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Datasheet for the decision of 6 May 2026

Case Number: T 0648/24 - 3.3.03

Application Number: 13811472.3

Publication Number: 2935405

IPC: C08G75/23, C08L81/06

Language of the proceedings: EN

Title of invention:
MOBILE ELECTRONIC DEVICES MADE OF LOW-CHLORINE AROMATIC POLYSULFONES

Patent Proprietor:
Syensqo Specialty Polymers USA, LLC

Opponent:
BASF SE

Relevant legal provisions:
RPBA 2020 Art. 12(2), 12(4), 13(2)
EPC Art. 56

Keyword:
Amendment to case - requirements of Art. 12(2) RPBA 2020 met (yes)
Amendment after summons - cogent reasons (no)
Inventive step - (no)

Decisions cited:
G 0007/95, G 0002/21, G 0001/23

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Case Number: T 0648/24 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 6 May 2026

Appellant: (Patent Proprietor)	Syensqo Specialty Polymers USA, LLC 4500 McGinnis Ferry Road Alpharetta, GA 30005-3914 (US)
Representative:	Benvenuti, Federica SyensQo S.A. Intellectual Assets Management 98, rue de la Fusée 1130 Bruxelles (BE)
Appellant: (Opponent)	BASF SE Carl-Bosch-Str. 38 67056 Ludwigshafen am Rhein (DE)
Representative:	Baier, Martin Ellwanger & Baier Patentanwälte Partnerschaftsgesellschaft Friedrichsplatz 9 68165 Mannheim (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted/ electronically transmitted on 18 March 2024 concerning maintenance of the European Patent No. 2935405 in amended fo rm.**

Composition of the Board:

Chairman	F. Rousseau
Members:	D. Marquis
	A. Bacchin

Summary of Facts and Submissions

I. The appeal lies against the decision of the opposition division concerning the maintenance of European patent No. 2 935 405 on the basis of the claims of auxiliary request 2 filed with letter of 21 December 2023 and a description adapted thereto filed during the oral proceedings.

II. An opposition was filed based on the grounds for opposition under Article 100(a) EPC in conjunction with Article 56 EPC for lack of inventive step and under Article 100(b) EPC for lack of sufficiency of disclosure.

III. The following evidence was, *inter alia*, cited before the opposition division:

D2: Ultrason® E, S, P (PESU, PSU, PPSU) Hauptbroschure, BASF SE, October 2010, pages 1-48

D11: WO 2011/020823 A1

D25: Declaration of Atul Bhatnagar, dated 20 December 2023

D26: Declaration of Martin Weber, dated 2 February 2024

D27: Comparative experiments for EP 2 935 405, BASF SE

D28a: NMR Spectrum

D28b: NMR Spectrum

D29: Polycarbonat (PC), Frank Schnieders et al, Kunststoffe 10/2010, Carl Hanser Verlag, München, pages 118-123

D30: Gute Wachstumsaussichten: Polyarylsulfone (PSU, PESU, PPSU), Mark Völkel, Nina Herz, Kunststoffe 10/2010, Carl Hanser Verlag, München, pages 142-145

IV. The decision under appeal, as far as it is relevant to the present appeal, can be summarized as follows:

- The new ground of opposition under Article 100(a) EPC in conjunction with Article 54 EPC was not admitted into the proceedings.
- Documents D25-D27 were admitted into the proceedings.
- Granted claim 1 lacked an inventive step starting from D2 as closest prior art. The same conclusion applied to claim 1 of auxiliary request 1. Claim 1 of auxiliary request 2 involved an inventive step over D2.

V. Both the opponent and the patent proprietor lodged an appeal against the decision of the opposition division.

VI. The Board sent a written communication with a preliminary opinion about the case.

VII. Oral proceedings took place on 6 May 2026.

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

- The patent proprietor (appellant 1) requested that the decision under appeal be set aside and the opposition be rejected or in the alternative that the patent be maintained on the basis of any of auxiliary requests 1-6 filed with letter of 21 December 2023, or further in the alternative on the basis of the claims of auxiliary request 7

filed at the oral proceedings before the Board.

- The opponent (appellant 2) requested that the decision under appeal be set aside and that the patent be revoked.

Claim 1 as granted read as follows:

"1. A mobile electronic device comprising at least one part made of a polymer composition [composition (C), herein after] comprising more than 80 % by weight (% wt.) relative to the total weight of the composition (C) of an aromatic polysulfone polymer comprising a residual chlorine content in an amount of less than 25 µeq/g polymer [polymer (PSU_{Cl}) hereinafter], wherein more than 50 % by moles of the recurring units of said polymer (PSU_{Cl}) are recurring units ($RPSU\_{Cl}$) of formula (A), herein below:

