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Datasheet for the decision of 12 October 2017

Case Number: T 2020/13 - 3.3.03

Application Number: 04025047.4

Publication Number: 1528072

IPC: C08G18/18, C08G18/76, C08G18/66

Language of the proceedings: EN

Title of invention:
Catalyst blends for producing low thermal desorption polyurethane foams

Patent Proprietor:
Evonik Degussa GmbH

Opponent:
Huntsman International LLC

Relevant legal provisions:
EPC Art. 54, 56
RPBA Art. 13(1), 13(3)

Keyword:

Novelty in view of combination of compounds defined by their trade names (no) (main request) - availability to the public of the products defined by those trade names
Late filed experimental reports allowed (no) - Board's communication and assignement of patent are no appropriate justification for late submission
Inventive step (no) (first auxiliary request) - alleged improvement not shown over the whole breadth of the claim arbitrary reference example used for comparison - obvious solution
Late filed additional auxiliary requests not addmited

Decisions cited:

G 0001/92, T 1440/08, T 0786/00, T 0890/02, T 0939/92

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Case Number: T 2020/13 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 12 October 2017

Appellant: (Patent Proprietor)	Evonik Degussa GmbH Rellinghauser Straße 1-11 45128 Essen (DE)
Representative:	Andrae | Westendorp Patentanwälte Partnerschaft Uhlandstraße 2 80336 München (DE)
Appellant: (Opponent)	Huntsman International LLC 10003 Woodloch Forest Drive The Woodlands TX 77380 (US)
Representative:	Held, Stephan Meissner Bolte Patentanwälte Rechtsanwälte Partnerschaft mbB Widenmayerstraße 47 80538 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 25 July 2013 concerning maintenance of the European Patent No. 1528072 in amended form.**

Composition of the Board:

Chairman	D. Semino
Members:	F. Rousseau
	C. Brandt
	D. Marquis
	R. Cramer

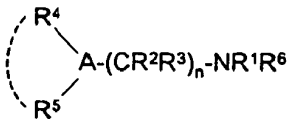
Summary of Facts and Submissions

I. The appeals of the patent proprietor and the opponent are against the interlocutory decision of the opposition division according to which European patent No. 1 528 072 as amended according to the documents of the first auxiliary request submitted on 6 February 2013 during the oral proceedings met the requirements of the EPC.

II. Claim 1 of that request read as follows:

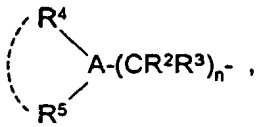
"1. A catalyst composition comprising:

1) a gelling catalyst represented by the general formula:



in which:

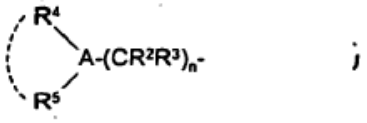
A represents CH or N,
R^1 represents hydrogen or the group



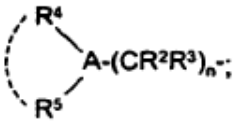
n represents an integer between 1 and 3, inclusive,
R^2 and R^3 each represent hydrogen or a C1-C6 alkyl group, and
R^6 represents H or 3-aminopropyl, provided that:

when A is N, R^4 and R^5 each represents a C1-C6 alkyl group or together represent a C2-C5 alkylene group

which may contain a ring amine moiety -NR-, where R is hydrogen, a C1-C4 alkyl group, or the group

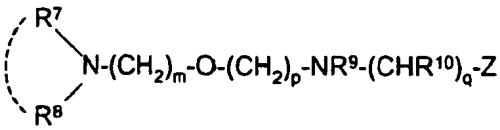


and
when A is CH, R^4 and R^5 together represent a C2-C5 alkylene group containing a ring amine moiety -NR-, where R is a C1-C4 alkyl group or the group



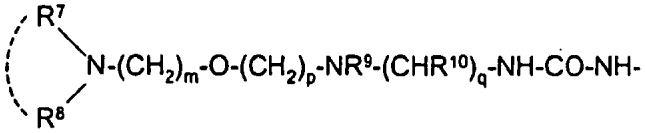
and

2) a blowing catalyst according to the general formula:



wherein:

R^7, R^8, and R^9 each independently represents a C1-C4 alkyl group;
R^{10} represents H, a C1-C4 alkyl group, a C6-C20 aryl group, or a C6-C20 aralkyl group;
m, p, and q each independently represents an integer between 1 and 4, inclusive; and Z represents -OH, $-NH_2$, $-NH-CO-NH_2$ or



provided that the gelling catalyst is not N,N,N",N"-tetramethyldipropylenetriamine in case the blowing catalyst is N,N,N'-trimethyl-N'-2-hydroxyethyl-bis(aminoethyl) ether".

That claim corresponded to claim 1 as granted, identical to claim 1 as filed, in which the passage underlined denotes a post-grant amendment.

III. The decision was taken having regard to the following documentary evidence amongst others:

D1: US 6,458,860 B1
D2: Technical Bulletin of Huntsman: Jeffcat® ZF-10, 1995
D3: Technical Bulletin of Huntsman: Jeffcat® ZR-50B, 1998
D3a: Affidavit of Mr. Gyorgy Borsi
D7: Technical Bulletin of Huntsman: Jeffcat® Z 130, 2003
D8: R.L. Zimmerman et al, "Comparison of Basic Physical Properties of Foams Prepared with Fugitive and Non-Fugitive Amine Catalysts", UTECH, The Hague, 28th-30th March 2000, ISBN: 1-85957-213-8, 2000
D8a: version of D8 in the version as published in the Conference Book of Papers
D10: Research Disclosure 43126, 2000: "Use of reactive catalysts to reduce amine emissions in flexible foams"
D11: US 5,824,711
D12: US 6,387,972 B1
D13: US 6,596,663 B1
D14: EP 0 000 389 A1
D16: Flexible Polyurethane Foams, Ron Herrington et al, Chapter 2, page 2.1, Dow Plastics, 1991

D17a: "Polyurethane Amine Catalysts: Guidelines for Safe Handling and Disposal" api, 2000, pages 1-16
D17b: Copies of CAS abstracts for RN 83016-70-0 (Jeffcat® ZF-10) and RN 6711-48-4 (Jeffcat® Z 130)
D17c: e-mail concerning entry date of Jeffcat® ZF-10 and Jeffcat® Z 130 as chemical name (CN) in the CAS database
D17f: Technical Bulletin of Huntsman: Jeffcat® ZR-50B, 1997
D17k: Polyurethanes Conference 2002, Conference Proceedings: Use of Real-Time FTIR to Characterize Kinetics of Amine Catalysts and to Develop New Grades for various Polyurethane Applications, Including Low Emission Catalysts, pages 1-12
D18: Experimental Report (VOC and FOG emissions)

The parties referred in their submissions both to D8 and D8a which have the same content, but a different layout. When summarizing the parties submissions and giving the reasons for the present decision the Board therefore will refer for the sake of simplicity only to D8.

