inspected this MSD machine on 26 January 1983 (see reports (37) and (39)). The machine had the layout shown eg in drawing (41). From this drawing it could be seen that the machine fulfilled all the requirements of the sole claim at issue and that the ratio between the distance from the perforated plate to the annular opening and said annular opening fell within the range 10 to 15.

- Another spray drying apparatus as claimed had been sold by the Patentee and made available to the public before the filing date of the patent in suit at L'Union Laitière Normande, Condé-sur-Vire (France) (see document (23)). A declaration by an employee of a German company working with spray drying of milk products stated that he had accepted an invitation to visit and inspect this multi stage dryer in full operation on June 17 or 18, 1982 and that he had not been bound to maintain secrecy about the constructive details of this dryer. A journal article on this installation also appeared in the January 1983 edition of the French journal "La Technique Laitière" (document (53)) published 15 January 1983.

- One further machine as the claimed one had been sold at ZEV-DMV-Campina Melkunie, Zevenbergschenhoek (NL) in March/April 1983. The machine had the layout shown eg in document (54). From this drawing it could be seen that the machine fulfilled all the requirements of the sole claim at issue and that the ratio between the distance from the perforated plate to the annular opening and said annular opening fell within the range 10 to 15.

Inventive step

- The superior properties of the MSD powders were disputed. Document (16) showed that instant whole milk powders exhibiting a mean particle size value of 200µm, having a small percentage of fines and a flowability around 23 s had already been manufactured on a commercial scale before the priority date of the patent in suit.

- Document (6) disclosed a method for drying food products including baby-food, comprising a first step of spray drying in counter current followed by a second step of drying in fluid bed, both steps being carried out in the same apparatus.

- Although document (1) was mainly concerned with the production of fertilizer granulates, the possibility of making food agglomerates was also mentioned. It was a matter of routine for the skilled person to adapt the value ranges for the moisture content, the temperature, gas stream ratio, etc, disclosed in document (1) to those disclosed by document (7) applicable for the agglomeration of milk products.

- The subject-matter of the single claim on file was obvious in view of the public prior uses cited above.

XII. The Appellant (Patentee) requested that the decision under appeal be set aside and the patent be maintained on the basis of the claim submitted at oral proceedings on 10 September 1996 and that the Patentee be awarded the costs of preparing for and attending the oral proceedings on 10 September 1996. The Respondents (Opponents) requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

Article 123(2) and (3) EPC

2. The expression "milk or whey" in the claim under consideration finds a basis on page 1, line 5 to 7 of the application as filed. The expression in part (e) of the claim "at a temperature of 200-400°C" is based on page 5, line 8 of the application as filed. The wording "at a temperature of 10-150°C in an amount of 25-50 percent of the amount of gas providable by (e) and sufficient for obtaining an upward gas stream at a velocity immediately above the perforated plate of 0.6-1.5 m/sec." finds a basis on page 5, lines 9 and to 15 of the application as filed (the range "25-50 percent" is equivalent to "2-4 times" to be found on page 6, line 6). The wording "a downward directed gas stream can be supplied from the gas disperser having a kinetic energy 1000-15000 time the kinetic energy of the upward gas stream through plate (e)" is to be found in claim 2 of the application as filed. All the features listed above are restrictive in nature. In conclusion, the requirements of Article 123(2) and (3) EPC are fulfilled.

Right to priority (Article 88(3) EPC) and citability of documents

3. During the oral proceedings of 10 September 1996, it was accepted by the Parties that for the purposes of Article 54(2) EPC, it was only the date of filing of the European patent application (14 June 1983) to which the subject-matter of the present claim was entitled. The Board agrees, as in the priority document, the

invention was only described as lying in the steps of a process for producing an agglomerated powdery milk product and there were only process claims. Only in the application filed at the European Patent Office was a claim to spray drying apparatus introduced. In the claim now put forward ~~certainly~~ the requirements of feature (a) of a drying chamber having substantial conical, downward tapering walls forming an angle to the vertical of 15-30°, preferably 18-24°, and of feature (d) of the distance of said perforated plate to said annular opening of the gas dispenser being 10-15 times the maximum diameter of the annular opening have no express or implicit basis in the priority document. The Board cannot treat these features other than as being essential features of the invention now claimed, particularly as in the Appellant's notice of appeal it was stated that the ratio in the range 10 to 15 between the distance from the perforated plate to the annular opening represented a **critical** distinguishing feature over the apparatus disclosed by document (1), wherein said ratio was below 10. Thus the claim now put forward claims subject-matter not disclosed in the priority document, and so, in accordance with the reasoning of Enlarged Board Opinion G 3/93 (OJ EPO 1993, 478), is treated by this Board as not concerning the same invention as the priority document and thus not entitled to the date of the priority application. Thus everything made available to the public before European filing date must prima facie be treated as prior art. The arguments relied on by the Appellant based on decision T 301/87 (OJ EPO 90, 335), must fail as the reasoning of that decision is not followed by the present Board, as to do so would be to differ from the above cited Enlarged Board Opinion G 3/93.

