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Datasheet for the decision of 4 June 2019

Case Number: T 2058/16 - 3.3.03

Application Number: 09793928.4

Publication Number: 2297210

IPC: C08F2/00, C08F4/28

Language of the proceedings: EN

Title of invention:
PACKAGED FORMULATION COMPRISING A COMPOUND LIABLE TO EXOTHERMIC DECOMPOSITION

Patent Proprietor:
Akzo Nobel Chemicals International B.V.

Opponent:
PERGAN Hilfsstoffe für industrielle Prozesse GmbH

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (yes)

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Case Number: T 2058/16 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 4 June 2019

Appellant: (Patent Proprietor)	Akzo Nobel Chemicals International B.V. Velperweg 76 6824 BM Arnhem (NL)
Representative:	Akzo Nobel Chemicals IP Group Velperweg 76 6824 BM Arnhem (NL)
Respondent: (Opponent 1)	
Representative:	
Respondent: (Opponent 2)	
Representative:	
Respondent: (Opponent 3)	PERGAN Hilfsstoffe für industrielle Prozesse GmbH Schlavenhorst 71 D-46395 Bocholt (DE)
Representative:	Lütjens, Henning Kolberger Strasse 10 51381 Leverkusen (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 9 June 2016**

revoking European patent No. 2297210 pursuant to Article 101(3)(b) EPC.

Composition of the Board:

Chairman	D. Semino
Members:	M. C. Gordon
	R. Cramer

Summary of Facts and Submissions

I. The appeal lies from the decision of the opposition division posted on 9 June 2016 revoking European patent number 2 297 210.

II. The patent was granted with a set of 12 claims, whereby claim 1 read as follows:

"Packaged formulation comprising a compound liable to exothermic decomposition and optionally one or more organic diluents, said formulation being packaged in a container with a volume of at least 250 litre provided with a vent to release gases and made from a thermoplastic material having a Vicat B softening temperature measured according to ASTM D 1525-00 not higher than (a) the run-away temperature of the compound liable to exothermic decomposition defined as SADT plus 40°C, SADT being measured according to UN test H.4., if the formulation does not contain any diluent, or (b) the boiling temperature of at least 50 wt% of the total weight of diluent if the formulation does contain organic diluent."

III. Three notices of opposition against the patent were filed, whereby that of opponent 2 was withdrawn by letter received on 5 April 2016, prior to the oral proceedings before the opposition division.

The opponents requested revocation of the patent on the grounds of Article 100(a) EPC (lack of novelty, lack of inventive step), Article 100(b) EPC and Article 100(c) EPC, whereby the latter ground was not admitted by the opposition division for lack of substantiation.

The following documents, *inter alia* were cited in

support of the oppositions and are of relevance for the present decision:

D1: ADR applicable as from 1 January 2007 - European Agreement Concerning the International Carriage of Dangerous Goods by Road, Volume I, United Nations, New York and Geneva, 2006 - various pages, in particular Packaging Instruction IBC520 on page 150;

D9: WO-A-2007/012595

D15: United Nations, Recommendations on the Transport of Dangerous Goods, Model Regulations, vol. 1 and 2 (2005);

D23: ADR appliable as from 2001, various pages;

D25: Set of documents in respect of a public prior use;

D27, D27a: Correspondence from Bundesanstalt für Materialforschung - und Prüfung (BAM) to respondent/ opponent 3 and Zulassungsschein D/BAM 5752/31HA1.

In the course of the opposition proceedings the patent proprietor submitted two experimental reports, D28 and D29.

IV. The decision of the opposition division was based on a main request and three auxiliary requests, all filed with letter of 17 March 2016. Claim 1 of the main request differed from claim 1 as granted by specifying the thickness of the walls of the container, whereby the following phrase had been introduced at the end of the claim:

"[...organic diluent], wherein the walls of the

container have an average thickness in the range 0.5-5 mm."

The wording of the auxiliary requests is not relevant for the present decision.