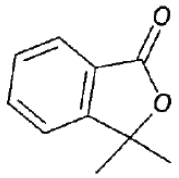
$$O\text{-}Ar\text{-}(CXY)\text{-}Ar'\text{-}O\text{-}Ar^1\text{-}SO_2\text{-}[Ar^2\text{-}(T\text{-}Ar^3)_n\text{-}SO_2]_m\text{-}Ar_4\text{-}$$

formula (A)

wherein

- n and m, equal to or different from each other, are independently zero or an integer of 1 to 5 ;
- each of Ar, Ar', Ar1, Ar2, Ar3 and Ar4 equal to or different from each other and at each occurrence, is an aromatic moiety,
- X and Y, equal to or different from each other and at each occurrence, are independently selected from the group consisting of hydrogen, halogen, alkyl, arylalkyl, hydroxyalkyl, hydroxyarylalkyl, halogenated alkyl, halogenated arylalkyl, alkenyl, alkynyl, alkyloxy, arylalkyloxy, aminoalkyl, aminoarylalkyl, alkyl and arylalkyl substituted by

carboxylic acid, ester, amide, aldehyde and ketone function, and
- T is a bond or a divalent group optionally comprising one or more than one heteroatom ; preferably T is selected from the group consisting of a bond, $-CH_2-$, $-C(O)-$, $-C(CH_3)_2-$, $-C(CF_3)_2-$, $-C(=CCl_2)-$, $-C(CH_3)(CH_2CH_2COOH)-$, and a group of formula :



wherein said polymer (PSU_{Cl}) comprises at least two chain ends and wherein at least one chain end comprises a unit [(unit R_{end}), herein after] of formula (B), herein below :

$R_1-O-Ar-(CXY)-Ar'-$ formula (B)

wherein Ar, Ar', X and Y are as defined above and R_1 is a hydrocarbon, optionally halogenated, having 1-30 carbon atoms selected from the group consisting of saturated or unsaturated, branched or unbranched, aliphatic, aromatic, cyclic, or polycyclic hydrocarbons ; a linear or branched alkoxy group having 1-30 carbon atoms, an aryloxy group or an arylalkoxy group".

Claim 1 of auxiliary request 1 corresponding to claim 1 as granted with the addition "wherein the polymer (PSU_{Cl}) has a number of the unit (R_{end}) being equal to or less than 120 µeq/g".

Claim 1 of auxiliary request 2 corresponding to claim 1 as granted with the addition "wherein the

polymer (PSU_{Cl}) has 25 – 120 µeq/g of unit (R_{end})".

Claim 1 of auxiliary request 3 corresponding to claim 1 as granted with the addition "wherein the polymer (PSU_{Cl}) has 35 – 90 µeq/g of unit (R_{end})".

Claim 1 of auxiliary request 4 corresponding to claim 1 as granted with the addition "wherein the polymer (PSU_{Cl}) has 40 – 85 µeq/g of unit (R_{end})".

Claim 1 of auxiliary request 5 corresponding to claim 1 of auxiliary request 1 in which the definition of the unit (R_{end}) was limited to formula (B'-1):

" Me-O-Ar-(CXY)-Ar'- formula (B'-1),
wherein Ar, Ar', X and Y are as defined above".

Claim 1 of auxiliary request 6 corresponding to claim 1 of auxiliary request 4 in which the definition of the unit (R_{end}) was limited to formula (B'-1):

" Me-O-Ar-(CXY)-Ar'- formula (B'-1),
wherein Ar, Ar', X and Y are as defined above".

Claim 1 of auxiliary request 7 corresponded to claim 1 of auxiliary request 2 further modified in that "said part is a mobile phone housing".

IX. The parties' submissions, in so far as they are pertinent, may be derived from the reasons for the decision below. The disputed points concerned the admittance of documents D25 to D30 into the proceedings, the question of inventive step of claims 1

of the main request and auxiliary requests 1-6 and the admittance of auxiliary request 7.

Reasons for the Decision

1. Admittance of documents D25 to D30

1.1 D25, D26, and D27 are documents that were submitted during the opposition proceedings and were admitted into the proceedings by the opposition division. Their admittance was decided during the oral proceedings and is addressed in section 3 of the Reasons for the impugned decision. The opposition division found that D25 was filed in response to the summons to oral proceedings to demonstrate an effect related to the residual chlorine content (Reasons 3.1.1 and 3.3.3). Furthermore, the opposition division considered that D26 and D27 were *prima facie* relevant to the question of whether an effect existed over the closest prior art and that these two documents had been filed in response to the patent proprietor's submissions dated 21 December 2023 (Reasons 3.2.3).

1.2 The opposition division considered documents D25-D27 in the assessment of inventive step, particularly with respect to whether an effect was demonstrated over the closest prior art (Reasons 6.4, 9.4, 12.4, and 12.7.2). Despite none of the appellants submitted that the opposition division exercised its discretion to admit D25 or D26 and D27 in an unreasonable manner - particularly since the opposition division considered their relevance to the question of inventive step when making this decision -,the Board considers that in any case the decision on admittance is not open to review. There is no legal basis under the EPC or the Rules of Procedure of the Boards of Appeal for retroactively

excluding evidence that was duly admitted into the proceedings where the impugned decision relied upon it. In view of the primary aim of appeal proceedings to review the impugned decision in a judicial manner pursuant to Article 12(2) RPBA such submissions are automatically part of the appeal proceedings (cf. Article 12(2) RPBA and Case Law of the Boards of Appeal, 11th ed., 2025, hereafter Case Law, V.A.3.4.3).

