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D E C I S I O N
of 15 November 2001

Case Number: T 0427/99 - 3.3.1

Application Number: 85301298.7

Publication Number: 0159117

IPC: C07D 231/12

Language of the proceedings: EN

Title of invention:
Blocked isocyanates

Patentee:
BAXENDEN CHEMICALS LIMITED

Opponent:
RHONE-POULENC CHIMIE

Headword:
Blocked isocyanates/BAXENDEN

Relevant legal provisions:
EPC Art. 54, 56, 83, 100(a), 100(b), 100(c), 108, 111(1),
123(2), (3)

Keyword:
"Admissibility of appeal before time limit of Article 108
(yes)"
"Main request: amendments (not allowable) - numerical
temperature range disclosed originally with respect to
temperature of different nature as now claimed"
"First auxiliary request (not admitted) - late filed - clearly
not allowable"
"Second auxiliary request (admitted): late filed - limitation
of invention to particular granted claims - no fresh issue;
amendments (allowable) - shrinking of list;"

lack of clarity (not admitted) - objected wording already in
claims as granted;
sufficiency of disclosure (yes) - objected part of claimed
invention deleted - lack of evidence;

- 2 -

inventive step (yes) - closest prior art as acknowledged in
patent specification - improper comparison - reformulation of
problem - solution unobvious"

Decisions cited:

T 0020/81, T 0389/86, T 0016/87, T 0301/87, T 0182/89,
T 0406/91, T 0800/91, T 0288/92, T 0680/93, T 0840/93,
T 0068/95

Catchword:

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Case Number: T 0427/99 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 15 November 2001

Appellant: BAXENDEN CHEMICALS LIMITED
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Respondent: PHONE-POULENC CHIMIE
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 26 April 1999
revoking European patent No. 0 159 117 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: A. J. Nuss
Members: R. Freimuth
R. T. Menapace

Summary of Facts and Submissions

- I. The Appellant (Proprietor of the Patent) lodged an appeal on 26 March 1999 against the decision of the Opposition Division posted on 26 April 1999 revoking European patent No. 159 117 and on 6 September 1999 filed a written statement setting out the grounds of appeal.
- II. Notice of Opposition had been filed by the Respondent (Opponent), requesting revocation of the patent in its entirety on the grounds of lack of novelty and inventive step (Article 100(a) EPC), lack of sufficient disclosure (Article 100(b) EPC) and extending the subject-matter of the patent in suit beyond the content of the application as filed (Article 100(c) EPC). The following documents were submitted *inter alia* in opposition proceedings:
- (2) SU-A-414 259, considered in the form of its English translation,
 - (8) Informations Chimie, no. 216/217 (1981), pages 119 to 132, and
 - (18) US-A-3 248 398.
- III. The Opposition Division decided that the amendments made to the claims according to the then pending main request extended the subject-matter thereof beyond the content of the application as filed, thus contravening Article 123(2) EPC. While the subject-matter claimed according to the then pending auxiliary request was novel and inventive, it lacked sufficient disclosure.

The Opposition Division held that the claimed invention was delimited from document (2). The problem underlying the patent in suit was seen in providing compounds which deblocked and cured at low temperature. Although the compounds of document (2) were structurally close to those of the invention, that document did not relate to the problem of providing lower cure temperatures. Document (18) described pyrazole blocked monoisocyanates which deblocked at low temperature. However, they were not crosslinkable with an active hydrogen containing compound. According to the results of the comparative test report indicated in Example 2 of the patent specification the claimed invention deblocked and cured at lower temperatures than a MEKO (methyl ethyl ketoxime) blocked diisocyanate, thereby involving an inventive step. A test report of the Opponent-Respondent showed that the results of Example 2 of the patent specification could not be reproduced, while the reasons for that failure remained unclear. The Opposition Division was convinced by this test report that the skilled person using his common general knowledge was not given enough guidance by the patent in suit to carry out the invention as claimed, which amounted to a lack of sufficient disclosure.

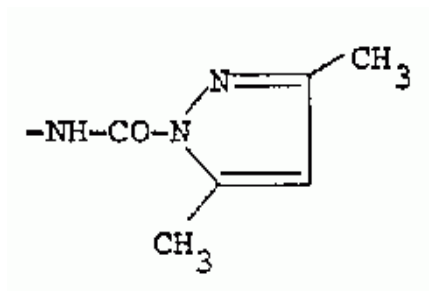
- IV. At the oral proceedings before the Board, held on 15 November 2001, the Appellant defended the maintenance of the patent in suit in amended form on the basis of a main request submitted on 17 October 2001 and subsidiarily either on the basis of a first or second auxiliary request, both requests submitted during those oral proceedings, or on the basis of a third auxiliary request submitted on 17 October 2001 as first auxiliary request.

