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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BASF SE
Inventors: Karl Häberle, Rainer Königer,
Eva Wagner and Klaus Dieter Höerner

Appeal 2012-000642
Application 12/430,954
Technology Center 1700

Before FRED E. McKELVEY, RICHARD E. SCHAFER and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

McKELVEY, *Administrative Patent Judge*.

DECISION ON APPEAL

Statement of the case

BASF SE ("applicant"), the real party in interest (Brief, page 1), seeks review under 35 U.S.C. § 134(a) of a final rejection dated 15 October 2010.

The application was filed in the USPTO on 28 April 2009.

The application on appeal was filed on 24 July 2003 as International Application PCT/EP03/08099 which entered the national stage as to the United States. 35 U.S.C. § 371.

The application on appeal claims priority of German patent application 102 38 146.1, filed 15 August 2002.

The application has been published as U.S. Patent Application Publication 2009/0211704 A1.

In support of prior art rejections, the Examiner relied on several prior art documents. In view of the manner in which the appeal is presented in the Brief, we need to discuss only one prior art patent and one textbook:

Hombach et al. "Hombach"	U.S. Patent 4,663,337	5 May 1987
Odian	PRINCIPLES OF POLYMERIZATION, pages 29-33 (2d ed.) ISBN 0-471-61020-8	1991

Hombach and Odian are prior art under 35 U.S.C. § 102(b).

Applicant includes the following documents in an Evidence Appendix of the Brief:

Haeberle I	First Declaration of Karl Haeberle[1]	Dated: 27 July 2010
Haeberle II	Second Declaration of Karl Haeberle	Dated: 26 May 2008
Haeberle III	Third Declaration of Karl Haeberle, including an Evonik Industries VESTANAT® T 1890/100 data sheet	Dated: 3 December 2008

We have jurisdiction under 35 U.S.C. § 134(a).

Claims on appeal

Claims 1-14 are on appeal. Brief, page 2; Answer, page 3.

Claim 1, which we reproduce from page 1 of the Claim Appendix of the Brief, reads:

> A water-emulsifiable isocyanate composition comprising:
>
> (C) at least one emulsifier obtained by reacting
>
> (B) an isocyanurate of 1-isocyanato-3,5,5-trimethyl-5-isocyanatomethylcyclohexane (IPDI) with

[1] In the oath filed 28 April 2009, the inventor's name is spelled Häberle; in the declarations the name is spelled Haeberle. We will refer to Haeberle.

at least one emulsifier (C1) comprising at least one isocyanate-reactive group and at least one nonionic hydrophilic group

and excluding an isocyanurate and/or biuret of 1,6-diisocyanatohexane (HDI) from (C);

(A) an isocyanurate and/or biuret of 1,6-diisocyanatohexane (HDI); and

(D) optionally, a solvent.

Claim 1 is not a model of clarity.

We understand Claim 1 to define a composition having two required elements and one optional element.

A first required element, identified as an "emulsifier", is made by reacting (1) an isocyanurate of IPDI with (2) a "material" having at least one isocyanate-reactive group and at least one nonionic hydrophilic group. The first element cannot contain an isocyanurate and/or biuret of HDI. An example of a "material" is a monofunctional polyethylene oxide prepared stating from methanol (Specification, page 22, Example 1):

Methanol + Ethylene oxide ⟶ Monofunctional polyethylene oxide

$$CH_3OH + nCH_2CH_2O \longrightarrow CH_3{-}O[CH_2CH_2O]_n{-}H$$

A second required element is an isocyanurate and/or biuret of HDI.

A third optional element is a solvent.

<u>Rejections</u>

The Examiner has maintained two rejections in the Answer.

Rejection 1: Claims 1-14 stand rejected as being unpatentable under § 103 over Hombach "in view of" Laas, Lenz, Odian, Wild and Burkus. Answer, page 5.

Rejection 2: Claims 1-14 stand rejected as being unpatentable under § 103 over Hombach "in view of" Huyna-Ba, Lenz, Odian, Wild and Burkus. Answer, page 11.

