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**Datasheet for the decision  
of 17 May 2024**

**Case Number:** T 2149/21 - 3.3.03

**Application Number:** 16708231.2

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**IPC:** C08F136/06, C08F136/08,  
C08F2/02, C08F2/60, C08F4/42,  
C08L9/00, C08L21/00

**Language of the proceedings:** EN

**Title of invention:**  
AGED LANTHANIDE-BASED CATALYST SYSTEMS AND THEIR USE IN THE  
PREPARATION OF CIS-1,4-POLYDIENES

**Patent Proprietor:**  
Bridgestone Corporation

**Opponent:**  
ARLANXEO Deutschland GmbH

**Relevant legal provisions:**  
EPC Art. 113(1)  
EPC R. 103(1)(a)  
RPBA 2020 Art. 11

**Keyword:**

Right to be heard - substantial procedural violation (yes) -  
submissions central to the appellant's case not dealt with  
Remittal - fundamental deficiency in first-instance  
proceedings (yes)



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Case Number: T 2149/21 - 3.3.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.03**  
**of 17 May 2024**

**Appellant:** ARLANXEO Deutschland GmbH  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
2 December 2021 concerning maintenance of the  
European Patent No. 3250616 in amended form.**

**Composition of the Board:**

**Chairman** D. Semino  
**Members:** F. Rousseau  
R. Cramer

## Summary of Facts and Submissions

I. The appeal lies from the interlocutory decision of the opposition division according to which European patent No. 3 250 616 as amended according to the claims of auxiliary request 1 (submitted as auxiliary request 2 with letter of 19 February 2021) and a description adapted thereto met the requirements of the EPC.

II. The following documentary evidence was *inter alia* submitted before the opposition division:

D18: US 2010/0041843 A1

D20: Comar Chemicals, URL <https://www.comarchemicals.com/index.php/en/about-comaren/product-categories-en/catalysts-en>; archived on February 15, 2015 at wayback machine [web.archive.org](http://web.archive.org)

D21: Presentation by D. Roland "Superior Polybutadiene properties achieved with Breakthrough in Rare Earth Finished Catalyst Technology", proceedings of the IISRP 56th AGM, Cape Town, ZA, 20-23 April 2015, pages 103-122,

D22: REACH Registration-Certificate for COMAR CHEMICALS (PTY) LTD, Reaction products of Neodymium (III) salt of C10-branched carboxylic acid, hydrido (diisobutyl)-aluminium, di- $\mu$ -chloro (chloro) triethyldialuminium and buta-1,3-diene, EC No. 942-525-1

D23: COMCAT Nd-FC20/G2 Safety Data Sheet, COMAR Chemicals

D31: Affidavit by D. Roland dated 4 October 2019

D32: Comar Chemicals (Pty) Ltd, Quality Operational Procedure, Polymerization of Butadiene with Neodymium Finished catalyst, issued 25 September 2014

D33: Experimental Report by S. Baldwin dated 18 February 2021

- III. According to the reasons for the contested decision which are pertinent to the appeal proceedings, i.e. those which concern auxiliary request 1:
- (a) The requirements of sufficiency of disclosure were met.
  - (b) The polymerization method described in D32 did not anticipate the method of claim 1, as it neither described the preparation of the catalyst of operative claim 1, including an ageing step, nor the addition of an alkylating agent to the aged catalyst, such addition taking place in D32 before addition of any catalyst. For these reasons, it was not necessary to assess the public availability of that document.
  - (c) Taking into account the experimental data provided in D33, an inventive step was acknowledged, D18 being considered to represent the closest prior art.
  - (d) On that basis, the patent could be maintained with the claims according to auxiliary request 1.
- IV. An appeal against that decision was lodged by the opponent (appellant).
- V. With their response to the statement of grounds of appeal, the patent proprietor (respondent) filed twenty sets of claims labelled auxiliary requests 1 to 20.

VI. In preparation of the oral proceedings, a communication pursuant to Article 15(1) RPBA conveying the Board's provisional opinion was issued.

VII. Oral proceedings before the Board were held in person on 17 May 2024 with the participation of both parties.

VIII. The final requests of the parties were as follows:

- The appellant requested that the decision under appeal be set aside, the case be remitted to the opposition division for further prosecution and the appeal fee be reimbursed, auxiliary that the patent be revoked.

- The respondent requested that the decision under appeal be set aside and the case be remitted to the opposition division for further prosecution, auxiliary that the appeal be dismissed, and further auxiliary that the case be remitted to the opposition division for further examination on the basis of the claims of any of auxiliary requests 1 to 20 filed with the reply to the statement of grounds of appeal.

