

BESCHWERDEKAMMERN  
DES EUROPÄISCHEN  
PATENTAMTS

BOARDS OF APPEAL OF  
THE EUROPEAN PATENT  
OFFICE

CHAMBRES DE RECOURS  
DE L'OFFICE EUROPEEN  
DES BREVETS

**Internal distribution code:**

- (A) [ ] Publication in OJ  
(B) [ ] To Chairmen and Members  
(C) [X] To Chairmen  
(D) [ ] No distribution

**D E C I S I O N**  
of 17 January 2002

**Case Number:** T 0462/99 - 3.3.3

**Application Number:** 90314256.0

**Publication Number:** 0436381

**IPC:** C08F 279/04

**Language of the proceedings:** EN

**Title of invention:**

Trimodal ABS compositions having good gloss and reduced gloss sensitivity

**Patentee:**

THE DOW CHEMICAL COMPANY

**Opponent:**

Bayer AG Konzernbereich RP Patente und Lizenzen

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 54

**Keyword:**

"Novelty (no)"

**Decisions cited:**

G 0002/88, G 0006/88, T 0198/84, T 0666/89

**Catchword:**

-



Case Number: T 0462/99 - 3.3.3

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.3  
of 17 January 2002

**Appellant:**  
(Opponent) Bayer AG  
Konzernbereich RP  
Patente und Lizenzen  
D-51368 Leverkusen (DE)

**Representative:** -

**Respondent:**  
(Proprietor of the patent) THE DOW CHEMICAL COMPANY  
2030 Dow Center  
Midland  
Michigan 48674 (US)

**Representative:** Raynor, John  
W.H. Beck, Greener & Co  
7 Stone Buildings  
Lincoln's Inn  
London WC2A 3SZ (GB)

**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 24 March 1999  
rejecting the opposition filed against European  
patent No. 0 436 381 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** R. Young  
**Members:** W. Sieber  
J. De Preter

## Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 436 381, with 11 claims, in respect of European patent application No. 90314256.0, filed on 24 December 1990 and claiming a US priority of 2 January 1990 (US 459910) was published on 6 March 1996 (Bulletin 1996/10). Claim 1 read as follows:

"A rubber-modified glossy impact-resistant polymeric composition, comprising a continuous matrix phase comprising an interpolymer having monovinylidene aromatic monomer and ethylenically unsaturated nitrile monomer polymerized therein; and rubber material dispersed in such matrix in the form of discrete particles wherein the dispersed rubber material comprises the following three rubber components:

- (1) a small particle emulsion rubber component being from 10 to 88 weight percent of the total rubber content of the composition, the particles of this component have a volume average diameter of from 0.05 to 0.25  $\mu\text{m}$ ;
- (2) a large particle emulsion rubber component being from 7 to 85 weight percent of the total rubber content; and
- (3) a mass rubber particle component which comprises a diene polymer material;

said composition being characterized in that (a) the dispersed rubber material constitutes from 5 to less than 14 weight percent of the total weight of said composition; (b) the particles of the large particle emulsion rubber have a volume average diameter of from 0.35 to 0.95  $\mu\text{m}$ ; and (c) the diene polymer material of

the mass rubber particles has a polymerized diene monomer content of at least 80 weight percent and constitutes from 5 to 30 weight percent of the total rubber content in the said composition and the mass rubber particles have a volume average diameter of from 0.15 to 0.95  $\mu\text{m}$  and a number average diameter of from 0.1 to 0.45  $\mu\text{m}$ ."

Claims 2 to 10 were dependent claims directed to elaborations of the rubber-modified glossy impact-resistant polymeric composition according to Claim 1.

Claim 11, an independent claim, was directed to a process for producing a rubber-modified glossy impact-resistant polymeric composition having the characterizing features of Claim 1.

II. A Notice of Opposition was filed on 24 June 1996, on the grounds of Article 100(a) EPC (lack of novelty and lack of inventive step) and Article 100(b) EPC (insufficiency of disclosure). The opposition was supported *inter alia* by the following documents:

D1: WO-A-85/02192

D2: US-A-4 713 420 and

E1: EP-A-0 190 884.

