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Opposition Against EP Patent No. EP 4 069 522 B1
Proprietor: LEONHARD KURZ Stiftung & Co. KG
Opponent: UNIVACCO Technology Inc.

FACTS AND ARGUMENTS

Introduction

UNIVACCO Technology Inc. ("the Opponent") hereby files an opposition pursuant to Article 99 EPC to European patent number 4069522 ("the Patent") in the name of LEONHARD KURZ Stiftung & Co. KG ("the Patentee"), granted from European application no. 20811302.7 ("the Application") and of which the mention of grant was published on 2024.12.04. The title of the opposed patent is "DECORATIVE FOIL, METHOD FOR PRODUCING A DECORATIVE FOIL AND METHOD FOR DECORATING A TARGET SUBSTRATE". The application was filed on 2020.11.20 with claiming priority to DE 102019132787.3 filed on 2019.12.03.

Request and grounds for opposition

We request that the Patent be revoked in its entirety for all EPC contracting states. The subject-matter of the Patent is not patentable within the requirements of Articles 100(a) and 100(b) EPC. If the Opposition Division is minded to reach a conclusion other than revocation of the Patent in its entirety, oral proceedings are requested in accordance with Article 116 EPC.

If any representative is to speak at oral proceedings in an official language other than English or German, the EPO is requested to provide simultaneous translation from that language into German.

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UNIVACCO Technology Inc., v. LEONARD KURZ Stiftung & Co. KG,
KURZ Exhibit 2002
EX2002, page 1

PGR2026-00011

The Opponent reserves its right to file experimental evidence in support of the opposition and hereby gives notice to that effect.

The Opponent reserves its position on all other matters, including costs if appropriate.

Cited Documents

In the following arguments aimed at revocation of the opposed patent, the following prior art documents will be used.

Relevant date: 2019.12.03

Reference	Document	Publication date
E1	EP 2172347A2	2010.04.07
E2	CA 3049611A1	2018.08.02
E3	US 20180215190A1	2018.08.02
E4	US 20190001735A1	2019.01.03
E5	US 20180272779A1	2018.09.27
E6	DE 102017118904A1	2019.02.21
E7 E7a	http://www.kksc.com.tw/product_11.php machine translation of E7	2015.11.06
E8	Zhilong Peng, Cong Wang, Lei Chen, Shaohua Chen "Peeling behavior of a viscoelastic thin-film on a rigid substrate" International Journal of Solids and Structures 51 (2014) 4596-4603	2014.10.22
E9	Manroland "The uniqueness factor"	2011.04
E10	UNIVACCO Invoice # TL180816-11	
E11	UNIVACCO Invoice # TL180223-2	

All of cited documents E1-E9 were published before the filing date of 2020.11.20 and priority date of 2019.12.03. Therefore, cited documents E1-E9 are available for the assessment of novelty and inventive step in accordance with Art. 100(a), 100(b), 54 and 56 EPC.

Claims of the Patent

There are 21 claims in the opposed patent, in which claims 1-15 are directed to a decorative foil, claims 16-18 are directed to a method for producing a decorative film, and claims 19-21 are directed to a method for decorating a target substrate.

The claims of the opposed patent recite as follows:

Claims of granted EP 4069522B1

Claim 1: Independent claim directed to a decorative foil

- F1.1 Decorative foil (40), in particular laminating foil, cold stamping foil, or thermographic foil, comprising a carrier film (42) and a total paint layer (41), characterised in that
- F1.2 the carrier film (42) has a thickness in the range from 3.0 μm to 10.0 μm
- F1.3 and the total paint layer (41) has a thickness in the range from 1.0 μm to 2.5 μm ,
- F1.4 and the total paint layer (41) has at least one decorative layer and at least one decorative layer (45) of the at least one decorative layer (45) has a thickness in the range from 8 nm to 500 nm.

Claim 2

Decorative foil according to the preceding claim, characterised in that

- F2.1 the total paint layer (41) has a thickness in the range from 1.0 μm to 1.7 μm and/or
- F2.2 the ratio of the carrier film thickness to the total paint layer thickness is in the range from 1.8:1 to 7.0:1, preferably from 2.5:1 to 5.8:1,
- wherein the carrier film (42) has a thickness in a range from greater or equal to 3 μm to less than or equal to 7 μm and/or
- F2.3 the ratio of the carrier film thickness to the total paint layer thickness is in a range from 4.1:1 to 10.0:1, preferably from 4.4:1 to 8.3:1, wherein the carrier film (42) has a thickness in a range from greater than or equal to 7 μm to less than or equal to 10 μm .

Claim 3

Decorative foil according to one of the preceding claims, characterised in that

- F3.1 the decorative foil (40) has a permeability in the range of 5% to 70%, in particular from 10% to 40% for UV radiation in the wavelength range from 250 nm to 400 nm.

Claim 4

Decorative foil according to one of the preceding claims, characterised in that

- F4.1 the tearing force fluctuations in the force amplitude around its mean value is in a range from greater than or equal to -0.5 cN to less than or equal to 0.5 cN and/or
- F4.2 the total paint layer (41) has at least one colour layer on at least one surface, wherein the adhesive strength is at least 25 cN, preferably at least 30 cN, between at least one colour layer of the at least one colour layer and the total paint layer (41).

Claim 5

Decorative foil according to one of the preceding claims, characterised in that

- F5.1 the total paint layer (41) has coverage, with decoration of an associated full surface, of greater than or equal to 99.5%, preferably 100%, and a decoration or point perception with decoration of a 10% mid-tone field of greater than or equal to 99.5%, preferably 100%.

Claim 6

Decorative foil according to one of the preceding claims, characterised in that

- F6.1 the total paint layer (41) has at least one release layer (43) and/or at least one protective paint layer (44) and/or at least one primer layer (46) and/or at least one adhesive layer (47) and/or at least one colour layer.

Claim 7

Decorative foil according to claim 6, characterised in that

- F7.1 at least one release layer (43) of the at least one release layer (43) comprises a material or a material combination, selected from: waxes, silicones, polyurethanes and/or polymers, preferably acrylate-copolymers, polyester-copolymers, polystyrene-copolymers, polycarbonate-copolymers; and/or
- F7.2 at least one release layer (43) of the at least one release layer (43) has a thickness in the range from 0.01 μm to 0.50 μm , preferably from 0.10 μm to 0.30 μm and/or
- F7.3 at least one release layer (43) of the at least one release layer (43) is formed to be transparent and/or translucent and/or opaque and/or coloured in and/or at least partially coloured in and/or crystal clear.

Claim 8

Decorative foil according to claim 6 or 7, characterised in that

- F8.1 at least one protective paint layer (44) of the at least one protective paint layer (44) comprises a material or a material combination, selected from: polymers, in particular

acrylate-copolymers, polyester-copolymers, polystyrene-copolymers, polycarbonate-copolymers and/or SMA-copolymers.

Claim 9

Decorative foil according to claim 7 or 8, characterised in that

- F9.1 the polymers, in particular acrylate-copolymers, polyester-copolymers, polystyrene-copolymers, polycarbonate-copolymers and/or SMA-copolymers, or a combination thereof,
- F9.2 of the total paint layer (41) has a molar mass in the range from 1000 g/mol to 100000 g/mol, preferably from 3000 g/mol to 35000 g/mol.

Claim 10

Decorative foil according to one of claims 6 to 9, characterised in that

- F10.1 the at least one protective paint layer (44) of the at least one protective paint layer (44) has a thickness in the range from 0.5 μm to 3 μm , in particular from 0.8 μm to 1.3 μm and/or
- F10.2 at least one protective paint layer (44) of the at least one protective paint layer (44) is formed to be transparent and/or translucent and/or opaque and/or coloured in and/or at least partially coloured in and/or crystal clear.

Claim 11

Decorative foil according to one of the preceding claims, characterised in that

- F11.1 the tearing force of the total paint layer (41) of the carrier film (42) is in a range from 2 cN to 8 cN.