1.3 D28a and D28b were submitted by the opponent with their statement of grounds of appeal, and the reason for their filing is discussed in Section VI on page 10 of that statement. These documents are NMR spectra of a polysulfone polymer (S3010). The data in D28a and D28b are prima facie relevant to the determination of end group units in the polysulfone polymer. They were submitted in direct response to the considerations in Reasons 12.7.3 of the contested decision that no evidence had been submitted about the amount of methoxy end groups [OMe] as determined by NMR and whether the amount was still within the range defined in operative claim 1 when taking into account measurement errors. The Board therefore admitted D28a and D28b into the proceedings (Article 12(4) RPBA).

1.4 D29 and D30 were submitted with the rejoinder of the opponent. These documents purport to represent the common general knowledge of the skilled person in the fields of polycarbonates (D29) and polyarylsulfones (D30) and are discussed briefly on page 4 of the opponent's rejoinder. The opponent argued (rejoinder, page 4) that D29 and D30 were submitted in response to an argument allegedly made by the patent proprietor on page 7 of its statement of grounds of appeal that a skilled person would not have used PSU for a portable electronic device in view of its lower refractive

index, but exclusively PESU or PPSU, as this would result for the use of thinner lenses and therefore lighter articles. This argument is found in the rejoinder on page 9, second full paragraph. The argument of the proprietor was that there would be a prejudice in the art to use polyarylsulfones (PSUs) for an optical part of an article. Given the general information found in D29 and D30 and mentioned by the opponent that polyarylsulfones would be sold in higher amounts than other polysulfone polymers, the board does not find that the filing of D29 and D30, which do not concern the use of these polymers for optical devices, can be seen as a reasonable response to said argument and decided not to admit D29 and D30 into the proceedings (Article 12(4) RPBA).

Main request

2. Inventive step

2.1 Claim 1 of the main request concerns a mobile electronic device comprising at least one part made of a polymer composition comprising more than 80 wt.-% of an aromatic polysulfone polymer (PSU_{Cl}). The opposition division concluded that granted claim 1 lacked an inventive step when starting from D2 as the closest prior art. D2 is a technical brochure pertaining to commercially available products ("Ultrason® E, S, P (PESU, PSU, PPSU) Hauptbroschüre"). The opposition division found that D2 represented the closest prior art (impugned decision, Reasons 6.2.3) as it disclosed polysulfones (PSUs) of the same type as those disclosed in operative claim 1.

2.2 D2 more specifically discloses the Ultrason® product family for use in various applications (e.g.,

automotive, food science, electronics) (D2, page 6). The opponent cited page 24 as the most relevant passage of D2 (statement of grounds of appeal of the opponent, page 13, fourth paragraph), where it is stated that the the base polymers Ultrason® are transparent and suitable for optical applications, such as in electronic camera lenses. Reference is made in that passage to Figure 31, which gives the refractive indices of Ultrason® E 2010 natur, S 2010 natur, and P 3010 natur (defined on pages 46 and 47 of D2 as PESU (E), PPSU (P), and PSU (S), respectively).

2.3 Having regard to the general formulas of the three polymer types (Ultrason® E, Ultrason® S and Ultrason® P) on page 10 of D2 — when compared to the formula in granted claim 1 — it is apparent that the polysulfone Ultrason® S 2010 is the most relevant to inventive step due to its structural similarity. While the sentence on page 24 of D2 mentioning functional optical applications for Ultrason®, such as lenses for electronic cameras, does not mention a specific polysulfone of the Ultrason® family, it nevertheless refers for these applications to Figure 31 on the same page showing the refractive indices in the visible wavelength range for each of Ultrason® E 2010, Ultrason® S 2010 and Ultrason® P 3010. It is therefore directly and unambiguously derivable from that sentence referring to Figure 31 that Ultrason® S 2010 is suitable in a lens for electronic camera. The Board therefore finds that these elements on page 24 constitute a disclosure of the use of Ultrason® S 2010 in lenses for electronic cameras.

2.4 The patent proprietor relied on the argument that the polymers in D2 (PESU, PPSU, and PSU) differed substantially from one another in their properties

(statement of grounds of appeal, pages 7–8; rejoinder, page 12) and that the skilled person would have recognized the need for further selections when considering a specific application. Thus, the selection of a polyarylsulfone for a mobile electronic device depended on achieving the optimal balance of properties critical to the device's intended use (statement of grounds of appeal, page 8, second paragraph). On that basis, the proprietor argued that the skilled person would not start from the lens made of PSU, but rather from the lens made of PPSU, as the latter would have a higher Tg, higher dimensional stability under heat, higher ignition temperature, lower flammability when not reinforced, higher impact strength and a higher refractory index.

2.5 This not convincing. Since the achievement of such particular combination of properties is not part of the subjective problem addressed in the patent in suit, it will not guide the skilled person towards the selection of a polymer of the PPSU as a more promising starting point than PSU for the present invention. Moreover, granted claim 1 — beyond its general reference to mobile electronic devices — does not explicitly require any specific property of the claimed polyarylsulfones. From the wording of granted claim 1, the Board understands that the use of composition (C) in the mobile electronic device is not subject to particular limitations. Besides, a lens in an electronic camera, as disclosed on page 24 of D2, is part of a mobile electronic device within the meaning of granted claim 1, which is undisputed by the patent proprietor.

