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Datasheet for the decision of 13 January 2010

Case Number: T 2043/07 - 3.3.03

Application Number: 99104472.8

Publication Number: 0940440

IPC: C08L 53/02

Language of the proceedings: EN

Title of invention:
Block copolymer composition for modifying asphalt and asphalt composition comprising the same

Patentee:
JAPAN ELASTOMER COMPANY LIMITED

Opponent:
KRATON Polymers Research B.V.

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56, 114(2)
RPBA Art. 13

Keyword:
"Novelty - public prior use - (no) - insufficient evidence"
"Inventive step - (yes)"
"Late submitted material admitted - (yes)"

Decisions cited:
T 0300/86, T 0093/89, T 0472/92, T 0782/92, T 1002/92, T 0012/00

Catchword:
-

Case Number: T 2043/07 - 3.3.03

D E C I S I O N
of the Technical Board of Appeal 3.3.03
of 13 January 2010

Appellant: (Opponent)
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Representative:
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Respondent: (Patent Proprietor)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office dated 12 September 2007 and posted 19 October 2007 rejecting the opposition filed against European patent No. 0940440 pursuant to Article 102(2) EPC 1973.

Composition of the Board:

Chairman: R. Young
Members: M. Gordon
C. Vallet

Summary of Facts and Submissions

I. Mention of the grant of European Patent No. 0 940 440 in the name of Japan Elastomer Company Limited, in respect of European patent application No. 99104472.8 filed on 5 March 1999, published on 8 September 1999 and claiming a priority date of 5 March 1998 from JP 6926198 was announced on 16 June 2004 (Bulletin 2004/25) on the basis of 5 claims.

Claim 1 read as follows:

1. A block copolymer composition for modifying asphalt, which comprises a mixture of:

(A) a block copolymer comprising:

at least two polymer blocks each mainly comprising a monoalkenyl aromatic compound; and
at least one polymer block mainly comprising a conjugated diene compound; and

(B) a block copolymer comprising:

at least one polymer block mainly comprising a monoalkenyl aromatic compound; and
at least one copolymer block mainly comprising a conjugated diene compound, and

having a molecular weight equivalent to 1/3 to 2/3 of the molecular weight of block copolymer (A),

wherein (a) the total bonding alkenyl aromatic compound content in the mixture of block copolymers (A) and (3) is from 10 to 50% by weight,
wherein (b) the vinyl bond content in the conjugated diene polymer blocks is not greater than 70% by weight, and
wherein the block copolymer composition has:
(c) a content of (A) component of from 98 to 20% by weight and a content of (B) component of from 2 to 80% by weight;
(d) a melt index value of from 0.3 to 15.0 g/10 min;
(e) a bulk density of from 0.1 to 0.7;
(f) a particle size distribution such that the content of constituents remaining on a 5-mesh sieve is not greater than 30% by weight and the content of constituents passing through a 20-mesh sieve is not greater than 30% by weight; and
(g) a total pore volume of from 100 to 2,000 mm^3/g.

Claims 2, 3 and 4 were directed to preferred embodiments of the block copolymer of claim 1.

Claim 5 read as follows:

5. An asphalt composition comprising:

from 3 to 15 parts by weight of the block copolymer composition of claim 1, 2, 3 or 4; and
from 85 to 97 parts by weight of asphalt.

II. A notice of opposition to the patent was filed on 16 March 2005 by Kraton Polymers Research B.V. The grounds of opposition pursuant to Art. 100(a) EPC (lack of novelty, lack of inventive step) and Art. 100(b) EPC (insufficiency of disclosure) were invoked. Further it was submitted that the patent in suit was not entitled to the claimed priority. *Inter alia* the following documents were cited in support of the opposition:

Dl: JP 2660274 (English translation), published 08.10.1997

D3: Shell Chemicals “The blending time of KRATON® D Polymers in Bitumen, issued December 1994

D5: Writ of court action, submitted May 25 2001, by patentee against KRATON Polymers Japan on the basis of JP 2660274

D6: JP 10-212416 (abstract and computer translation of fulltext version),published 11.08.1998

Dl1: Calprene® Rubbers, Bitumen modification, Repsol Quimica, August 1989

E2: Measurements of KRATON® D-11O1CS and KX-412 CS.

With a letter dated 06.07.2007 the Opponent filed further documents including experimental evidence, technical information, an affidavit and 6 Japanese invoice receipts *inter alia*:

D14: Shell Bitumen Industrial Handbook, 1995, pages 76-77, 86-89 and 178-183

D16: 6 invoice receipts and translation thereof into English.

III. By a decision announced on 12 September 2007 and issued in writing on 19 October 2007 the opposition division rejected the opposition.

(a) The patent in suit was held to meet the requirements of Art. 83 EPC.

(b) The patent in suit was held to be entitled to the claimed priority date.

(c) With regard to Art. 54 EPC and D1, it was held that this document disclosed features (a)-(d) of claim 1 of the patent in suit. Feature (e) was held to be inherently disclosed, it being noted that the patent proprietor had not denied this. Objections of lack of novelty due to public prior use of products identified as Kraton D-1101CS, Kraton D-KX412CS and Asahi JT-37L were held not to have been proven. With respect to D-KX412CS it was noted although evidence of sales thereof had been provided (D16) the opponent had failed to demonstrate that this product met the requirements of operative claim 1, no analytical data having been provided.

(d) With respect to Art. 56 EPC D1 was held to represent the closest state of the art, the claimed subject matter being distinguished therefrom by features (f) and (g), i.e. the particle size distribution and porosity.
The experimental data submitted by the opponent, D12 was held not to prove a lack of inventive step since, *inter alia*:

- it had not been shown that the products employed in the tests reported in D12 satisfied the features (a)-(g);
- The solubility had been tested by a torque method in D12 whereas the examples of the patent in suit had employed a visual method.

(e) A request for amendment (correction) of pages 15-17 of the description was refused.

(f) Accordingly the opposition was rejected.

IV. A notice of appeal against the decision was filed on 13 December 2007 by the opponent, the prescribed fee being paid on the same day.

V. The statement of grounds of appeal was received on 15 February 2008.

(a) The objections of lack of novelty arising from public prior use of the products Kraton D-1101CS and Kraton KX412CS were maintained, further information (relating to the production dates) being submitted.

(b) With regard to inventive step, further details relating to the properties of the products employed in experimental report D12 were supplied, which confirmed that these fell within the scope of the operative claims.