The main request comprised a set of twenty seven claims, independent claims 1 and 10 reading as follows:

"1. A blocked polyisocyanate of the formula : (I)



wherein m is an integer greater than 1;
R is an m valent, cycloaliphatic, heterocyclic or aromatic residue;
each Y is

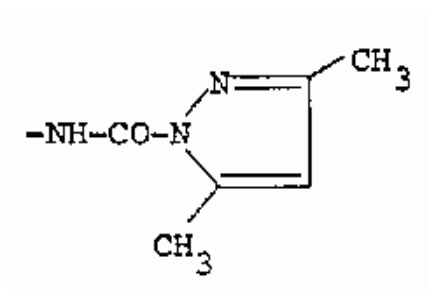


provided that, when R is an aromatic residue, the groups Y are not directly attached to an aromatic nucleus."

"10. A coating composition which comprises an active hydrogen-containing compound and a blocked polyisocyanate characterised in that the blocked polyisocyanate of the formula



wherein m is an integer greater than 1;
R is an m valent aliphatic, cycloaliphatic, heterocyclic or aromatic residue; and
each Y is



provided that, when R is an aromatic residue, the groups Y are not directly attached to an aromatic nucleus, the composition being further characterised by being storage stable but being curable by heat unblocking at 100 to 120°C."

The first auxiliary request comprised a set of ten claims. The claims according to that request were identical to claims 1 to 10 of the main request apart from deleting in claims 1 and 10 the proviso "when R is an aromatic residue" and from reformulating the last feature of claim 10, now reading "but can be cured by application of temperatures above an unblocking temperature of 100 °C".

The second auxiliary request comprised a set of nine claims without including any claim directed to a coating composition. Claims 1 to 9 according to that request were directed exclusively to a blocked polyisocyanate and a process for producing that compound and were identical to claims 1 to 9 of the main request apart from deleting in claim 1 the proviso "when R is an aromatic residue" and from adding to claims 5 and 6 the use "of an excess amount" of the isocyanate.

The third auxiliary request comprised a set of eleven claims directed to particular coating compositions.

V. The Appellant submitted that composition claim 10 according to the main request found support in the application as filed, thus complying with the requirements of Article 123(2) EPC. The feature that the coating compositions were "curable by heat unblocking at 100 to 120 °C", which specified the deblocking temperature range, was backed up by page 7, lines 23 to 25 of the original application. That passage of the application referred to the curing temperature which was above the deblocking temperature as indicated at page 1, lines 23 and 24 of the application as filed. Though the curing and deblocking temperature were of a different nature, deblocking must have taken place before curing with the consequence that the temperature range indicated in the application as filed for curing also applied to deblocking. In respect of claim 1 the Appellant argued that the deletion of the meaning "aliphatic" from the list of alternative meanings for the substituent R did not generate fresh subject-matter.

In respect of the sufficiency of disclosure of the patent in suit, the Appellant argued that the claimed invention according to the second auxiliary request was restricted to blocked polyisocyanates *per se* and a process for their preparation which the Respondent had never contested on the grounds of insufficiency. The Respondent raised objections exclusively to the claims directed to coating compositions which, however, were no longer comprised in that request and thus no longer applied. Furthermore, the burden of proof for any alleged non-operability of the claimed invention rested on the Respondent and this could not be discharged simply by making unsubstantiated assertions.

Having regard to inventive step, the Appellant adopted the assessment made in the decision under appeal, i.e. considered document (2) to represent the closest prior art and starting point in the assessment of inventive step. The claimed invention improved the deblocking temperature, i.e. significantly lowering the temperature at which the blocked polyisocyanates dissociated. While document (18) addressed the problem of achieving a low deblocking temperature and described *inter alia* 3,5-dimethylpyrazole as blocking agent, it gave no hint that this particular blocking agent would improve the deblocking temperature of the polyisocyanates known from document (2). Thus, none of the documents cited suggested using 3,5-dimethylpyrazole to achieve these effects. Moreover, document (18) was directed to alkyl isocyanates which in combination with the alkyl or aryl diisocyanates of document (2), wherein the isocyanate groups were directly attached to the aromatic nucleus, would not result in subject-matter now claimed.