Article 55(1)(a) Non-prejudicial disclosure as a result of an evident abuse

4. The Appellant has sought to exclude reliance on certain installations sold by himself on the basis either that the constructional details would not have been visible, and thus would not have been made available to the public, or else that where they had been disclosed this was an evident abuse in relation to the Patentee, and took place within the period of six months before the filing of the European application, and thus was by virtue of Article 55(1)(a) EPC a non-prejudicial disclosure.

5. The burden of proof that there has been an evident abuse in relation on the Patentee lies on the Patentee, here the Appellant. It was admitted on behalf of the Appellant at the first oral proceedings before the Board, that there had been commercial sales of equipment before the European filing. The only confidentiality agreement with a purchaser of such equipment put forward is that with UCLAB referred to in point X above. The confidentiality prima facie relates only to the use of equipment and methods of operating it. In fact the agreement starts with an obligation on the Appellant to keep confidential the customer's information, and only by Clause 3 does the customer undertake a similar obligation. Clause 2(c) excludes matter which has already come into the public domain without the fault of the Party so doing it. It is very questionable whether the agreement applies to equipment as such at all, let alone to equipment that UCLAB have bought. The basic equipment is large, more than ten metres in height. Keeping all information about this equipment as such confidential would not appear easy, and the agreement supplied cannot be interpreted by the Board as imposing such an obligation.

6. Further the evidence shows that several sales had taken place before the European application date, and that an article giving considerable detail (document (53)) had been published. All this is quite as consistent with the Appellant being content with publicity for their spray dryers with a view to attracting further customers, as with there being numerous abuses of the Appellant's right to confidentiality. If the sought-for claims had been entitled to the date of the priority application, as might have been the reasonable expectation, such publicity would not have been harmful to their obtaining a patent. The mere fact that the claim they are now pursuing is not entitled to the priority date is not a reason for the Board to interpret the agreement in a manner more favourable to the Appellant than the facts warrant.

7. Of the cases relied on by the Appellant, decision T 799/91 of 3 February 1994 involves a quite different situation. There a subcontractor had manufactured and supplied a part of a bicycle lock for a manufacturer. It was held that a confidential relation could be presumed to exist between the manufacturer and the subcontractor, so information about the part had not been shown to have been given to any member of the public as such. In the present case not only is there no manufacturer/subcontractor relationship but there is evidence that third parties were allowed to inspect the apparatus without any fetter of confidence. In the second decision T 782/92 relied on, the relevant Board held that as there was substantial doubt whether a delivery note showing that only 15 dampers had been supplied by a supplier to a motor manufacture could be treated as evidence of a normal delivery of dampers or only as a special supply for experimental purposes, and that as there was no evidence that the damper had been shown to other suppliers, the opponent had failed to discharge the burden of proof on him. Here the

situation is quite different, in that there is no question of third parties having been allowed to inspect the equipment, and the burden of proof is on the Appellant as Patentee to show that this should be disregarded as being in breach of an obligation of confidence owed to the Appellant.

8. The Appellant has also argued that where as here prototypes were sold, it should be implied that these were to be kept confidential. The normal implication of sales to more than one customer is that details of the product sold are not confidential. The two cases above do not contradict this, as there was evidence only of a sale by a single supplier to a single customer. The Board sees no reason to invent some new general rule applicable to prototypes: this would raise difficult questions of what is a prototype.
9. The confidentiality agreement with NIZO also would appear to relate only to the use of equipment and tests carried out on it, and cannot be treated as showing that information about the apparatus itself to which NIZO was allowed access was not in the public domain.
10. On the facts of this case the Board holds that the Appellant has not discharged the burden of proof on him of showing that there has been an evident abuse of his rights in relation to any equipment.

Novelty (Article 54 EPC)

11. Since document (7) does not disclose feature (d) of the sole claim under consideration, namely the ratio in the range of 10 to 15 between the distance from the perforated plate to the maximum diameter of the annular opening, the claim is novel over document (7).

12. As regards the Respondents' objection of lack of novelty of the claimed apparatus over document (1), even assuming that apparatus RKSG-1.25 of Table 4 (page 22 of document (1), English translation) is provided with the single nozzle of Figure 10a (page 18 of document (1), original version), there is no clear and unambiguous disclosure of a ratio of height to diameter in the range 10 to 15. The Board cannot agree with Respondents' calculation of the ratio height/diameter of 13.7. For calculating this ratio, an exhaust gas temperature of 110°C has been taken by averaging the data on page 18, line 3 and page 19, line 15 of document (1). However, these values relate to the apparatus RKSG-2.8 (see page 19, line 7) rather than to the RKSG-1.25 one. This error also affects the exhaust gas density and the exhaust gas mass flow, two further parameters used for calculating the ratio height/diameter, because they depend on the exhaust gas temperature. Further, the fluid bed gas velocity, another parameter used for calculating the ratio height/diameter, has been taken from Table 3, on page 21, by averaging the "boiling speeds". However, Table 3 relates to a plant (500-700 kg/h pulp: see page 20, line 24) different from RKSG-1.25 which processes 0.89 to 15 T/h pulp. It is thus not correct to calculate the ratio height/diameter of the annular opening by selecting within document (1) values that do not relate to the RKSG-1.25 apparatus. In conclusion, the claimed apparatus is novel over document (1).
13. Respondent II argued that there have been three separate instances of prior use of MSD machines before the filing date of 14 June 1983, namely at U.C.L.A.B, Lantinou, 29419 Landernau (France), Condé-sur-Vire (France) and at ZEV-DMV-Campina Melkunie, Zevenbergschenhoek (NL). The Board accepts that insofar