Claim 12

Decorative foil according to one of claims 6 to 11, characterised in that

- F12.1 at least one decorative layer (45) of the at least one decorative layer (45) has at least one layer generating a visually variable effect and/or
- F12.2 at least one decorative layer (45) of the at least one decorative layer (45) has at least one replicating paint layer having a surface structure moulded into at least one replicating paint layer of the at least one replicating paint layer, in particular selected from: diffractive surface structure, refractive surface structure, lens structure, matte structure and/or blazed grating; and/or
- F12.3 at least one decorative layer (45) of the at least one decorative layer (45) has at least one reflective layer, in particular at least one reflective layer moulded in a pattern in the shape of a first piece of information.

Claim 13

Decorative foil according to one of claims 6 to 12, characterised in that

- F13.1 at least one decorative layer (45) of the at least one decorative layer (45) has at least one thin film layer element for generating a viewing-angle-dependent colour shifting effect and/or
- F13.2 at least one decorative layer (45) of the at least one decorative layer (45) has at least one colour layer moulded in a pattern in the shape of a second piece of information and/or
- F13.3 at least one decorative layer (45) of the at least one decorative layer (45) comprises at least one metallic layer and/or at least one dielectric layer and/or
- F13.4 at least one decorative layer (45) of the at least one decorative layer (45) has a thickness in the range from 8 nm to 60 nm, in particular from 10 nm to 30 nm.

Claim 14

Decorative foil according to claim 13, characterised in that

- F14.1 at least one metallic layer of the at least one metallic layer comprises a material or a material combination, selected from: aluminium, silver, gold, copper, nickel, chromium and/or an alloy comprising at least two of these metals; and/or
- F14.2 at least one dielectric layer of the at least one dielectric layer comprises a material or a material combination, selected from: metal oxide, polymer, paint and/or HRI material, in particular MgO , TiO_n , Al_2O_3 , ZnO , ZnS and/or SiO_n , wherein the variable n is preferably in the range from greater than or equal to 0 to less than or equal to 3.

Claim 15

Decorative foil according to one of claims 6 to 14, characterised in that

- F15.1 at least one primer layer (46) of the at least one the primer layer (46) has a thickness in the range from $0.1\ \mu\text{m}$ to $2\ \mu\text{m}$, in particular preferably from $0.2\ \mu\text{m}$ to $0.8\ \mu\text{m}$ and/or
- F15.2 at least one primer layer (46) of the at least one primer layer (46) is formed to be transparent and/or translucent and/or opaque and/or coloured in and/or at least partially coloured in and/or crystal clear.

Claim 16: Independent claim directed to a method for producing a decorative film

Method for producing a decorative film, in particular according one of claims 1 to 15, wherein the method comprises the following steps, which in particular are performed in the following order:

- F16.1 providing a carrier film (42), wherein the carrier film (42) has a thickness in the range from $3.0\ \mu\text{m}$ to $10.0\ \mu\text{m}$,
- F16.2 b) applying a total paint layer (41) onto at least one area of at least one surface of the carrier film (42), wherein a decorative foil (40) is formed,
- F16.3 and in step b) the total paint layer (41) has a thickness in the range from $1.0\ \mu\text{m}$ to $2.5\ \mu\text{m}$
- F16.4 and in step b) the total paint layer (41) has at least one decorative layer and at least one decorative layer (45) of the at least one decorative layer (45) has a thickness in the range from $8\ \text{nm}$ to $500\ \text{nm}$.

Claim 17

Method according to claim 16, characterised in that

- F17.1 in step b) the total paint layer (41) has a thickness in the range from $1.0\ \mu\text{m}$ to $1.7\ \mu\text{m}$ and/or
- F17.2 the ratio of the thickness of the carrier film (42) to the thickness of the total paint layer (41) is in a range from 1.8:1 to 7.0:1, preferably from 2.5:1 to 5.8:1, wherein the carrier film (42) has a thickness in a range from greater than or equal to $3\ \mu\text{m}$ to less than or equal to $7\ \mu\text{m}$ and/or
- F17.3 the ratio of the thickness of the carrier film (42) to the thickness of the total paint is in a range from 4.1:1 to 10.0:1, preferably from 4.4:1 to 8.3:1, wherein the carrier film (42) has a thickness in a range from greater than or equal to $7\ \mu\text{m}$ to less than or equal to $10\ \mu\text{m}$.

Claim 18

Method according to claim 16 or 17, characterised in that

- F18.1 in step b) the total paint layer (41) has at least one release layer (43) and/or at least one protective paint layer (44) and/or at least one primer layer (46) and/or at least one adhesive layer (47) and/or at least one colour layer.

Claim 19: Independent claim directed to a method for decorating a target substrate

F19.1 Method for decorating a target substrate, wherein the method comprises the following steps, which in particular are performed in the following order: d) providing a decorative film (40) according to one of claims 1 to 15,

F19.2 e) providing a target substrate (10),

F19.3 f) applying the decorative foil (40) onto the target substrate (10).

Claim 20

Method according to claim 19, characterised in that,

F21.1 after step f) on at least one surface of the total paint layer (41), at least one colour layer is applied, so that the adhesive strength is at least 25 cN, preferably at least 30 cN, between at least one colour layer of the at least one colour layer and the total paint layer (41).

Claim 21

Method according to claim 19 or 20, characterised in that

F21.1 after step f) the total paint layer (41) has a coverage with decoration of an associated full surface from greater than or equal to 99.5%, preferably from 100% and a decoration or point perception with decoration of a 10% mid-tone field from greater than or equal to 99.5%, preferably from 100%.

The list of features is also separately enclosed as **Annex 1**.

General comments and technical background in the field of decorative foil

The features claimed in Claim 1 (decorative foil) of the Patent and in claim 16 (method for production of decorative film) as well as in Claim 19 (method for the decoration of target substrate) are well known in the field of decorative foil, method for producing decorative film and method for decorating target substrate. The features claimed in the dependent claims are also well known and are either published or form part of the common general knowledge in the industry and we provide evidence to this in our attached supporting documents.

In summary, the alleged invention recited in the Claims of the Patent is known in the art and published in documents in conjunction with common general knowledge in the technical field as we will set out below.

As a background and general context that is evidenced by the prior art filed in support of this Opposition, the skilled person in the art knows that the thickness of the carrier film, the total paint layer, and the decorative layer can be adjusted to the specific range according to application.

Grounds of Opposition:**Skilled person to whom the patent is addressed:**

According to the Guidelines for Examination, when assessing novelty, the whole contents of the patent specification must be taken into account and the patent specification is directed to the skilled person. As set out in the Guidelines, C- 4.1, in T 410/99 the board added that a prior art disclosure was novelty-destroying if it disclosed directly and unambiguously the subject-matter in question, **account also being taken of a skilled person's common general knowledge** at the publication date of the cited document in the case of prior art cited under **Art. 54(2) EPC 1973**, or

at the priority date of the cited document in the case of an Art. 54(3) EPC 1973 document (see e.g. T 511/92, T 412/91).

According to the Guidelines for Examination, G-VII-3, the "person skilled in the art" is presumed to be a skilled practitioner in the relevant field of technology who is possessed of average knowledge and ability (average skilled person). The person skilled in the art is aware of what was common general knowledge in the art at the relevant date (see T 4/98, T 143/94 and T 426/88). The skilled person is also presumed to have had access to everything in the "state of the art", in particular the documents cited in the search report, and to have been in possession of the means and capacity for routine work and experimentation which are normal for the field of technology in question. If the problem prompts the person skilled in the art to seek its solution in another technical field, the specialist in that field is the person qualified to solve the problem. The skilled person is involved in constant development in the relevant technical field (see T 774/89 and T 817/95). The skilled person may be expected to look for suggestions in neighbouring and general technical fields (see T 176/84 and T 195/84) or even in remote technical fields, if prompted to do so (see T 550/89). Assessment of whether the solution involves an inventive step must therefore be based on that specialist's knowledge and ability (see T 32/81)."

According to the Guidelines for Examination at the EPO, G-IV-2 in considering novelty, a "document takes away the novelty of any claimed subject-matter derivable directly and unambiguously from that document including any features implicit to a person skilled in the art in what is expressly mentioned in the document, e.g. a disclosure of the use of rubber in circumstances where clearly its elastic properties are used even if this is not explicitly stated takes away the novelty of the use of an elastic material."

The skilled person is a graduate engineer (master of science) in plastics technology with several years of experience in the manufacture of plastic films.