VI. The Respondent submitted that composition claim 10 according to the main request was not in keeping with the requirements of Article 123(2) EPC. The feature that the coating compositions were "curable by heat unblocking at 100 to 120 °C" was not supported by the application as filed since it was a fresh combination of fragmented features. The passage on page 7 of the original application referred to by the Appellant in support thereof disclosed a range of 100 to 140 °C and indicated the temperature to which the coated article must be heated, i.e. the oven temperature. Claim 10, however, was directed to the deblocking temperature which was different from the oven temperature. The examples of the application as filed neither provided

any support for that feature since they indicated the curing temperature, which was also different from the deblocking temperature. In respect of claim 1 the Respondent submitted that deleting the meaning "aliphatic" from the list of alternative meanings for the substituent R added subject-matter.

Having regard to the insufficiency of disclosure of the patent in suit, the Respondent reiterated the considerations in his favour given in the decision under appeal. He argued that any attempt failed to reproduce the advantageous properties, in particular pencil hardness, indicated in those examples of the patent specification which referred to the curing of coating compositions. The Respondent conceded that the blocked polyisocyanates claimed were easy to prepare following the claimed process which started from a polyisocyanate. However, the claimed invention encompassed trimerised polyisocyanates as starting compound which were normally admixed with higher polymerised polyisocyanates as shown in document (8), page 124. The polyisocyanate trimers were difficult or even impossible to prepare in pure form which amounted to an insufficient disclosure of the invention.

Having regard to inventive step, document (18) represented the closest state of the art and starting point of the assessment of inventive step since it addressed the problem of low deblocking temperature and specified 3,5-dimethyl-pyrazole as blocking agent. The patent in suit aimed at blocked polyisocyanates dissociating at lower temperatures. Thus, the claimed invention comprised no surprising element supporting inventive step when using that pyrazole as blocking agent. Furthermore, the Respondent disputed that the

patent in suit achieved the alleged improvement of the deblocking temperature. When combining the teaching of document (18) describing 3,5-dimethyl-pyrazole blocked monoisocyanates with that of document (2) directed to 3-methyl-pyrazole blocked diisocyanates, the skilled person would arrive at the claimed invention without involving any inventive ingenuity. That conclusion applied in particular to hexamethylenediisocyanate trimer which was covered by the meaning "heterocyclic" comprised in claim 1 and the meaning "alkyl" comprised in document (2). Furthermore document (8) addressed the problem of low deblocking temperature and specified numerous blocking agents.

VII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis either of

- the set of claims 1 to 27 filed on 17 October 2001 as "Main request", or
- the set of claims 1 to 10 filed during the oral proceedings as "First auxiliary request", or
- the set of claims 1 to 9 filed during the oral proceedings as "Second auxiliary request", or
- the set of claims 1 to 11 filed on 17 October 2001 ("Third auxiliary request").

The Respondent requested that the appeal be dismissed.

VII. At the end of the oral proceedings the decision of the Board was announced.

Reasons for the Decision

1. An appeal which is filed after pronouncement of a decision in oral proceedings before the Opposition Division, in the present case 26 March 1999, but before notification of the decision duly substantiated in writing, in the present case 26 April 1999, complies with the time limit pursuant to Article 108, first sentence EPC (see decision T 389/86, OJ EPO 1988, 87). All other requirements being met as well, the present appeal is admissible.

Main request

2. *Amendments (Article 100(c) EPC)*
 - 2.1 The Respondent opposed the patent in suit on the ground that the subject-matter of that patent extended beyond the content of the application as filed. Therefore the subject-matter of the claims comprised in the patent in suit must be fully examined by the Board as to whether or not that objection is well founded.
 - 2.2 Claim 10 of the patent in suit is directed to coating compositions which are defined as "being curable by heat unblocking at 100 to 120 °C". The Respondent objected to that feature as generating subject-matter extending beyond the content of the original application.
 - 2.3 In order to determine whether or not the subject-matter of a claim in a patent extends beyond the content of the application as filed it has to be

examined whether that claim comprises technical information which a skilled person would not have objectively and unambiguously derived from the application as filed (see decisions T 288/92, point 3.1 of the reasons; T 680/93, point 2 of the reasons; neither published in OJ EPO).

2.4 The Appellant submitted at the oral proceedings before the Board that in claim 10 the feature defining the coating compositions claimed as "being curable by heat unblocking at 100 to 120 °C" indicated the deblocking temperature of the blocked polyisocyanates comprised therein.

In support of that feature the Appellant referred to page 7, lines 23 to 25 of the application as filed. However, that passage of the original application reads that "using coating compositions according to this invention the temperature to which the coated article must be heated is generally 100 to 140 °C", thereby indicating solely the temperature to which the coated article is heated, i.e. the temperature at which curing has been carried out.

The Appellant referred furthermore to Examples 5 and 6 of the application as filed. However, they read on page 11, lines 15 to 17 of the original application that "the coatings were...then stoved in an oven at the specified temperature.." and on page 13, line 5 that the "panel was stoved for 1/2 hour at 120 °C". Thus, those examples of the original application also indicate solely the temperature at which curing has been carried out.