IV. The reasons for the contested decision which are of relevance for the appeal proceedings can be summarized as follows:

Documents D8a, D13 to D16, D17a to D17c, D17f, D17k and D18 were admitted into the proceedings. Claim 1 of the patent as granted lacked novelty over example 6 of D1 disclosing a combination of the catalysts Jeffcat® ZR-50B and Jeffcat® ZF-10. The finding that said combination of catalysts anticipated the subject-matter of claim 1 was based *inter alia* on D17a and D17b indicating the composition of Jeffcat® ZR-50B and Jeffcat® ZF-10. As to the first auxiliary request, its

claim 1 contained an amendment consisting of a disclaimer within the meaning of G 2/10 (OJ EPO 2012, 376) excluding the catalysts mixture disclosed in example 2 of the application as filed. Claim 1 of that request met the requirements of Articles 123(2), 123(3) and 84 EPC. Novelty of its subject-matter was acknowledged over D1, because the catalysts mixture excluded by virtue of the disclaimer corresponded to that anticipating claim 1 as granted. As to inventive step the closest prior art was represented by the disclosure of document D8. It disclosed the use of Jeffcat® ZF-10 in combination with catalyst C described to contain a reactive amine, from which the claimed catalyst compositions differed by the nature of the gelling catalyst. The problem solved by the claimed catalyst compositions was, in line with paragraph [0002] of the patent in suit, the provision of catalyst combinations producing polyurethane foams having reduced emissions, as was shown in the patent in suit and D18. A substitution of gelling catalyst C used in D8 by those defined in the patent in suit in order to solve that problem was not suggested by the available prior art, in particular D3, D8, D10, D13, D14 and D16 so that the presence of an inventive step had to be acknowledged. Further objections of lack of inventive step based on different starting points did not convince either.

V. Appeals against that decision were lodged by the patent proprietor and by the opponent.

VI. The patent proprietor submitted with their rejoinder (letter of 9 July 2014) first to twelfth auxiliary requests. The first auxiliary auxiliary request was identical to the first auxiliary request on which the decision under appeal was based.

VII. The following additional experimental reports were submitted in appeal by the parties:

D19: Annex A submitted by the opponent with their statement setting out the grounds of appeal (letter of 4 December 2013)
D20: Annex B submitted by the opponent with the statement setting out the grounds of appeal (letter of 4 December 2013)
D22: Annex D submitted by the patent proprietor with their rejoinder (letter of 9 July 2014)
D23: Experimental Report 2 submitted by the opponent with letter of 29 December 2014
D24: Annex E submitted by the patent proprietor with letter of 2 June 2017
D25: Additional experimental report submitted by the patent proprietor with letter of 10 October 2017.

VIII. Three additional auxiliary requests labelled Auxiliary Requests XIII to XV (here after thirteenth to fifteenth auxiliary requests) were submitted by the patent proprietor with letter of 10 October 2017.

Claim 1 of the thirteenth auxiliary request still contained the disclaimer of claim 1 of the first auxiliary requests, but was amended vis-à-vis that claim in that for the definition of the gelling catalyst A was defined to be N, R^2 and R^3 were defined to be hydrogen, R^4 and R^5 were defined to be a methyl group and for the definition of the blowing catalyst R^7, R^8 and R^9 were defined to be a methyl group, m and p being each equal to 2, and q being either 2 or 3.

Claim 1 of the fourteenth auxiliary request also contained the same disclaimer, but defined that the catalyst composition comprised a gelling catalyst

selected from the group consisting of N,N,N",N"-tetramethyldipropylenetriamine, 3-dimethylaminopropylamine and N,N-bis(3-dimethylaminopropyl)-1,3-propanediamine and a blowing catalyst selected from the group consisting of N,N,N'-trimethyl-N'-2-hydroxyethylbis(aminoethyl) ether and N,N,N'-trimethyl-N'-3-aminopropylbis(aminoethyl) ether and N,N,N'-trimethyl-N'-3-ureidopropylbis(aminoethyl) ether.

Claim 1 of the fifteenth auxiliary request also contained the same disclaimer, but defined that the catalyst composition comprised a gelling catalyst selected from the group consisting of N,N,N",N"-tetramethyldipropylenetriamine, 3-dimethylamino-propylamine and N,N-bis(3-dimethylaminopropyl)-1,3-propanediamine and a blowing catalyst selected from the group consisting of N,N,N'-trimethyl-N'-2-hydroxyethyl-bis(aminoethyl) ether and N,N,N'-trimethyl-N'-3-aminopropylbis(aminoethyl) ether.

IX. During the oral proceedings which took place on 12 October 2017 the second to twelfth auxiliary requests submitted with letter of 9 July 2014 were withdrawn.

X. As far as relevant to the present decision, the submissions of the opponent can be summarized as follows:

Main Request

(a) Whether or not the skilled person had any incentive to look up the structure of the two catalysts defined by the trade names JEFFCAT® ZF-10 and JEFFCAT® ZR-50B whose combined used was described

in the context of a comparative example of D1 (example 6) was irrelevant to the issue of novelty. The information concerning their structure could be easily retrieved, e.g. by asking their producer, and no indication was available that it was wished to keep that information secret, as shown by the technical bulletins D2, D3 and D17f of the concerned catalysts. Their chemical composition which could be analysed and reproduced by the skilled person, was therefore available to the public as followed from G 1/92. The information that the trade name JEFFCAT® ZR-50B had been changed to JEFFCAT® Z 130 without modification of the product could be provided by the producer. Claim 1 of the main request therefore lacked novelty over example 6 of D1.

First auxiliary request

(b) It was not clear from the wording of claim 1 whether or not every catalyst composition comprising the gelling catalyst N,N,N",N"-tetramethyldipropylenetriamine in combination with the blowing catalyst N,N,N'-trimethyl-N'-2-hydroxyethyl-bis(aminoethyl) ether, for example in addition to a further blowing catalyst falling under the definition of claim 1, was excluded by virtue of the disclaimer. Hence, the introduction of the disclaimer in claim 1 led to a lack of clarity. In addition, in view of decision T 1440/08 of 5 August 2010 and related Case Law it should be considered that claim 1 lacked clarity, as it was not clear to which formula the definition of A being N or CH related.

(c) The objection that claim 1 of the first auxiliary request lacked novelty over D1 was not maintained during the oral proceedings.

(d) The closest prior art was represented by D8 which related to catalysts packages for polyurethane foams having reduced odour and amine emissions, as well as low fogging. Accordingly, D8 stated that a method of reducing odour was to incorporate reactive hydrogen into the catalysts which were mentioned as "reactive amine catalysts". More specifically, D8 taught to solve this problem by using N,N,N'-trimethyl-N'-2-hydroxyethyl-bis-(aminoethyl)ether (JEFFCAT® ZF-10) as a non fugitive blowing catalyst together with a non fugitive gelling catalyst, for which D8 proposed the use of catalyst C disclosed to contain a reactive amine group. Furthermore D8 taught to use gel catalysts from the 1,3-diaminopropane group. This disclosure therefore represented the closest prior art.

(e) It had not been shown that the combination of catalysts defined in claim 1 which covered a very broad range of compounds solved the alleged technical problem throughout the whole breadth of that claim, as for example demonstrated in experimental reports D19 and D23 in which it was shown that the use of aminoethyl piperazine and N,N-dimethyldipropylene-triamine, both gelling catalysts in accordance with the definition of claim 1 of the disputed patent did not provide foams. Therefore, the problem solved over the closest prior art could be seen at most in providing an alternative catalyst.