It was further submitted that the evidence of D12 showed that, contrary to the evidence of the patent in suit, the particle size distribution of the polymer exerted no influence on the storage stability and speed of dissolution of the polymer in bitumen. Instead the evidence of D12 showed that normal physical laws applied, i.e. that bigger surfaces - and hence smaller particles - resulted in faster dissolution.

It was submitted that the method employed by the appellant/opponent to evaluate the speed of dissolution, i.e. torque/viscosity measurements was a quantitative, proven method since viscosity was directly related to the amount of polymer dissolved, no further change in viscosity indicating complete dissolution. In contrast the

method employed by the patent proprietor - visual inspection - was an unreliable, subjective method which was highly dependent on the skill of the operator. In particular the difficulty of determining the point of solubility of the pellets in a deep black non-transparent bitumen/polymer mixture was emphasised.

The appellant/opponent had shown that smaller particles dissolved faster which in turn demonstrated that the ranges specified for the features (e)-(g) of the claims were arbitrary and hence could not support an inventive step.

(c) The statement of grounds of appeal was forwarded to the respondent/patent proprietor by a communication of the Office dated 28 February 2008, setting a period of four months for reply.

VI. By a letter dated 8 July 2008 the respondent/patent proprietor requested an extension of two months of the period for responding to the statement of grounds of appeal. This request was allowed by the Board in a communication dated 21 July 2008.

VII. In a further letter dated 7 August 2008 the appellant/opponent made further submissions concerning the alleged public prior use of D-KX412CS.

A sample of this product from a specified lot, numbered 660314, produced on 14 March 1996 had been located. A sales invoice relating to a delivery of this product on 8 May 1996 was provided.

The properties of the product D-KX412CS from this lot were reported.

An affidavit from Mr. Imachi, the former General Manager Research and Technology Group of the joint

venture where D-KX412CS had been produced was submitted to provide supportive evidence.

VIII. The respondent/patent proprietor requested by letter of 3 September 2008 a further extension of the period for replying to the statement of grounds of appeal. This was granted by the Board in a communication dated 10 September 2008, in which reference was made to the submission of the appellant/opponent of 7 August 2008 (see section VII, above).

The respondent/patent proprietor filed a substantive response to the statement of grounds of appeal with a letter dated 29 September 2008.

Three auxiliary requests (first, second, third), amended pages 5 and 15-17 of the published patent and an affidavit - designated "Affidavit 3" were submitted. The arguments put forward are in substance the following:

(a) With regard to the objections of lack of novelty:

- D6, published in the priority period was not prior art since the priority claim of the patent in suit was valid.
- The appellant/opponent had failed to provide any information relating to the explicit and unambiguous disclosure of features (f) and (g) of operative claim 1 in D1 or D6.
- The claimed product could not be obtained by the processes disclosed in D1 and D6.
- The objection of lack of novelty due to prior use had not been proven for either of the products invoked (D-1101CS or D-KX412CS) since the evidence advanced was incomplete,

i.e. contained gaps, reference being made to the established case law in particular decisions T 782/92 of 22 June 1994 (not published in the OJ EPO) and T 472/92 (OJ EPO 1998, 161).

(b) With respect to inventive step:

- The data provided by the appellant/opponent were not consistent with the trend demonstrated in the examples of the patent in suit. The appellant/opponent however had evaluated the solubility in terms of torque which was different from the measurement method disclosed in the patent. This use of a different measurement method provided an explanation for the differing results obtained.
- The torque method put forward by the appellant might yield results in accordance with the laws of physics if ideal conditions were employed. Such conditions however did not exist in industrial practice, and correspondingly this method was not employed by the clients of the patent proprietor.
- The subject matter of the operative claims was distinguished from the disclosure of closest prior art D1 - at least - by the features (f) and (g).
  The effect of this combination of features was to improve the solubility in asphalt and the storage stability. This was evident from Table 2-4, comparative examples 9 to 13 and inventive examples 20-23 of the patent in suit.

This result was not rendered obvious by the cited prior art.

(c) The previously submitted request for correction (pages 15-17 of the patent in suit) was maintained. In addition a further request for correction of paragraph [0036] of the patent in suit was made.

IX. The appellant/opponent made a further written submission with a letter dated 5 December 2008 which can be summarised as follows:

(a) The first auxiliary request (see section VIII, above) was not understood.

(b) It was not clear whether the previous submission of 7 August 2008 had been received by the respondent/patent proprietor, in particular since no response to the new data relating to public prior use of D-KX412CS had been made in the letter of 29 September 2008.

(c) The evidence provided proved the preparation and sale of D-KX412CS before the priority date of the patent in suit and that this product had been analysed.

In particular these data established:

- a link between the analysed grade and the grade sold since lot and batch numbers were provided and explained;
- that the analysed product had been prepared before the priority date;
- that the D-KX412CS had been sold.

Accordingly there was no uncertainty surrounding the production of KX412CS.

(d) The requests for correction were resisted.

X. Together with a letter dated 16 April 2009 the respondent/patent proprietor submitted a complete text of auxiliary request 1.

(a) It was confirmed that the submission of the appellant/opponent of 7 August 2008 (see section VII, above) had only been received together with appellant's submission of 5 December 2008 (communication from the Board dated 16 December 2008) and consequently had not been commented on in the submission of September 2008.

(b) It was argued that the submission of the appellant of 7 August 2008 had been filed late, no request for extension of the term for filing having been made. Accordingly this submission was not in accordance with the Rules of Procedure of the Boards of Appeal.

It was further submitted that, in addition to failing to observe the provisions of the RPBA, the appellant had filed the new evidence more than three years after the end of the period for opposition. No good reason had been given for this late filing beyond a statement that the appellant/opponent had been fortunate to find some samples of D-KX412CS. Further there had been no specific unforeseeable event in the proceedings which might have caused the appellant to react and file this evidence.

(c) With regard to the substance of the submission, a number of deficiencies and inconsistencies were identified *inter alia*:

- there was no real test report including information what exactly had been done in the evaluation (test methods), who performed the tests or when the tests had been performed;

- there was no evidence or support that the indicated lot number had in fact been analysed;
- there was no evidence that the particle size fulfilled the criteria of the patent in suit when the product had been sold. It could not be excluded that the particle size had been adjusted by the customer before application or before the analysis.
- during the course of the proceedings the appellant had provided data for D-KX412CS of three different grades all having different properties from each other, reference being made to E2 and the submission of 7 August 2008. This suggested that at least three different products existed under the trade name "D-KX412CS". Under these circumstances the requirements for establishing proof of a prior use were even higher.