Thus, the passages of the application as filed

referred to by the Appellant address the temperature at which the curing of the coating compositions has been carried out and do not address the deblocking temperature of the blocked polyisocyanates now indicated in claim 10. The Appellant conceded at the oral proceedings before the Board and in the Statement of Grounds of Appeal, point 50, first sentence that the deblocking temperature and the curing temperature are of a different nature. While the deblocking temperature is directed to a blocked polyisocyanate on its own indicating at which temperature the blocking group dissociates leaving the isocyanate groups unblocked, the curing temperature is directed to a coating composition indicating at which temperature the unblocked isocyanate groups cure, i.e. react, with the active hydrogen containing compound comprised in that composition.

Therefore, defining in claim 10 the deblocking temperature of the blocked polyisocyanates on the basis of a numerical temperature range which is disclosed in the original application with respect to a temperature of different nature, namely the temperature at which curing of the coating compositions has been carried out, results in generating technical information which is not directly and unambiguously derivable from the application as filed.

- 2.5 The Appellant referred to page 1, lines 23 and 24 of the original application reading that the coating compositions "can be cured by application of temperatures above the unblocking temperature". He derived from this teaching that deblocking of the blocked polyisocyanate must have taken place before

curing of the coating composition occurred. Therefore, he argued, the numerical temperature range indicated in the application as filed for performing curing necessarily addressed the action of deblocking as well, with the consequence that the feature of claim 10 directed to the deblocking temperature did not add subject-matter.

However, the Appellant's submission in fact confirms that the deblocking temperature of the blocked polyisocyanates and the curing temperature of the coating compositions differ from each other since the curing temperature is reported in that particular passage of the original application cited by the Appellant to be **above** the deblocking temperature. Therefore, shifting the numerical temperature range from defining the curing temperature of the coating compositions, as disclosed in the application as filed, to define the deblocking temperature of the blocked polyisocyanates, as indicated in claim 10, generates fresh subject-matter.

- 2.6 For the reasons given above, the Board concludes that claim 10 of the patent in suit extends the subject-matter claimed beyond the content of the application as filed, thus justifying the ground for opposition pursuant to Article 100(c) EPC. In these circumstances, the Appellant's main request is not allowable.

First auxiliary request

3. *Admissibility*

The first auxiliary request was filed during the oral

proceedings before the Board and comprises a further amendment to composition claim 10. The last feature of that claim is reformulated now reading "but can be cured by application of temperatures above an unblocking temperature of 100 °C".

3.1 The purpose of the appeal procedure in *inter partes* proceedings is mainly to give the losing party the possibility of challenging the decision of the first instance. The appealing Proprietor of the patent, unsuccessful before the Opposition Division, thus has the right to have the rejected requests reviewed by the Board of Appeal. However, if he wants other requests to be considered, admission of these requests into the proceedings is a matter of discretion of the Board of Appeal, and is not a matter of right of the appealing Proprietor of the patent (see decision T 840/93, OJ EPO 1996, 335, point 3.1 of the reasons). For exercising due discretion in respect of the admission of requests by the appealing Proprietor that were not before the Opposition Division, it is established case law of the Boards of Appeal that crucial criteria to be taken into account are whether or not the amended claims of those requests are clearly allowable and whether or not those amended claims give rise to fresh issues which the other party, i.e. the Respondent-Opponent, can reasonably be expected to deal with properly without unjustified procedural delay.

3.2 The amended feature of claim 10 according to the first auxiliary request still specifies the deblocking temperature solely substituting the lower limit of 100°C for the range of 100 to 120°C indicated in claim 10 according to the main request. However, the

objection having regard to the extension of the subject-matter claimed beyond the content of the application as filed raised in point 2.4 above with respect to claim 10 according to the main request is based on the finding that the original application does not address the deblocking temperature when indicating the temperature range of 100 to 120 °C. Therefore, the considerations given above are not affected by the mere deletion of the upper limit of that range while maintaining the lower limit thereof with the consequence that the conclusion drawn in point 2.6 with regard to the main request still applies for the first auxiliary request, i.e. that claim 10 still generates fresh subject-matter extending beyond the content of the application as filed.

- 3.3 For these reasons, the Appellant's first auxiliary request is clearly not allowable and the Board exercises its discretion not to admit that request into the proceedings.