(f) D8 did not only define the gelling catalysts tested to be "reactive gelling catalysts", but also provided information concerning their structure, i.e. that they were OH and NH terminated "reactive" amine catalysts and included gel catalysts from the 1,3-diaminopropane group and gel catalysts from the imidazole group. With respect to catalyst C, D8 indicated that it was a gelling catalyst with a tertiary amine having high reactivity amine group, which could only refer to a primary or secondary amine functionality. For that reason the gelling catalysts proposed by the patent in suit, catalysts having a tertiary amine group and a primary or secondary amine group were rendered obvious by D8 alone. This solution was also suggested by D10 which described the use of reactive catalyst packages for reducing amine emissions, volatile organic compounds (VOC) and fogging, while at the same time good performance of foams could be achieved. The reactive catalyst package included a "combination of functionalized catalysts such as hydroxyalkyl and aminoalkyl modified imidazoles and amines" for which six specific compounds were mentioned, one of which was JEFFCAT® ZF-10. Looking for a tertiary amine having a reactive amine group which had a 1,3-diaminopropane or imidazole structure to be used with N,N,N'-trimethyl-N'-2-hydroxyethyl-bis-(aminoethyl)ether (JEFFCAT® ZF-10), D10 suggested merely two specific compounds, in particular N,N-dimethyl-l,3-propandiamine (DMAPA), which was a gelling catalyst covered by the definition in claim 1.

(g) D14 proposed on page 4 gelling catalysts of formulae (1) and (2) for the manufacturing of polyurethanes. Those corresponded to catalysts C

and F employed in the patent in suit. D14 described that the catalysts recommended in that document were reactive amine catalysts which were incorporated into the polyurethane.

(h) Hence, starting from D8 and looking for a tertiary amine having primary or secondary amine group as gel catalyst to be used in combination with the blowing catalyst JEFFCAT® ZF-10 the skilled person would have found in D10 or D14 the suggestion to use gelling catalysts as defined in claim 1 of the patent in suit.

(i) Moreover, the disclosure in D8 that the JEFFCAT® ZF-10/Catalyst C system gave the narrowest processing window and physical properties of the foam which were acceptable was an indication that this system was a suitable system when one wanted to solve the problem underlying the present invention. It was therefore irrelevant that D8 proposed other gelling catalysts.

(j) Accordingly, the subject-matter of the first auxiliary request lacked an inventive step over D8.

Admittance of D24, D25 and the thirteenth, fourteenth and fifteenth auxiliary requests

(k) The submission of experimental reports D24 and D25 by the patent proprietor was made more than two and half years after the last written submissions of the opponent, meaning that those experimental reports could have been filed earlier. Issues which depended only on the patent proprietor, such as the transfer of the disputed patent or reorganisation

within their company, could not be accepted as a justification for the late filing of those documents or of additional auxiliary requests, since their admittance would be at the disadvantage of the opponent. The opponent needed in the present case to repeat D24 and D25 for which he had had no time. Concerning the thirteenth, fourteenth and fifteenth auxiliary requests, their submissions could not be seen as a reaction to the Board's communication and the opponent had not been given the opportunity to submit experimental data focusing on the catalyst packages defined in the new claims. Thus allowing D24 and D25 or those auxiliary requests into the proceedings would necessitate a postponement of the oral proceedings. Accordingly, neither the experimental reports D24 and D25, nor the thirteenth to fifteenth auxiliary requests should be admitted into the proceedings.

XI. As far as relevant to the present decision, the submissions of the patent proprietor can be summarized as follows:

Main Request

(a) The opposition division had held that the disclosure of example 6 of D1 was novelty destroying, D17a and D17b being considered to demonstrate the common general knowledge of a skilled person in the art. In view of T 0786/00 of 19 December 2011 the common general knowledge was that available at the publication date of D1. D17k based on a conference that took place after the publication of D1 was not suitable to prove the common general knowledge. The skilled person had no motivation to find out the structure of the

compounds sold under the trade names JEFFCAT® ZR-50B and JEFFCAT® ZF-10, because example 6 of D1 was only a comparative example not belonging to the invention described in D1. Secondly, the skilled person would not find the chemical structure of said compounds without a comprehensive search, because that knowledge was not disclosed in handbooks or textbooks. Thirdly, the information available concerning those compounds was ambiguous and not usable in a direct and straightforward manner without doubts or further investigation, because the purpose of a trade name was to give information of the origin of the product, but not about the details of the composition. In the present case even the trade name was uncertain, as JEFFCAT® ZR-50B had changed to JEFFCAT® Z 130, the former product being not available to the public at the publication date of D1. Accordingly, referring to T 0890/02 (OJ EPO 2005, 497) it was concluded that none of the conditions which have to be met in order to conclude that a disclosure belongs to the common general knowledge of the person skilled in the art was met. Therefore, the disclosure of Example 6 of D1 was not enabling and as a consequence could not be novelty destroying.

First auxiliary request

(b) The disclaimer in claim 1 did not introduce any lack of clarity. In claim 1 all selections of gelling and blowing catalysts were possible with the exception of the combination of the two catalysts disclaimed. This was also true in case a further blowing catalyst falling under the definition of claim 1 was used.

(c) Novelty over D1 was given for the same reasons as those provided in respect of the main request. In any event the disclaimer excluded the composition of example 6 of D1.

(d) The closest prior art was represented by D8. The preferred catalysts of D8 were hydroxyl containing catalysts D and E and not catalyst C for which D8 mentioned no benefits.

(e) The claimed subject-matter was distinguished from D8 by the use of a specific tertiary amine with a primary or secondary amino functionality. The problem solved by the present invention was to provide a catalyst combination for producing polyurethane foams having reduced emissions as indicated in paragraph [0002] of the specification. Tables 2 and 3 of the specification showed that a catalyst composition comprising a gelling catalyst with a hydroxyl group (catalyst B) lead to polyurethane foams having significant higher VOC and FOG values than foams prepared by using a catalyst composition comprising a tertiary amine with a primary or secondary amino functionality as gelling catalyst (catalyst F). This also was confirmed by the experimental report D18 submitted by the opponent. D22 provided further evidence that the problem was successfully solved over the whole scope of claim 1.

(f) The solution proposed by the patent in suit was not suggested in D8, which did not disclose the chemical formula of the gelling catalysts used, and was also not suggested in D10 which mentioned several catalysts, but did not distinguish between

gelling and blowing catalysts. Furthermore, D8 stressed that the problem of finding a gelling catalyst for the non-fugitive blowing catalyst was a complex challenge and that catalysts having a low vapour pressure could form azeotropes with other compounds, especially water, and therefore could increase the amine emission. Furthermore, D8 disclosed also hydroxyl groups containing gelling catalysts and gelling catalysts from the imidazole group. Only a cherry-picking of features from documents D8 and D10 with the benefit of hindsight knowledge of the present invention could lead to the subject-matter of the patent in suit, in particular as D8 did not give preference to catalyst C, but rather to catalysts D and E. The statement in D10 that reactive catalysts would give foams with poor performance, which also was confirmed in D1, would refrain the skilled person from using reactive gelling catalysts in combination with reactive blowing catalysts. D14 also concerned the unpleasant odour when tertiary amines were used, but focused more on the staining and blackening of the polyurethane product. The skilled person was not guided to replace the catalyst C of D8 by amines of the general formulae (1) to (4) of D14 in order to arrive at the claimed invention.