The rejections are based on the same evidence except that Rejection 1 relies on Laas whereas Rejection 2 relies on Huyna-Ba.

In the Brief and with respect to both rejections, applicant does not separately argue the patentability of Claims 2-14. Accordingly, we decide the appeal on the basis of Claim 1. 37 CFR § 41.37(c)(1)(vii)

In addressing Claim 1, applicant in effect limits its argument to the applicability of Hombach. In the analysis which follows, we likewise address Hombach.

Rejection 1 and Rejection 2 stand or fall together.

Analysis

Hombach

Hombach is owned by applicant's competitor—Bayer AG,

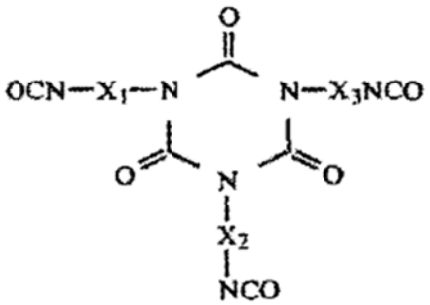
Hombach relates to a "polyisocyanate preparation dispersible in water". Col. 2:13-14.

Like the composition of applicant's Claim 1, the Hombach "preparation" comprises two required elements.

Hombach's required element (a) corresponding to applicant's second required element is "an aliphatic polyisocyanate or a mixture of aliphatic polyisocyanates. Col. 2:16-17.

Hombach's required element (a) can be an "isocyanurate group-containing polyisocyantes based on aliphatic and/or cycloaliphatic diisocyantes." Col. 2:37-39.

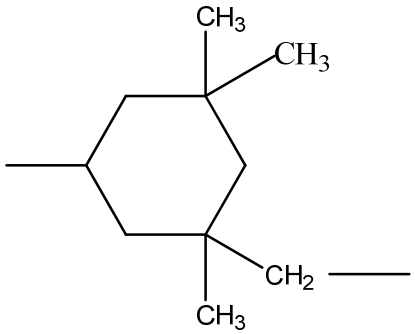
A formula representation of suitable element (a) isocyanate-isocyanurates is set out below (col. 2:60):



The "OCN—" and "—NCO" groups are isocyanate groups. The ring structure with three nitrogens (N) is an isocyanurate group. The X's depend on the isocyanate used to make the isocyanurate.

In the case of an isocyanurate made from 1,6-hexamethylene diisocyanate (also known as HDI), the X's are hexamethylene groups $—(CH_2)_6—$. *See* Specification, page 5, formula 1a.

In the case of an isocyanurate made from 1-isocyanato-3,5,5,-trimethyl-5-isocyanatomethylcyclohexane (also known as IPDI), the X's having the structure:



The isocyanurate made from IPDI has four (4) cyclic groups including the isocyanurate group.

Hombach's required element (b) corresponding to applicant's first requirement element is an "emulsifier" in a quantity sufficient to ensure the dispersibility of the polyisocyanates. Col. 2:18-19.

Hombach's required element (b) is made by reacting an aliphatic polyisocyanate with a nonionic ethylene oxide polyether alcohol. Col. 4:6-8. A suitable nonionic ethylene oxide polyether alcohol is made from methanol (col. 4:14) and from "preferably about 15-60 ethylene oxide units." Col. 4:19.

Hombach Example 1 describes preparation of an emulsifier from (1) an isocyanurate made from HDI (Polyisocyanate 1—col. 6:63 to col. 7:2) and (2) a monofunctional polyether alcohol (Polyether 1—col. 6:48-50). The emulsifier of Example 1 is not within the scope of applicant's first required elements because it is made from HDI. Example 12 describes an emulsifier made from (1) an isocyanurate made from IPDI (Polyisocyanate 5—col. 7:23-28) and (2) the same monofunctional polyether alcohol used in Example 1. See col. 8: Table 1, Example 12). The emulsifier of Example 12 falls within the scope of applicant's first required element.