Second auxiliary request

4. *Admissibility*

The second auxiliary request was filed during the oral proceedings before the Board and comprises exclusively claims directed to a blocked polyisocyanate *per se* and a process for the preparation thereof without maintaining any claim directed to a coating composition. Claims directed to blocked polyisocyanates and to a process for their preparation were already present in the patent in suit as granted. Thus, the Appellant has merely restricted the subject-

matter of the patent in suit to claims the Respondent was familiar with and which the Respondent opposed according to the notice of opposition. Therefore, the claims of the Appellant's second auxiliary request do not give rise to any fresh issue.

For these reasons, the Board exercises its discretion to admit the Appellant's second auxiliary request into the proceedings.

5. *Amendments (Articles 100(c) and 123(2) and (3) EPC)*

5.1 The subject-matter of claim 1 is based on original claims 1, 3 and 8. The list of alternative definitions "cycloaliphatic, heterocyclic or aromatic residue" for the substituent R in claim 1 (see point IV above) arises from excising the definition "aliphatic" residue from the list given in original claim 1. That shrinking of the list of alternative definitions disclosed in the application as filed is not objectionable as it results in a restricted list of alternative definitions differing from the original list only by its smaller size.

Claims 2, 3, 4, 8 and 9 are supported by original claims 3 to 7 and 9. Claims 5 to 7 find support at page 5, lines 9 to 21 of the application as filed.

For these reasons, the Board concludes that the subject-matter of the claims does not extend beyond the content of the application as filed which satisfies the requirements of Article 123(2) EPC and disqualifies the ground for opposition pursuant to Article 100(c) EPC.

5.2 Claim 1 results from combining the subject-matter of claims 1 and 3 as granted and from deleting therefrom the limitation "when R is an aromatic residue" which applied to the negative proviso that "the groups Y are not directly attached to an aromatic nucleus" (see point IV above). The deletion of that limitation in claim 1 brings about a restriction of the scope of that claim since after that amendment the negative proviso is no longer limited to the case when R is an aromatic residue but applies to any residue of R specified in claim 1.

The removal of any granted claim directed to a coating composition restricts the scope of the patent in suit likewise and therefore of the protection conferred thereby, which is in keeping with the requirements of Article 123(3) EPC.

6. *Clarity (Article 84 EPC)*

The Respondent argued that the scope of claim 1 was not clear for the reason that the definition "aliphatic" residue has been deleted from the list of alternative definitions given for the substituent R while maintaining the definition "heterocyclic" residue. Since the former definition was omitted in claim 1 it was unclear whether or not that claim still covered for example the trimer of an aliphatic diisocyanate which comprised the heterocyclic isocyanurate ring in addition to its aliphatic residue.

However, the definition "aliphatic" residue objected to has already been omitted in claim 1 as granted; that omission does not result from any amendment made

during opposition or opposition-appeal proceedings. With respect to the matter of clarity of a claim the Board observes that Article 84 EPC is not a ground for opposition within the sense of Article 100 EPC. Therefore, any amendment already comprised in a claim as granted may not be challenged under Article 84 EPC. Nor does Article 102(3) EPC provide a proper basis in the present case for objecting to clarity since that provision does not allow objections to be based upon Article 84 EPC if such objections do not arise out of the amendments made in opposition(-appeal) proceedings (see decision T 301/87, OJ EPO 1990, 335, point 3.8 of the reasons). For these reasons, the Board rejects the Respondent's objection.

7. *Insufficiency of disclosure (Article 100(b) EPC)*

7.1 In the Notice of Opposition, the Respondent challenged the claimed invention on the ground of insufficient disclosure exclusively to the extent as it was then also directed to coating compositions. However, the subject-matter of the patent in suit as amended no longer covers coating compositions; it is restricted to blocked polyisocyanates *per se* and a process for their preparation which the Respondent never objected to for the reason of insufficient disclosure.

7.2 The patent in suit indicates in claim 9 and on page 3, lines 42 to 58 a process for preparing the blocked polyisocyanates claimed which comprises the reaction of polyisocyanates with the pyrazole. The synthesis examples 1 and 2 of the patent in suit exemplify this preparation process showing that the skilled person has no difficulties in carrying out the invention.

The Respondent acknowledged in point III-B-1 of his letter filed on 26 November 1998 in opposition proceedings and at the oral proceedings before the Board that the preparation of the blocked polyisocyanates claimed posed no problem at all to the skilled person as the reaction of polyisocyanates with pyrazoles indicated in the patent in suit had been well known in the art. The Respondent thus conceded that the invention claimed in the patent in suit as amended is sufficiently disclosed to the skilled person. Nor does the Board see any reason to take a different view.

- 7.3 The Respondent argued nevertheless at the oral proceedings before the Board that the claimed invention encompassed trimerised polyisocyanates as a starting compound which was normally admixed with higher polymerised polyisocyanates. The polyisocyanate trimers were difficult or even impossible to prepare in "pure" form which was therefore to be considered as an insufficient disclosure of the invention.