XI. On 16 October 2009 the Board issued a summons to attend oral proceedings.

XII. The appellant/opponent made a further written submission with a letter dated 14 December 2009.

(a) It was stated that the evidence submitted with letter of 7 August 2008 relating to public prior use of D-KX412CS had been provided as soon as it became available, was *prima facie* highly relevant and should be admitted.

It was argued that finding old samples of a polymer intended for use as a component in a bituminous composition was a "stroke of luck". It was submitted that the objection of public prior use of D-KX412CS had been selected because samples

from a specific lot had been found, and an invoice specifically relating to this lot had also been found. This was fortunate since the retention time for such invoices was only seven years thus it would have been expected that all such invoices would have been destroyed.

The analytical results for this specific lot of D-KX412CS were comparable to those submitted with document E2, the measurements reported in which had been performed in accordance with the description of the Japanese patent corresponding to the patent in suit.

It was submitted that the analytical data presented in the letter of 7 August 2008 had been obtained by Kraton Polymers, whereby the data for pore volume had been prepared by the Delft University of Technology. The analyses had been performed in accordance with the methods described in the patent. These data confirmed that the analysed features of the D-KX412CS were within the scope of operative claim 1.

(b) With respect to the objection of lack of novelty due to public prior use reference was further made to D5, a writ in which the patent proprietor stated that Shell Japan Co. Ltd was planning to sell a block copolymer composition that infringed a patent of the patent proprietor. According to D5 the respondent/patent proprietor had obtained and analysed the product in question.

This established that knowledge of the product in question did not lie solely within the power of the appellant/opponent. Accordingly pursuant to the findings of T 12/00 (7 November 2002, not published in the OJ EPO) the less stringent

standard of balance of probabilities should be applied (cf submissions of the respondent/patent proprietor in section VIII.(a), above).

It was emphasised that the invoices submitted with the letter of 7 August 2008 provided proof that D-KX412CS had been commercially available in 1996. This was consistent with the statement in D5 by the patent proprietor.

A number of analyses of D-KX412CS had been carried out. Although there might be lot to lot variation the variation was not such as to take the product outside the scope of the parameters (a) to (g) of operative claim 1.

Further the data provided in D5, page 12 by the respondent/patent proprietor regarding the constitution of D-KX412CS, specifically features (a)-(e) was consistent with the analytical data provided by the appellant/opponent.

Accordingly the evidence submitted established that a product falling within the terms of operative claim 1 had been made available in commercial transactions, outside the realm of experimental testing.

(c) With regard to inventive step it was submitted that the problem underlying the patent in suit, starting from D1 as the closest prior art, was to improve the solubility of certain polymer compositions in asphalt and to improve the storage stability.

With regard to the dissolution time it was submitted that it was obvious to restrict the upper limit of the particle size since it followed from the laws of physics that, for a given porosity, smaller particles would dissolve more

rapidly than larger particles.
With regard to the influence of the lower limit of the particle size on dissolution time, it was submitted that the problem that had actually been solved was that **when using the technique of melt blending** the polymers into an asphalt mixture the particle size should not be too small (emphasis of the appellant/opponent).
Melt-blending was however inappropriate for asphalt having low viscosity at high temperatures and the problems occurring with melt blending did not occur when using more appropriate mixing techniques. Since the claims of the patent were not limited to melt blending they covered polymer compositions and methods wherein this problem did not arise. The data submitted by the appellant/opponent however established that smaller particle size polymers dissolved faster. Accordingly the selection of the lower limit was not purposive but merely concerned a hypothetical solution for the case that melt blending with a low viscosity asphalt was used.
Regarding the method for blending, reference was made to a submission of the patent proprietor at the oral proceedings before the opposition division that the method disclosed in the patent in suit - melt kneading - was wrong, resulting from a mistranslation and that in fact an "ordinary mixer" had been used. It was submitted however that consultation of the Japanese priority document revealed, on the contrary, that this was not a mistranslation.

D3 taught that the morphology or physical form of

a polymer had the greatest effect on blending time. D3 also provided a test to reliably assess the blending time, which test was described in detail, establishing that the method was accurate and reproducible. The evidence of Table 1 of D3 established that powdered polymer underwent blending more rapidly than polymer in the form of porous pellets or fluffy crumb. It was also taught in D3 that with low shear equipment powdered polymer should be selected whereas with high shear equipment an alternative physical form could be used. On the basis of this document it was submitted that the different results obtained by the parties might be due to the fact that the patent proprietor/respondent had employed inappropriate conditions, i.e. non-dispersing conditions causing agglomeration whereas the appellant/opponent had not.

Regarding the question of measurement by torque and the objection of the respondent/patent proprietor that this was not a standard method of monitoring completing of dissolution in the industry (see section VIII.(b), above), it was submitted that this position was not correct and was incomplete.
Taking samples and checking for undissolved particles was the last check carried out but under plant conditions often the power consumption of the stirrer was monitored to assess the progress of dissolution. It was explained that viscosity increased as dissolution progresses and that once constant viscosity has been reached, a final check would be carried out to ensure that all particles

had disappeared. Consequently the end point was determined when there is no further viscosity increase **and** it has been verified that there remained no undissolved particles. Reference was again made to D3 relating to the use of a Haake Rotoviscometer.

XIII. Oral Proceedings were held before the Board on 13 January 2010.

(a) *Admissibility of the submission of 7 August 2008*

The respondent/patent proprietor maintained the request not to admit the submission and data of 7 August 2008 (see section X.(b), above).

The appellant/opponent submitted that this data was highly relevant to the objection of public prior use of D-KX412CS and supported previous submissions. It was emphasised that it had been a matter of luck in finding a retained sample and that the information had been submitted as soon as possible. Accordingly the late submission thereof did not constitute an abuse.