As is apparent, applicant's two required elements are described by Hombach.

Applicant's arguments

According to applicant, Hombach fails to suggest the use of different isocyanurates for making its elements (a) and (b). Further according to applicant, there is nothing in Hombach to suggest the use of a combination of (1) an HDI isocyanurate as Hombach's component (a) (corresponding to applicant's second required element) and (2) of an emulsifler based on IPDI as Hombach's element (b) (corresponding to applicants first required element). Brief, page 3.

The Examiner found otherwise. Answer, page 6:

> "Polyisocyantes suitable for the production of the emulsifiers include, in addition to the already above-mentioned polyisocyanates, other aliphatic diisocyanates [Hombach, col. 4:9-11]."which shows that the emulsifier can use a different polyisocyanate than polyisocyanate (a) and it can be one of the previously mentioned isocyanates [Hombach, col. 2:37-43], including isocyanurate of . . . [IPDI]

The Examiner's finding is supported by the evidence.

Hombach describes the use of its element (b) as an emulsifier. That element can be an isocyanurate of IPDI and a monofunctional polyether alcohol. Hombach describes the use of an isocyanurate of HDI as its element (a). Applicant is using known elements in a known manner to achieve predictable results, *i.e.*, a preparation dispersible in water. Hombach, col. 2:14; Specification, page 25:1 ("emulsifiability").

Applicant seeks to remove from the public domain compositions that one skilled in the art should be free to use, i.e., a composition made up of (1) Hombach element (a) based on an isocyanurate of HDI and (2) Hombach element (b) based on an isocyanurate of IPDI. Absent an unexpected result, § 103(a) precludes applicant from removing the compositions from the public domain.

Unexpected results

The Examiner declined to credit applicant's unexpected results evidence, finding that the data in the Specification Examples and the Haeberle Declarations was not convincing.

According to applicant, its Example 2 is within the teaching of Hombach. Brief, page 4. However, according to counsel for applicant:

> polyisocyanate b1 [described in Example 2] is only weakly emulsifiable, yielding a coarse emulsion, despite the fact that the content of the emulsifying polyethylene glycol is 11.2 wt%[2] and, therefore, at the upper limit taught by Hombach. This [weak emulsifiability] is an [said to be an] unexpected result, because one of ordinary skill in the art would have expected good emulsifiability due to such a high content of emulsifier, based on the teaching of Hombach.

An argument of counsel cannot take the place of evidence in the record. *In re Walters*, 168 F.2d 79, 80 (CCPA 1948). Counsel's unsupported "testimony"

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[2] Counsel does not indicate the basis for the 11.2%. We assume that it was determined from the use of 60 g of isocyanate B and 6.7 g of the monofunctional polyethylene oxide. 6.7 / 60 = 0.112 = 11.2%. Specification, Example 2, line 2.

provides no basis for what one skilled in the art would have expected. More to the point is that the "coarse emulsion" mentioned by counsel is a reference in the Specification only to applicant's first element. But, Hombach like applicant requires two elements. According to applicant's Example 2, once applicant's first element is added to applicant's second element, "better emulsifiabiilty" is said to result. Thus, applicant gets a result consistent with Hombach when its two element composition is used: a "preparation dispersible in water . . ." Col. 2:14.

Applicant argues that the claimed invention "additionally yields improved coating . . . hardness . . ." Brief, page 5, first full sentence. According to applicant, improved hardness is an unexpected result. An applicant attempting to establish unexpected results must do so with clear and convincing evidence. *In re Heyna*, 360 F.2d 222, 228 (CCPA 1966) ("It was incumbent upon appellants to submit clear and convincing evidence to support their allegation of unexpected . . . property."). *See also McClain v. Ortmayer*, 141 U.S. 419, 429 (1891) (conclusive evidence needed to establish new function).

Some of applicant's data supporting alleged increased hardness is summarized in the following table.