According to the decision, the requirements of sufficiency of disclosure and novelty were met, but the claims of none of the requests met the requirements of inventive step. The closest prior art was considered to be the public prior use shown by D25 relating to a commercial delivery of tert-butylperoxide packaged in 7 containers of type 31AH1, each containing 850 Kg of the product. The subject-matter claimed was distinguished from this disclosure by the specified wall thickness of the containers. The problem solved was to avoid fragmentation or explosive rupture of the container containing the peroxide and the proposed solution was considered to be obvious, reference being made to D27.

This conclusion applied to all auxiliary requests with the result that the patent was revoked.

V. The patent proprietor (appellant) lodged an appeal against the decision, resubmitting the requests as considered by the opposition division and introducing two further requests, fourth and fifth auxiliary requests, which are not of relevance for the present decision.

VI. Opponents 1 and 3 replied to the appeal.

Opponent 3 (respondent) invoked solely the ground of lack of inventive step in its reply to the statement of grounds of appeal.

VII. A summons to oral proceedings was issued on 17 July 2018.

VIII. By letter of 21 December 2018 opponent 1 withdrew its opposition.

IX. In a communication dated 7 February 2019 the Board set out its preliminary view on the case.

X. With letters dated 20 March 2019 and 3 May 2019 the appellant and the respondent respectively took position in particular on the question of the public availability of the correspondence D27.

XI. Oral proceedings were held before the Board on 4 June 2019.

XII. The arguments of the appellant can be summarised as follows:

The patent related to the safe storage and transport of compositions susceptible to exothermic, self accelerating decomposition, in particular peroxides. Approved containers, constructed of stainless steel or polymers, were conventionally configured to be sufficiently strong to withstand and contain the pressure resulting from such an uncontrolled decomposition. However if the pressure exceeded the limit for which the container was specified failure of the container with an explosive release of pressure and fragmentation could occur.

The invention lay in the realisation that this risk could be avoided by constructing the container such that the combination of rise in temperature and increase in pressure resulted in sufficient softening

of the polymer from which the container was made to permit a non-explosive rupture or collapse of the container thus releasing the pressure.

The closest prior art could seen either as D1, in particular Packaging Regulation IBC 520, referred to on page 150 or the public prior use established by D25.

In both cases the distinguishing feature was the same - the wall thickness of the container.

The evidence, both of the patent and in particular the reports D28 and D29, showed that the effect of this distinguishing feature was to permit a controlled, non-violent failure of the container, which hence constituted the problem to be solved.

Regulation IBC520 (D1) gave no hint to this solution. On the contrary, this regulation prescribed a container of high strength in order to withstand and resist any increase in pressure resulting from exothermic, runaway decomposition of the contents. This - conventional - approach was confirmed by D9 which related to packaging of peroxides in stainless steel containers.

The proffered solution was not obvious - indeed it went counter to the established approach in the field.

Regarding the status of D27, this was correspondence between a federal body and a company seeking advice on the safe transport and storage of peroxides, i.e. opponent 3. This was not a public document, and neither party to the correspondence had any interest in making this public. Even if the information provided could be seen as not restricted *per se* in that it was based on established regulatory provisions, it was not the case

that a different company seeking advice on the same or a related problem would necessarily and inevitably receive exactly the same reply and advice. Nor was there any evidence that this specific advice, as formulated in D27, had been placed in the public domain.

Furthermore the fact that it had been found necessary by opponent 3 to consult BAM to seek advice on this problem did not support the premise that the necessary information - in the form as given - was in the public domain or necessarily formed part of the knowledge that the relevant skilled person would routinely be expected to possess.

XIII. The arguments of the respondent can be summarised as follows:

Closest prior art was likewise considered to be either the regulatory document D1 or public prior use D25, the distinguishing feature in both cases being the specified thickness of the walls of the container.

It was not disputed that the problem as formulated by the appellant had been solved.

However the solution was provided by D27 which described exactly the mechanism alluded to by the appellant.