However, irrespective of whether or not the purity grade of that particular starting compound is a criterion which would qualify or disqualify the invention from being sufficiently disclosed, the Respondent, when objecting that the polyisocyanate trimers could not be prepared in a form he labelled "pure", has merely speculated without providing substantiating facts or evidence in support of that allegation. According to the established jurisprudence of the Boards of Appeal, the burden of proving the facts he alleges lies with the Respondent-Opponent invoking the partial invalidity of a patent on the ground that the invention cannot be carried out for

certain compounds claimed (see decisions T 182/89, OJ EPO 1991, 391, point 2 of the reasons; T 16/87, OJ EPO 1992, 212, point 4 of the reasons; T 406/91, point 3.1 of the reasons, the latter not published in OJ EPO). In the absence of any pertinent evidence presented by him, the Respondent has not discharged the burden of proof which is upon him, with the consequence that the Board does not accept his submissions in this respect.

7.4 Consequently, the Respondent's challenge to the sufficiency of the disclosure of the patent in suit under Article 100(b) EPC is rejected.

8. *Novelty*

The Respondent conceded at the oral proceedings before the Board that the subject-matter of the product claims and of the process claim is novel since polyisocyanates blocked with the blocking agent 3-methyl pyrazole as disclosed in document (2) were no longer covered by the claims. Nor does the Board see any reason to take a different view. Novelty not being in dispute, it is unnecessary to go into more detail in this respect.

9. *Inventive step*

9.1 According to the established jurisprudence of the Boards of Appeal it is necessary, in order to assess inventive step, to establish the closest state of the art, to determine in the light thereof the technical problem which the invention addresses and successfully solves, and to examine the obviousness of the claimed solution to this problem in view of the state of the art. This "problem-solution approach" ensures

assessing inventive step on an objective basis. In this context, the Boards of Appeal have developed certain criteria that should be adhered to in order to identify the closest state of the art to be treated as the starting point.

- 9.2 Claim 1 of the patent in suit as amended is directed to pyrazole blocked polyisocyanates which are used for the purpose of curing or crosslinking with active hydrogen containing compounds (patent specification page 2, lines 11 and 12). Document (2) which is cited and acknowledged in the specification of the patent in suit on page 2, lines 21 to 22 as closest prior art, refers also to pyrazole blocked polyisocyanates used for the purpose of curing (page 1, paragraph 1; page 3, paragraph 2), in particular alkyl or aryl diisocyanates blocked with 3-methylpyrazole wherein the isocyanate groups of the aryl diisocyanates are directly attached to the aromatic nucleus. Where the patent in suit has indicated a particular piece of prior art as being closest to the claimed invention and the starting point for determining the problem underlying the patent in suit, in the present case document (2), then the Board should adopt this as the starting point for the purpose of a problem-solution analysis unless it turns out that there is closer state of the art of greater technical relevance (see e.g. decisions T 800/91, point 6 of the reasons; T 68/95, point 5.1 of the reasons).

Document (18) which the Respondent considered as the closest piece of prior art at the oral proceedings before the Board is not indicated in the patent in suit. Moreover, that document is further away from the claimed invention than document (2) since document

(18) is directed to pyrazole blocked **mono**isocyanates which cannot be used for the purpose of curing or crosslinking due to their single isocyanate function. This finding disqualifies document (18) as substitute for document (2) in representing the closest piece of prior.

Thus, the Board considers, in agreement with the Appellant and the decision under appeal, that in the present case the pyrazole blocked polyisocyanates disclosed in document (2) represent the closest state of the art and hence takes it as the starting point when assessing inventive step.

9.3 The technical problem as indicated in the specification of the patent in suit (page 2, lines 26 and 27) consists in **improving** the deblocking temperature, i.e. lowering significantly the temperature at which the blocked polyisocyanates dissociate. That is identical to the technical problem, which the Appellant identified in appeal proceedings in the Statement of Ground of Appeal, point 35, in his letter dated 15 October 2001, point 21 and at the oral proceedings before the Board vis-à-vis the closest prior art document (2) in view of the technical information provided. Nothing was submitted from which the Board could reasonably conclude that other improvements formed effectively part of the problem underlying the patent in suit.

9.4 As the solution to this problem, the patent in suit proposes polyisocyanates blocked with 3,5-dimethylpyrazole. The isocyanate functional groups are linked to each other via a cycloaliphatic, heterocyclic or aromatic residue wherein the

isocyanate groups are not directly attached to an aromatic nucleus.