Article 100 (a) EPC - Lack of Novelty of independent Claim 1

Document E1 :

E1 relates to a transfer film and cold film transfer method. Regarding features F1.1 and F1.2, E1 discloses "Beim Kaltfolientransfer, auch Kaltfolienprägen oder Coldfoiling bezeichnet, wird üblicherweise eine Transferfolie, bestehend aus einer Trägerfolie, [...]" (In English: „In cold foil transfer, also referred to as cold foil stamping or cold foiling, a transfer foil consisting of a carrier foil [...]" (Paragraph [0002]); "Bei der Trägerfolie 42 handelt es sich um eine PET-Folie mit einer Dicke im Bereich von 7 bis 23 µm." (In English: The carrier film 42 is a PET film with a thickness in the range from 7 to 23 µm" (Paragraph [0069] see also para. [0039]).

Regarding features F1.3, E1 discloses "Die Transferfolie weist insgesamt insbesondere eine Dicke im Bereich von 9 bis 25 µm, insbesondere im Bereich von 13 bis 16 µm, auf." (In English: The transfer film has a thickness in particular in the range from 9 to 25 µm, in particular in the range from 13 to 16 µm") (paragraph [0040]), and "[...] eine Transferfolie 40, welche eine Trägerfolie 42 und eine von der Trägerfolie 42 ablösbare Transferlage 41 aufweist." (In English: [...] a transfer film 40 which has a carrier film 42 and a transfer layer 41") (paragraph [0068]). Thus, it implies that a thickness of the transfer layer is 2 µm when the carrier film has the thickness of 7 µm and the transfer film has a thickness of 9 µm. Thus E1 discloses the feature F1.3.

Regarding feature F1.4, E1 discloses the transfer layer 41 comprises a decorative layer 45 (paragraph [0068]), and discloses "Die Dekorschicht 45 ist hier eine metallische Schicht aus Aluminium mit einer Schichtdicke im Bereich von 12 bis 15 nm" (In English: The decorative layer

45 is a metallic layer made of aluminum with a layer thickness in the range from 12 to 15 nm”) (paragraph [0072]).

Document E2 :

E2 relates to a transfer film, use thereof and a method for producing a transfer film as well as a method for producing an injection-molded article decorated with a transfer ply of a transfer film. Regarding feature F1.1, E2 discloses “the transfer film 10, in particular hot-stamping film, comprises a carrier film 12 and a transfer ply 14 arranged on the carrier film 12” (page 16 line 1-3).

Regarding feature F1.2, E2 discloses the carrier film 12 comprises a carrier layer 20, and the layer thickness of the carrier layer 20 is between 5 μm to 500 μm (page 16 line 17-21).

Regarding features F1.3 and F1.4, according to Fig. 1 of E2, the transfer ply 14 includes a top coat 16, an intermediary layer 24, a decorative layer 26 and an adhesive layer 30 (primer layer). E2 discloses the thickness of the top coat 16, the intermediary layer 24, the decorative layer 26 and the adhesive layer 30 are between 0.5 μm and 100 μm (page 17 line 16), 0.1 μm and 10 μm (page 19 line 4), 0.1 μm and 10 μm (page 19 line 18) and 0.1 μm and 10 μm (page 20 line 21), respectively. Thus, thickness of the transfer ply 14 is between 0.8 μm and 130 μm . Therefore, E2 discloses feature F1.3.

Document E3 :

E3 relates to a method and a device for producing a multilayer film. Regarding feature F1.1, E3 discloses a multilayer film is suitable for uses as a hot-stamping foil, cold-stamping foil, laminating film (paragraph [0022]), and discloses a multilayer film 1 comprises a carrier ply 11, a detachment layer 12, a protective varnish layer 13, a decorative ply 14, a further varnish layer 15 and a primer 16 (paragraph [0132]).

Regarding feature F1.2, E3 discloses the carrier ply 11 has a layer thickness of from 3 μm to 100 μm (paragraph [0133]).

Regarding features F1.3 and F1.4, E3 discloses the thickness of the detachment layer 12, the protective varnish layer 13, the decorative ply 14, the further varnish layer 15 and the primer 16 are 0.01 μm to 2 μm (paragraph [0134]), 0.1 μm to 5 μm (paragraph [0136]), 0.1 μm to 5 μm (paragraph [0138]), 0.1 μm to 5 μm (paragraph [0145]), 0.1 μm to 1.5 μm (paragraph [0146]). It implies that the total thickness of the detachment layer 12, the protective varnish layer 13, the decorative ply 14, the further varnish layer 15 and the primer 16 is 0.41 μm to 18.5 μm . E3 may not explicitly state the thickness of the transfer layer, but it is obvious for the person skilled in the art to infer according to the information from E3.

Document E4 :

E4 relates to a method for producing a security element and transfer film. Regarding feature F1.1, E4 discloses a transfer film 1 has a base film 10, and the base film comprises a carrier film 11, a detachment layer 12 and a decorative ply 13 (paragraph [0112]).

Regarding feature F1.2, E4 discloses the carrier film 11 has a thickness of from 6 μm to 125 μm (paragraph [0116]).

Regarding features F1.3 and F1.4, E4 discloses the decorative ply 13 comprises a protective varnish layer, a replication varnish layer, a reflective layer and an adhesive layer 14 (paragraph [0112]). Further, E4 discloses the thickness of the detachment layer 12 is between 0.01 μm to 1.2

μm , and the thickness of the protective varnish layer, the replication varnish layer, the reflective layer and the adhesive layer is between $0.5\ \mu\text{m}$ to $1.5\ \mu\text{m}$, between $0.5\ \mu\text{m}$ to $15\ \mu\text{m}$, between $0.01\ \mu\text{m}$ to $0.1\ \mu\text{m}$, and between $0.3\ \mu\text{m}$ to $25\ \mu\text{m}$. It implies that the thickness of the decorative ply 13 is between $1.31\ \mu\text{m}$ to $41.6\ \mu\text{m}$, and the total thickness of the detachment layer 12 and the decorative ply 13 is between $1.32\ \mu\text{m}$ to $42.8\ \mu\text{m}$. E4 may not explicitly state the thickness of the decorative layer and the transfer layer, but it is obvious for the person skilled in the art to infer according to the information from E4.

Dependent claims

Claims 2-15 depends on independent claim 1, which is rendered lacking in novelty in view of documents E1-E4, and claims 2-15 do not contain subject matter which may impart novelty on the independent claim 1.

Claim 2

Regarding feature F2.1, as described above, E2 discloses the thickness of the transfer ply 14 is between $0.8\ \mu\text{m}$ and $130\ \mu\text{m}$; E3 discloses the total thickness of the detachment layer 12, the protective varnish layer 13, the decorative ply 14, the further varnish layer 15 and the primer 16 is $0.41\ \mu\text{m}$ to $18.5\ \mu\text{m}$; and E4 discloses the total thickness of the detachment layer 12 and the decorative ply 13 is between $1.32\ \mu\text{m}$ to $42.8\ \mu\text{m}$.

Since feature F2.1 is only optionally connected with the further features F2.2 and F2.3, claim 2 is not new, since feature F2.2 is anticipated by the prior art.

Regarding feature F2.2, as above, E2 discloses the layer thickness of the carrier layer 20 is between $5\ \mu\text{m}$ to $500\ \mu\text{m}$; thus, when the layer thickness of the carrier layer is $5\ \mu\text{m}$, the ratio of the carrier layer 20 to the transfer ply 14 is from 0.038:1 to 6.25:1. E3 discloses the carrier ply 11 has a layer thickness of from $3\ \mu\text{m}$ to $100\ \mu\text{m}$; thus, when the thickness of the carrier ply 11 is $3\ \mu\text{m}$, the ratio of the thickness of the carrier ply 11 to the total thickness of the detachment layer 12, the protective varnish layer 13, the decorative ply 14, the further varnish layer 15 and the primer 16 is from 0.16:1 to 7.3:1. E4 discloses the carrier film 11 has a thickness of from $6\ \mu\text{m}$ to $125\ \mu\text{m}$; thus, when the thickness of the carrier film 11 is $6\ \mu\text{m}$, the ratio of the thickness of the carrier film 11 to the total thickness of the detachment layer 12 and the decorative ply 13 is 0.14:1 to 4.55:1.

Regarding feature F2.3, as described above about E2, when the layer thickness of the carrier layer is $10\ \mu\text{m}$, the ratio of the carrier layer 20 to the transfer ply 14 is from 0.077:1 to 12.5:1. As described above about E3, when the thickness of the carrier ply 11 is $10\ \mu\text{m}$, the ratio of the thickness of the carrier ply 11 to the total thickness of the detachment layer 12, the protective varnish layer 13, the decorative ply 14, the further varnish layer 15 and the primer 16 is from 0.54:1 to 24.4:1. As described above about E4, when the thickness of the carrier film 11 is $10\ \mu\text{m}$, the ratio of the thickness of the carrier film 11 to the total thickness of the detachment layer 12 and the decorative ply 13 is 0.23:1 to 7.58:1.

Although E2-E4 do not explicitly recite the ratio, the ratio is immediately and unambiguously disclosed according to the various thicknesses from any one of E2-E4. Thus, the features F2.2 and F2.3 are known from the prior art according to E2-E4. Claim 2 is not new with respect to E2-E4 (Article 54 EPC).

Claim 3

Regarding feature F3.1, E1 discloses the transfer film (40) has a permeability in the range from 5 to 70%, in particular in the range from 20 to 40%, for UV radiation in the wavelength range from 250 nm to 400 nm (paragraph [0038]).

Claim 3 depends on claim 1 or 2, in which claim 1 lacks novelty over E1-E4, and claim 2 lacks novelty over E2-E4. Thus, claim 3 lacks inventive step over E2-E4 in combination with E1, and accordingly claim 3 contravenes Article 56 EPC. Claim 3 in combination with claim 1 only is not new with respect to E1 (Article 54 EPC).

Claim 4

Regarding feature F4.1, E7 discloses the tear force of release paint to the PET film is in a range from 1-1.5 g/in and 1-2 g/in. Thus, person skilled in the art can realize that the tear force fluctuation is between -0.5 g/in and 0.5 g/in as explained according to the following:

In order to prove that feature F4.1 is common knowledge, the Opponent carried out some experiments by using the same parameters as the Patent recited in the specification to examine the average tearing force and fluctuation of the commercial products, which is produced by examine the average tearing force and fluctuation of the commercial products, which is produced by competitors of the same trade such as Kurz (the Patentee), ITW, API and UNIVACCO Technology Inc., with different carrier film thickness (from 6 μm to 12 μm). The experiments parameters include the tape is Tesa 4104, the width of the carrier film is 13.5 mm, and the length of the carrier film is 41 mm, the speed of the detachment is 100 mm/min, and the operation time is 30 sec. Table 1 shows the average tearing force (A), minimum tearing force (B) and maximum tearing force (C) obtained by the experiments, and also shows maximum amplitude and its average value obtained by the experiments. According to the experiment data in the following table 1, in addition to the thickness of the carrier thin film, different products can have different surface features of the carrier thin film due to different formula, thereby having different tearing force and amplitude. In other words, the factors that influencing the value of the tearing force and the amplitude include the thickness and the formula of the carrier thin film. In table 1, according to the average maximum amplitude of the tearing force, products of ITW (ICF), API (TU), CF5.0 SP02 and CF5.0 SP should have the tearing force fluctuations in the force amplitude around its mean value in a range from greater than or equal to -0.5 cN to less than or equal to 0.5 cN.

Documents E10 and E11 are invoices showing of the sample material CF5.0 SP (date of shipment: Aug. 22, 2018) and CF5.0 SP02 (date of shipment Mar. 02, 2018) which also show the date of shipment before the priority date (Dec. 3, 2019) of the contested patent. This proves that these materials were available before the priority date of the contested patent.

In addition, we offer witness testimony regarding the date of market existence of the individual materials from Mr. Hsien-Yin Tsai. He is to be summoned via the opponent:

UNIVACCO Technology Inc.
No 383, Mayou Rd.
Madou Dist.
Tainan City 721013
Taiwan, R.O.C.

Table 1

product	carrier film thickness	sample	average tearing force (A)	minimum tearing force(B)	maximum tearing force (C)	maximum amplitude (C)-(B)	average tearing force of three samples (A)/3	average maximum amplitude ((C)-(B))/3	date of market existence
KURZ Slim	6 μ m	S1	2.25	1.87	3.35	1.48	2.18	1.37	NA
		S2	2.17	1.78	3.08	1.30			
		S3	2.12	1.67	2.99	1.32			
KURZ ecofin	10 μ m	S1	2.62	2.23	3.34	1.11	2.69	1.25	NA
		S2	2.67	2.07	3.36	1.29			
		S3	2.78	2.28	3.62	1.34			
KURZ SX+	12 μ m	S1	5.32	2.55	13.25	10.70	5.42	9.14	NA
		S2	5.67	3.26	8.95	5.69			
		S3	5.26	2.14	13.16	11.02			
ITW ICF	12 μ m	S1	2.05	1.80	2.44	0.64	2.06	0.69	2017
		S2	2.03	1.83	2.69	0.86			
		S3	2.10	1.91	2.47	0.56			
API TU	12 μ m	S1	1.95	1.48	2.55	1.07	1.91	1.38	2015
		S2	1.79	0.99	2.82	1.83			
		S3	1.98	1.57	2.82	1.25			
CF5.0 SP02	12 μ m	S1	1.58	1.37	1.77	0.40	1.35	0.47	2016/12
		S2	1.19	1.03	1.53	0.50			
		S3	1.28	1.04	1.54	0.50			
CF6.0-OP MJQ0	12 μ m	S1	2.79	2.05	4.13	2.08	3.37	2.65	2018/03
		S2	3.86	2.76	5.59	2.83			
		S3	3.47	2.32	5.36	3.04			
CF5.0 SP	12 μ m	S1	1.34	0.99	1.53	0.54	1.32	0.53	2016/11
		S2	1.43	1.20	1.79	0.59			
		S3	1.18	1.01	1.47	0.46			

Further, the Opponent carried out another experiment by using the same parameters as above to examine the average tearing force and fluctuation of the commercial products, which is produced by UNIVACCO Technology Inc., with different carrier film thickness (6 μ m and 12 μ m). The experiments parameters are the same as above and the Patent. The experiment condition and results are shown in table 2.

First, items 1 and 4 have the maximum amplitude smaller than 0.5 cN; thus, items 1 and 4 with thickness of 6 μ m and 12 μ m must have the tearing force fluctuations in the force amplitude around its mean value in a range from greater than or equal to -0.5 cN to less than or equal to 0.5 cN. Further, item 3 has the maximum amplitude of 0.59, so theoretically, item 3 should also have the tearing force fluctuations in the force amplitude around its mean value in a range from greater than or equal to -0.5 cN to less than or equal to 0.5 cN.

According to the experiment data of item 1 and item 2 in the following table 2, which use the same composition (RI1) but different baking condition, the maximum amplitude of item 2 are both greater than that of item 1. According to the experiment data of item 3 and item 4 in table 2 which use the same composition (RI2), although items 3 and 4 have different carrier film

thickness, it shows no significant difference in the maximum amplitude of items 3 and 4. According to the experiment data of item 1 and item 3 in table 2, which have the same carrier film thickness but different composition, it shows no significant difference in the maximum amplitude of items 1 and 3. Thus, it is understood that the maximum amplitude is not only dependent on the thickness of the carrier film, but also dependent on the composition and process.

Therefore, the feature F4.1 is the feature that the commercial product existed before priority date of the Application (2019.12.03), and the feature F4.1 is easy to be obtained for the feature of the conventional carrier thin film and is easy to be obtained for the person skilled in the art, so it lacks inventive step.

Table 2

item	composition	carrier film thickness	average tearing force (A)	minimum tearing force (B)	maximum tearing force (C)	maximum amplitude (C)-(B)
1	CF 5.0 RI1	6 μ m	1.31	1.12	1.57	0.45
2	CF 5.0 RI1	12 μ m	2.37	2.02	3.23	1.21
3	CF 5.0 RI2	6 μ m	1	0.74	1.33	0.59
4	CF 5.0 RI2	12 μ m	1.04	0.93	1.22	0.29

Regarding feature F4.2, E6 discloses the carrier ply 10, 10' is arranged on the at least one upper layer 15 with an adhesiveness, preferably determined with a Z006 measuring instrument from Zwick, from a range of from 2 cN to 50 cN (paragraph [0223]).