Regarding the presence of two lot numbers on the documentation filed it was submitted that a customer ordered a quantity of a specific product grade, not a specific production lot or batch. Delivery was in the form of a number of packages of the specified grade (in the specific case 107 packages of 20kg each). Each 20kg package contained product taken only from a single production lot and the lot numbers were marked on the packages. This was required in view of quality control. Thus the properties of the product from each of the production lots identified in the submitted documentation would have been available

to the recipient.
The analyses undertaken and reported in the 7 August 2008 submission were part chemical, e.g. GPC and part morphological.
Porosity was an unusual measurement and the appellant/opponent did not have the facilities to determine this. Consequently this analysis had been performed by a university. A report relating to this analysis was available and could be submitted if required. All the other analyses had been carried out by the appellant/opponent.
Photographs were available of the samples - which also had not yet been filed.
The respondent/patent proprietor reiterated that there had been no good reason for the late filing of this evidence. Regarding the data relating to the product it was emphasised that no experimental report had been filed, only the results (see also submissions relating to the substance of this evidence in the letter of 16 April 2009, reported in section X.(c), above). Also the information that part of the analysis had been carried out by a University had only been communicated for the first time in the 14 December 2009 submission.
Due to the absence of an experimental report there was no evidence that the indicated lot had in fact been analysed. Further there was no evidence relating to how the sample had been stored. No witness statement or photographic evidence had been provided to confirm even some of these issues.
Further it was noted that the sales invoice contained two lot numbers. It was not stated what proportion of the total was formed by each lot. It was possible that the relevant lot had been

present only in a small amount, i.e. below that which might be considered typical of a commercial transaction. Further the evidence of D5 could not change these considerations since the analyses reported there were dated after the priority date. After deliberation the Board announced its decision that the submission of 7 August 2008 was admitted to the procedure.

(b) *Art. 54 EPC:*

The appellant/opponent was invited to review the objections raised against novelty. The appellant referred only to the objections of lack of novelty due to public prior use and further stated that the objection of public prior use in respect of the product D-1101CS was not maintained.

With respect to the objection of public prior use of the product D-KX412CS the appellant/opponent argued that D5, the submission of 7 August 2008 (invoices, analyses and Imachi affidavit) and the sets of invoices submitted as D16 during the proceedings before the opposition division (see section II, above) together with the analysis in E2 established that D-KX412CS had been produced and sold and that this product fell within the scope of operative claim 1.

This product had been sold and an analysis of this product had been provided (7 August 2008 submission) with further details of the analysis being provided in the 14 December 2009 submission. Since, as established by D5 the product D-KX412CS had been available to both parties at the relevant time, i.e. before the priority date the appropriate standard of proof to apply was the less stringent one of "balance of probability".

The analyses of further batches of product D-KX412CS produced in the period 1995-2000 (submitted as E2) established that all fell within the scope of operative claim 1. On the balance of probabilities, and in view of the Imachi affidavit it had to be concluded that all batches of polymer sold under the designation "D-KX412CS" met these requirements.
Regarding the particle size and porosity it was argued that the evidence of D5 established that D-KX412CS had been available - it was immaterial whether the porosity and particle size had been measured at that time, since these features could have been analysed and said analysis would have revealed that the corresponding properties fell within the scope of operative claim 1.

The respondent/patent proprietor submitted that a high standard of proof was required - whether "balance of probabilities" of "up to the hilt". Although D5 stated that the product had been available since 1995 there was no evidence of this. In particular it did not follow from D5 that an analysis of the sample had been carried out - only that information relating to the sample properties had been reported/communicated.
It was emphasised that the product had been produced by the appellant/opponent which made a strict standard of proof appropriate. There was no evidence for the contention of the appellant/opponent that all samples of D-KX412CS necessarily fell within the scope of operative claim 1. The only evidence linking a batch for which analytical data had been provided to an

actual sale was that from August 2008. This data was however deficient since it constituted only a summary of the results. A full experimental report had not been provided.

After deliberation the Board announced its decision that the case of anticipation by public prior use had not been proved.

Since no other objections pursuant to Art. 54 had been put forward the novelty of the subject matter of the operative claims was acknowledged

(c) *Inventive step*

The respondent/patent proprietor stated that it no longer argued for the existence of a technical effect in respect of the storage stability.

The appellant/opponent stated that the closest state of the art was D1 and the problem to be solved with respect to this disclosure was to improve the rate of dissolution.

It was reiterated that the method employed in the examples of the patent in suit - melt kneading - was inappropriate for the bitumen employed and gave rise to the anomalous and unreliable results reported in the patent in suit (cf submissions in the letter of 14 December 2009 reported in section XII.(c), above). It was emphasised that it was essential to ensure that dissolution was complete, which had been accomplished in the data provided by the appellant/opponent (D12) in a quantitative, reliable fashion by monitoring the energy required by the stirrer, i.e. the torque.

With regard to the use of a different measurement

method by the appellant/opponent to that which had been employed in the examples of the patent in suit and in response to an invitation from the Board to explain why the examples of the patent in suit had not been repeated, the appellant/opponent recalled its submissions in the notice of opposition in respect of the ground of opposition pursuant to Art. 100(b) - insufficiency of disclosure - and submitted that information necessary for complete repetition of the examples was lacking from the patent in suit.
It was confirmed, in response to an observation by the respondent/patent proprietor that visual inspection of the mixture had indeed been employed in the experiments submitted. However since the composition was black and non-transparent such measurement was difficult and unreliable. It was emphasised that there was no question of a different property having been measured, instead a more accurate measurement of the same property - speed of blending - had been employed.

It was explained that the same stirrer had been employed to accomplish the mixing and to carry out the torque measurement. Consistently with the teaching of D3 both viscosimetric measurements and visual inspection were employed.
It was further submitted that the method employed in the examples of the patent in suit - using a mesh - was not suitable to show whether complete dissolution had been obtained.
It was stated that in carrying out the submitted measurements the validity of the torque method for ascertaining full dissolution had been established

by initial experiments to ensure consistent data. The technical expert stated that under laboratory conditions the viscosity was measured continuously and a sample taken at the end to confirm full dissolution by visual inspection.

The respondent/patent proprietor submitted that statements in the patent in suit, paragraphs [0032]-[0035] concerning the negative effects on the speed of solubility of having particle size or porosity outside the claimed ranges were confirmed by the evidence of the examples of the patent in suit. It was emphasised that, despite what was stated in the patent in suit, a normal mixer had been employed, not a melt kneader. This was because the invention had been developed in response to requests by customers for a polymer which could be incorporated in bitumen by means of a normal mixer.

Regarding obviousness it was submitted that D3 taught that use of powder results in faster mixing/dissolution. However as shown by the examples and comparative examples of the patent in suit it was required not to have too many small particles. Similarly the examples showed that a minimum porosity was needed. According to D14 page 180 it was taught that powdered grades dissolved more rapidly than porous grades, i.e. porosity should be avoided. In contrast thereto the examples of the patent in suit showed that a certain minimum porosity was required.