IX. Claim 1 of the main request, corresponding to auxiliary request 2 filed with letter of 19 February 2021 and renumbered as auxiliary request 1 during the oral proceedings before the opposition division, has the following wording:

"1. A method for preparing cis-1,4-polydienes, the method comprising the steps of:

(i) preparing a preformed, active lanthanide-based catalyst, where said step of preparing includes combining a lanthanide-containing compound, an

alkylating agent, a conjugated diene monomer, and a halogen source;

(ii) aging the active lanthanide-based catalyst for more than 5 days to thereby formed an aged catalyst;

(iii) adding an alkylating agent to the aged catalyst, where the molar ratio of the alkylating agent to the lanthanide-containing compound is from about 0.5:1 to about 20:1; and

(iv) introducing the aged catalyst and conjugated diene monomer to be polymerized to thereby form an active polymerization mixture in which the conjugated diene monomer is polymerized to form a polydiene having a reactive chain end."

- X. The parties' submissions, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. They essentially concerned novelty of claim 1 over the alleged public prior use of a number of catalysts of COMAR CHEMICALS (Pty) Ltd in a method described in D32.

### **Reasons for the Decision**

1. The respondent submits as an introductory remark to their rejoinder (point III., pages 2 to 4) that the appellant has failed to substantiate why the reasoning of the contested decision is not correct. It is the respondent's view that the appellant has merely repeated the arguments already known from the opposition proceedings. The respondent points out in particular that the submissions concerning the alleged lack of novelty over the public prior use of the Nd-FC catalysts in accordance with the method disclosed in D32 would be a mere repetition of the arguments

provided during the opposition proceedings without any discussion as to why the contested decision was not correct (rejoinder, page 7, first and second paragraphs). However, as shown below, most of these submissions which are still relevant to the issues under appeal were not dealt with in the contested decision. Under these circumstances, it is legitimate for the appellant to repeat those submissions in respect of novelty of the claimed method over the alleged prior use. Already on that ground the Board has no reason not to admit them under the provisions of Article 12(5) RPBA. This had been indicated in the Board's written provisional opinion (point 9) and not contested at the oral proceedings.

*Sufficiency of disclosure*

2. The statement of grounds of appeal comprises a section entitled "Insufficiency of disclosure" (page 4, section 3) in which the appellant took position on the meaning of the molar ratio of 0.5:1 to about 20:1 which referred in the appellant's opinion to the amount of alkylating agent that is added in step (iii), but does not include any alkylating agent already present in the aged catalyst before carrying out step (iii). The appellant did not have any objection of sufficiency of disclosure if said molar ratio was interpreted in this manner. Since neither the respondent, nor the Board had a reason to attribute to this molar ratio a different meaning, it was considered that the objection of sufficiency of disclosure of the invention was moot, as was confirmed by the appellant at the oral proceedings (page 2 of the minutes, first full paragraph).

*Entitlement to priority*

3. The appellant submitted that the claimed subject-matter is not entitled to the priority date of 28 January 2015 (statement of grounds of appeal, page 4, penultimate paragraph). This was not disputed by the respondent, as also confirmed at the oral proceedings (page 2 of the minutes, second full paragraph). The Board has no reason to have a different view.

*Novelty*

4. The appellant submits that the method of operative claim 1 lacks novelty over the polymerization method described in document D32 when using the catalysts under the trade names COMCAT Nd-FC (NH), COMCAT Nd-FC/20 (NH) and COMCAT Nd-FC/SF of COMAR CHEMICALS (Pty) Ltd, whose commercial availability at the relevant date of the patent in suit is mentioned in paragraph [0075] of the patent in suit and in the priority documents.

Document D32 was allegedly conjointly delivered to customers of said catalysts. Accordingly, the prior use invoked by the appellant concerns the use of the catalysts under the trade names COMCAT Nd-FC (NH), COMCAT Nd-FC/20 (NH) and COMCAT Nd-FC/SF of COMAR CHEMICALS (Pty) Ltd in the method described in D32.

- 4.1 D32 describes a method for the polymerization of butadiene using a Neodymium pre-formed catalyst "(Finished Catalyst)" (D32, page 1, Method Summary). According to this method, diisobutyl aluminum hydride (DIBAH) which is described to be used as scavenger is added to the reactor in step D of that method (D32, page 7, last line and page 8) before butadiene is added

to the reactor in step E (page 8, last line and page 9). The "Finished Catalyst" is first added to the reactor in a subsequent step G (page 11, point 9), following the pre-heating of the reactor in a step F (bottom of page 9 and page 10).

- 4.2 The respondent submits that the appellant has not met the burden of proof regarding the alleged prior use, which would require to demonstrate what was made public, when was it made public, who made it public, where was it made public and how was it made public (rejoinder, paragraph bridging pages 7 and 8).

The opposition division was of the opinion that the subject matter of claim 1 was novel over the alleged prior use. The only reason provided concerns steps (i), (ii) and (iii), none of which is in the opposition division's opinion unambiguously disclosed in D32, and additionally the absence of proof that "*significant amounts of D32 (sic) are left when the catalyst is added*", which the Board understands as the absence of proof that significant amounts of DIBAH are left when the catalyst is added (decision, page 8, second to fifth full paragraph).