9.5 In the next step of the problem-solution approach it needs to be examined whether or not the proposed solution successfully solves the technical problem as defined in point 9.4 above, i.e. to improve the deblocking temperature vis-à-vis the closest prior art document (2) by lowering it compared to 3-methylpyrazole blocked polyisocyanates.

9.5.1 The Appellant and the Respondent were divided on the issue of whether or not the evidence provided convincingly demonstrates that the proposed solution successfully solves that technical problem. In support of their opposite views, both parties relied on several comparative test reports and documents submitted in opposition and in appeal proceedings and on comparative Example 3 of the patent specification.

9.5.2 However, any comparative test report provided by either party or comprised in the patent specification indicates and compares the test results of claimed polyisocyanates blocked with 3,5-dimethylpyrazole with those of polyisocyanates blocked with a totally different blocking agent, namely methylethylketoxime (MEKO). Thus, none of the test reports in the proceedings specifies the deblocking temperature of the claimed polyisocyanates blocked with 3,5-dimethylpyrazole in comparison with that of polyisocyanates blocked with 3-methylpyrazole.

Therefore, none of the comparative tests in the proceedings truly reflects the closest state of the art, i.e. document (2), which already discloses the

use of 3-methylpyrazole as blocking agent for polyisocyanates, and the impact of the solution suggested by the patent in suit vis-à-vis that state of the art. For that reason, neither the Appellant nor the Respondent can successfully rely on any test report in the proceedings as evidence for or counterevidence against the alleged improvement of the claimed subject-matter over the closest state of the art. For the same reason none of the documents produced by either Party in appeal proceedings can serve as further evidence.

9.5.3 To conclude, in the Board's judgement, the evidence on file does not properly demonstrate that the purported improvement of the claimed invention, i.e. of lowering the deblocking temperature, has successfully been achieved and that it is due to the particular blocking agent 3,5-dimethylpyrazole, i.e. the solution proposed by the patent in suit.

9.6 According to the jurisprudence of the Boards of appeal, alleged but unsupported advantages cannot be taken into consideration in respect of the determination of the problem underlying the claimed invention (see e.g. decision T 20/81, OJ EPO 1982, 217, point 3, last paragraph of the reasons). Since in the present case the alleged improvement, i.e. lowering the deblocking temperature, lacks the required adequate support, the technical problem as defined in point 9.3 above needs reformulation. In view of the teaching of document (2), the objective problem underlying the patent in suit can merely be seen in providing a **further** blocked polyisocyanate deblocking at low temperature.

- 9.7 Finally, it remains to decide whether or not the proposed solution to the objective problem underlying the patent in suit is obvious in view of the state of the art.
- 9.7.1 Document (2), i.e. the closest prior art document (see point 9.2 above), is directed to alkyl or aryl diisocyanates blocked with 3-methylpyrazole wherein the isocyanate groups of the aryl-diisocyanates are directly attached to the aromatic nucleus. It does not give any incentive to structurally modify the 3-methylpyrazole blocking group and the alkyl or aryl residue of those diisocyanates by transforming the blocking group and the particular residues into the 3,5-dimethylpyrazole group and into a cycloaliphatic, heterocyclic or aromatic residue wherein the isocyanate groups are not directly attached to an aromatic nucleus, respectively, in order to provide further blocked polyisocyanates deblocking at low temperature. Thus, document (2), on its own, does not render obvious the solution proposed by the claimed invention.
- 9.7.2 Document (18), on which the Respondent relied in particular in order to object to obviousness, reports a low deblocking temperature of about 90°C of alkyl monoisocyanates wherein the alkyl residue contains 10 to 24 carbon atoms (claim 1) when they are blocked with *inter alia* 3,5-dimethylpyrazole (column 1, lines 36, 37, 63 and 64; column 2, line 26).
- 9.7.2.1 The Board concurs with the Respondent that this document addresses the problem underlying the patent in suit of providing further polyisocyanates deblocking at low temperature. Nevertheless, in

assessing obviousness, the issue is whether a skilled person starting from the closest prior art and following the suggestions made in the further state of the art, when trying to solve the problem underlying the patent in suit, would arrive at something falling within the claimed invention. In the present case, however, starting from the closest prior art document (2) and combining the teaching thereof with that of document (18) does not result in subject-matter falling within claim 1.