III. By a decision which was dispatched on 24 March 1999, the opposition was rejected.

According to the decision, the objections under Article 100(b) and 83 EPC, concerning the preparation of mass rubber particles over the whole range referred to in Claim 1, in particular below a volume average particle diameter of 0.5  $\mu\text{m}$ , were unfounded, since the Opponent

had not substantiated the assertion that it was indeed impossible to prepare such small rubber particles. Therefore, the Opposition Division accepted the argument of the Proprietor that the difficulty in preparing these small particles referred to in the description of the opposed patent did not originate from the impossibility of making these particles but rather from the high amount of costs and energy involved in the process. A person skilled in the art would know how to adapt the process conditions of mass polymerization, eg agitation, viscosity, and configuration of the reactor, in order to obtain the small rubber particles.

Novelty over D1 and D2 was accepted because the claimed subject-matter fulfilled the criteria of a selection invention. According to the decision, the claimed subject-matter was also novel over E1, because the ABS compositions of this document contained only one type of emulsion polymerized rubber particles and two different types of mass polymerized rubber particles.

As regards D2 in particular, the decision identified the following differences between Claim 1 of the opposed patent and D2 (page 7, first paragraph of the decision):

- (1) the range of rubber content (5 to < 14 wt%) was smaller than in D2, the lower limit was outside the preferred range of D2, the upper limit was below the upper limits of both broad and preferred range of D2, and an unexpected advantageous effect for the limitation had been demonstrated (see Table 3, Comparison Example 6);

- (2) the range of the large emulsion particles diameter (0.35 - 0.95  $\mu\text{m}$ ) was smaller, with the lower limit value being outside of both broad and preferred ranges of D2;
- (3) the range of large mass particles content (5 - 30 weight percent) was smaller, the lower limit being outside the preferred range of D2;
- (4) the range of large mass particles diameter (0.15 - 0.95  $\mu\text{m}$ ) was smaller, with the lower limit being outside of both broad and preferred ranges of D2; and
- (5) the content of polymerized diene monomer in the mass rubber particles ( $\geq$  80 weight percent) was not specified in D2, the examples of constituent A in Table I of D2 disclosing up to 16.2 wt% rubber content.

IV. On 28 April 1999, a Notice of Appeal against the above decision was filed, the prescribed fee being paid on the same day.

In the Statement of Grounds of Appeal, filed on 26 July 1999, the Appellant (Opponent) argued in substance as follows:

- (a) The subject-matter of claim 1 could not be considered as a selection invention over either of D1 and D2 because the criteria of a selection invention were not fulfilled, ie there was no narrow sub-range which was sufficiently far removed from the known preferred range, and there was no purposive selection. An overlap in some parameters could not establish novelty because a skilled person would seriously contemplate working in the range of overlap.

Contrary to the opinion expressed in the decision under appeal, D1 and D2 disclosed all the features essential to the invention. In particular it was disclosed in D2 that the rubber particles contained preferably 70 to 100 percent by weight of butadiene and/or isoprene. Particularly advantageous substrates were butadiene homopolymer or an interpolymers of 90 to 97 percent by weight butadiene and 3 to 10 weight percent of acrylonitrile and/or styrene (column 8, lines 5 to 8). This statement included mass rubber particles. Thus, D2 disclosed the diene and rubber content of the mass rubber particles. The parameter "number average diameter" not mentioned in D2 was automatically determined by the volume average diameter in the light of the particle size distribution. If this were not the case, the teaching of the opposed patent was insufficient because it was not disclosed how the parameter "number average diameter" could be influenced.

- (b) It was clear from D1 and D2 that the size and the amount of the rubbers influenced the balance of gloss and impact resistance of a rubber reinforced composition. Therefore, it was obvious that combinations falling within the ranges of overlap had likewise a good balance of properties. Although "gloss sensitivity" was not explicitly mentioned, slight variations of size and amount of rubber would also improve this parameter. Additionally filed experiments should show that "gloss sensitivity" was not a surprising technical effect of the claimed compositions.