D27 was a response to a query by the respondent to a federal agency regarding regulatory requirements for the transport of hazardous materials. The information was in no way privileged or confidential and no special relationship had existed between the opponent and BAM. The correspondence related to publicly known and

generally applicable regulations, providing information and confirmation as to why certain types of containers were approved for specific uses. This explanation contained all the necessary technical teaching on which the patent relied, was available to anyone asking the BAM for advice on this matter and was representative of the common general knowledge of the skilled person.

XIV. The appellant requested that the decision under appeal be set aside and the patent be maintained in amended form on the basis of one of the sets of claims according to the main request or the first to fifth auxiliary requests, all as submitted with the statement of grounds of appeal.

XV. The respondent requested that the appeal be dismissed. It furthermore requested that the fourth and fifth auxiliary requests not be admitted into the proceedings.

Reasons for the Decision

1. Main request

The only issue to be decided is that of inventive step, this being the sole requirement of the EPC held by the opposition division not to be satisfied and the only ground invoked by the respondent in its reply to the statement of grounds of appeal and the subsequent submissions.

1.1 The patent in suit relates to packaging containers for storage and transport of compositions liable to

exothermic decomposition (paragraph [0001]). It is explained that such compositions, for example peroxides, decompose above a critical temperature. The decomposition produces gas and heat, which promotes further decomposition. The gas generated results in a build up of pressure within the container which can result in violent explosions, fragmenting the container. Consequently there are numerous international regulations concerning containers for such materials (paragraph [0002]). It is explained that conventionally steel containers have been used and that plastic tanks have not been considered suitable due to their easy fragmentation (paragraph [0005]).

According to paragraphs [0006] and [0007] it has been found that large volume plastic containers are suitable if fitted with a vent to release gases and manufactured from a material having a sufficiently low softening point, such that upon a critical temperature rise due to exothermic decomposition, the walls become soft and decrease in strength such that one or more of the walls is breached, allowing release of the contents without fragmentation or explosive failure of the container.

1.2 Citable documents - status of D27/D27a

D27 and the attached D27a are correspondence between the respondent and the BAM, relating to a request for advice directed to a federal research and testing agency on the type of container to be employed for transporting di-tert-butylperoxide.

It has not been shown that this correspondence is publicly available in the sense that any interested party would have access to it, or even be able to become aware of its existence. On the contrary by its

nature, this correspondence is to be considered as restricted to the two parties and not destined for publication.

Even accepting that the information imparted thereby is not restricted, in the sense that any interested party could potentially obtain the same information from BAM with no requirement of confidentiality, the fact remains that D27 is a response to a specific question from a single entity and is not information of a general nature. It is, for example, not in the nature of a generally available and published set of guidelines or regulations. The nature of the correspondence D27, in particular the fact that it concerns the reply to a specific question posed by the respondent, does not allow it to be concluded that any other party would, when approaching the BAM for advice on transport of peroxides or similarly hazardous materials, necessarily and inevitably receive the same response and the same information.

The attachment D27a is likewise correspondence relating to a specific question. Independently of the fact that the document included with D27a - the Zulassungsschein D/BAM 5752/31HA1 relating to a container manufactured by Mauser Werke GmbH - provides no information about the containers in addition to that provided by D1 and thus no information about the thickness thereof, the same considerations as above apply.

The conclusion is that D27/D27a is not a publicly available document and does not form part of the state of the art.

The nature of D27/D27a, being a reply to a specific question from a single manufacturer relating to a

single product, also means that the information imparted thereby cannot be seen as some form of "expert witness" statement providing an indication or confirmation of the publicly available information on a particular generally applicable and known technical aspect at a specific time.

D27/D27a can therefore not be taken into account in the analysis of inventive step.

1.3 Closest prior art

1.3.1 D1 discloses on page 150 that containers of the type 31HA1 are approved for transport and storage of various peroxides in defined concentrations in diluents. The designation "31HA1" indicates the construction of the containers as a plastic inner liner within a steel enclosure, as is stated on page 241 of D15.