2.6 In line with the opposition division's conclusion regarding the electronic camera comprising a lens made of Ultrason® S 2010, the Board finds that D2 does not

disclose the residual chlorine content of the PSU polymer (Ultrason® S 2010) (≤ 25 µeq/g polymer) (impugned decision, Reasons 6.3). The opponent however submitted that the declaration D26 provided further insights on the residual chlorine content of the PSU polymer (Ultrason® S 2010) disclosed in D2.

2.7 D26 is a declaration under oath of Mr. Martin Weber who declares to have worked since 1 August 1990 at BASF SE in the research and development department working on polyaryl ethers. The same company issued the brochure D2 in October 2010. Preliminarily, the Board considers the patent proprietor's objection to the reliability of Mr. Weber in making certain statements on the BASF brochure D2 as a mere allegation, which is not sufficient to cast doubts on the disclosure of D26. Mr. Weber declares under oath in D26 that the polysulfon polymer product Ultrason® S 2010, which was a commercially available product, had the following characteristics:

- Ultrason® S 2010 (Cl) content = 24 µeq/g; (-OMe) content = 23 µeq/g; (-OH) content = 2 µeq/g; VZ 63.0 ml/g

2.8 The chlorine content of this polysulfone polymer was determined, as described in the contested patent, by means of elemental analysis. Document D26 confirms that the chlorine content of selected polysulfone polymer Ultrason® S 2010 disclosed in Document D2 was 24 µeq/g in 2010 (i.e. the year of publication of Document D2). This means that the chlorine content of Ultrason® S 2010 (24 µeq/g), which is the polymer described on page 24 of D2, is according to the range defined in claim 1 of the main request (less than 25 µeq/g). The proprietor's argument at the oral proceedings that the

data indicated in D26 were not necessarily representative of the product commercialized by the opponent at the date of publication of D2 is not supported by any evidence and contrary to the unambiguous statement in D26 that the properties reported concerned the product sold in 2010.

2.9 The patent proprietor argued that the data in D26 would amount to a prior use objection, which would require to be proven, since commercially available products had been analysed (rejoinder of the proprietor, page 11, section 6, penultimate dash point). This is not convincing. First, there were no doubts that the products of D2 were commercially available. Document D26 merely complements the information in D2, it does not render it a prior use. Further, all analysable properties of the product put on the market became public alone by the possibility that they could have been analysed, because the product was physically accessible. If the composition could be analysed, this became part of the state of the art as well, also if the skilled person would not have been in the position to reproduce it on their own (G 1/23, Reasons 91).

2.10 Also, the fact that D26 does not mention mobile electronic devices as argued by the proprietor (rejoinder of the proprietor, page 12, first dash point) is not found to be relevant in the present situation as the objection is made with respect to the disclosure on page 24 of D2, D26 being only cited as evidence for certain properties of Ultrason® S 2010.

2.11 The patent proprietor further submitted that D26 referred to the amount of Cl in the form of end groups (rejoinder of the proprietor, page 11, last dash point), whereas the claims of the main request would

refer to the total amount of residual chlorine. Hence, the data of D26 would concern a different feature than the actually claimed subject-matter. The Board does not come to that conclusion.

2.12 Granted claim 1 defines the aromatic polysulfone polymers (PSU_{Cl}) by their residual chlorine contents without further defining the term "residual chlorine content". Paragraph 37 of the patent in suit defines it as the total amount of chlorine present in the form of organically bonded chlorine polymer end groups, residual chlorinated solvents, and/or ionically bound residual chlorine salts. While the method for determining the residual chlorine content is not particularly limited (paragraph 38), it is preferably measured according to the specific method defined in paragraph 39 of the specification for which the total amount of chlorine determined for a sample is after conversion expressed in chlorine end group.

2.13 While D26 refers to the amount of Cl in the form of end groups, D26 also specifies that it was determined as described in the patent in suit (penultimate paragraph), i.e. that amount corresponds to a measurement of the elemental chlorine, which is after conversion expressed in chlorine end groups. On that basis, the amount of residual chlorine content does not constitute a distinguishing feature in view of the value disclosed in D26.

2.14 Taking into account the residual chlorine content of Ultrason® S 2010 described in D26, the opponent concluded that claim 1 of the main request in fact lacked novelty over D2. In principle, in a case where a patent has been opposed under Article 100(a) EPC on the ground that the claims lack an inventive step in view

of documents cited in the notice of opposition, the ground of lack of novelty based upon Articles 52(1), 54 EPC is a fresh ground for opposition and accordingly may not be introduced into the appeal proceedings without the agreement of the patentee. However, the allegation that the claims lack novelty in view of the closest prior art document may be considered in the context of deciding upon the ground of lack of inventive step (G 7/95, Order and Headnote). The Enlarged Board of Appeal added that if the closest prior art document destroys the novelty of the claimed subject-matter, such subject-matter obviously cannot involve an inventive step (Reasons 7.2).