Claims 4 depends on one of claims 1 to 3, in which claim 1 lacks novelty over E1-E4, claim 2 lacks novelty over E2-E4, and claim 3 lacks inventive step over E1-E4. Therefore, Claim 4 lacks an inventive step, and accordingly claim 4 contravenes Article 56 EPC.

Claim 5

Regarding feature F5.1, page 2 of E9 discloses various coverage, such as 100%, 40%, 50%, and 60%. Therefore, the coverage greater than or equal to 99.5% recited in claim 5 can be obtained by person skilled in the art according to requirement.

Claims 5 depends on one of claims 1 to 4, in which claim 1 lacks novelty over E1-E4, claim 2 lacks novelty over E2-E4, claim 3 lacks inventive step over E1-E4, and claim 4 lacks inventive step over E1-E4 and E6-E7. Therefore, Claim 5 lacks an inventive step, and accordingly claim 5 contravenes Article 56 EPC.

Claim 6

Regarding feature F6.1, E1 discloses the transfer layer 41 comprises in this order a transparent release layer 43, a transparent protective lacquer layer 44, a decorative layer 45 and a primer layer 46 (paragraph [0068]). As described above, according to Fig. 1, E2 discloses the transfer ply 14 includes a decorative layer 26 and an adhesive layer 30 (primer layer), and the decorative layer 26 comprises one or more partial or full-surface color layers (page 19 line 14). E3 discloses a multilayer film 1 comprises a protective varnish layer 13 and a primer 16 (paragraph [0132]). E4 discloses the base film comprises a detachment layer 12 and a decorative ply 13 (paragraph [0112]), and the decorative ply 13 comprises a protective varnish layer, a replication varnish layer, a reflective layer and an adhesive layer 14 (paragraph [0112]). E4 also discloses a primer

layer can be provided between the reflective layer and the third adhesive layer (paragraph [0114]), and discloses the decorative ply preferably has a color layer (paragraph [0095]).

Claims 6 depends on one of claims 1 to 5, in which claim 1 lacks novelty over E1-E4, claim 2 lacks novelty over E2-E4, claim 3 lacks inventive step over E1-E4, claim 4 lacks inventive step over E1-E4 and E6-E7, and claim 5 lacks inventive step over E1-E4, E9 and common general knowledge. Therefore, Claim 6 lacks novelty when depending on claim 1 with respect to E1-E4 or claim 2 with respect to E2-E4 and lacks an inventive step, when depending on claims 3 to 5.

Claim 7

Regarding feature F7.1, E1 discloses the polymer release layer made from an acrylate copolymer (paragraph [0070]). E2 discloses the detachment layer 22 can consist of a wax or comprise a wax (page 18 line 15-16). E3 discloses the detachment layer 12 is preferably formed from acrylate copolymer, in particular from an aqueous polyurethane copolymer (paragraph [0134]). E4 discloses the detachment layer 12 preferably consists of a wax-like material (paragraph [0116]).

Regarding feature F7.2, E1 discloses the release layer preferably has a thickness in the range from 0.01 to 0.5 μm , preferably in the range from 0.01 to 0.3 μm , more preferably from 0.1 to 0.2 μm (paragraph [0032]). E2 discloses the detachment layer 22 preferably has a layer thickness of from 0.001 μm to 2 μm , in particular from 0.05 μm to 1 μm (page 18 line 14-15). E3 discloses the detachment layer 12 has a layer thickness of from 0.01 μm to 2 μm , preferably from 0.1 μm to 0.5 μm (paragraph [0134]). E4 discloses the overall thickness of the detachment layer is preferably between 0.01 μm and 1.2 μm (paragraph [0116]).

Regarding feature F7.3, E1 discloses the transfer layer 41 comprises a transparent release layer 43 (paragraph [0068]).

Claim 7 Claim 7 lacks novelty in the combination of claim 1, 6 and 7 with respect to E1-E4 and lacks novelty in the combination of claim 1, 2, 6 and 7 with respect to E2-E4 and lacks an inventive step in combination with any of the claims 3 to 5.

Claim 8

Regarding feature F8.1, E1 discloses the protective lacquer layer 44 is in particular a lacquer layer based on nitrocellulose and acrylate polymers (paragraph [0071]). E3 discloses the protective varnish layer **13** preferably consists of nitrocellulose, polyacrylate and polyurethane copolymer (paragraph [0136]).

Claim 8 lacks novelty in the combination of claim 1, 6, 7 and 8 with respect to E1 and lacks an inventive step with respect to other claim combinations, and accordingly claim 8 contravenes Article 56 EPC.

Claim 9

Regarding features F9.1 and F9.2, E5 discloses the protective layer 3 comprises unsaturated bond-containing (meth)acryl type copolymer, such as polyester(meth)acrylate (paragraph [0039]), and the mass average molecular weight (M_w) of the unsaturated bond-containing (meth)acryl type copolymer is preferably in the range of 3000 or more and 100000 or less (paragraph [0041]).

Claim 9 depends on claims 7 or 8. Thus, claim 9 lacks inventive step over one of the documents E1-E4 and E5. Accordingly claim 9 contravenes Article 56 EPC.

Claim 10

Regarding features F10.1, E3 discloses the protective varnish layer 13 has a layer thickness of from 0.1 μm to 5 μm , preferably from 1 μm to 2 μm (paragraph [0136]). E4 discloses the protective varnish layer is applied in a layer thickness between 0.5 μm and 1.5 μm (paragraph [0116]).

Regarding features F10.2, E4 discloses the protective varnish layer 13 is colored (paragraph [0116]).

Claim 10 depends on one of claims 6-9. Thus, claim 10 lacks novelty in the combination of claim 1, 2, 6 and 7 with respect to E3.

Claim 11

Regarding feature F11.1, E1 discloses the detachment force of the transfer layer from the carrier film in the range of 15 to 35 cN/cm, in particular in the range of 20 to 30 cN/cm (paragraph [0017]). The feature F11.1 uses different unit from E1, and the range 15 to 35 cN/cm can be converted to 1.5 to 3.5 cN/mm, for example, which is overlapped with the range of the feature F11.1. The unit in the feature F11.1 fails to disclose sufficiently, so the person skilled in the art can obtain such range by modifying the width of the carrier film (see below).

Claim 11 depends on one of claims 1-10, and claims 1-10 lack novelty or inventive step over E1-E7, E9 and common general knowledge. Thus, claim 11 also lacks inventive step over E1-E7, E9 and common general knowledge, and accordingly claim 11 contravenes Article 56 EPC.

Claim 12

Regarding feature F12.1, E2 discloses the decorative layer 26 can comprise one or more partial or full-surface color layers to generate a pattern and/or a motif, which also in particular in register with the partial areas of the soft-touch varnish with their different optical properties (page 19 line 14-16). E4 discloses the decorative ply 13 generate an optically variable effect (paragraph [0120]).

Regarding feature F12.2, E2 discloses the decorative layer 26 can comprise a replication layer into which diffractively and/or refractively acting micro- or macrostructures are molded (page 19 line 21-22), and discloses one or more of the following structures can be molded in the replication layer: a diffraction structure, a zero-order diffraction structure, a blazed grating, a macrostructure, in particular a lens structure or microprism structure, a mirror surface, a matte structure, in particular an anisotropic or isotropic matte structure (page 19 line 27-30). E3 discloses replication layer is introduced which forms an optically variable element, in particular ... a blazed grating, a preferably isotropic or anisotropic mat structure, or a light-diffracting and/or light-refracting (paragraph [0140]).

Regarding feature F12.3, E2 discloses the replication layer is preferably provided with a reflective layer (page 19 line 22-23).

Claim 12 depends on one of claims 6-11, and claims 6-11 lack inventive step over E1-E7, E9 and common general knowledge. Thus, claim 12 is not new (depending on claim 1 and 6) with respect to E2 or lacks inventive step over E1-E7, E9 and common general knowledge, and accordingly claim 12 contravenes Article 56 EPC.