The respondent/patentee proprietor submitted that

if the intention had been to show the absence of an effect then the instructions of the patent in suit should have been followed.

It was confirmed that two types of mixing were possible. It had been learnt for the first time at the oral proceedings that the appellant/Opponent had conducted the experiments with a normal mixer - previously the D12 evidence had been interpreted as referring to a high shear mixer.

Further, it was observed that there was no evidence in the papers submitted by the appellant/opponent that the torque measurements had been confirmed visually. Hence the submitted documents did not establish that the examples of D12 had been carried out according to the method of the patent in suit and hence it had not been confirmed that the polymer has been completely dissolved.

(d) *Requests for correction*

After a brief discussion, the respondent/patent proprietor withdrew both requests for correction of the description of the patent in suit.

XIV. The appellant/opponent requested that the decision under appeal be set aside and that European patent No. 940 440 be revoked.

The respondent/patent proprietor requested that the appeal be dismissed, or in the alternative that the patent be maintained in amended form on the basis of the first auxiliary request, filed with letter dated 16 April 2009 or on the basis of the second or third auxiliary requests, filed with letter dated 29 September 2008, in that order.

Reasons for the Decision

1. The appeal is admissible.

2. *Art 114(2) - EPC Admissibility of the submission of the appellant/opponent of 7 August 2008*

2.1 The submission of 7 August 2008, which was the second submission of the appellant/opponent in the appeal proceedings (see section VII, above) had been filed outside the period allowed for filing an opposition (Art. 99(1) EPC) and also outside the time period permitted for filing an appeal (Art. 108 EPC). These facts are not disputed.

2.2 As reasons for the late filing it was explained that it been a "stroke of luck" finding the sample and the associated documentation since the requirement for retention of documentation was only seven years (see sections XII.(a) and XIII.(a), above). No arguments or evidence were advanced by the respondent/patent proprietor which would give the Board cause to doubt this.

In view of the uncontested submissions of the appellant/opponent the Board is satisfied that at the time of filing the opposition in March 2005, i.e. almost nine years after the alleged public prior use, the relevant samples and documentation could no longer have been expected to be present in the archives either of the appellant/opponent or of any recipients of the material. Consequently no grounds have been advanced to suggest that, as a matter of course, there would have been a reliable, systematic means by which samples and

documentation dating from this time period could have been retrieved at the time of preparing the opposition. Thus there are no reasons for concluding that this information had been deliberately withheld from the opposition procedure.

Regarding the question of the analyses of the sample the respondent/patent proprietor commented on this both under the aspect of substantive consideration of the data (see submission of 16 April 2009, reported in section X.(c) above), and in terms of the admissibility thereof (submissions at the oral proceedings before the Board, reported in section XIII.(a), above). The Board considers this aspect belongs not to a consideration of the admissibility of the data but to the evaluation of the substantive merits of the objection, and hence consideration of this aspect will be deferred.

Similarly the question of the size of the delivery, i.e. whether this was a commercial delivery also belongs under a consideration of the substantive aspects (cf submissions of the respondent/patent proprietor at the oral proceedings reported in section XIII.(a), above).

2.3 According to Art. 13(1) of the Rules of Procedure of the Boards of Appeal (in the form which entered into force on 13 December 2007) any amendment to a party's case after it has filed its grounds of appeal may be admitted and considered at the Board's discretion. In exercising this discretion *inter alia* the complexity of the new subject matter submitted, and the current state of the proceedings are to be considered.

2.3.1 Regarding the complexity of the new matter it is apparent that this data was submitted in order to address a deficiency in the opponent's case that had

been identified by the opposition division, specifically the absence of analytical data relating to the product D-KX412CS (see section III.(c), above). Consequently, the relationship of this new data to the submissions already made and the relevant legal issues underlying the case are immediately apparent and thus in the context of the procedure at the time it was submitted this matter could not be considered to be of high complexity.

2.3.2 Regarding the second of these aspects, i.e. the state of the proceedings, it is appropriate to recall that at the time the appellant/opponent made the submission of 7 August 2008 the respondent/patent proprietor had not yet made any substantive response to the appeal but had already requested, and been granted a (first) extension of two months to the period for responding to the statement of grounds of appeal, i.e. until 9 September 2008 (letter of the respondent/patent proprietor of 8 July 2008, communication of the Board dated 21 July 2008). A further extension, until 9 October was granted by the Board in a communication of 10 September 2008 in response to a request from the respondent/patent proprietor dated 3 September 2008. In its communication allowing this request, the Board made explicit reference to the letter of the opponent of August 2008 as justification for according the extension.

Accordingly the submission of the appellant/opponent of 7 August 2008 did not *prima facie* necessitate a modification of the position taken by the respondent/patent proprietor in its submissions to the Board since at the time of making the submission of 7 August 2008 the respondent/patent proprietor had not

as yet taken position on the appeal.

These considerations are not affected by the fact that, for whatever reason, this submission was not communicated to the respondent/patent proprietor until 16 December 2008.

2.3.3 Accordingly it is concluded that with regard to the provisions of the rules of procedure regarding late submissions that it would be appropriate for the Board to exercise its discretion to admit the submission of 7 August 2008 to the procedure.

2.4 Regarding the jurisprudence developed with respect to late submissions, it is recalled that according to the principles set out in section 3.4 of the reasons of T 1002/92 (OJ EPO 1995, 605), in proceedings before the boards of appeal new facts and evidence which go beyond that presented in the notice of opposition should only be admitted - exceptionally - if such new material is *prima facie* highly relevant in the sense that it is highly likely to prejudice maintenance of the patent in suit.
Since the submission of 7 August 2008 contained evidence relating to a sale of an identified batch (lot) of D-KX412CS and also an analysis of this batch, and thus directly addressed a deficiency in the case of the opponent identified in the decision under appeal (see above), the Board has to conclude that, *prima facie* this data was highly relevant.

2.5 Accordingly in view both of the provisions of the Rules of Procedure of the Boards of Appeal and the relevant case law the Board concludes that it is appropriate to exercise its discretionary powers to admit the

submission of 7 August 2008 to the procedure (Art. 114(2) EPC).

3. *Art 54 EPC - Novelty*

Lack of novelty has been alleged based on public prior use of the product D-KX412CS (see sections II, III.(c), V.(a) VII, IX.(c), XII.(a), XII.(b) and XIII.(b), above).