2.15 In the absence of any indication for another alleged distinguishing feature, the subject-matter of granted claim 1 is anticipated by the disclosure on page 24 of D2 of an electronic camera comprising a lens made of Ultrason® S 2010. Operative claim 1 therefore inevitably lacks an inventive step over D2.

Auxiliary request 1

3. Inventive step

3.1 Claim 1 of auxiliary request 1 corresponded to claim 1 as granted with the addition "wherein the polymer (PSU_{Cl}) has a number of the unit (R_{end}) being equal to or less than 120 µeq/g".

3.1.1 The opponent contested the novelty of claim 1 of auxiliary request 1 over D2 in view of the results provided in D26 (statement of grounds of appeal, section 4, page 11), in particular the amount in methoxy end groups corresponding to (R_{end}) in claim 1 of auxiliary request 1. D26 in particular disclosed a

methoxy end groups amount of 23 µeq/g for the product Ultrason® S 2010, well within the range defining claim 1 of auxiliary request 1.

3.1.2 The arguments of the proprietor with respect to claim 1 of auxiliary request 1 do not address the number of the unit (R_{end}) in the polymers of D2 and whether that feature was anticipated by the information contained in the declaration D26. The argument made by the proprietor in writing with respect to auxiliary request 1 concerned the combination of D2 with D11 which does not involve the disclosure in D26 (statement of grounds of appeal, pages 10 and 11, section 7.1).

3.1.3 With respect to D26, the argument of the proprietor related to the amount of chlorine and the contention that the document disclosed end groups concentrations rather than residual chlorine. That argument was dealt with respect to the main request and it was concluded that the Ultrason® S 2010 had a residual chlorine content according to operative claim 1. Also, since the disclosure of the methoxy end groups content in D26 is incontestably within the range defined in claim 1 of auxiliary request 1, the Board finds that the conclusion reached for the main request also applies to auxiliary request 1.

Auxiliary request 2

4. Inventive step

4.1 Claim 1 of auxiliary request 2 corresponded to claim 1 as granted with the addition of "wherein the polymer (PSU_{Cl}) has 25 – 120 µeq/g of unit (R_{end})".

Distinguishing feature

4.2 It was accepted at the oral proceedings before the Board that claim 1 of auxiliary request 2 differed from D2 in that the number of the unit (R_{end}) in the polymer (PSU_{Cl}) was in the range of 25-120 µeq/g. D26 discloses a value of methoxy end groups (corresponding to units (R_{end})) of 23 µeq/g for the product Ultrason® S 2010 (see point 3.1.1 above).

Objective problem

4.3 The proprietor brought forward at the oral proceedings that the problem solved over the closest prior art would reside in the provision of a polymer to be used in a mobile electronic device which has improved processability and thermal stability. The proprietor relied on D25, an affidavit signed by Mr Atul Bhatnagar, a co-inventor of the patent in suit, as evidence showing an effect of the distinguishing feature over D2.

4.4 D25 is based on reworking the examples 2-7 of the patent in suit and includes a comparative example with no excess bisphenol A in order to demonstrate the presence of an effect related to the number of the unit (R_{end}) in the polymer (PSU_{Cl}), that was considered as the difference over the closest prior art. That effect concerned the parameter VR40 which expresses a change in viscosity of a polymer over time at high temperature. As stated in D25, "[a] VR40 value of 1 means "no thermal degradation" while increasing VR40 values beyond 1 means increasing thermal degradation of the polymer". The proprietor submitted during the oral proceedings that such effect brought about by the content of (R_{end}) units was encompassed by the

technical teaching of the application as filed, reference being made to page 2, lines 13-18 and page 8, lines 21-25.

4.5 The opponent argued that the experimental data in D25 was inadmissible because it introduced a new technical effect — the VR40 value at 410°C — that was not derivable from the application as filed or from the patent, and was in any event irrelevant to a mobile electronic device used at ordinary temperatures. The passage on page 8, lines 21-25 of the application as filed pertained to the end groups (R_{end}) only and their effect on the polymer's stability and degradation phenomena in components of mobile electronic devices, not the viscosity or melt behaviour of the polymer at 410°C. The opponent further submitted that even if the proprietor sought to rely on D25 to show improved processability, the original application contained no disclosure linking R_{end} to processability, and the VR40 measurement was taken far above the normal processing range of polysulphone polymers, which was stated to be about 330–390°C, so the alleged effect was not derivable from the application as originally filed (letter of 29 April 2026, pages 3-5).

4.6 Under G 2/21, headnote II, and point 2 of the Order a patent applicant or proprietor may rely upon a technical effect for inventive step if the skilled person, having the common general knowledge in mind, and based on the application as originally filed, would derive said effect as:

(i) being encompassed by the technical teaching; and

(ii) embodied by the same originally disclosed invention.

4.7 The opponent however argued that the effect relied upon in D25, which is a thermal stability test based on melt viscosity [VR40] (D25, page 1), was not disclosed in the application as filed (statement of grounds of appeal, page 16, penultimate paragraph). The effect on melt stability in D25 in particular is based on measurements of the melt viscosity at 40 minutes and at 10 minutes in which the melt viscosities were measured at 410°C (D25, page 2) (letter of the opponent of 29 April 2026, page 3).

4.8 The passages on page 2, lines 12-18 and on page 8, lines 21-25 of the application as filed addressed by the proprietor do not mention the melt stability of the polysulfone polymers, let alone at a temperature of 410°C. The effect mentioned there is indicated to relate to the presence of the unit (R_{end}), which "*especially avoids discoloration or other degradation phenomena thereby offering to the polymer (PSU_{Cl}) of the invention superior properties such as outstanding thermal oxidative and chemical stability, which allows them to be very useful as being comprised in parts of mobile electronic devices*". The indication that the presence of (R_{end}) is useful in parts of mobile electronic devices suggests that the thermal oxidative and chemical stability addressed in the application as filed is that obtained under the conditions in which these devices are used. Accordingly, the effect mentioned in the application as originally filed being associated with the application in mobile electronic devices is found to be significantly different from the effect addressed in D25 using much harsher conditions of stability of the polymer in the melt at 410°C

(letter of the opponent of 29 April 2026, page 3, penultimate paragraph). There is no further mention of any thermal effect of the polysulfone compositions in the application as filed. The Board therefore concludes that the effect relied upon by the proprietor in D25 cannot be seen as having been encompassed by the disclosure of the application as originally filed in the sense of G 2/21.

4.9 Accordingly, in application of G 2/21 the Board finds that the effect relied upon by the proprietor as an improvement of VR40 as a change in viscosity over time at high temperature allegedly shown in D25 cannot be relied upon for the formulation of the problem. In the absence of an effect over D2 causally linked to the selection of a number of the unit (R_{end}) in the polymer (PSU_{Cl}) in the range of 25-120 µeq/g, the only problem that can be formulated is the provision of further mobile electronic devices.

Obviousness

4.10 The opponent relied on D11 which is in the field of electronics (e.g. switches and housings), and explicitly teaches the need for polysulfone-type polymers with a low chlorine content (page 1, lines 26-34), and concretely discloses polyphenylsulfone polymers with low chlorine contents. D11 discloses chlorine contents of 400 ppm or less (page 9, lines 20-26), which, since chlorine has a molar mass of 35,5 g/mol, would correspond to low chlorine contents of less than 11,26 µeq/g in the polymer. D11 is also relevant to the question of adjusting concentrations of -OH and -OMe end groups in polysulfone polymers used in electronics.

4.11 D11 does not only teach the target (low chlorine end groups) for the polyphenylsulfone polymers, but also the means to achieve it. D11 gives a clear technical teaching on how to adjust end group concentrations. In particular, low chlorine content in polysulfones is obtained by using a molar excess of the aromatic dihydroxy component, which mandatorily comprises 4,4'-dihydroxybiphenyl and optionally an additional dihydroxy component (e.g. bisphenol A), over the aromatic dihalogen component (e.g. 4,4'-dichlorodiphenylsulfone) during polycondensation (page 4, lines 28-31; page 3, lines 29; page 4, lines 7-8). This implies for the skilled person that the higher the excess of bisphenol A, the lower the amount of chlorine end groups in the resulting polysulfone; conversely, this logically increases the concentration of hydroxy end groups (-OH) of the intermediate polymer, i.e. before any etherification step to reduce the amount of -OH end groups (see point 4.13 below). Thus, the Board finds that D11 teaches that the ratio of monomers is the tool to control the balance of -Cl and -OH end groups in the polybisphenylsulfone before any etherification step is performed.

4.12 It is acknowledged that D11 primarily concerns polybisphenylsulfone / polyarylethersulfone-type polymers and not polysulfones as argued by the proprietor. D11 however is directed to polyarylethersulfones obtained by nucleophilic aromatic substitution of an aromatic sulfone dihalide with bisphenolic monomers (page 2, third paragraph) in polar aprotic solvents such as N-Methylpyrrolidon (NMP) (passage bridging pages 6 and 7). This is the same fundamental synthetic platform as for bisphenol-A polysulfone (PSU), which arises from condensation of bisphenol A with 4,4'-dichlorodiphenyl sulfone, in

particular in NMP, i.e. resulting in the polymeric units building Ultrason® S 2010 released by BASF SE (statement of grounds of appeal of the opponent, page 5, fifth paragraph and letter of the opponent of 28 January 2025, page 3, fifth paragraph).

The end group chemistry on which D11 focuses (chlorine, phenolic OH, and methyl ether end groups) depends only on the presence of terminal phenolic units from the bisphenol and reactive sulfone-bound aryl chloride functions, not on finer structural differences within the polyarylethersulfone backbone. The central teaching of D11 — that a molar excess of the dihydroxy component reduces chlorine end groups and increases -OH end groups, and that these -OH groups are then etherified with methyl chloride to stabilise the polymer and control molecular weight (see point 4.13 below)— is expressed in general terms and is not tied to a peculiar behaviour of a specific "polybisulfone" structure. There is no indication in D11 that its end group control strategy would fail or become irrelevant for PSU; on the contrary, it reflects standard practice for BPA/sulfone-based condensation polymers.

Accordingly, the teaching of D11 on adjusting the monomer ratio and performing methylation of phenolic end groups would be understood as directly transferable to the PSU of D2. In combination, D2 provides the specific application as mobile electronic device and base PSU resin, while D11 supplies the concrete, generally applicable process measures to set the desired balance of Cl, -OH and -OMe end groups of the PSU resin. In this respect, as point out in point 2.9 above, all analysable properties of a product put on the market, in the present case Ultrason® S 2010, become public alone by the possibility that they could

have been analysed, because the product was physically accessible. If the composition could be analysed, this became part of the state of the art as well, also if the skilled person would not have been in the position to reproduce it on their own (G 1/23, Reasons 91). As shown in D26, the analysable properties of Ultrason® S 2010 included not only the content of Cl end groups, but also the -OH and -OMe end groups, as well as the viscosity number, which reflects the molecular weight of the polymer.

4.13 Concerning the use of -OMe end groups, the opponent also showed that the skilled person further knew that the free OH end groups of polyarylethersulfones obtained by nucleophilic aromatic substitution of an aromatic sulfone dihalide with bisphenolic monomers remain reactive. Standard practice, reflected in D11 (page 8, line 25 to page 9, line 7), is to etherify the reactive OH end groups with an aliphatic halide, typically methyl chloride (CH_3Cl), to convert them into non-reactive methoxy (-OMe) end groups, thereby stabilising the polymer and preventing further molecular weight build-up

It is in this respect credible, as argued by the opponent, that it was common general knowledge or at least expected by the skilled person that this methylation is never 100% complete, so a small residual amount of -OH end groups remains (statement of grounds of appeal, page 15, second paragraph).

Furthermore, the selection of a range of 25-120 µeq/g for the concentration of units (R_{end}) while choosing a content a residual chlorine in the amount defined in operative claim 1 has not been shown to be critical for the stability of the polymer or for any other property,

so that it must be considered an arbitrary and therefore obvious modification of the closest prior art, which the skilled person would be in the position to put into practice in light of the explicit teaching of D11 and the general practice it reflects.

4.14 In view of the foregoing, starting from the lenses for electronic cameras using Ultrason® S 2010 described in D2 and faced with the task of providing further mobile electronic devices, the skilled person would have arrived in an obvious manner at a mobile electronic device falling within the ambit of operative claim 1.

4.15 Claim 1 of auxiliary request 2 therefore lacks an inventive step over D2 in combination with D11.

Auxiliary request 3-6

5. Inventive step

5.1 Claim 1 of auxiliary request 3 corresponded to claim 1 as granted with the addition "wherein the polymer (PSU_{Cl}) has 35 – 90 µeq/g of unit (R_{end})".

Claim 1 of auxiliary request 4 corresponded to claim 1 as granted with the addition "wherein the polymer (PSU_{Cl}) has 40 – 85 µeq/g of unit (R_{end})".

Claim 1 of auxiliary request 5 corresponded to claim 1 of auxiliary request 1 in which the definition of the unit (R_{end}) was limited to formula (B'-1):
" Me-O-Ar-(CXY)-Ar'- formula (B'-1),
wherein Ar, Ar', X and Y are as defined above".

Claim 1 of auxiliary request 6 corresponded to claim 1

of auxiliary request 4 in which the definition of the unit (R_{end}) was limited to formula (B'-1):
" Me-O-Ar-(CXY)-Ar'- formula (B'-1),
wherein Ar, Ar', X and Y are as defined above".

5.2 Both the proprietor and the opponent relied at the oral proceedings on their written submissions with respect to the question of inventive step of claims 1 of auxiliary requests 3-6 starting from D2 as the closest prior art.

5.3 Claims 1 of auxiliary requests 3 and 4 further limit the range defining the number of en group units (R_{end}) to 35–90 µeq/g (auxiliary request 3) and 40–85 µeq/g (auxiliary request 4). The arguments of the proprietor with respect to these requests relied on the presence of an effect, the improved thermal stability allegedly shown in D25 which was however found not to be admissible in the present case. The problem that can be formulated for auxiliary requests 3 and 4 is therefore the same as that formulated for auxiliary request 2, namely the provision of further mobile electronic devices. The question of obviousness concerning claim 1 of auxiliary requests 3 and 4 is the same as that addressed for auxiliary request 2. D11 establishes that the skilled person knew how to adjust the amount of methoxy end groups together with the residual chlorine content in polysulfone polymers. It was not disputed that that teaching is applicable to any part of the range defining claim 1 of auxiliary request 2 (25–120 µeq/g) which encompasses both ranges defined in claims 1 of auxiliary requests 3 (35–90 µeq/g) and 4 (40–85 µeq/g). In this respect, the Board finds that the negative conclusion on the question of inventive step reached for auxiliary request 2 equally applies to

claims 1 of auxiliary requests 3 and 4.