(g) Hence, the subject-matter of claim 1 involved an inventive step.

Admittance of D24, D25 and the thirteenth, fourteenth and fifteenth auxiliary requests

(h) D24, D25 and the thirteenth to fifteenth auxiliary requests had been submitted in response to the

issue raised by the Board in its communication whether a beneficial technical effect could be shown over the whole scope of protection. Their late submission was also justified by the difficulties related to the assignment of the patent in suit to a new proprietor and the change of responsibility within the company of the patent proprietor. D24 showed that the gelling catalysts aminoethyl piperazine and N,N-dimethyldipropylene-triamine could be used to provide foams, contrary to the allegation of the opponent which did not perform experiments in an appropriate manner. D24 therefore showed that the beneficial inventive effect was also present for those catalysts. The additional experimental data D25 showed that no amine emissions from catalysts in VOC and FOG measurements could be observed for further catalyst combinations within the scope of present claim 1, demonstrating that the beneficial effect of the invention was achieved over the whole scope as claimed. Hence, D24 and D25 were highly relevant and should be considered. Since the combinations of catalysts claimed were not obvious from the cited prior art documents, these auxiliary requests should be admitted and were based on an inventive step.

XII. The patent proprietor requested that the decision under appeal be set aside and that the opposition be rejected, or, in the alternative, that the patent be maintained in amended form on the basis of the first auxiliary request, filed with letter dated 9 July 2014, or on the basis of any of the thirteenth to fifteenth auxiliary requests filed with letter dated 10 October 2017.

XIII. The opponent requested that the decision under appeal be set aside and that the European patent No. 1 528 072 be revoked.

Reasons for the Decision

Main request (patent as granted)

Novelty

1. Claim 1 of the patent as granted has been objected to lack novelty over example 6 of D1, published on 1 October 2002, which discloses a catalyst package described to be a mixture of JEFFCAT® ZR-50B and JEFFCAT® ZF-10. Although D1 does not provide the chemical composition of the compounds sold under those trade names, it is not disputed that this catalyst package is a catalyst composition comprising a gelling catalyst and a blowing catalyst of the formulae defined in claim 1 of the main request, namely a combination of N,N,N'',N''-tetramethyl-dipropylenetriamine and N,N,N'-trimethyl-N'-2-hydroxyethylbis(aminoethyl)ether as used in example 2 of the patent in suit. It is disputed, however, that the technical information about those trade names was available to the skilled person at the date of publication of D1, meaning that the catalyst package addressed in example 6 of D1 was not enabling and therefore its disclosure not novelty destroying.

1.1 Pursuant to Article 54(2) EPC the state of the art shall be held to comprise everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application. Board of appeal

case law has established that the theoretical possibility of having access to information renders it available to the public, whatever the means by which the invention was made accessible (see Case Law of the Boards of Appeal of the EPO, 8th edition, 2016, I.C.3.1). The Enlarged Board of Appeal pointed out in point 2 of the reasons for opinion G 1/92 (OJ EPO 1993, 277) that it is the fact that direct and unambiguous access to some particular information is possible, which makes the latter available, whether or not there is any reason for looking for it. Hence, contrary to the opinion of the patent proprietor, the fact that example 6 of D1 was of no interest to the reader of the invention described in D1 because it was a comparative example, is not relevant to the present issue. Therefore, the sole question to be answered is whether the nature of the product behind those trade names JEFFCAT® ZR-50B and JEFFCAT® ZF-10 was made available to the public.

1.2 JEFFCAT® is indicated in D1 to be a registered trademark of Huntsman Petrochemicals Corporation (column 3, lines 16-20). The Board is therefore convinced that any skilled reader, if there is a desire to understand the meaning of the trade names JEFFCAT® ZR-50B and JEFFCAT® ZF-10 mentioned in the same document, could contact the customer service of said company to enquire about the product sold under those trademarks, in particular their chemical nature. That the nature of the products sold under those trademarks was available to the public and not to be kept secret is demonstrated by the Technical Bulletins D2 and D3, as well as D17f advertising for JEFFCAT® ZF-10 and JEFFCAT® ZR-50B, respectively in which the formulae of the catalysts are indicated.

1.3 Furthermore, according to decision T 0890/02 invoked by the patent proprietor databases (a) which are known to the skilled person as an adequate source for obtaining the required information, (b) from which this information may be retrieved without undue burden and (c) which provide it in a straightforward and unambiguous manner without any need for supplementary searches represent the common general knowledge of the skilled person as defined in the case law, and can be taken into account as such in deciding whether the teaching of a document which prima facie destroys novelty is sufficient to be reproducible (see Headnote). In the present case, D17a published in November 2000 indicates on page 15, 4th and 7th rows of the Table the meanings of JEFFCAT® ZR-50B and JEFFCAT® ZF-10 giving for each compound its corresponding CAS number, i.e. a unique numerical identifier assigned by the Chemical Abstracts Service to those compounds. Hence, D17a indicates that those trade names had a corresponding entry in the Chemical Abstracts database, were therefore searchable and the information concerning their chemical names was easily retrievable through the trade name before November 2000.

1.4 Moreover, it is undisputed that the same product first sold under the trade name JEFFCAT® ZR-50B was no longer sold under that name at the date of publication of D1, but under the trade name JEFFCAT® Z-130. Evidence was provided in this respect with documents D3, D17f, D7, D17k (Footnote of Table 3 on page 4), D3a and the hearing of Mr. Borsi before the opposition division. However, as shown by D17c the designation JEFFCAT® Z-130 was only entered in the database of Chemical Abstracts in April 2004, whereas JEFFCAT® ZR-50B had an entry around November 2000 as shown by D17a. This means that the skilled reader at the publication date of D1

still had an easy access through the Chemical Abstracts database to the information concerning JEFFCAT® ZR-50B, even though that product was no longer sold under that designation. A copy of the CAS abstract providing the chemical name of the product sold under the trade name JEFFCAT® ZF-10 is shown in D17b and confirms for JEFFCAT® ZF-10 that the meaning of that trade name was retrievable from the CAS database at the filing or publication date of D1. Accordingly, the database of the Chemical Abstracts represented at the date of publication of D1 the common general knowledge of the skilled person as set out in T 0890/02 as regards the chemical formulae and chemical names behind the trade names JEFFCAT® ZR-50B and JEFFCAT® ZF-10.