Baking Temp.	Pendulum damping (high value means increased hardness)				
ºC	Ex. 2.1	Ex. 2.2	Ex. 2.3	Ex. 2.4	Comparative
60	24	28	32	42	26
70	39	58	53	62	40
80	55	72	70	76	50
90	62	80	73	94	58
100	69	91	85	107	67
110	71	94	96	109	70
120	72	96	100	111	73

The Examiner observed that the claims on appeal "require no amounts . . ." Answer, page 27, second line from bottom. What the Examiner means is that the claims do not call for any particular hardness. On the record, it is difficult to determine precisely what new function applicant has achieved. Thus a "Comparative" hardness of 73 at a baking temperature of 120 ºC is higher than an inventive Example 2.1 hardness of 55 at a baking temperature of 80 ºC. The claims do not call for any particular hardness at any particular baking temperature. The record reveals that coatings based on IPDI trimer (i.e., IPDI isocyanurate) results in coating having comparatively high levels of hardness that can be lessened by addition of HDI derivatives. Additionally, the Examiner found that the presence of cyclic groups would be expected to increase hardness. Answer, page 8 (last full paragraph) and page 27, first full paragraph. The Examiner's finding is consistent with Odian which states on page 32: "The rigidity of polymer chains is especially high when there are cyclic structures in the main polymer chains." An IPDI isocyanurate has several cyclic structures. Increased hardness seemingly would have been expected and it is not apparent what degree of increased hardness

would be necessary to establish that applicant has found a new and unexpected function.

Likewise, the claims do not call for any particular energy needed to emulsify. Like Example 2, in his "First" Declaration, inventor Haeberle testifies that a mixture of a hydrophilicized IPDI isocyanurate and an HDI isocyanuarate "exhibit better emulsifiabiilty . . ." First Declaration, page 2, third full paragraph. The difference between applicant's "better emulsifiability" and Hombach's "dispersible in water" (col. 2:14) is not readily apparent.

The "First" Declaration also presents hardness data. See page 3. However, that data does not answer the defects in the data resulting from Example 2.

Applicant seemingly relies on what is characterized as a "higher ultimate hardness." Brief, page 7, fourth full paragraph. What applicant means by "ultimate" is not at all clear. To the extent that applicant means a hardness at a baking temperature of 120 ºC, no such hardness appears in the claims.

We have no basis for disagreeing with the weight the Examiner assigned to the experimental data reported in the Specification and the Declarations.

Other arguments

We have considered applicant's remaining arguments and find none that warrant reversal of the Examiner's rejections. *Cf. In re Antor Media Corp.*, 689 F.3d 1282, 1294 (Fed. Cir. 2012).

Other observations

In addition to the points discussed above responding to applicant's unexpected results arguments, we will note that we are in general agreement with the Examiner's observations concerning those arguments.

We have not found it necessary to consider or rely on the Examiner's observations (1) concerning his 20 years of examining polyurethane applications (Answer, page 20:6-9) or (2) having received a sample of polypropylene oxide from a representative of BASF (Answer, page 22:1-3). Our determination of the level of skill was determined solely on the evidence without regard to the two observations mentioned above. See *Fromson v. Anitec Printing Plates, Inc.*, 132 F.3d 1437, 1448 (Fed. Cir. 1997) (Mayer, C.J., concurring; I "know" what anodization means from my own undergraduate studies and experiments; the concept is not difficult and I need no further education to grasp it. I happen to have a dictionary in my chambers from the era pertinent here, which would confirm my "knowledge" about anodization. ***. But, I am neither an expert in the field nor one of ordinary skill in the art despite how much I think I "know" about a process I once studied. Nor do my colleagues on this court or the district court possess such expertise, and even if they did, they would have to defer to the record made in the case.)

Decision

Upon consideration of the appeal, and for the reasons given herein, it is

ORDERED that the decision of the Examiner rejecting claims 1-14 as being unpatentable over the prior art is *affirmed*.

FURTHER ORDERED that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED