

(19)



(11)

EP 2 546 577 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

16.01.2013 Bulletin 2013/03

(51) Int Cl.:

F24C 15/12 ^(2006.01)

F24C 15/14 ^(2006.01)

B08B 17/02 ^(2006.01)

(21) Application number: **12175210.9**

(22) Date of filing: **05.07.2012**

(84) Designated Contracting States:

**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

Designated Extension States:

BA ME

(30) Priority: **14.07.2011 IT TO20110625**

(71) Applicant: **Indesit Company S.p.A.**

60044 Fabriano (AN) (IT)

(72) Inventor: **Gasparetti, Piergiorgio**

60026 Numana (AN) (IT)

(74) Representative: **Santonicola, Paolo**

Indesit Company S.p.A.

Industrial Property Management Team

Via Lamberto Corsi, 55

60044 Fabriano (AN) (IT)

(54) **Household cooking top and liner thereof**

(57) The present invention relates to a household cooking top (1) of the type comprising:

- a first surface (10) which houses at least one cooking point (20);
- at least one heating element (30) associated with said at least one cooking point (20);

- a liner (40) adapted to protect at least one portion of said first surface (10).

The invention is characterized in that said liner (40) is made of a silicone-based material.

EP 2 546 577 A1

Description

[0001] The present invention relates to a household cooking top according to the preamble of claim 1.

[0002] The present invention typically applies to household cooking tops of the type comprising a plurality of burners, in particular gas burners, for cooking foods placed in cooking containers.

[0003] Cooking tops of this type are known and widespread, in different forms, in every household kitchen.

[0004] In some cases, such cooking tops are separate units; in other cases, such cooking tops are add-on components adapted to be flush-mounted in standard-size apertures or recesses obtained in the worktop of a sectional kitchen; or, in other cases, such cooking tops are the upper portion of a household appliance comprising an oven suitable for cooking foods.

[0005] Household cooking tops are generally equipped with a first surface that houses a plurality of cooking points.

[0006] In particular, with each cooking point at least one heating element is associated, e.g. a gas burner.

[0007] Generally, the heating element is associated with an adjuster element adapted to be operated by a user for turning on and/or off the burner, as well as for adjusting the heat generated by said burner, said adjuster element allowing the user to adjust the gas flow and hence the heat generated by combustion.

[0008] The cooking containers, e.g. pots and pans, containing the foods to be cooked, are placed over said cooking points.

[0009] Said first surface of the cooking top can become dirty. For instance, splashes of oil or other dressings may foul the first surface as foods are being cooked.

[0010] This implies that the cooking top, in particular said first surface thereof, needs to be cleaned; it is also appropriate to do such cleaning quite often, so as to prevent said first surface from getting encrusted with food and/or dressing residues, thus becoming more difficult to clean.

[0011] It is clear that this requires much user's work and time, and that such cleaning involves additional costs for purchasing suitable cleaning products.

[0012] Furthermore, the first surface of the cooking top may be subject to accidental and unpleasant scratches, e.g. due to rubbing with inadequate cleaning products (such as insufficiently soft sponges).

[0013] Document EP2258990 to the present Applicant relates to a cooking top comprising a first surface which houses a plurality of cooking points and a liner which is adapted to protect at least one portion of said first surface. In particular, said liner comprises a plurality of sheets stacked one on top of the other and reciprocally separable; hence, the user can remove the uppermost sheet when it has become dirty, so as to uncover a clean sheet which previously was at least partly covered by the uppermost sheet just removed. While it appropriately solves the problem of keeping the first surface of the cooking

top clean, the cooking top of EP2258990 still has a few drawbacks.

[0014] In particular, a first drawback of the above-described solution is that the plurality of sheets stacked one on top of the other creates an excessively thick layer on the first surface of the cooking top and interferes with the proper operation thereof.

[0015] A further drawback of such a solution is that, in order to hold the sheets of said plurality of sheets stacked one on top of the other, adhesive materials are used which lose their effectiveness when placed near the heat irradiated from each cooking point of the cooking top.

[0016] In this frame, it is the main object of the present invention to overcome the above-mentioned drawbacks by providing a cooking top designed in a manner such that it can be easily kept clean and the user is not required to lose much time and energy.

[0017] It is another object of the present invention to provide a cooking top which is designed in a manner such that any additional costs for purchasing cleaning products are avoided. It is a further object of the present invention to provide a cooking top which is so designed as to avoid any accidental and unpleasant scratches.

[0018] It is yet another object of the present invention to provide a cooking top which is so designed as to ensure proper operation without being affected by the heat irradiated from each cooking point of the cooking top.

[0019] Said objects are achieved by the present invention through a household cooking top incorporating the features set out in the appended claims, which are intended to be an integral part of the present description.

[0020] Further objects, features and advantages of the present invention will become apparent from the following detailed description and from the annexed drawings, which are supplied by way of non-limiting example, wherein:

- Fig. 1 is a perspective view of a household cooking top according to the present invention;
- Fig. 2 is an exploded view of the cooking top of Fig. 1.

[0021] Said description and said drawings are to be considered as non-limiting examples. Referring now to the drawings, in Fig. 1 reference numeral 1 designates as a whole a household cooking top according to the present invention:

[0022] Said cooking top 1 comprises a first surface 10, which houses at least one cooking point 20 (said at least one cooking point 20 being visible in particular in Fig. 2).

[0023] It is apparent that said first surface 10 is that surface which is substantially facing upwards once the cooking top 1 has been installed.