V. With a submission received on 1 December 1999, the Respondent (Proprietor) argued that the requirements for selection with regard to D1 and D2 were met, in particular because the examples in the patent in suit

showed that the selected range was a purposive selection which achieved significant improvements in gloss sensitivity of the resulting compositions. In addition, it was pointed out that D1 was concerned only with so-called "high impact polystyrene" (HIPS) whereas the patent in suit concerned "ABS" (acrylonitrile-butadiene-styrene)-type resins.

As regards insufficient disclosure, the Respondent stated that it was well-known that the difference between number average diameter and volume average diameter reflected the particle size distribution. A person skilled in the art would know how both requirements for component (3) of Claim 1 could be satisfied, ie volume average diameter and number average diameter.

VI. During the oral proceedings held on 17 January 2002, novelty of the claimed subject-matter in view of D1 and D2, which documents had been in the proceedings as from the beginning and upon which the initial opposition arguments had been based, was discussed. The Board drew the attention of the parties to Example 27 of D2 which appeared of high relevance as regards novelty.

VII. Regarding D1 and D2, the Appellant essentially relied on its written submissions and pointed out that D1 and D2 disclosed all the features essential to the invention, including the diene content of the mass rubber particles, ie D1 (page 9, lines 5 to 11) and D2 (column 7, line 67 to column 8, line 8).

As to Example 27 of D2, this example disclosed all the required parameters of Claim 1 of the patent in suit apart from the volume average diameter of the large particle emulsion rubber component and the total rubber content. However, a volume average diameter of 1.0  $\mu\text{m}$  (Example 27 of D2) could not be distinguished from a



volume average diameter of 0.95  $\mu\text{m}$  (upper limit of Claim 1 of the patent in suit) because the measuring accuracy for this parameter was only  $\pm 10$  percent, using a measuring method based on ultracentrifuge. The measuring method would be even worse, if the volume average diameter were determined by analysis of transmission electron micrographs as mentioned on page 7, lines 35 to 41 of the patent in suit. Thus, a value of 1.0  $\mu\text{m}$  was not distinguishable from 0.95  $\mu\text{m}$  within the measuring accuracy. The same applied to a total rubber content of 14 weight percent (Example 27 of D2) which could not be distinguished from a total rubber content of less than 14 weight percent which included a value of, for example, 13.9999.

VIII. With regard to D2, the Respondent (Proprietor) argued that the claimed subject-matter was a purposive selection from the broader disclosure of D2 being based on the finding that it was possible to obtain a desirable ABS-type composition at a lower rubber content, ie lower cost.

Example 27 of D2 was not novelty destroying to the subject-matter of Claim 1 because (i) the total rubber content of 14 weight percent was slightly more than required in Claim 1, (ii) the volume average diameter of 1.0  $\mu\text{m}$  for the large particle emulsion rubber component was outside the range required in Claim 1, and (iii) the number average diameter for the mass rubber particle component was not given. In summary, the particular combination of ranges required in Claim 1 of the patent in suit was not present, whether in the general disclosure of D2 or in its Example 27.

IX. During the oral proceedings, the Respondent submitted an auxiliary request, justifying the late filing as emerging from the discussion of Example 27 of D2. In addition, no new issues would arise. The only claim of the auxiliary request had the following wording:

"The use, in the preparation of a rubber-modified glossy impact-resistant polymeric composition, comprising a continuous matrix phase comprising an interpolymer having monovinylidene aromatic monomer and ethylenically unsaturated nitrile monomer polymerized therein; and rubber material dispersed in such matrix in the form of discrete particles wherein the dispersed rubber material comprises three rubber components: of the following components (1), (2) and (3) as the said three components, in order to provide such a composition with good gloss and reduced gloss sensitivity to moulding conditions in combination with an advantageous balance of impact strength and melt flow rate properties;

- (1) a small particle emulsion rubber component being from 10 to 88 weight percent of the total rubber content of the composition, the particles of this component have a volume average diameter of from 0.05 to 0.25  $\mu\text{m}$ ;
- (2) a large particle emulsion rubber component being from 7 to 85 weight percent of the total rubber content; and
- (3) a mass rubber particle component which comprises a diene polymer material;

said composition being characterized in that (a) the dispersed rubber material constitutes from 5 to less than 14 weight percent of the total weight of said composition; (b) the particles of the large particle

emulsion rubber have a volume average diameter of from 0.35 to 0.95  $\mu\text{m}$ ; and (c) the diene polymer material of the mass rubber particles has a polymerized diene monomer content of at least 80 weight percent and constitutes from 5 to 30 weight percent of the total rubber content in the said composition and the mass rubber particles have a volume average diameter of from 0.15 to 0.95  $\mu\text{m}$  and a number average diameter of from 0.1 to 0.45  $\mu\text{m}$ ."