Claim 13

Regarding feature F13.1, E1 discloses thin film stacks with a viewing angle-dependent interference color effect can serve as decorative layer(s) (paragraph [0072]). E4 discloses the decorative ply further preferably has a thin-film layer element for generating a color shift effect dependent on the viewing angle.

Regarding feature F13.2, E4 discloses the decorative ply preferably has a color layer formed patterned in the form of a second item of information (paragraph [0095]).

Regarding feature F13.3, E1 discloses the decorative layer 45 is a metallic layer (paragraph [0072]). E2 discloses the replication layer is preferably provided with a reflective layer which can consist of a metallization 28 and/or an HRI layer with a high refractive index (HRI=High Refractive Index) (page 19 line 22-24). E3 discloses the decorative ply 14 can comprise metal layers, layers made of high refractive index (HRI) materials (paragraph [0137]). E4 discloses the reflective layer is preferably a metal layer, and the reflective layer is 16 is formed by a transparent reflective layer or an HRI (high refractive index) (paragraph [0119]).

Regarding feature F13.4, E1 discloses the decorative layer 45 is a metallic layer with a layer thickness in the range from 12 to 15 nm (paragraph [0072]). E3 discloses the metal layer has a layer thickness of from 10 nm to 200 nm, preferably from 10 nm to 50 nm (paragraph [0142]). E4 discloses the metal layer has a layer thickness of from 0.01 μm to 0.10 μm , and the dielectric reflective layer has a layer thickness of from 10 nm to 150 nm (paragraph [0119]).

Claim 13 depends on one of claims 6-12, and claims 6-12 lack inventive step over E1-E7, E9 and common general knowledge. Thus, claim 13 is not new (depending on claim 1 and 6) with respect to one of the documents E1, E2, E3 or E4 or lacks inventive step over E1-E7, E9 and common general knowledge, and accordingly claim 13 contravenes Article 56 EPC.

Claim 14

Regarding feature F14.1, E1 discloses the decorative layer 45 is a metallic layer made of aluminum (paragraph [0072]). E3 discloses the metal layers consist of aluminum and/or chromium and/or silver and/or gold and/or copper (paragraph [0142]). E4 discloses the metal layers consist of aluminum and/or chromium and/or silver and/or gold and/or copper (paragraph [0142]). E4 discloses the reflective layer is preferably a metal layer made of chromium, copper, silver or gold or an alloy of such metals (paragraph [0119]).

Regarding feature E14.2, E2 discloses the replication layer can consist of an HRI layer (page 19 line 22-24). E3 discloses a layer made of an HRI material (HRI=High Refractive Index) can also be provided, and HRI materials are, for example, metal oxides such as ZnS, TiO_x. E4 discloses the reflective layer 16 is formed by HRI (high refractive index) layer, and the dielectric reflective layer consists of a vapor-deposited layer made of a metal oxide, metal sulfide, titanium dioxide (paragraph [0119]).

Claim 14 depends on claim 13, and claim 13 lacks inventive step over E1-E7, E9 and common general knowledge. Thus, claim 14 is not new (depending on claim 1, 6 and 13) with respect to E1 or lacks inventive step over E1-E7, E9 and common general knowledge, and accordingly claim 14 contravenes Article 56 EPC.

Claim 15

Regarding feature F15.1, E1 discloses the primer layer 46 is formed from a thermoplastic adhesive and has a thickness in the range from 1 to 5 μm , in particular in the range from 1.5 to 3

µm (paragraph [0033]). E2 discloses the primer layer preferably has a layer thickness of from 0.1 µm to 10 µm, in particular from 0.1 µm to 3 µm (page 20 line 20-22). E3 discloses the primer layer 16 has a layer thickness of from 0.1 µm to 1.5 µm, preferably from 0.5 µm to 0.8 µm (paragraph [0146]). E4 discloses the primer layer has a layer thickness of from approx. 0.01 µm to 0.5 µm, preferably from approx. 0.03 µm to 0.1 µm (paragraph [0114]).

Regarding feature F15.2, E1 discloses the primer layer can be colored (paragraph [0034]). Claim 15 depends on one of claims 6-14, and claims 6-14 lack inventive step over E1-E7, E9 and common general knowledge. Thus, claim 15 is not new (depending on claim 1 and 6) with respect to E1 or lacks inventive step over E1-E7, E9 and common general knowledge, and accordingly claim 15 contravenes Article 56 EPC.

Article 100 (a) EPC - Lack of Novelty of independent Claim 16

Claim 16 is a method for producing a decorative film, such as according to one of claims 1 to 15. Thus, features of claim 16 is mostly similar to feature of claim 1, for example, feature F16.1 of claim 16 is almost the same as feature F1.2 of claim 1; feature F16.3 of claim 16 is almost the same as feature F1.3 of claim 1, and feature F16.4 of claim 16 is almost the same as feature F1.4 of claim 1. Thus, the features F16.1, F16.3 and F16.4 are disclosed by E1-E4 as described above about claim 1.

Feature F16.2 represents the intended use of such an overall coating layer and is therefore at least implicitly disclosed in documents E1 to E4.

Therefore, claim 16 lacks novelty over E1- E4.

Dependent claims

Claims 17-18 depends on independent claim 16, which is not new in view of documents E1-E4.

Claim 17

Claim 17 has features F17.1 to F17.3, which are the same as features F2.1 to F2.3 of claim 2, respectively. As discussed above, features F2.1 to F2.3 of claim 2 are disclosed by E2-E4. Thus, features F17.1 to F17.3 are also disclosed by E2-E4.

Claim 17 is not new with respect to E2 -E4.

Claim 18

Claim 18 has features F18.1, which is the same as features F6.1 of claim 6. As discussed above, features F6.1 of claim 6 is disclosed by E1-E4. Thus, features F18.1 is also disclosed by E1-E4. Claim 18 is not new with respect to E1-E4.

Article 100 (a) EPC - Lack of Inventive step of independent Claim 19

Claim 19 is a method for decorating a target substrate. Regarding feature F19.1, since claims 1 to 15 lack novelty or inventive step over E1-E7, E9 and common general knowledge, feature 19.1 lacks novelty and inventive step over E1-E7, E9 and common general knowledge.

Regarding features F19.2 and F19.3, E1 discloses that the transfer film 40 is brought into contact on the side of the transfer layer 41 with the substrate 52 printed with UV-crosslinking adhesive (paragraph [0086]). E3 discloses the multilayer film 1 is applied to a substrate 51 (paragraph [0186]). E4 discloses the first carrier film 11 is applied in the target substrate 70 (paragraph [0157]).

Therefore, Claim 19 lacks novelty with respect to E1, E3 and E4.

Dependent claims

Claims 20-21 depends on independent claim 19, which is not new with respect to E1, E3 and E4 and claims 20-21 do not contain subject matter which may impart inventive step as discussed in the following.

Claim 20

Claim 20 has features F20.1, which is similar to the feature F4.2 of claim 4. As discussed above, the feature F4.2 of claim 4 is disclosed by E6. Therefore, claim 20, which depends on claim 19, lacks inventive with respect to one of the documents E1, E3, or E4 in combination with E9.

Claim 21

Claim 21 has features F21.1, which is similar to the feature F5.1 of claim 5. As discussed above, the feature F4.2 of claim 4 is taught by E9. Therefore, claim 21, which depends on claims 19 or 20, lacks inventive step with respect to one of the documents E1, E3, or E4 in combination with E9.

Article 100 (b) EPC - Lack of Sufficient Disclosure

Claim 2

Regarding the feature F2.2, according to the ratio of the carrier film thickness to the total paint layer thickness in the range from 1.8:1 to 7.0:1, it can be calculated that the total paint layer thickness may be greater than 2.5 μm or less than 1.0 μm , i.e. out of the range claimed in feature F1.3 of claim 1. For example, when the carrier film thickness is 5.7 μm and the ratio is 1.8:1, the maximum thickness of the total paint layer thickness would be about 3.1 μm , while the ratio is 7.0:1, the minimum thickness of the total paint layer thickness would be about 0.85 μm . In other words, the ratio with the specific carrier film thickness is inconsistent with the feature F1.3 of claim 1, as shown in table 3 below.