1.5 The fact that a change of trade name occurred for the product sold under the trade name JEFFCAT® ZR-50B before the date of publication of D1 does not render, in the circumstances of the present case, the disclosure of example 6 of D1 unenabling as was advanced by the patent proprietor. A prior art document must be read in the proper context taking into account all relevant factors allowing to understand the technical teaching meant to be conveyed by the authors of that document on its "relevant date". In the case of a document pursuant to Article 54(2) EPC that date is conveniently taken as the publication date of that document, because in normal situations, the meaning to be attributed to the various technical terms of that document does not vary until its publication so that its content can be analysed as if it had been written on the date it was made available to the public. In the particular situation, however, where a technical term such as a trade name is known to have been abandoned between the filing or priority date and the publication date, this circumstance is to be taken into account in

order to attribute to that technical term its proper meaning and to understand the technical teaching meant to be conveyed by that prior art document.

1.6 Based on the above considerations, the Board concludes that the nature of the catalysts behind the trade names JEFFCAT® ZR-50B and JEFFCAT® ZF-10 was available to the public at the date of publication of D1. Accordingly, having regard to the fact that said combination of catalysts as disclosed in example 6 of D1 is a catalyst composition in accordance with the terms of claim 1 of the main request as indicated in above section 1it is concluded that claim 1 lacks novelty (Articles 100(a), 52(1) and 54(2) EPC). Consequently, the main request is not allowable.

First auxiliary request (claims as filed with letter of 9 July 2014)

Novelty

2. Claim 1 corresponds to claim 1 as filed, modified by disclaiming the combination of blowing and gelling catalysts which are used in example 2 of the application as filed. While the Board was of the preliminary view that the disclaimer meets the requirements of Articles 84 and 123(2) EPC, there is no need for the Board to decide on that in view of the conclusion on inventive step (see below, point 6.6).

2.1 Considering the presence of the term "comprising" in the first line of claim 1 and furthermore that the disclaimer contained in said claim is not explicitly defined as to exclude only compositions which consist of N,N,N'-trimethyl-N'-2-hydroxyethyl-bis(aminoethyl) ether and N,N,N",N"-tetramethyldipropylenetriamine, the

Board also has no doubt that the disclaimer introduced into claim 1 has the effect to define that any catalyst composition comprising N,N,N'-trimethyl-N'-2-hydroxyethyl-bis-(aminoethyl) ether and N,N,N",N"-tetramethyl-dipropylenetriamine is not part of the subject-matter claimed.

2.2 Accordingly, the disclaimer also excludes the catalyst composition described in example 6 of D1 which in addition to the above two mentioned catalysts also contains N,N-dimethylaminopropylamine-1,3 as follows from D3a. Novelty over the disclosure of D1 has therefore been restored.

Admittance of D24 and D25

3. The filing of experimental reports D24 and D25, submitted after the summons to attend oral proceedings, respectively after the subsequent Board's communication, represents an amendment to a party's case and their admission to the proceedings is subject to the Board's discretion pursuant to Articles 13(1) RPBA taking into account the additional condition of Article 13(3) RPBA. Their late submission was, according to the patent proprietor, not only due to a change of the patent proprietor and responsibility within the company making it difficult to get experimental data to address the inventive step issue, but also triggered by the new focus brought by the Board in its communication on the question whether all catalyst packages falling within the ambit of claim 1 could provide polyurethane foams and/or provide the alleged reduction of VOC and FOG values.

3.1 The theoretical possibility that D24 would be a reaction to the communication of the Board must be

excluded as D24 and its accompanying submissions were filed earlier than the Board's communication. The submission of D24 with letter of 2 June 2017 concerning the use of amino-ethyl-piperazine and N,N-dimethyl-dipropylenetriamine as gelling catalysts is rather in response to the submissions of the opponent of 29 December 2014 with experimental report D23, as confirmed in section 3.1 on page 11 of the letter of the patent proprietor of 2 June 2017 (those catalysts were referred to as catalysts G and H by the opponent) Hence, the difficulties related to the assignment of the present patent to another proprietor also cannot justify the filing of D24, since said assignment took place on 3 January 2017 as indicated with letter of the new patent proprietor of 23 March 2017, i.e. 2 years after the submission of D23 which let ample time for the former proprietor to submit an appropriate response thereto.

3.2 Therefore, the Board does not find any justification for the late filing of D24 and taking into account the relevant criteria, in particular the principle of procedural economy, finds it appropriate to exercise its discretion by not admitting document D24 into the proceedings (Article 13(1) RPBA).

3.3 Concerning D25, this experimental report provides additional data concerning the use of N,N,N'-trimethyl-N'-3-aminopropylbis(aminoethyl) ether as blowing catalyst in combination with the 3 gelling agents used in the examples of the patent in suit, but varying the catalyst concentration or the isocyanate index, and the use of N,N,N'-trimethyl-N'-2-hydroxyethylbis-(aminoethyl) ether together with dimethylaminopropyl-amine. Its purpose is to demonstrate that the combinations of blowing and gelling catalysts within

the definition of the present claims result in reduced emissions expressed in terms of VOC and FOG values. The issue whether the catalyst packages falling within the ambit of claim 1 could provide polyurethane foams and/ or provide the alleged reduction of VOC and FOG values, i.e. whether the problem mentioned by the patent proprietor could be considered to be successfully solved across the whole area claimed, is not only standard practice when assessing inventive step, but also as indicated in section 13.2 of the Board's communication a point raised by the parties in appeal proceedings (see letter of the opponent of 29 December 2014, pages 5 to 8, points 11 to 19). The indication by the Board in section 13.2 of the communication that it might be necessary to address the relation between the structural feature of the claims (structure of the catalysts) and their ability to solve the problem allegedly solved by the claimed subject-matter (ability to form foams and reduce emission values) was not an invitation to file additional experimental data. The point raised by the Board in the above mentioned section of the communication refers not only to the usual and necessary analysis for assessing the success of the solution proposed by the patent under examination, but also stems from the criticism exercised by the opponent that claim 1 covers a very broad range, while some of the claimed catalyst composition had not been shown to solve the technical problem underlying the patent in suit. Accordingly, the patent proprietor should not have waited until two days before the oral proceedings and more than two and an half years after the last substantive submissions of the opponent to file experimental data D25, but submit it in a timely manner to allow the opponent sufficient time to provide a response thereto. Also, the difficulties related to the assignment of the present

patent to a new proprietor and the change of responsibility within the company of the patent proprietor invoked cannot justify the late filing of D25, because the two years between the last substantive submissions of the opponent and the assignment of the patent in suit to the new proprietor were amply sufficient to provide additional experimental evidence if deemed necessary. While the Board does not find any justification for the late filing of D25, its admittance would also put the opposing party in the position of not being able to properly reply to it without adjournment of the oral proceedings.

3.4 On this basis, the Board does not admit document D25 into the proceedings (Article 13(1) and 13(3) RPBA).

Inventive step

Closest prior art

4. The patent in suit relates to the use of water blown polyurethane foam formulations. According to paragraph [0002] of the patent in suit, such systems typically employ tertiary amine catalysts to accelerate both reactions required to make the foam, i.e. blowing (reaction of water with isocyanate to generate CO_2) and gelling (reaction of polyol with isocyanate). The patent in suit addresses the problem that some of the known tertiary amine catalyst compositions give rise to objectionable releases of volatile and often malodorous materials into the air during polyurethane foam manufacture and/or thereafter (see also paragraph [0002]). Accordingly, the patent in suit (see paragraphs [0032] to [0035]) addresses the issue of how to reduce emissions that contribute to contamination of the interior air of cars (volatile organic components

(VOC)) and condensable emissions, i.e. emissions that contribute to fogging in cars (FOG).