The admissibility of the late-filed auxiliary request into the proceedings was discussed.

- X. The Appellant requested that the decision under appeal be set aside, and the patent in suit revoked in its entirety.

The Respondent (Proprietor) requested that the appeal be dismissed and the patent be maintained on the basis of the main request, unamended, or, in the alternative, on the basis of the auxiliary request submitted at the oral proceedings.

### Reasons for the Decision

- 1. The appeal is admissible.
- 2. *Novelty of Claim 1 of the Main Request*
  - 2.1 The patent in suit is concerned in general terms with rubber-modified monovinylidene aromatic polymer compositions (ABS-type compositions) which exhibit a beneficial combination of physical and aesthetic characteristics, in particular good gloss and reduced gloss sensitivity to moulding conditions in combination with an advantageous balance of impact strength and

melt flow rate properties (page 2, lines 3 to 6 of the patent specification). In particular, Claim 1 is directed to an ABS-type polymeric composition having three different rubber components dispersed in the continuous matrix phase.

2.2 Document D2 is equally concerned in general terms with ABS-type compositions having three different rubber components dispersed in the continuous phase. A comparison between the relevant features of the general teaching of D2 on the one hand (Claim 1 and column 7, line 67 to column 8, line 8), and of Claim 1 of the patent in suit on the other hand is presented in the following Table 1.

Table 1

		EP-B-0 436 381	D2 general
	matrix	"SAN"*	"SAN"*
	(1) small particle rubber emulsion component		
(1a)	wt.-% of total rubber content	10 - 88	1 - 94
(1b)	average volume diameter (µm)	0.05 - 0.25	0.05 - 0.25
	(2) large particle rubber emulsion component		
(2a)	wt.-% of total rubber content	7 - 85	1 - 80
(2b)	average volume diameter (µm)	0.35 - 0.95	0.4 - 2
	(3) mass rubber particle component		
(3a)	diene content (wt.-%)	≥ 80	70 - 100 (preferred)
(3b)	wt.-% of total rubber content	5 - 30	5 - 95
(3c)	average volume diameter (µm)	0.15 - 0.95	0.5 - 10
(3d)	average number diameter (µm)	0.1 - 0.45	-
(4)	dispersed rubber (%) of total weight of composition	5 to < 14	5 - 40

\*: "SAN" = monovinylidene aromatic monomer/ethylenically unsaturated nitrile monomer

2.3 Whilst the decision under appeal held that the claimed subject-matter was a selection from the teaching *inter alia* of D2, closer examination of the above Table 1 reveals that, whilst this is true for features (1a), (3a), (3b), and (4), which are narrower, feature (1b) is coterminous, and the claimed ranges for the features (2a), (2b) and (3c) do not lie fully within the corresponding ranges in D2. On the contrary, the upper limit of the claimed range for feature (2a) (weight percent of the large particle emulsion rubber component based on total rubber content) extends to 85 weight percent which is slightly above the maximum of 80 weight percent disclosed in this connection in D2.

Furthermore, the lower limit of the claimed range for feature (2b) (the average volume diameter of the above particles in  $\mu\text{m}$ ) lies, at 0.35  $\mu\text{m}$ , slightly below the minimum value of 0.4  $\mu\text{m}$  disclosed in D2. Finally, the lower limit of the claimed range for feature (3c) (the average volume diameter, in  $\mu\text{m}$ , of the mass rubber particles) lies below the minimum value of 0.5  $\mu\text{m}$  disclosed in D2.