Table 3

carrier film thickness	total paint layer thickness	
	Max. (μm)	Min. (μm)
between 3-7 μm		
4	2.2	0.6
5	2.9	0.8
5.7	3.1	0.85
6	3.3	0.9

Similarly, regarding the feature F2.3, according to the ratio of the carrier film thickness to the total paint layer thickness in the range from 4.1:1 to 10.0: 1, it can be calculated that the total paint layer thickness may be less than 1.0 μm , i.e. out of the range claimed in feature F1.3 of claim 1. For example, when the carrier film thickness is 9 μm and the ratio is 10.0:1, the minimum thickness of the total paint layer thickness would be about 0.9 μm . In other words, the ratio with the specific carrier film thickness is inconsistent with the feature F1.3 of claim 1, as shown in table 4 below.

Table 4

carrier film thickness	total paint layer thickness	
	Max. (μm)	Min. (μm)
between 7-10 μm		
7	1.7	0.7
8	1.9	0.8
9	2.1	0.9
10	2.4	1.0

Therefore, the features F2.2 and F2.3 do contravene to each other so that they cannot be carried out over the full scope of the claim, and accordingly claim 2 contravenes Article 83 EPC.

Claim 4

Regarding the feature F4.1, as known by the person skilled in the art, the average tearing force ought to influence the tearing force fluctuation; that is, the tearing force fluctuation of 0.5 cN should be based on the average tearing force. In addition, the tearing force fluctuation of 0.5 cN has different deviation ratio for different average tearing force, and accordingly, the quality of the decorative foil is different. For example, as the average tearing force is in the range from 2 cN to 8 cN recited in claim 11, when the average tearing force is 2 cN, the tearing force fluctuation of 0.5 cN has the deviation ratio of 25%; when the average tearing force is 8 cN, the tearing force fluctuation of 0.5 cN has the deviation ratio of 6.25%. Thus, the feature F4.1 of the tearing force fluctuation should define the average tearing force, or it is not definite and hard to be understood by the person skilled in the art.

Moreover, since the tearing force fluctuation is affected by the average tearing force, paragraph of conclusion of E8, page 4602, left column discloses that the peel-off force (i.e. the tearing force) is significantly affected by the peeling rate, peeling angle, film thickness and surface roughness. Thus, the tearing force fluctuation should also be influenced by such crucial parameters, but the Patent does not completely disclose all of the crucial parameters, and accordingly claim 4 contravenes Article 83 EPC.

Further, the disclosure of the Patent only discloses the tearing force fluctuations in the force amplitude with the carrier film thickness of 5.7 μm. Although 5.7 μm is in the range from 3.0 μm to 10.0 μm, it cannot be proven that the carrier film with thickness of 3.0 μm and/or 10.0 μm can both achieve the tearing force fluctuations in the force amplitude in a range from greater than or equal to -0.5 cN to less than or equal to 0.5 cN.

Claims 5 and 21

Regarding the features F5.1 and F21.1, the person skilled in the art knows that although the coverage is dependent on the thickness of the carrier film, the coverage of greater than or equal to 99.5% is achieved by further controlling other critical factors, including selection of cold printing tape, transfer pressure, transfer speed, substrate (roughness), and transfer blanket (softness), and the combination condition thereof. Claims 5 and 21 as well as the Patent do not completely disclose such critical factors, and accordingly claims 5 and 21 contravene Article 83 EPC.

In addition, it is obvious that the formula of the total paint layer is an essential factor that influences the coverage. In order to prove the formula of the total paint layer is essential, the Opponent carried out some experiments with the same carrier film thickness and the total paint layer thickness, which are 6 μm and 1.3 μm, respectively, and different formula of the total paint layer. The samples are produced on Heiderburg XL75+Foilstar printing press in sheet-fed offset

printing at 10000 sheets/ hour. The adhesive (INX HT) has adhesive quantity with an optical density of 0.35. The motif is applied to the substrate paper (380 gsm and thickness of 0.46 mm). There are two types of formula, namely A and B formula, respectively. The coating layer is transferred to the substrate paper, and the coverage with decoration of 10% to 100% mid-tone field are examined, as shown below, in which 10% to 50% is primarily determined by screen resilience rate; 60% to 90% is primarily determined by screen clogging rate; and 100% is primarily determined by large-area pinholes. The results are shown in table 5 and figure 1 below, and evaluation criteria is as following:

++: above 99.5% point perception(or clogging) at the certain area;

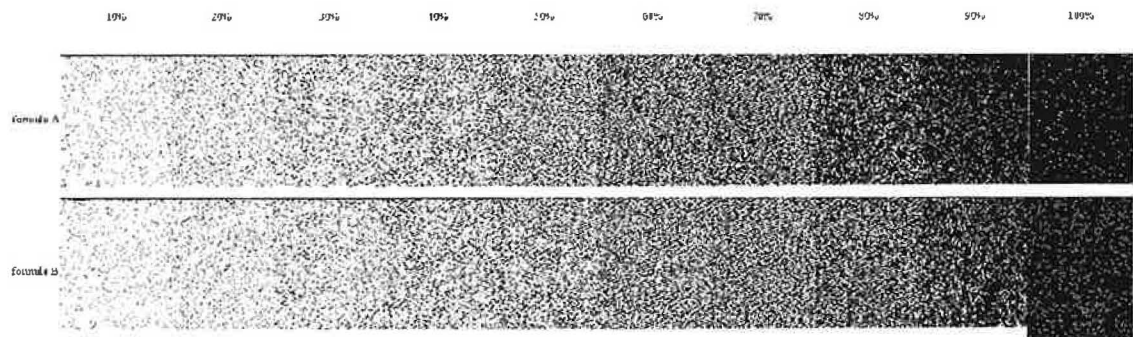
+: above 90% point perception(or clogging) at the certain area;

-: less than 90% point perception(or clogging) at the certain area.

Table 5

	formula A	formula B
10%	++	++
20%	++	++
30%	++	++
40%	++	++
50%	++	++
60%	+	++
70%	-	++
80%	-	++
90%	-	+
100%	++	++

Figure 1



According to the results above, it shows that different formula show different coverage; thus, the formula of the total paint layer should be essential features, and accordingly claims 5, 21 and the Patent contravene Article 83 EPC, and should be revoked for at least this reason.

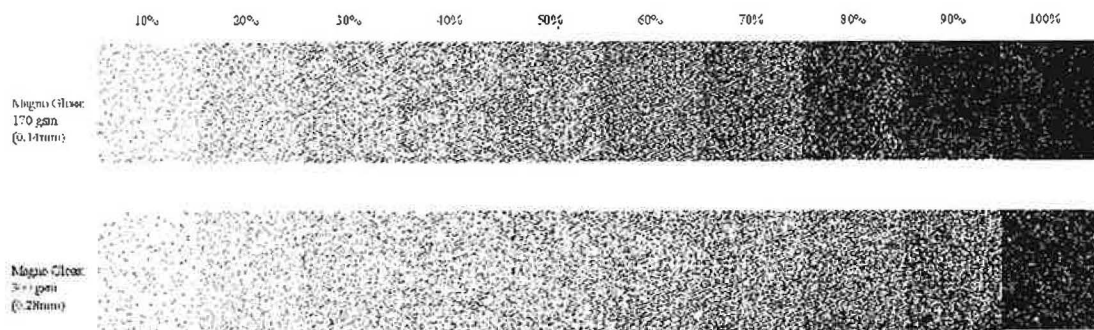
Further, in the document of reply communication provided by the Patentee, it is found that the experiment conducted by the Patentee showed results about the decoration or point perception. The results showed that when the carrier film is 10 μm , the decoration result is slightly worse in the 10% screen area, and it may be granted as unacceptable. In other words, the features F5.1 and F21.1 are not always valid with the carrier film thickness in the range from 3.0 μm to 10.0 μm , and accordingly claims 5 and 21 contravene Article 83 EPC.