- 4.3 The opposition division, however, only took position on what document D32 would describe, but not on all elements alleged to be constitutive of the prior use invoked. Whereas it seems that the appellant's submissions concerning step (iii), i.e. the way to add the alkylating agent are only based on D32, the appellant's submissions concerning steps (i) and (ii) relied on other documents, in particular documents D20 to D23 and D31, as well as information provided in paragraph [0075] of the specification. Those submissions were not analysed in the contested

decision. Moreover, it cannot be taken from the written submissions and the minutes of the oral proceedings before the opposition division that the absence or presence of a significant amount of DIBAH at the time of the catalyst's addition was addressed before issuance of the written decision.

*Step (i)*

- 4.3.1 It does not seem to be disputed that COMCAT Nd-FC (NH), COMCAT Nd-FC/20 (NH) and COMCAT Nd-FC/SF of COMAR CHEMICALS (Pty) are catalyst systems in accordance with step (i) of operative claim 1. According to paragraph [0075] of the patent in suit, COMCAT Nd-FC (NH), COMCAT Nd-FC/20 (NH) and COMCAT Nd-FC/SF of COMAR CHEMICALS (Pty) were commercially available.

The appellant's submissions concerning the public availability of COMCAT Nd-FC (NH), COMCAT Nd-FC/20 (NH) and COMCAT Nd-FC/SF of COMAR CHEMICALS (Pty), which was addressed in point 5.2 of the notice of opposition, were not dealt with in the reasons for the contested decision. The opposition division only considered document D32, but not all submissions and evidence relative to the alleged prior use, namely the sale and delivery of these catalysts to which a document D32 describing their use in a polymerization procedure was allegedly attached. It was in particular made reference in the opponent's submissions to declaration D31 according to which D32 would have been delivered to customers with the sold catalysts.

*Step (ii)*

- 4.3.2 Concerning step (ii), it is the position of the appellant in view of point 6 of declaration D31 that

due to storage and shipment the catalysts mentioned in paragraph [0075] are necessarily aged for more than 5 days. This argument was not dealt with in the contested decision, although this was not only addressed in D31, but stressed in the notice of opposition (page 9, fourth paragraph).

*Step (iii)*

- 4.3.3 According to the appellant the literal meaning of feature (iii) would imply *"a direction of supply where the aged catalyst is present already and the alkylating agent is added thereto, e.g. dropwise"* (point 3.2 on page 3 of the statement of grounds of appeal). It is, however, the appellant's contention that in the method of D32 the addition of DIBAH and the addition of the "Finished Catalyst" as described in steps D and G, respectively, correspond to process step (iii) of operative claim 1 when interpreted beyond its literal meaning. Having regard to paragraph [0076] of the specification and the examples it is the appellant's contention that the wording defining step (iii) of operative claim 1 *"adding an alkylating agent to the aged catalyst"* would include situations in which the alkylating agent would be present in the reactor before the aged catalyst would be added thereto. The appellant had already indicated in section 2.2.2 of the notice of opposition that the word "adding" in granted claim 1 should be interpreted as "bringing together", "mixing", "combining" or the like (which is repeated in the statement of grounds, point 3.2, page 3, last paragraph). Based on that interpretation step (iii) would not represent a distinguishing feature over the alleged prior art.

The opposition division held that D32 disclosed the addition of an alkylating agent (DIBAH) before adding any catalyst, while step (iii) would require that the alkylating agent is added to the aged catalyst. This would indicate that the opposition division had an opinion concerning the meaning of feature (iii) which differed from that of the appellant. It is also not apparent from the contested decision that the appellant's considerations on the meaning of feature (iii) were taken into account. And if it was so, there are no reasons provided in the contested decision why the opposition division did not share the appellant's opinion.

*Presence of significant amounts of DIBAH when the catalyst is added*

4.3.4 Although that argument appears to be at odds with the interpretation of feature (iii) by the opposition division, as it appears to be relevant only if feature (iii) is considered to allow addition of the alkylating agent before introduction of the catalyst, it is not apparent from the written submissions and the minutes of the oral proceedings that the presence of significant amounts of DIBAH was discussed with the parties. That argument seems to imply a particular meaning of the molar ratio defined in step (iii), namely at the time of addition of the catalyst. In any event, the contested decision does not comprise any reason as to why feature (iii) should be interpreted in a particular manner.

4.4 On that basis, the failure of the opposition division to give due consideration to facts, evidence and arguments, which from the appellant's submissions are central to the alleged lack of novelty of claim 1 over

the invoked prior use, constitutes a violation of the right to be heard in contravention of Article 113(1) EPC.

4.5 Moreover, there is causal link between the violation of the right to be heard and the final decision reached by the opposition division, given that the patent was maintained on the basis of a finding which did not take into account all the pertinent submissions of the appellant (Case Law of the Boards of Appeal of the EPO, 10th edition 2022, III.B.2.2.1).

4.6 The above fundamental deficiency justifies that the decision under appeal be set aside, a reimbursement of the appeal fee in accordance with Rule 103(1) (a) EPC be ordered and the case be remitted to the opposition division, in accordance with the provisions of Article 11 RPBA and the requests of both parties, for further examination.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division for further prosecution.
3. The appeal fee is to be reimbursed.

The Registrar:

The Chairman:



D. Hampe

D. Semino

Decision electronically authenticated