- 2.4 In summary, it cannot be said that the claimed subject-matter is a selection from the broad teaching of D2 as concluded in the decision under appeal, since a minority of the features present a situation merely of overlap, albeit extensive overlap, between the broad teaching of D2 and the claimed subject-matter.
- 2.5 According to the decision T 666/89 (OJ EPO, 1993, 495; Reasons, paragraph 7), in the case of overlapping ranges of physical parameters between a claim and a prior art disclosure, a claim will lack novelty if a person skilled in the art would, in the light of all technical facts at his disposal, seriously contemplate applying the technical teaching of the prior art in the range of overlap, provided the information in the prior art document is sufficient to enable him to practise the technical teaching.
- 2.6 The question thus reduces to that of where, in practice, the skilled person would indeed seriously contemplate applying the technical teaching of the prior art document D2.
- 2.7 Example 27 of D2 (Table X), specifically discloses a composition comprising a styrene/acrylonitrile (SAN) matrix having dispersed therein small and large emulsion particles and mass rubber particles. The parameters are given in Table 2 below.

Table 2

		EP-B-0 436 381	D2 Example 27
	matrix	"SAN"*	SAN**
	(1) small particle rubber emulsion component		
(1a)	wt.-% of total rubber content	10 - 88	27
(1b)	average volume diameter (µm)	0.05 - 0.25	0.1
	(2) large particle rubber emulsion component		
(2a)	wt.-% of total rubber content	7 - 85	48
(2b)	average volume diameter (µm)	0.35 - 0.95	1.0
	(3) mass rubber particle component		
(3a)	diene content (wt.-%)	≥ 80	100 polybutadiene
(3b)	wt.-% of total rubber content	5 - 30	25
(3c)	average volume diameter (µm)	0.15 - 0.95	0.64
(3d)	average number diameter (µm)	0.1 - 0.45	-
(4)	dispersed rubber (%) of total weight of composition	5 to < 14	14

\*: "SAN" =: monovinylidene aromatic monomer/ethylenically  
unsaturated nitrile monomer

\*\* : SAN = styrene/acrylonitrile

Thus, it is evident that D2 discloses, in explicit combination in a single example, a combination of the overlapping features (2a) and (3c) lying well within the corresponding ranges in Claim 1 of the patent in suit.

2.8 Furthermore, feature (2b) of Example 27, whilst at first sight, at 1.0 µm, seeming to fall outside the upper limit of 0.95 µm in the patent in suit, does not do so for the following reasons.

2.8.1 The measuring error for the volume average diameter of emulsion or mass polymerized rubber particles is quite high. According to the uncontested submission of the Appellant at the oral proceedings, it is  $\pm 5$  percent for particles below a volume average diameter of  $0.5 \mu\text{m}$  and at least  $\pm 10$  percent for particles above a volume average diameter of  $0.5 \mu\text{m}$ . Furthermore, a measuring accuracy of  $\pm 10$  percent for the latter could only be achieved by using a measuring method based on ultracentrifuge. The measuring accuracy would be worse, if the volume average diameter were determined by analysis of transmission electron micrographs as mentioned on page 7, lines 35 to 41 of the patent in suit (cf Facts and Submissions, paragraph VII). Thus, a value of  $1.0 \mu\text{m}$  for the volume average diameter (Example 27 of D2) is not distinguishable from a value of  $0.95 \mu\text{m}$  (upper limit of Claim 1).

2.8.2 In any case, in Example 27, the value for the average volume diameter is given with only one place of the decimal. Applying the same criteria to the upper limit in Claim 1 of the patent in suit,  $0.95 \mu\text{m}$  rounds up to  $1.0 \mu\text{m}$ , which is identical with the value in Example 27.

2.8.3 In summary, feature (2b) of Example 27 lies also within the range claimed in Claim 1 of the patent in suit.

2.9 Since, furthermore, this same Example 27 undeniably also discloses the features (1a), (1b), (3a) and (3b) as claimed in Claim 1 of the patent in suit (see Table 2), it is evident that there is no part of the area of the purely overlapping parameters which the skilled person would not seriously consider applying within the relevant claimed ranges.



2.10 As regards the feature (3d), ie the number average diameter of the mass rubber particles, which was argued by the Respondent not to be disclosed by D2, and which is in fact not mentioned specifically in D2, it is necessary first of all to interpret the meaning of this term in Claim 1 of the patent in suit.