In addition, in the document of reply communication on September 20, 2024 provided by the Patentee, it shows the embossing pattern with the specific target substrate (Invercote G 240 700 mm x 500 mm) and the specific adhesive density having the specific optical density. However, it is known by the person skilled in the art that different target substrate and optical density also influence the transferring results. In order to prove it, the Opponent carried out some experiments with the same carrier film thickness and the total paint layer thickness, which are 10.5 μm and 1.9 μm , respectively. The samples are produced on Heiderburg XL75+Foilstar printing press in sheet-fed offset printing at 10000 sheets/ hour. The adhesive (INX HT) has adhesive quantity with the optical density (OD) of 0.38 and 0.40, respectively. The motif is applied to the different target substrates, which are Magno Gloss (170 gsm, thickness of 0.14 mm) with OD 0.38 and Magno Gloss (300 gsm, thickness of 0.28 mm) with OD 0.40. The results are shown in table 6 and figure 2 below, and evaluation criteria is the same as above.

Table 6

	Magno Gloss:170 gsm thickness 0.14mm OD 0.38	Magno Gloss:300 gsm thickness 0.28mm OD 0.40
10%	-	-
20%	+	-
30%	++	-
40%	++	-
50%	++	-
60%	++	-
70%	+	-
80%	-	-
90%	-	-
100%	++	-

Figure 2



According to the results above, it shows that different target substrate and the optical density also show different coverage; thus, the property of the target substrate and the optical density are also the essential features, and accordingly claims 5, 21 and the Patent contravene Article 83 EPC, and should be revoked for at least this reason.

Claim 11

Regarding the feature F11.1, paragraph of conclusion of E8 disclosed that the peel-off force (i.e. the tearing force) is significantly affected by the peeling rate, peeling angle, film thickness and surface roughness, and such crucial parameters are not completely disclosed in the Patent.

Moreover, regarding feature F11.1, according to experiment data in the table 1 (reproduced below), it proves that the tearing force depends mainly on the formula of the total paint layer. That is, even though the thickness of the carrier film is the same, the tearing force can also be different while the formula of the total paint layer is different. Thus, the formula of the total paint layer should be essential features.

Table 1

product	carrier film thickness	sample	average tearing force (A)	minimum tearing force(B)	maximum tearing force (C)	maximum amplitude (C)-(B)	average tearing force of three samples (A)/3	average maximum amplitude ((C)-(B))/3	date of market existence
KURZ Slim	6 μ m	S1	2.25	1.87	3.35	1.48	2.18	1.37	NA
		S2	2.17	1.78	3.08	1.30			
		S3	2.12	1.67	2.99	1.32			
KURZ ecofin	10 μ m	S1	2.62	2.23	3.34	1.11	2.69	1.25	NA
		S2	2.67	2.07	3.36	1.29			
		S3	2.78	2.28	3.62	1.34			
KURZ SX+	12 μ m	S1	5.32	2.55	13.25	10.70	5.42	9.14	NA
		S2	5.67	3.26	8.95	5.69			
		S3	5.26	2.14	13.16	11.02			
ITWICF	12 μ m	S1	2.05	1.80	2.44	0.64	2.06	0.69	2017
		S2	2.03	1.83	2.69	0.86			
		S3	2.10	1.91	2.47	0.56			
API TU	12 μ m	S1	1.95	1.48	2.55	1.07	1.91	1.38	2015
		S2	1.79	0.99	2.82	1.83			
		S3	1.98	1.57	2.82	1.25			
CF5.0 SP02	12 μ m	S1	1.58	1.37	1.77	0.40	1.35	0.47	2016/12
		S2	1.19	1.03	1.53	0.50			
		S3	1.28	1.04	1.54	0.50			
CF6.0-OP MJQ0	12 μ m	S1	2.79	2.05	4.13	2.08	3.37	2.65	2018/03
		S2	3.86	2.76	5.59	2.83			
		S3	3.47	2.32	5.36	3.04			
CF5.0 SP	12 μ m	S1	1.34	0.99	1.53	0.54	1.32	0.53	2016/11
		S2	1.43	1.20	1.79	0.59			
		S3	1.18	1.01	1.47	0.46			

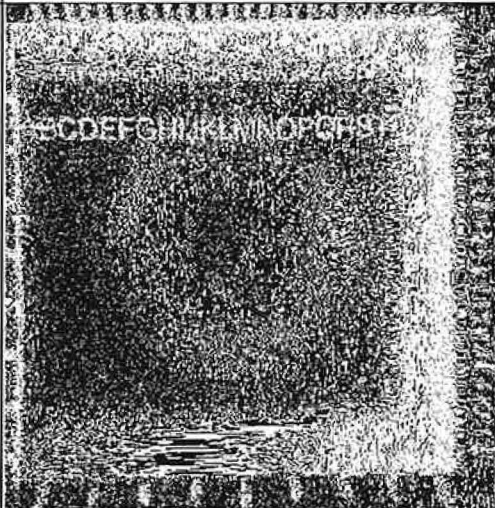
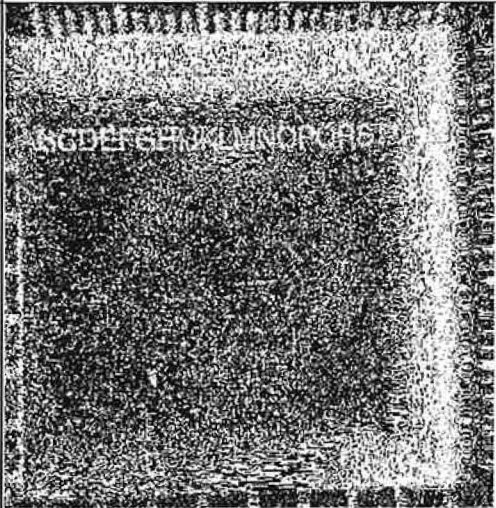
Further, according to table 2, items 1 and 2, which use the same composition but different baking conditions and carrier film thickness, have significantly different tearing force; while items 3 and 4, which use the same composition but different carrier film thickness, have similar tearing force. Thus, it is understood that the average tearing force is not only dependent on the carrier film thickness, but also dependent on the composition and the process.

Table 2

item	composition	carrier film thickness	average tearing force (A)	minimum tearing force (B)	maximum tearing force (C)	maximum amplitude (C)-(B)
1	CF 5.0 RI1	6 μm	1.31	1.12	1.57	0.45
2	CF 5.0 RI1	12 μm	2.37	2.02	3.23	1.21
3	CF 5.0 RI2	6 μm	1	0.74	1.33	0.59
4	CF 5.0 RI2	12 μm	1.04	0.93	1.22	0.29

Furthermore, according to experiment data in the following table 7, the sample A has the average tearing force of 1.33 cN, while the sample B has the average tearing force of 4.75 cN. The coverage test shows that the sample B is not acceptable in the product, and the sample A has better coverage than the sample B. That is, if the average tear force is 4.75 cN, the decorative foil cannot provide the desired coverage for practical application. Therefore, as above, the feature F11.1 cannot be reproducible, and accordingly claim 11 contravenes Article 83 EPC.

Table 7.

	average tearing force	
	Sample A	Sample B
TESA tape #4104 13.5mm	1.33	4.75
coverage test		

In view of the above, we submit that there is a fundamental insufficiency in that the alleged invention cannot be carried out by the person skilled in the art without undue burden using their common general knowledge. The Patent therefore contravenes Article 83 EPC, and should be revoked for at least this reason.

Summary

As above, it is concluded that the Patent should be revoked as the granted claims of the Patent lack novelty and the inventive step and therefore contravene Article 56 EPC (Article 100(a) EPC);

and claims 4, 5, 11, 21 and the Patent do not disclose the invention in a manner sufficiently clear and complete for it to be carried out by the person skilled in the art and therefore contravene Article 83 EPC.

As "Regulation (EU) 2025/40 on Packaging and Packaging Waste (PPWR)" entered into force on 11 February 2025, replacing the Packaging Directive (Directive 94/62/EC), it becomes the research direction for sustainable development for all decorative film industry to decrease industrial and consuming plastic waste by, for example, thinning the thickness, selection of specific material and/or improvement of the process. Moreover, it is known that claims of the Patent are conventional processes and products of the decorative film industry, thereby failing to be new and inventive. If the Patentee claims the rights according to the Patent, it is likely to be highly harmful to the sustainable development of the decorative film industry.



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Partner
For and on behalf of HGF Europe LLP
Association No. 145

Encl.:
E1 – E11
Annex 1