3.1 A number of pieces of evidence have been submitted in support of this objection:

- together with the notice of opposition a copy of a writ served on the present appellant/opponent by the respondent/patent proprietor relating to infringement of a patent by D-KX412CS (D5);
- together with the letter dated 6 July 2007 the opponent submitted as part of D16 two invoices relating to transactions involving 4000Kg and 3200Kg of D-KX412CS, the invoices bearing dates of 17 July 1997 and 11 November 1997;
- in the statement of grounds of appeal it was explained that the lot number indicated on the invoices forming D16 (670626) indicated that the product in question had been made on 26 June 1997;
- finally with the letter dated 7 August 2008 (see section VII, above) the appellant/opponent provided an invoice relating to a transaction involving 2140 Kg of D-KX412CS.
  The invoice recorded the shipping date as 8 May 1996 and the date of receipt as 9 May 1996. The invoice bore two lot numbers, 660314 and 651223. It was explained that the lot 660314 had been

produced in 1996, employing an extruder with a die diameter of 2.5mm.
It was stated that some samples of the lot 660314 had been found and that the joint venture partner KJE had been able to retrieve the invoice.
The properties of KX412CS from lot number 660314 were reported, all of which fell within the scope of the corresponding features of operative claim 1.
Further an affidavit ("Imachi") was provided which stated *inter alia* that particle size distribution was not a sales or product specification and that the particle size distribution of KX412CS would likely differ slightly from production lot to production lot.

3.2 Regarding the evidence provided by the writ D5 it is apparent from pages 2 and 3 thereof that the claims of the patent of which infringement was being alleged did not specify the bulk density, the particle size distribution or the total pore volume of the polymer, i.e. features (e)-(g) of operative claim 1.
Nor is there any further statement in D5 relating to these properties.

Accordingly D5 fails to establish even the existence of an allegation that D-KX412CS exhibited all the features of operative claim 1. This conclusion is not altered by the theoretical possibility, as argued by the appellant/opponent that these properties could have been determined by the skilled person (see section XIII.(b), above).

3.3 The invoices submitted as part of D16 provide only a disclosure of the product grade (D-KX412CS) and the production batch (670626). However as no details were provided of the properties of this product there is no evidence that this exhibited the properties required by operative claim 1.

3.4 The invoice submitted together with the letter of 7 August 2008 records two batch numbers. For one of these an analysis has been provided.

3.4.1 With respect to the presence of two lot numbers on the invoice, it has been submitted by the appellant/opponent and not challenged by the respondent/patent proprietor, that polymer from the different lots would be separately packaged (into 20kg sacks) and that the packages would be marked with the respective lot numbers.
In the light of this uncontested statement the Board has no grounds for doubting that polymer resulting from production lot 660314 would have been delivered - as part of the consignment recorded in the invoice - in a pure, unmixed form and hence product of the specified grade identifiably derived from this production batch would have been made available and could have been analysed.

3.4.2 The Board is satisfied that the amount delivered - over 2 tonnes - constitutes an amount which could plausibly be seen as a commercial delivery rather than a sample e.g. for test purposes.
In this connection the Board considers that it is immaterial precisely which proportion of the consignment was derived from the lot or batch for which

analytical data had been provided. As submitted by the appellant/opponent at the oral proceedings (see section XIII.(a), above), and not contested by the respondent/patent proprietor, such a transaction would be in respect of a specified amount of a defined (commercial) grade of polymer, not of a specific production batch thereof.
Accordingly the Board is satisfied that the delivery reported was of a commercial nature and that the entirety thereof was made available to the recipient on a non-restricted commercial basis.

3.4.3 However a number of questions arise regarding the determination of the properties of the product.
In the letter of 7 August 2008 it is stated that some samples of KX412CS, lot number 660314 had been "found". It is however not stated where and under what circumstances these had been "found", for example to whom it had originally been delivered, or when. No information is provided about "KJE", or the nature of the joint venture.
There is furthermore no information relating to the manner in which the sample had been stored in the period between manufacture (1996) and being found (2008) - a period of 12 years. Thus it is not possible to conclude that no changes to the product constitution had occurred during the period of storage or even to estimate the nature of the likely changes.
Further it is not possible on the basis of this information to ascertain whether the "found" sample derived from batch 660314 corresponded in all respects, specifically particle size, to that which had been delivered according to the invoice submitted. In particular, as witnessed in the Imachi affidavit of

11 June 2008 attached to the 7 August 2008 letter, particle size was not a sales or product specification. Consequently there is no basis for assuming that the particle size of that portion of the named batch which had been "found" necessarily and inevitably corresponded to the particle size of that portion of the batch which had been delivered according to the invoice submitted. The doubts in this respect are only compounded by the absence, noted above, of any information concerning the identity of the recipient of the batch that was "found" and analysed.

3.4.4 The report of the properties of this product in the letter of 7 August 2008 is also deficient and, as established by statements made by the appellant/opponent in the submission of 14 December 2009 and made at the oral proceedings before the Board, incomplete.

In particular only results are presented. There is no information in the letter of 7 August 2008 regarding by whom or when the analyses were carried out. No information is provided regarding the precise manner in which the analyses had been carried out, nor are the underlying data which gave rise to the reported values and conclusions reported.

It was only in the letter of 14 December 2009 that it was disclosed that the analytical data had been obtained by Kraton Polymers in collaboration with the Delft University of Technology, and that the analyses had been carried in accordance with the methods described in the patent. However even at this point no detailed report of the analyses was provided, for example the date of the analyses, who carried out the

analyses, their qualifications, precise equipment/conditions employed and the raw data obtained. In particular since the porosity analyses had been carried out by a different laboratory it would in the Board's view have been necessary to provide information relating to the history, handling and conditioning of the samples employed in order to demonstrate that the samples subjected to analysis in the two laboratories were in all respects identical i.e. that no variations in handling occurred which could have influenced the analytical results of the respective sample portions analysed at the two laboratories.

3.5 The case law of the Boards of appeal sets a high threshold for proving public prior use. In particular it has to be established (cf. T 300/86 of 28 August 1989, not published in the OJ EPO, part 2.7 of the reasons; T 93/89, OJ EPO 1992, 718, part 8.1 of the reasons):

- **What** was made available,
- **Where** it was made available,
- **When** it was made available,
- **How** it was made available,
- **By whom** it was made available.