2.10.1 Claim 1 of the patent in suit requires a certain range for the volume average particle diameter and a certain range for the number average particle diameter without indicating a relationship between the two parameters. Consequently, one could *prima facie* freely select from both ranges.

2.10.2 However, there is a fundamental relationship between these two parameters as can be seen from page 7, lines 42 to 46 in the patent specification, ie the particle size distribution. The particle size distribution reflects the fact that the various rubber particle components do not consist of particles of only one size but comprise particles having a range of sizes. It is defined by the ratio  $(\phi_v/\phi_n)$  of the volume average particle diameter  $(\phi_v)$  of a particle group to the number average particle diameter  $(\phi_n)$  of the same particle group. According to the above cited passage in the patent specification, the particles of a specific rubber particle component generally have a fairly narrow range of particle sizes with a ratio  $(\phi_v/\phi_n)$  of the volume average particle diameter to the number average particle diameter generally in the range of from 1 to 3.5.

2.10.3 This statement in the patent specification contradicts the technical information derivable from Claim 1 which encompasses a particle size distribution of up to 9.5 (for a volume average particle diameter of 0.95  $\mu\text{m}$  and a number average particle diameter of 0.1  $\mu\text{m}$ ). Furthermore, for a volume average particle diameter of

0.95  $\mu\text{m}$ , the ratio  $(\phi_v/\phi_n)$  cannot be lower than 2.1 (because the maximum number average particle diameter is 0.45  $\mu\text{m}$ ), or, for a volume average particle diameter of 0.15  $\mu\text{m}$  the number average particle diameter can only be from 0.1 to 0.15  $\mu\text{m}$  (otherwise the ratio  $(\phi_v/\phi_n)$  would be below 1, which is not possible). Ratios up to 9.5 and the exclusion of certain combinations which have to be read into Claim 1 are, however, not supported by the patent specification.

2.10.4 This contradiction between the patent specification and Claim 1 leads to an ambiguity as regards the technical meaning of the parameter "number average diameter", and a person skilled in the art has to interpret the unclear parameter taking into account this ambiguity. Under normal circumstances, particles are defined by indicating the volume average diameter and the particle size distribution  $(\phi_v/\phi_n)$  (see D1, page 10, line 30 to page 11, line 8; D2, column 8, line 64 to column 9, line 9; E1, page 14, line 26 to page 15, line 4). If one uses this generally accepted definition of the particles via volume average diameter  $(\phi_v)$  and particle size distribution  $(\phi_v/\phi_n)$  in the present case, then the mass rubber particles (3) of the patent in suit must be interpreted as having a volume average diameter  $(\phi_v)$  from 0.15  $\mu\text{m}$  to 0.95  $\mu\text{m}$  (Claim 1) and a particle size distribution  $(\phi_v/\phi_n)$  of from 1 to 3.5 (page 7, line 47 of the patent specification). These two parameters together, however, predicate inescapably a corresponding range of values for the number average volume diameter  $(\phi_n)$ . The imposition of a narrower, unrelated range for  $(\phi_n)$  as in Claim 1 of the patent in suit, consequently has no clear technical meaning when read in the light of the specification. Hence, the indication of the number average diameter cannot be relied on to confer novelty to the subject-matter of Claim 1.

2.10.5 Following from the consideration that the volume average diameter and the associated ratio ( $\phi_v/\phi_n$ ) are the technically meaningful parameters to describe the mass rubber particles, it is furthermore evident that the mass rubber particles of Example 27 of D2 fall within the scope of Claim 1 of the patent in suit: The mass rubber particles of Example 27 not only have a volume average diameter of 0.64  $\mu\text{m}$ , being in the middle of the range of feature (3c), but it is also stated in column 9, lines 2 to 9 of D2, that the rubber particles have a ratio ( $\phi_v/\phi_n$ ) of 1 to 3.5, ie the same ratio as disclosed in the patent in suit.