5.4 Claims 1 of auxiliary requests 5 and 6 further limit the definition of the end group formula to (B'-1) " Me-O-Ar-(CXY)-Ar'- formula (B'-1), wherein Ar, Ar', X and Y are as defined above". It was undisputed that the end-groups defined by formula (B'1) which comprise methoxy end groups attached to a bisphenol A moiety are already contained in the polymers Ultrason® S 2010 and therefore do not constitute a further distinguishing feature. In these circumstances the reasoning and the negative conclusion on inventive step reached in the case of auxiliary requests 1 and 4 which form the basis for auxiliary requests 5 and 6 also apply to these requests. Auxiliary requests 5 and 6 therefore lack an inventive step over D2.

Auxiliary request 7

6. Admittance

6.1 Auxiliary request 7 was submitted by the proprietor after the discussion of auxiliary request 6, at the end of the oral proceedings before the Board. Its admittance is governed by the provisions of Article 13(2) RPBA, according to which, any amendment to a party's appeal case made after notification of a communication under Article 15(1) RPBA, shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned. Claim 1 of auxiliary request 7 corresponded to claim 1 of auxiliary request 2 further modified in that "said part is a mobile phone housing".

6.2 The opponent requested not to admit auxiliary request 7 into the proceedings, alternatively, that the case be remitted to the opposition division for further prosecution. The opponent essentially argued that auxiliary request 7 should have been filed earlier in the proceedings, in particular before the opposition division. In its statement of grounds of appeal as well in the reply to the proprietor's grounds of appeal, the opponent explicitly argued that document D2 together with document D26 was novelty destroying for the claimed subject matter and that document D25 could not be relied upon to show the further technical effect of the VR40 parameter, which had not been disclosed in the application as filed. The patent proprietor therefore had reasons to file amendments addressing these objections earlier than at the oral proceedings before the Board.

6.3 The patent proprietor essentially argued that they had been surprised at the oral proceedings first by how the Board considered the evidence in document D26 and second by the fact that the Board did not regard the VR40 parameter addressed in D25 as linked to an effect already disclosed in the application as filed. In this respect, D26 had been filed a few weeks before the oral proceedings before the opposition division and the probative value of D25 had not been questioned at that stage of the proceedings. In addition, decision G 1/23 had not been issued. The Board's communication under Article 15(1) RPBA did not prompt the patent proprietor to file further amended claims earlier, there were therefore exceptional circumstances to admit auxiliary request 7 into the proceedings.

6.4 This is not convincing. The argument made with respect to D26, namely that it concerned the same commercially

available product Ultrason® S 2010 as that disclosed in D2 and also provided a disclosure of the residual chlorine content that was relevant to claim 1 of the main request was laid out fully in the statement of grounds of appeal of the opponent (page 12, third and fourth paragraphs). The assessment of D26 made by the Board in their preliminary opinion (sections 9.9-9.14) is also along the lines of argumentation that the opponent developed in their statement of grounds of appeal. The Board addressed in particular the relevance of decision G 1/23 in section 9.11 of the preliminary opinion, which lead to the preliminary conclusion that the disclosure in D2 of an electronic camera comprising a lens made of Ultrason® S 2010 anticipated the subject-matter of claim 1 of the main request. Concerning D26, the conclusion of the Board reached at the oral proceedings and the discussion between the parties on that day did not contain any new development compared to the written submissions and preliminary opinion. In this respect the Board does not find in their assessment of D26 at the oral proceedings any justification for the filing of a new request.

6.5 The proprietor also referred to the assessment of D25 by the Board at the oral proceedings. The Board with respect to D25 found that the argumentation laid out by the opponent in their statement of grounds of appeal (section 6) was convincing, namely that the effect allegedly shown in D25 was not derivable from the application as originally filed. While the assessment of D25 made by the Board in their preliminary opinion (section 11.2.5) was generally positive as far as the question of whether the effect involving VR40 was derivable from the application as originally filed, so that one could consider that the Board changed their opinion on that question at the oral proceedings, this

cannot be seen as the justification for filing a new request. It is in particular apparent that the reasoning of the Board with respect to the basis for the effect in the application as originally filed follows the argumentation of the opponent in their statement of grounds of appeal, which was coherently maintained also in the opponent's reply (page 1), without being based on new elements that had not already been laid out from the start of the appeal proceedings. In fact, that was not contested by the proprietor in support of their argumentation to admit auxiliary request 7 into the proceedings. Moreover, a change of opinion of the Board expressly referred to as preliminary in the light of the oral discussion of arguments that were all already known from the written proceedings cannot serve as justification for the purposes of Article 13(2) RPBA (Case Law, V.A.4.5.4).

6.6 Admitting auxiliary request 7 filed at the very last stage of the appeal proceedings however would have required a postponement of the oral proceedings and thereby would have run against the procedural economy of the case, because the limitation introduced therein referring to a mobile phone housing would have significantly affected the part in D2 discussed as the closest prior art throughout the whole proceedings. The Board therefore does not see in the facts of the case any justification for admitting auxiliary request 7. Auxiliary request 7 was not admitted (Article 13(2) RPBA).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

D. Hampe F. Rousseau

Decision electronically authenticated