Further the case law identifies two levels or standards of proof to be applied - either the "balance of probabilities" or "up to the hilt".
The standard of "balance of probabilities" is applicable when both parties involved, i.e. the patent proprietor and the opponent had access to the material of which public prior use is alleged (cf the above cited T 472/92, reasons 3.1). Although D5 appears to establish that the patent proprietor had access to a product of the grade designated D-KX412CS it has not

been established that the patent proprietor had access to the specific batch of this product referred to in the letter of 7 August 2008, and as established by E2 the properties of D-KX412CS varied from batch to batch. Thus there is no basis for concluding that all batches of this product grade are identical.
In circumstances where only one party had access to the material, public prior use of which is being alleged then a higher standard of proof is to be applied, namely "up to the hilt" (T 472/92, reasons 3.1).

3.6 Regarding the question of "what" was made available as explained above, the chain of evidence contains gaps. Although it has been established that product derived from a given production lot had been made available in a commercial transaction, and an analysis has been presented for a portion of product derived - at some unspecified point in time - from that production lot, as explained above, nothing is known about the history of the analysed portion of this production lot between production and analysis. It is, for example, not known:

- where this sample was found;
- in whose possession it had been in the intervening period of ca 12 years between production and the - presumed - date of analysis;
- under which conditions (e.g. heat/humidity) it had been stored during this period;
- no information has been provided which would permit it to be concluded that the particle size of the portion subjected to analysis was identical to that of the portion of the production batch which had been delivered according to the invoice.

Thus there exist a number of sources of doubt as to whether the portion of batch 660314 subjected to analysis was indeed identical to and representative of that portion of the indicated production batch which was the subject of the delivery witnessed by the invoice.
Further doubts or uncertainties arise because, as explained above neither the original submission of 7 August 2008 nor the later written and oral submissions provide a complete record of the history and treatment of the sample or the analyses carried out or establish that, despite analyses being carried out in two different institutions, the samples of product submitted to analysis had undergone precisely the same history.

3.7 In view of these uncertainties it is not possible to conclude, even on the "balance of probabilities", let alone "up to the hilt" that the sample subjected to analysis was necessarily identical to that product which was the subject of the delivery documented by the invoice.
Accordingly the evidence submitted falls short of the standard required to establish that the product sold was identical to that according to the subject-matter of the operative claims.

3.8 Accordingly the allegation of lack of novelty due to public prior use of the product identified as "D-KX412CS" has not been proved.

3.9 Consequently it is concluded that the subject-matter of the patent-in suit meets the requirements of Art. 54 EPC.

4. *The patent in suit, the technical problem*

4.1 The patent in suit relates to a monoalkenyl aromatic compound/conjugated diene block copolymer composition for modifying asphalt. In particular an asphalt composition with high softening point, excellent ductility, excellent balance between physical properties, i.e. mechanical strength, workability and excellent storage stability is provided (patent in suit paragraphs [0001] and [0002]). The fields of use and demands placed on asphalt compositions are discussed in paragraphs [0003]-[0010] of the patent in suit. In particular it is taught that it is a challenge to provide polymer modified asphalt compositions which provide the desired use properties and also exhibit good workability (paragraphs [0008] and [0010]).
According to paragraph [0013] it is intended to provide a polymer having excellent solubility in asphalt.
According to paragraphs [0032]-[0034] the particle size distribution and pore volume of the polymer are of importance (features (f) and (g) of claim 1).
In particular it is stated that if the content of larger particles - those remaining on a 5 mesh sieve - is too large, i.e. exceeds 30 % by weight the solubility becomes poor. Similarly if the content of smaller particles is too large - more than 30% by weight passing a 20 mesh sieve - then aggregation of particles can occur, meaning that a prolonged time for dissolution is required.
Regarding the pore volume it is taught that if it is below 100mm^3/g incorporation of asphalt components becomes difficult and dissolution time is prolonged. If it is too high - above 2000mm^3/g - then the composition

floats on the upper layer of asphalt meaning that dissolution takes longer.
According to paragraph [0052] of the patent in suit the asphalt composition can be prepared by melt kneading the block copolymer with the asphalt.

4.2 Example 19 and comparative examples 9-13 of the patent in suit are based on the same starting polymer prepared by the method disclosed in Production Example 3. These examples subject the polymer to different post treatments in order to adjust the particle size distribution and porosity.
According to the patent in suit, paragraph [0064] the solubility in asphalt is assessed by checking for the presence of undissolved matter employing a wire netting. The solubility is judged by the asphalt dissolution time when undissolved matter disappeared.
The evidence of these examples can be summarised as follows:

- The polymer of example 19, which meets the requirements of claim 1 exhibits a dissolution time of 2.5 hours.
- The polymers of comparative examples 9 and 10, which have a proportion of small particles higher than that specified (40 and 80 wt% passing a 20-mesh sieve respectively) require dissolution times in excess of 5 hours.
- The polymers of comparative examples 11 and 13, having porosities of 94 and 70 mm^3/g respectively, i.e. below the minimum specified in operative claim 1 likewise require dissolution times in excess of 5 hours.
- The polymer of comparative example 12, having a content of large particles in excess of that

specified in operative claim 1 (80 wt% remaining on a 5 mesh sieve) similarly exhibits a dissolution time in excess of 5 hours.

The evidence of the examples therefore demonstrates that the problem of improving the solubility of the polymer in asphalt as identified in paragraph [0013] of the patent in suit is solved by the claimed features, i.e. the particle size distribution and porosity.

4.3 The evidence of the examples of the patent in suit has been challenged by the appellant/opponent in the form of experimental report D12, submitted with a letter dated 6 July 2007.

The speed of solubility had been assessed on the basis of torque, which it was explained reached a maximum when all the polymer had been dissolved.
D12 showed that the particle size did not influence the solubility in the manner indicated by the examples of the patent in suit.

The appellant/opponent also raised a number of criticisms with respect to the experimental methods employed by the respondent/patent proprietor.
In the letter accompanying D12 it was, *inter alia* criticised that:

- Melt kneading was an inappropriate method due to the low viscosity of the bitumen employed. This would make the results unreliable;
- The poor solubility reported in the patent in suit in the case of small particle size compositions (Comparative examples 9 and 10) was postulated to be due to the fact that the

material formed lumps, floating on the bitumen which were difficult to dissolve;

– The composition of comparative example 12 (high proportion of large particles) was submitted to be a fluffy grade; the processing steps employed in the patent in suit appeared to involve melting these particles, which, it was submitted, would be "devastating".