2.10.6 It follows from the above, that, although the disclosure of D2 refers to the volume average diameter ( $\phi_v$ ) of the rubber particles only, the number average diameter ( $\phi_n$ ) is nevertheless implicitly given via the particle size distribution. Consequently, there is not only an overlap as regards the volume average diameter ( $\phi_v$ ), ie feature (3c), but also an overlap as regards the definition of the number average diameter ( $\phi_n$ ), ie feature (3d). Bearing in mind that Example 27 of D2 demonstrates that the skilled person would work in the range of overlap as regards the volume average diameter ( $\phi_v$ ), ie feature (3c), and that the particle size distributions ( $\phi_v/\phi_n$ ) are identical in D2 and the patent in suit, it must be concluded that the skilled person would not consider working other than within the range of overlap as regards the number average diameter ( $\phi_n$ ), ie feature (3d).

2.10.7 Thus, feature (3d) of Claim 1 of the patent in suit can neither establish a distinction over the more specific disclosure of Example 27 of D2, nor even, in view of the ambiguity associated with this parameter, over the general teaching of D2.

2.10.8 In summary, it is evident that none of the features (1a), (1b), (2a), (2b), (3a), (3b), (3c) or (3d) in Claim 1 of the patent in suit is able to confer novelty over the disclosure of D2.

2.11 It remains to establish whether the remaining feature, the total rubber content of 5 to less than 14 weight percent, ie feature (4), is capable of establishing a relevant distinction over the disclosure of D2. In particular, it is necessary to consider the argument of the Proprietor, that this feature would distinguish the claimed subject-matter from D2 in general and Example 27 in particular, because the use of a low total rubber content achieved by the use of smaller relative amounts of smaller size mass rubber particles was a purposive selection over D2.

2.11.1 According to the relevant case law, especially T 198/84 (OJ EPO 1990, 59), novelty may be recognized in a claimed sub-range if certain criteria are fulfilled, in particular if the sub-range is narrow and sufficiently far removed from the known range illustrated by means of examples (Reasons, paragraph 5), and if it can be inferred that what is involved is not an arbitrarily chosen specimen from the prior art but a purposive selection (Reasons, paragraph 7).

2.11.2 In the present case, however, the range of 5 to less than 14 weight percent of total rubber in the patent in suit covers roughly one third of the corresponding broad range of D2, 5 to 40 weight percent, the lower limit being identical in both cases. In addition, the lower limit of the preferred range of D2, 9 to 23 weight percent (column 8, lines 17 to 22), falls within the range claimed in Claim 1 of the patent in suit. Thus, the range claimed in the patent in suit is neither narrow nor sufficiently far removed from the known range illustrated by means of examples (in this

case Example 27 with 14 weight percent and the preferred range) and therefore to this extent at least cannot qualify as a selection from the broader disclosure of D2.

2.11.3 Furthermore, as to the question of whether what is claimed is more than an arbitrarily chosen specimen from the prior art, whilst the decision under appeal recognised the limitation of the rubber content to less than 14 weight percent as a distinguishing feature, this was solely on the basis of a comparison of the patent in suit with a variant having a total rubber content of 14.4 weight percent, since the latter was alleged to show an accompanying unexpected technical effect (Comparison 6 versus Example 1 in the patent in suit). Example 27 of D2, however, with 14 weight percent total rubber content and polybutadiene mass rubber particles, lies closer to the claimed range than Comparison 6 in the patent in suit. No relevant comparison has, however, been made with this closest state of the art to demonstrate the purposive selection.

2.11.4 Nor is it evident to the Board how any relevant comparison could ever be instituted between a rubber content of less than 14 weight percent and a rubber content of precisely 14 weight percent, with a view to demonstrating a relevant effect. On the contrary, taking into account that, on the one hand, the relevant parameter of Example 27 is measured with just some degree of accuracy, and that, on the other hand, Claim 1 of the patent in suit comprises a total rubber content of, for example, 13.9999 weight percent, there is no suggestion in the patent in suit how these two values can be distinguished from each other. However

accurately one could measure the value of the rubber content in Example 27 of D2, the claimed limit would come closer to this value than the experimental error in the measurement of this parameter.