4.1 D8 also has the purpose of developing catalyst packages for the production of polyurethane foams (i.e. a combination of blowing and gelling catalysts) with lead to reduced amine emissions, in particular with respect to fogging and VOC emissions, when compared to catalyst systems using conventional fugitive tertiary amines (page 1, introduction, first paragraph; page 2, right-hand column, 2nd and 3rd full paragraphs; page 5, Amine Emission Potential, 1st and 2nd paragraph). D8 proposes the use of catalysts having a tertiary amine (since the use of non-tertiary amines is not practicable for many types of foam) (page 5, right-hand column 2nd paragraph) and a reactive hydrogen in the amine molecule which reacts with the isocyanate groups, the catalyst becoming incorporated into the polymer structure, which leads to lower residual odours in the foam produced (page 2, left-hand column, 3rd paragraph). As a result D8 proposes the use of JEFFCAT® ZF-10 as a non-fugitive strong blowing catalyst and focuses on the selection of a gelation catalyst when JEFFCAT® ZF-10 is used investigating among others amine emission (page 7, left-hand column, 2nd paragraph; page 7, right-hand column, first full paragraph and the remainder of the document). D8 therefore investigates different OH and NH terminated "reactive" catalysts, the gel catalysts belonging to the 1,3-diaminopropane group and the imidazole group (page 1, paragraph bridging left and right columns).

4.2 It is pointed out that the need expressed in D8 to replace known fugitive tertiary amine catalysts for the production of polyurethane foams by reactive tertiary amines in order to reduce the VOC emissions and fogging

associated with said foams reflects at the date of filing and priority of the patent in suit a general trend in the field of catalysts for producing polyurethane foams. This general trend is shown in many scientific publications and patent applications cited in the present proceedings in which the use of at least one reactive tertiary amine is disclosed such as D1 (column 1, lines 11-30; column 2, lines 48-65; column 5, examples 2, 3 and 6 and lines 44-46; claim 3), D10 (first, second and penultimate paragraphs), D11 (column 1, lines 40-56 and column 2, lines 19-50), D12 (column 2, lines 32-45; claim 1), D13 (column 1, lines 33-62) and D17k (page 6, left-hand column, first and second paragraphs of the section "Low emission catalysts"; page 4, Table 3 and page 10, conclusion, third and fourth paragraph).

4.3 Accordingly, in agreement with both parties and the reasons for the contested decision the Board comes to the conclusion that D8 which does not only address the same problem as that mentioned in the patent in suit, but also is illustrative of a widespread concept proposed at the date of priority or filing of the patent in suit for solving that problem, i.e. the same as used in the patent in suit, namely the use of reactive tertiary amines for water blown polyurethane foam formulations, is a suitable starting point for assessing inventive step of the claimed subject-matter. While the catalyst packages in accordance with operative claim 1 contain a blowing catalyst whose general definition encompasses the blowing catalyst recommended in D8 (JEFFCAT® ZF-10), they are required to contain a gelling catalyst in accordance with the formula provided in operative claim 1 (see section II above) the use of which is not disclosed in D8.

Problem successfully solved

5. Having regard to the disclosure of D8, the patent proprietor and the opponent were divided as to which problem could be considered to be successfully solved by the subject-matter of claim 1 of the first auxiliary request. Relying on comparative tests provided in the patent in suit and in experimental report D22 the patent proprietor submitted that the claimed subject-matter provided catalyst compositions which produced polyurethane foams having reduced emissions, whereas the opponent argued, based on comparative tests submitted with experimental reports D18, D19, D20 and D23 that the problem solved was the mere provision of further catalyst packages.

5.1 The improvement addressed by the patent proprietor is one obtained in comparison with a catalyst package comprising N,N-bis(3-dimethylaminopropyl)-N-isopropanolamine (referred to as catalyst B by the parties) as a gelling catalyst, the comparative data invoked being meant to show that the selection of the gelling agent defined in claim 1 brings about a reduction of VOC and FOG values in comparison to use of said catalyst B, i.e. a HO containing tertiary amine gelling catalyst. However, the comparison offered by the patent proprietor is arbitrary, as no evidence has been provided that said catalyst B used as reference corresponds to one used in D8, nor that this catalyst is known in the art to be representative of gelling catalysts providing a particular good achievement in reduction of emissions when used together with a non-fugitive blowing catalyst.

5.2 Moreover, a purported technical effect, in the present case the reduction of emissions when preparing

polyurethane foams obtained with the claimed combination of gelling and blowing catalysts, can only form the basis for the assessment of inventive step if it could be fairly assumed that this technical effect occurs across the whole scope claimed (see decision T 939/92, OJ EPO 1996, 309, point 2.5.4 of the reasons). Therefore, it must be examined whether or not the improvement shown is likely to occur over the whole breadth of the claim, i.e. is likely to occur for any of the combinations of gelling and blowing agent claimed.

5.3 Experimental evidence submitted by the parties with the patent in suit, D18 to D20, D22 and D23 relates to the use of two different blowing catalysts, namely N,N,N'-trimethyl-N'-2-hydroxyethyl-bis(aminoethyl) ether (referred to as catalyst E by the parties) and N,N,N'-trimethyl-N'-3-aminopropyl-bis(aminoethyl) ether (hereafter referred to as catalyst I) and in addition to gelling catalyst B mentioned above, seven further gelling catalysts, namely N,N,N",N"-tetramethyl-dipropylenetriamine (referred to as catalyst C by the parties), dimethylaminopropylamine (referred to as catalyst D by the parties), N,N-bis(3-dimethyl-aminopropyl)-1,3-propanediamine (referred to as catalyst F by the parties), (2-dimethylaminoethoxy)-3 propanylamine (referred to thereafter as catalyst H), aminoethylpiperazine (referred to thereafter as catalyst J), N,N-dimethyldipropylenetriamine (referred to thereafter as catalyst K) and N,N-di(2-dihydroxy-propyl)-N',N'-dimethyl-1,3 propanediamine (referred to thereafter as catalyst L). All blowing and gelling catalysts tested are in accordance with the general formulae defined in claim 1 with the exception of gelling catalysts B and L which do not contain a reactive aminogroup, but an hydroxyl group and gelling

catalyst H, which contains a reactive amino group, but does not fall within the definition given in claim 1 since it contains an ether linkage.

5.4 The catalysts tested for the preparation of foams are all reactive tertiary amines with either a hydroxyl reactive group (blowing catalyst E and gelling catalyst L), a $-NH_2$ group (blowing catalyst I and gelling catalysts D, F, J and K) or a -NH reactive group (gelling catalysts C, J and K). Although the opponent using the particular polymerisation conditions described in D19 or D23, was not able to obtain a foam with gelling catalysts J and K, the Board to the benefit of the patent proprietor considers credible that catalysts J and K due to the presence of tertiary amines within their structure would function as gelling catalysts when using appropriate reaction conditions. Also, in line with the general knowledge in the art as indicated in above section 4.2, it is credible that those catalysts will react through their reactive group with the isocyanate moieties and as a result will be incorporated to some degree into the polyurethane structure, leading to lower residual odours in the foam produced when compared to conventional tertiary amine catalysts. There is however no evidence, let alone argument in this respect, that the selection of gelling and blowing catalysts defined in claim 1 within those known in the art would lead to particularly low emissions as a result of a more effective reaction with the isocyanate moieties and a better incorporation into the polymeric structure.