as the equipment features recited in the claim were concerned, the machines were made public, but the question remains whether any of these machines showed all the features required by the claim.

14. The MSD spray drying apparatus installed at U.C.L.A.B, Lantinou, 29419 Landernau (France) had the layout shown eg in drawing (41) (hereinafter referred to as the UCLAB apparatus), whereas the one installed at ZEV-DMV-Campina Melkunie, Zevenbergschenhoek (NL) had the layout shown in drawing (54) (hereinafter referred to as the ZEV apparatus). No document showing the detailed layout of the machine installed at Condé-sur-Vire (France) is available to the Board.
15. Features (f), (g) and (h) and the requirements of the "wherein clause" of the claim as apparatus features merely require that the apparatus is capable of meeting these requirements, and it was not disputed that conventional gas supply and heating equipment fitted to spray drying apparatus would meet these requirements, so that both the UCLAB and the ZEV apparatus must be treated as fulfilling these conditions. They both also showed feature (a).
16. Respondent II accepted at the oral proceedings of 5 May 1999 that drawing (41) relating to the machine installed at UCLAB apparatus showed a ratio between the distance from the perforated plate to the annular opening and said annular opening which was outside the range of 10 to 15 recited in the claim at issue ($10.5/0.667 = 15.74$). A ratio within said range ($9/0.8 = 11.25$) can be deduced from drawing (54) for the ZEV apparatus.
17. However, drawing (54) for the ZEV apparatus shows a triangular arrangement of three nozzles in the upper part of the chamber with **no** central nozzle. Thus this

does not meet features (b) and (c) of the claim which requires "a downward directed nozzle mounted **centrally** in the upper part of the chamber". However, drawing (41) for the UCLAB apparatus shows five nozzles with four arranged at the corners of a square, with the fifth in the centre of the square. Features (b) and (c) are thus met by the UCLAB apparatus. In conclusion, the UCLAB apparatus meets all features of the claim except (d), and the ZEV apparatus meets all features of the claim except (b) and (c). Novelty can therefore be acknowledged.

Inventive step

18. The Board considers the ZEV apparatus to be closer prior art than anything else because this apparatus exhibits all the features recited in the unique claim under consideration, including the critical feature "a ratio between the distance from the perforated plate to the annular opening and said annular opening within the range of 10 to 15" but with exclusion of the features (b) and (c).

19. The Appellant has argued that the "invention" allows the production of superior and novel agglomerated milk powder, and that their commercial success proves that there must be invention. However there is no evidence to show that the mere provision of the apparatus defined in the claim is sufficient to ensure the production of such superior and novel agglomerated milk powder, or in any way to link commercial success to the apparatus as now claimed. The patent itself makes clear that a further drying stage is needed, and that appropriate operating conditions must be used. In these circumstances the Board can only treat as the problem to be solved an alternative nozzle arrangement for the ZEV apparatus. One obvious solution is to use the nozzle arrangement of the UCLAB apparatus. Doing so the

skilled person would arrive in an obvious manner at something meeting all requirements of the claim. The patent must thus be revoked for lack of inventive step.

20. The Board has accepted into the proceedings at a very late stage documents relating to various prior sales of apparatus by the Appellant, as these are all treated as instances of a single course of conduct by the Appellant of selling and making known his spray drying products. By its nature it is clearly more relevant than other prior art, which the Board now does not have to consider in assessing inventive step. However as indicated at the first oral proceedings the Board considers that the late introduction of this material entitles the Appellant to the costs he incurred in preparing for and attending the oral proceedings on 10 September 1996. A precise measure of what extra costs have been caused to the Appellant by the late introduction of the prior user allegations would be difficult and expensive, but in the Board's judgement payment of the costs specifically incurred by the Appellant in preparing for and attending the oral proceedings of 10 September 1996, but excluding costs for filing the appeal or intermediate correspondence, or costs incurred after 10 September 1996 is equitable in the circumstances.

Order

For these reasons it is decided that:

1. The appeal is dismissed.
2. The costs incurred by the Patentee in respect of preparing for and attending the oral proceedings on 10 September 1996 shall be paid to the Patentee by the Respondent Opponent II.

The Registrar:



U. Bultmann

The Chairwoman:



U. Kinkeldey