Hence it is not possible, even in principle, to demonstrate a relevant effect associated with the limitation to less than 14 weight percent total rubber, ie feature (4) of Claim 1 of the patent in suit. Thus, the recognition in the decision under appeal of novelty on the basis of a technical effect and hence a purposive selection cannot be supported by the Board.

2.11.5 Finally, taking into account the practical physical identity of the upper limit of the range claimed and the specific value of the rubber content exemplified, feature (4) cannot be recognized in this specific case as capable of conferring a distinction over the disclosure of Example 27 of D2.

2.12 Summing up, the above discussion not only shows that the skilled person would seriously contemplate working in the range of overlap and that there is no feature which could be regarded as establishing a selection, it shows also that Example 27 of D2 in itself is, on a proper interpretation, novelty destroying for the subject-matter of Claim 1, because:

- feature (3d) cannot be relied on as a novelty establishing feature (see paragraph 2.10 above),
- Example 27 not only meets the requirements of features (1a), (1b), (2a), (3a), (3b) and (3c),
- but also the requirements of feature (2b) (see paragraph 2.8 above), and of
- feature (4) (see paragraph 2.11 above).

2.13 Hence, the subject-matter claimed in Claim 1 lacks novelty over D2.

2.14 With Claim 1 being not novel, there is no need to investigate if the subject-matter of Claims 2 to 11 of the main request contains patentable subject-matter, because a request has to be taken as a whole. Thus, the main request of the Proprietor, ie maintenance of the patent unamended, has to be refused.

### 3. *Auxiliary Request*

3.1 Emerging from the discussion of Example 27 during the oral proceedings, the Respondent (Proprietor) filed an auxiliary request where the only claim was directed to a use. A request including such a claim had not been filed and/or considered in the proceedings up to this point.

3.2 In principle, admission of a new request put forward by a proprietor on appeal being not identical to the ones already before the opposition division is a matter of discretion of the appeal board.

3.3 In the present case, whilst the relevance of Example 27 of D2 for the issue of novelty was recognized as a good reason to exercise the Board's discretion in favour of the Proprietor, and to admit the auxiliary request to the proceedings, the claim of the auxiliary request does not meet the requirements of the EPC for the following reasons.

3.3.1 The claim associates for the first time components (1) to (3) with the provision of a composition with good gloss and reduced gloss sensitivity to moulding conditions in combination with an advantageous balance of impact strength and melt flow rate properties. This is not clearly and unambiguously derivable from the

application as originally filed. In fact, the passage on page 8, lines 45 to 53 of the patent specification appears rather to attribute the improved properties to the use of component (3) only.

Hence, the amendment establishes a new relationship which is not clearly and unambiguously derivable from the application as originally filed, and the amendment does not meet the requirement of Article 123(2) EPC.

3.3.2 Quite apart from this, the claim of the auxiliary request is not in line with the findings of G 2/88 or G 6/88 (OJ EPO, 1990, 93 and OJ EPO, 1990, 114) according to which, in second non-medical indications, novelty can only be acknowledged where a newly discovered technical effect of a known substance leads to an invention which is defined in the claim in terms of the use of that substance for a hitherto unknown, new non-medical purpose reflecting said effect. By contrast, the present claim is directed to the use, in the preparation of a composition, of components (1) to (3) in order to provide such a composition which has the potential of providing the effect.

Hence, the reference to the use fails to establish a technical feature capable, even in principle, of establishing an effective distinction over the state of the art.

3.4 For the above given reasons, the auxiliary request had to be refused.

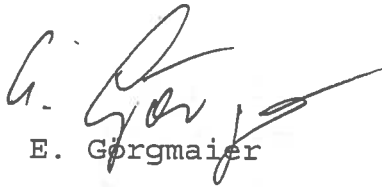


**Order**

**For these reasons it is decided that:**

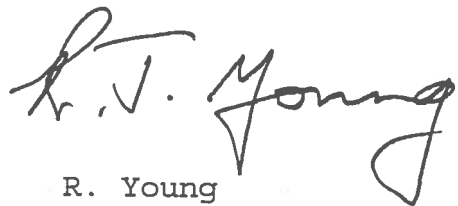
1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:



E. Gorgmaier

The Chairman:



R. Young