Subsequently, in the statement of grounds of appeal, the appellant/opponent emphasised that in the experiments reported in D12 the assessment of solubility had been carried out by the torque method which was a quantitative, proven method. The torque related directly to the amount of polymer dissolved with the consequence that the absence of any further change in the torque constituted proof that all polymer had dissolved. In contrast, the method employed by the patent proprietor in the examples of the patent in suit was "unreliable" employing a visual inspection which was highly dependent on the skill of the operator. Further sources of unreliability in the method employed by the patent proprietor were stated to arise since it was near impossible to determine the point of solubility of the pellets in bitumen (black, non-transparent).

In the letter of 14 December 2009 (see section XII.(c), above) further submissions with respect to the experiments of the patent in suit were made, in particular it was submitted with respect to the problem of agglomeration that the different results obtained by the respondent/patent proprietor and appellant/opponent might be because the experiments of the patent in suit had been carried out under non-dispersing conditions whereas those carried out by the appellant/opponent had

not.

Similarly at the oral proceedings the criticism of the experiments of the patent in suit was pursued.

4.4 It is a fact that the results presented by the opposing parties are contradictory.
It is also the case that, by its own admission, the appellant/opponent did not attempt to repeat the measurements as reported in the patent in suit but employed different measurement methods.
Although it has been argued that the experiments of the patent in suit had been carried out under inappropriate conditions, which account for the - in the view of the appellant/opponent - anomalous results, it is conspicuous to the Board that the appellant/opponent has provided no evidence to support its contention in this respect. Specifically, the appellant/opponent has not provided any evidence that the results obtained would be critically affected by the manner of mixing employed (stated in the patent in suit to be melt kneading). Further the appellant/opponent has failed advance any reports relating to experiments that had been carried out in which the assessment of solubility was performed in the same manner as in the patent in suit and hence failed to provide any evidence in support of its contention that the methods employed were unreliable or would give rise to incorrect results.
In fact all that the appellant/opponent has shown is that when carrying out both the mixing and measuring steps in a manner different from that disclosed in the patent in suit different results are obtained.
It is also observed that oral submissions made by the appellant/opponent (see section XIII.(c) above)

demonstrate that its written submissions in respect of the solubility measurements (D12) were incomplete, in particular in respect of whether or not a step of visual inspection had been carried out in the torque method to ensure that dissolution was complete. There is no reference to such a step in D12.
Accordingly not only was information relating to these measurements given piecemeal but for this crucial aspect the relevant tests were only referred to orally, on the last possible day. No documentary confirmation of the experimental protocols actually employed, for example with respect to how the measurement methods had been validated with respect to the confirmation of full dissolution by viscosity measurements, was submitted.

On the contrary the statements made by the appellant/opponent at the oral proceedings before the Board concerning the variability and subjectivity of the visual inspection method compared with the "reliable", "proven" torque method stand in obvious contrast to the statement made for the first time in its submissions dated 14 December 2009 i.e. shortly before the turn of the year and exactly one month prior to the date set for oral proceedings before the Board that the torque method had apparently been supplemented by a further check to confirm complete dissolution, which at the oral proceedings was clarified as being a visual inspection. Although reference was made to D3, page 3 in this context it is evident from the latter that the test methods are presented as alternatives, not as being mutually complementary.
Thus there is an inconsistency in the presentation of the evidence which means that the appellant/opponent has failed to provide the information necessary and in

time to allow the respondent/patent proprietor to replicate the manner in which the results reported by the appellant/opponent had been obtained and to put the Board in a position to assess and evaluate these experimental results with a view to understanding the reasons for the different outcomes obtained by the appellant/opponent and the respondent/patent proprietor.

4.5 Due to the incompleteness and inconsistency of the experimental evidence submitted by the appellant/opponent the Board can come to no other conclusion than that the entirety of the submissions of the appellant/opponent with respect to the alleged inappropriateness of the measurement methods employed in the examples of the patent in suit is unproven.

4.6 Thus the Board cannot accept this evidence as refuting the technical effect demonstrated by the experimental results in the patent in suit.

4.7 Accordingly it is concluded that the technical problem discussed above is effectively solved by the claimed subject-matter.

5. *The closest prior art*

5.1 D1, which is assigned to the present respondent/patent proprietor relates, like the patent in suit, to block copolymers intended fur use as modifiers for asphalt.

5.2 By common consent, this document represents the closest prior art.

5.3 As held in the decision under appeal, and not contested by either party (see section III.(c), above), the subject matter of the operative claims is distinguished from the disclosure of D1 by the features (f), the particle size distribution and (g), the pore volume.

5.4 As explained in the foregoing section 4, the available evidence, i.e. that of the patent in suit is that these features give rise to improvements with respect to the rate of solubility of the polymer in asphalt.

5.5 D1 itself is silent on the question of particle size and hence provides no incentive to adjust this feature for any reason, let alone specifically in order to optimise the solubility properties of the polymer in asphalt.

5.6 Although other documents contain discussions of the particle size, none of these teachings provides an indication of the specific particle size range required according to the operative claims:

5.6.1 D11 is a brochure relating to "Calprene® Rubbers". These polymers are stated to be radial teleblock , tetrabranched structures. However D11 does not disclose that the distribution of the blocks is as specified in operative claim 1. D11 further discloses (on the third page, right hand column) that the polymer has a particle size of 2-3mm crumbs. Further according to the following paragraph of D11 one grade - "Calprene 411" - has a "special granulometry and porosity" which improves the mixing with bitumen. However D11 contains no details about this "special granulometry", e.g. the particle size or porosity.

5.6.2 D3 is a product brochure relating to blending time of "Kraton D" polymers with bitumen. D3 teaches on page 3 that the morphology of the polymer has the greatest effect on blending times and that smaller particle size corresponds to a greater surface area and hence leads to shorter blending time.
This teaching is contradicted by the evidence of the examples of the patent in suit, which, as explained above is that if the proportion of small particles is too high then the blending time is worsened.

5.7 The conclusion is that none of the prior art teaches the specific range of particle size now claimed and, insofar as the effect of particle size on blending time is mentioned in the prior art, this teaching leads away from the claimed invention.
Accordingly it is concluded that the subject-matter of the operative claims is not obvious.

5.8 The requirements of Art. 56 EPC are therefore satisfied.

Order

For these reasons it is decided that:

The appeal is dismissed.

The registrar: The Chairman:

E. Görgmaier R. Young