5.5 The patent proprietor, however, argued that the effect obtained was not only due to the contribution of the catalyst itself to the reduction of the emissions by virtue of the fact it was incorporated into the

polyurethane structure, but also because the catalyst was stably bonded within the polymeric structure also upon heating, reducing thereby the amount of back reactions and emissions of products associated with such back reactions. The possibility of back reactions upon heating of the foam is credible as is for example confirmed in D13 (column 2, lines 17-26).

5.5.1 The measurements of foam emissions as submitted by the parties with the experimental part of the patent in suit, D18, D20 and D22 concern gelling catalysts C, D and F and blowing catalysts E and I, which are all in accordance with the invention, as well as gelling B, H and L which are not in accordance with the invention. Experimental reports D19 and D23 do not contain any measurement of emissions from the foam. Hence, in comparison to the vast number of gelling and blowing agents encompassed by the formulae defined in present claim 1 which may have various chemical structures, only a limited number of 6 combinations of gelling and blowing catalysts according to the definition of claim 1 of the patent in suit has been tested for emission measurements of the polyurethane foams. Also, only three reactive gelling catalysts not in accordance with present claim 1 have been tested as reference examples from the vast number of reactive gelling catalysts which may be envisaged having regard to the widespread concept already proposed at the date of priority of the patent in suit to use reactive tertiary amines for blowing and gelling catalysts (see section 4.2 above) when it is sought to reduce VOC emissions and fogging of polyurethane foams.

5.5.2 The Board also notes that two of the catalysts tested as reference examples (catalysts H with a reactive amine group and catalyst L with an hydroxyl group) do

not only bring about much better results in terms of VOC and FOG values than catalyst B used by the patent proprietor in the patent in suit as reference representing the prior art, but also that these two catalysts lead to identical FOG values and even better results for VOC values when compared to catalyst C presented in the patent in suit to provide the sought reduction of emissions.

5.5.3 Accordingly, there is no reason for the Board to consider that it is has been made empirically credible with the experimental tests submitted by the parties that the selection of blowing and gelling catalysts in accordance with claim 1 is associated with the achievement of any particular low emission values associated with back reactions relating to the tertiary amine catalysts incorporated within the foam structure.

5.5.4 Although a technical explanation as to why an alleged effect is considered to occur over the whole scope claimed is not a prerequisite for acknowledging the presence of an inventive step, such explanation can nevertheless be taken into account to render it credible in the absence of persuasive experimental evidence that such effect is indeed obtained over the whole scope claimed. The explanation by the patent proprietor that the catalyst was stably bonded within the polymeric structure also upon heating, reducing thereby the amount of back reactions and emissions of products associated with such back reactions, has not been made in relation to the structure of the gelling and blowing catalysts defined in claim 1. Apart from the presence of a tertiary amine necessary for the catalytic activity and the presence of a reactive group which will react with isocyanate moieties, which also are common structural features to all catalysts tested

irrespective of whether they are in accordance with the invention or comparative catalysts, no structural feature common to the catalysts of the present invention was indicated by the patent proprietor, let alone any explanation as to why such common structural feature is believed to lead to less back reactions and emissions associated therewith. Accordingly, the patent proprietor did not demonstrate why despite the absence of adequate experimental evidence it was still credible that the alleged reduction of emissions took place having regard to the structural features of the gelling and blowing catalysts defined in claim 1.

5.6 Consequently, it follows from the above analysis that the patent proprietor has not presented any corroborating evidence or explanations rendering it credible that the purported technical effect of producing polyurethane foams having reduced emissions in comparison to those obtained in the closest prior art is successfully achieved over the whole scope of claim 1. Accordingly, any such advantage of the claimed catalyst compositions over the closest prior art cannot be taken into account for the purpose of assessing inventive step. Thus, in view of the teaching of D8, the problem underlying the claimed invention must be reformulated and can only be seen as the provision of catalytic compositions exhibiting reduced emissions in comparison to non-reactive amine catalysts, i.e. the same result as that described in D8.

Obviousness

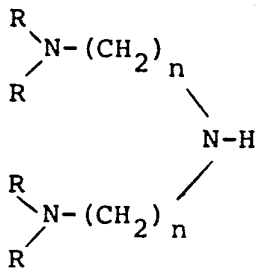
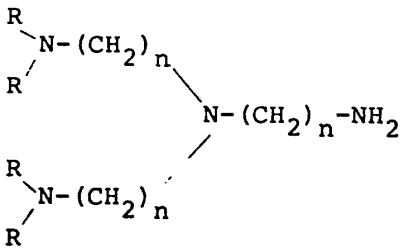
6. It remains to be decided whether or not the proposed solution to the above problem, i.e. the combination of blowing and gelling catalysts as defined in claim 1 is obvious in view of the state of the art.

6.1 As indicated in above section 4.1, D8 proposes the use of JEFFCAT® ZF-10 as a non-fugitive strong blowing catalyst and focuses on the selection of an appropriate gelation catalyst for use therewith for developing catalyst packages for the production of polyurethane foams which lead to reduced amine emissions, in particular with respect to fogging and VOC emissions, when compared to catalyst systems using conventional fugitive tertiary amines. One of the gelling catalysts investigated in D8 which provides satisfactory results (see page 12, Figure 5 and page 13, paragraph bridging the left and right columns) is a gelling catalyst C which is implicitly described to comprise a tertiary amine (page 5, right-hand column, second paragraph) and which contains a reactive amine group (gelling catalyst C, page 3, right-hand column). It is also indicated that the gelling catalysts studied belong to the 1,3-diaminopropane group and the imidazole group (page 1, paragraph bridging left and right columns).

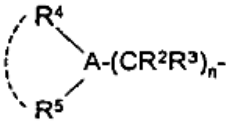
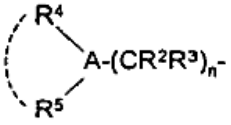
6.2 D10 (first, second and penultimate paragraphs) also concerns the provision of reactive catalyst packages to reduce emissions and fogging in polyurethane foams. The penultimate paragraph of D10 which provides a list of catalysts to be used for those packages does not specify whether the catalysts are indicated to be blowing or gelling catalysts. However, the last catalyst mentioned in that paragraph has the same formula as JEFFCAT® ZF-10 used in D8 and accordingly is well known to the skilled person as a blowing catalyst. Furthermore the five additional catalysts mentioned in D10 are understood by the skilled reader to be either more selective for the gelling or the blowing reaction and it is also to be noticed that N,N-dimethyl-1,3-propanediamine which belongs to that list matches with

the description in D8 of a successful gelling catalyst investigated in that document, namely it is characterized by the presence of a tertiary amine group, of a 1,3-diaminopropane group and of an amino reactive group.