The containers are required to be equipped with a vent for pressure release - see D1, page 151, "Additional requirements".

D1 thus provides a disclosure of peroxides, i.e. compositions susceptible to runaway exothermic decomposition (cf. claim 1 of the patent in suit) in a container made of a plastic material.

The thickness of the plastic component of the container is not specified.

1.3.2 D25 - public prior use

The set of documents D25 shows deliveries of the product Peroxan DB-30 (di-t-butyl peroxide) in containers of type 31HA1 (see above). The thickness of

the plastic component of the container is likewise not specified.

1.3.3 Both D1 and D25 concern the same technical field and same problem as that set out in the patent in suit and consequently are equally suitable as representative of the closest prior art, as agreed by both parties.

1.4 Distinguishing feature

With respect to both D1 and D25, both parties agreed that the subject-matter of claim 1 is distinguished by the same feature - a defined thickness of the thermoplastic container. The Board has no reason to take a different view.

1.5 Technical effect

Experimental reports D28 and D29 of the appellant show the performance of two containers of type 31HA1 having a capacity of 1310 litres whereby that of D28 (comparative) had a wall thickness of 9.5mm and that of D29 a thickness of 2mm (and thus according to the claims). The containers were each filled with 250kg of the same peroxide solution and subjected to heating at 75°C.

As explained on pages 5 and 6 of the appellant's letter of 5 January 2015 - the reply to the notice of opposition - the container of D28 underwent bulging and venting of excess pressure via the vent. As the temperature rose further, an explosion took place.

In the case of the experiment reported in D29, with a container of wall thickness 2mm, the container collapsed without explosion or fragmentation, venting

the contents in a non-violent manner.

This evidence establishes that the distinguishing feature - the wall thickness - gives rise to a less hazardous mode of failure of the container under conditions where due to a runaway decomposition reaction an (uncontrolled) increase in temperature and pressure occurs.

1.6 Objective technical problem, its solution

In the light of the foregoing, both parties agreed that the objective technical problem can be formulated as the provision of a packaged formulation which avoids the risk of explosive failure and fragmentation in the case of runaway thermal decomposition of the material being stored. The Board also agrees with this position of the parties.

The solution to this problem was the specification of a maximum wall thickness of the thermoplastic container.

1.7 Obviousness

The main arguments of the respondent relied on document D27/D27a which are however not available as prior art (see point 1.2, above).

The relevant safety standards for containers for materials such as peroxides rely on the provision of emergency relief devices which permit complete venting of products resulting from self-accelerating decomposition or when the container is exposed to fire (D1, page 151, "Additional Requirements" and D9, page 3, lines 5-7). It is thus apparent that these regulations aim to ensure maintenance of the integrity

of the container. The evidence provided by the experimental data of the patent proprietor is that the provision of pressure release devices (vents) is not necessarily sufficient and that catastrophic failure of the container might still in certain circumstances nevertheless occur.

There is no indication in this standard, or any other of the documents submitted by the parties that foresees the containers being designed so as, in the case of an uncontrolled runaway decomposition of the contents, to undergo non-violent failure by means of collapse/ rupturing so as to allow venting of the complete contents without explosion. Nor is there any indication or recognition that this mode of failure might be possible, much less any indication of how the container is to be constructed in order to provide the necessary behaviour.

Nor has any evidence been advanced to demonstrate that the skilled person would be aware of the possibility of designing containers to exhibit this type of "fail safe" behaviour and how to accomplish such a container design.

D9 also provides no indication of such a construction of the container. Indeed the focus of D9 appears to be on stainless steel containers with no plastic inner container of any kind (see example 1 of D9 as well as the discussion on page 3, first paragraph).

The foregoing considerations lead to the conclusion that an objection of obviousness in respect of the subject-matter claimed cannot be sustained.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent in amended form on the basis of the claims of the main request filed with the statement of grounds of appeal and after any necessary consequential amendment of the description.

The Registrar: The Chairman:

B. ter Heijden D. Semino

Decision electronically authenticated