Hence, the skilled person starting from the alkyl or aryl diisocyanates blocked with 3-methylpyrazole, wherein the isocyanate groups of the aryl diisocyanates are directly attached to the aromatic nucleus, known from the closest prior art document (2), and following the suggestions made in document (18) of blocking alkyl isocyanates with 3,5-dimethylpyrazole would arrive at best at alkyl or aryl polyisocyanates blocked with 3,5-dimethylpyrazole wherein the isocyanate groups of the aryl polyisocyanates are directly attached to the aromatic nucleus. That subject-matter, however, is not covered by present claim 1 since the residue of the polyisocyanates claimed is neither an alkyl group nor an aromatic group wherein the isocyanate groups are directly attached to the aromatic nucleus, but rather a cycloaliphatic, heterocyclic or aromatic residue wherein the isocyanate groups are **not** directly attached to an aromatic nucleus. That difference in the chemical structure of the residues of the polyisocyanates is not negligible but represents also a critical feature, as the Appellant undisputedly submitted at the oral proceedings, since it influences the blocking/deblocking reaction of the isocyanate

functional groups.

Thus, the skilled person when following the combined teaching of documents (2) and (18) would thereby not arrive at the solution proposed by the claimed invention.

9.7.2.2 The Respondent argued at the oral proceedings before the Board that claim 1, which embraced blocked polyisocyanates having a "heterocyclic" residue, could be considered as covering trimerised hexamethylenediisocyanate blocked with 3,5-dimethylpyrazole since those trimers comprised the heterocyclic isocyanurate ring. To that extent the subject-matter claimed was not inventive in view of the obvious combination of the teaching of documents (2) and (18) because the hexamethylenediisocyanate trimer was a polyisocyanate encompassed by the closest prior art document (2), thereby calling upon the Board to take a decision on whether or not blocked hexamethylenediisocyanate trimer fell within present claim 1.

However, whether or not 3,5-dimethylpyrazole blocked hexamethylenediisocyanate trimer is covered by claim 1 is irrelevant for deciding on the Respondent's obviousness objection since the skilled person would not in any event arrive at that blocked trimer when combining the teaching of documents (2) and (18). Document (2) describes blocked alkyl isocyanates, as does document (18). However, an alkyl[ene] residue is defined by the general formula C_nH_{2n} according to chemical standard nomenclature which excludes isocyanate trimers comprising the heterocyclic isocyanurate ring. Thus, the skilled person when

combining the teaching of documents (2) and (18) would thereby not arrive at 3,5-dimethylpyrazole blocked hexamethylenediisocyanate trimer comprising a heterocyclic isocyanurate residue. Therefore, the Respondent's obviousness objection cannot convince the Board.

9.7.2.3 For these reasons, in the Board's judgement, document (18), in combination with document (2), does not render obvious the proposed solution to the problem underlying the patent in suit.

9.7.3 Document (8), which the Respondent also referred to in order to object to obviousness, addresses the technical problem of providing a low deblocking temperature of blocked polyisocyanates (page 131, last paragraph). That document lists thiols, amines, tertiary alcohols, aldoximes, ketoximes, α -caprolactame, enols, diketones and hydroxamic acid esters as blocking agents (page 132). However, neither pyrazoles in general nor 3,5-dimethylpyrazole in particular are taught in that document for the purpose of blocking polyisocyanates. Hence document (8) does not point to the claimed solution which is characterised *inter alia* by the use of 3,5-dimethylpyrazole as blocking agent.

Therefore, that document does not render obvious the proposed solution to the technical problem underlying the patent in suit either.

9.7.4 To summarise, in the Board's judgement, none of the documents addressed above renders the claimed invention obvious, either taken alone or in combination.

The Respondent is not relying on further documents in order to support his objection of obviousness against the blocked polyisocyanates claimed *per se*, and the Board is satisfied that none of the other documents in the proceedings renders the proposed solution obvious.

- 9.8 For these reasons, the Board concludes that the subject-matter of claim 1, and by the same token that of dependent claims 2 to 8 and of independent claim 9, referring to a process for preparing the blocked polyisocyanates as defined in claim 1, involves an inventive step within the meaning of Articles 52(1) and 56 EPC.

10. *Remittal*

Having so decided, the Board has not, however, taken a decision on the whole matter, since substantial amendments to the description are required in order to bring it into conformity with the claims of the patent in suit as amended according to the second auxiliary request. Under these circumstances the Board considers it appropriate to exercise the power conferred on it by Article 111(1) EPC to remit the case to the Opposition Division for the sole purpose of properly adapting the description of the patent in suit to the present claims. When doing so, the Opposition Division should consider in particular whether the amendments made to the claims during the appeal proceedings are adequately reflected throughout the description of the patent in suit.

Third auxiliary request

11. Since the subject-matter of the claims according to

the second auxiliary request is sufficiently disclosed, novel and inventive for the reasons set out above, there is no need for the Board to decide on the lower-ranking third auxiliary request.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of the claims 1 to 9 filed as second auxiliary request during the oral proceedings and a description yet to be adapted.

The Registrar:

The Chairman:

N. Maslin

A. Nuss