6.3 Furthermore, D14 discloses that compounds of formula

(1)  or (2) 

wherein R may be the same or different and represents an alkyl group having from 1 to 4 carbon atoms and n may be the same or different and is 2 or 3, are catalysts for the reaction between a polyol and a polyisocyanate which contain a reactive hydrogen and get incorporated into the polyurethane structure (page 3, lines 19-26; page 4 and page 5, lines 3-7; lines 17-20).

The catalysts defined with formula (1) in D14 correspond to those of claim 1 of the first auxiliary request, when R^6 is H, R^1 is  and for both  substituents R^4 and R^5 each represents a C1-C4 alkyl group, A is N, n is 2 or 3 and R^2 and R^3 each represent hydrogen.

The catalysts disclosed with formula (2) of D14 are also catalysts in accordance with claim 1 of the first auxiliary requests when for the group $-(CH_2)_n-NH_2$ of that formula n is 3 (as disclosed on page 5, lines 6-7) and in claim 1 of the patent in suit R^6 is 3-aminopropyl and R^1, R^4, R^5, A, n, R^2 and R^3 have the same meaning as indicated in the preceding paragraph. The catalyst disclosed with formula (2) of D14 includes in particular N,N-bis(3-dimethylaminopropyl)-1,3-propanediamine, as confirmed on page 7, line 8 of D14 which disclosed said compound as a preferred catalyst. Said catalyst corresponds to catalyst F used in example 3 of the patent in suit.

6.4 Accordingly, faced with the problem identified in above section 5.6 and following the hint given in D8 to search for gelling catalysts which comprise a tertiary amine group and contain a reactive amino group as to incorporate that catalyst into the polyurethane structure, it was obvious for the skilled person to try N,N-dimethyl-1,3-propanediamine described in D10 or the catalysts of D14 identified in above paragraph 6.3, in particular N,N-bis(3-dimethylaminopropyl)-1,3-propanediamine, which fulfill the structural and functional requirements suggested in D8 and to use them in combination with the blowing catalyst JEFFCAT® ZF-10 also recommended in D8, thereby arriving in an obvious manner at catalytic compositions falling within the ambit of claim 1 of the first auxiliary request.

6.5 For the following reasons, the Board is not convinced by the additional submissions of the patent proprietor in support of the presence of an inventive step:

6.5.1 The fact that the skilled person had several alternatives at his disposition in D8 when looking for

the provision of a further catalytic composition exhibiting reduced emissions in comparison to non-reactive amine catalysts has no impact on the assessment of inventive step, since a mere choice from a host of possible solutions offered in that document, including also hydroxyl group containing gelling catalysts and gelling catalysts from the imidazole group, does not in itself involve inventive ingenuity (see decision T 939/92, points 2.5.2 and 2.5.3 of the reasons). The obviousness of a measure depends on the goal to be achieved and in the present case, the problem to be solved does not comprise the achievement of a particular processing window or of specific properties of the foam produced. Accordingly, indication of certain processing windows or properties of the foams obtained with the type of gelling catalysts described in D8 has contrary to the opinion of the patent proprietor no influence on the choice of the skilled person and no specific motivation is required for him to make an arbitrary choice among the catalysts suggested in that document when all of them are indicated to lead to a reduction of emissions.

6.5.2 Both D8 and D10 explain how they successfully solved the task of finding a non-fugitive gelling catalyst when a non-fugitive blowing catalyst is used. Accordingly, the indication in those documents that such task would be a complex challenge, as confirmed in D1, does not necessarily discourage the skilled person to search for further catalytic compositions leading to reduced emissions in comparison to non-reactive amine catalysts, but on the contrary guides him, as shown in the above assessment of inventive step, to follow the teaching and suggestions provided in D8 and D10 paving the way for embodiments in accordance with the invention as defined in the contested patent. In

particular, the skilled person is warned in D8 that some catalysts having a low vapour pressure could form azeotropes with other compounds, especially water, and therefore could increase the amine emission. Accordingly, he would be encouraged not only to use gelling agents having the structure suggested in D8 or D10, which are reported in those documents to lead to a reduction of the amine emissions, but also those suggested in D14 which are based on the same or a similar structure as shown above.

6.6 Accordingly, the subject-matter of claim 1 of the first auxiliary request which encompasses obvious embodiments does not meet the requirements of Article 56 EPC.

Admittance of the thirteenth to fifteenth auxiliary requests

7. The thirteenth to fifteenth auxiliary requests were submitted together with experimental report D25 two days before the oral proceedings with letter of 10 October 2017. Therefore the admittance to the proceedings of these auxiliary requests underlies the stipulations of Articles 13(1) and 13(3) RPBA.

7.1 Their claims 1 contain a more specific definition of the blowing and gelling catalysts of claim 1 as granted with a view to restrict the claimed subject-matter to those catalyst packages which exhibit the alleged improved reduction of emissions, on the basis of which the existence of an inventive step was argued having regard to additional experimental data D25. As indicated in above section 3.3 there was no justification for the patent proprietor to submit at a very late stage of the proceedings the additional experimental data of D25 purportedly showing the alleged improved reduction of emissions. Therefore, for

the same reasons there was also no proper justification to submit at the same time said auxiliary requests whose inventive step was argued on the basis of D25.

7.2 Moreover, Article 13(1) RPBA specifies that a board in exercising its discretion to admit and consider amendments to a party's case should take into account the current state of the proceedings and the need for procedural economy. One factor to be considered in the exercise of its discretion is therefore whether the newly filed requests can be considered *prima facie* allowable at least in the sense that all previous objections, in the present case objections under Article 56 EPC, have been overcome. The patent proprietor also did not indicate how the amendments contained introduced in the auxiliary requests would overcome the objection against the first auxiliary request. This is not apparent to the Board considering that the claims 1 of those requests still encompass the combination of blowing and gelling catalysts indicated in above section 6.4 to be obvious in the light of the prior art, namely JEFFCAT® ZF-10 in combination with N,N-dimethyl-1,3-propanediamine or with N,N-bis(3-dimethylaminopropyl)-1,3-propanediamine. In the absence of evidence that this choice of gelling catalysts within those broadly suggested in D8, namely those comprising a tertiary amine group, a reactive NH terminated group and a 1,3-diaminopropane or imidazole group, is linked with the achievement of a particular technical effect, there is no reason for the Board to consider that the subject-matter as submitted with the the thirteenth to fifteenth auxiliary requests is the result of a purposive rather than an arbitrary and therefore obvious selection. Thus, the newly filed auxiliary requests are not considered *prima facie* allowable. On the other side any different situation

showing specific advantages by means of a new experimental report and limiting the claims accordingly to specific embodiments which were not the subject-matter of independent claims before would put the opposing party in the position of not being able to react in an appropriate way without adjournment of the oral proceedings.

7.3 Accordingly the Board finds it appropriate to exercise its discretion under Article 13 RPBA by not admitting the thirteenth to fifteenth auxiliary requests into the proceedings.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside

2. European patent No 1 528 072 is revoked

The Registrar: The Chairman:

B. ter Heijden D. Semino

Decision electronically authenticated