[0024] The cooking top 1 comprises at least one heating element 30 associated with said at least one cooking point 20. Preferably, said at least one heating element 30 consists of a gas burner; it is however clear that, in accordance with the present invention, a different type of heating element 30 may also be used, such as, for

example, a radiating plate or an inductor. The first surface 10 may be made of metal or glass-ceramic, or a material derived from glass and/or ceramic.

[0025] In addition, the cooking top 1 comprises a liner 40 adapted to protect at least one portion of said first surface 10.

[0026] In accordance with the present invention, said liner 40 is made of a silicone-based material.

[0027] Preferably, said silicone-based material is the material known under the brand name SILOPREN LSR2660.

[0028] In a further preferred embodiment, the silicone-based material of the liner 40 is reinforced with glass fibre.

[0029] In particular, the thickness of the liner 40 according to the present invention is between 0.2 mm and 2 mm, preferably between 0.5 mm and 1 mm.

[0030] The particular realization of the liner 40 allows to provide adequate protection of the first surface 10 of the cooking top 1 without having to use an excessively thick liner 40 interfering with the proper operation of the cooking top 1.

[0031] Also, the particular realization of the liner 40 according to the present invention allows to avoid the use of adhesive materials, which may lose effectiveness when placed near the heat generated by the heating element 30.

[0032] The particular realization of the liner 40 also allows to obtain an element that can be easily washed (either manually or in a dishwasher) and reused, so that the first surface 10 and the whole cooking top 1 can be kept in optimal hygienic conditions.

[0033] Preferably, the liner 40 comprises at least one first aperture 41 adapted to allow a heating element 30 to pass through; the shape of said first aperture 41 may possibly be such as to also allow the passage of any accessories of the heating elements 30, such as, for example, a thermocouple and/or a spark plug (not shown in the annexed drawings). In addition, in a preferred embodiment the liner 40 comprises at least one ring 50 associated with said at least one first aperture 41; said ring 50 allows protecting the surface of the liner 40 which is closest to the heating element 30, i.e. the one which is exposed most to the heat coming from the heating element 30.

[0034] Preferably, said at least one ring 50 is made of a metallic material, in particular steel or aluminium, or in a polymeric material characterized by high heat resistance; moreover, said at least one ring 50 may be associated with the liner 40 in different ways, e.g. by overmoulding or glueing or through mechanical fasteners. As an alternative, said ring 50 may also be simply laid onto the liner 40, which in such a case will be fitted with suitable reference means (not shown) for properly positioning the ring 50.

[0035] Said at least one ring 50 may also be so designed as to have a flat section, or else a dished or bent section, e.g. a U section; in particular, said dished or bent section makes it easier to insert therein a sticky material

in order to associate the ring 50 with the liner 40.

[0036] As can be seen in the annexed drawings, the cooking top 1 may further comprise at least one adjuster element 31 adapted to be operated by a user for turning on and/or off and/or for adjusting said at least one heating element 30.

[0037] The annexed drawings show a plurality of cooking points 20 associated with a plurality of heating elements 30, which in turn are associated with a plurality of adjuster elements 31.

[0038] If said at least one adjuster element 31 is positioned on the first surface 10 of the cooking top 1, the liner 40 can be so designed as to:

- include a recess 40R that leaves uncovered that portion of the cooking top 1 where said at least one adjuster element 31 is located (as shown in Fig. 2), or
- include at least one second aperture (not shown in the drawings) adapted to allow said at least one adjuster element 31 to pass through. Alternatively, said second aperture may allow the passage of a control interface (not shown in the drawings) or of an additional component of the cooking top 1.

[0039] The cooking top 1 further comprises at least one grate 60 adapted to support a cooking vessel (not shown in the drawings) above said at least one cooking point 20 and said at least one heating element 30.

[0040] The grate 60 may be unnecessary if the rings 50 have adequate height and shape to be able to support the cooking vessels.

[0041] It is apparent from the above that the liner 40 is installed on the cooking point 1 in the following steps:

- a) clearing at least one portion of a first surface 10 of the cooking point 1, said first surface 10 being adapted to house at least one cooking point 20;
- b) positioning the liner 40 on said at least one portion of the first surface 10, in particular by inserting at least one heating element 30 into at least one first aperture 41 of the liner 40.

[0042] It is clear that said step b) of positioning the liner 40 on said at least one portion of the first surface 10 may also be carried out by inserting at least one adjuster element 31 into at least one second aperture 42 of the liner 40.

[0043] Furthermore, said step b) of positioning the liner 40 on said at least one portion of the first surface 10 may be followed by a step c) of associating at least one grate 60 with the cooking top 1, in particular by positioning said grate 60 at least partially on said liner 40, said at least one grate 60 being adapted to support a cooking vessel (not shown in the drawings) above said at least one cooking point 20 and said at least one heating element 30.

[0044] In addition, step a) of clearing at least one portion of a first surface 10 of the cooking top 1 may be carried out by removing said at least one grate 60 and

possibly also at least one heating element 30 from said at least one cooking point 20, in particular if said heating element 30 cannot pass through said first apertures 41.

[0045] The features and advantages of the cooking top 1 and of the liner 40 thereof according to the present invention are apparent from the above description.

[0046] In particular, this design of the cooking top 1 and of the liner 40 allows to ensure adequate protection of the first surface 10 of said cooking top 1 without having to use an excessively thick liner 40 that interferes with the proper operation of the cooking top 1.

[0047] Also, the particular realization of the cooking top 1 and of the liner 40 according to the present invention allows to avoid the use of adhesive materials, which may lose effectiveness when placed near the heat generated by the heating element 30.

[0048] The particular realization of the cooking top 1 and of the liner 40 also allows to obtain an element that can be easily washed (either manually or in a dishwasher) and reused, so that the first surface 10 and the whole cooking top 1 can be kept in optimal hygienic conditions.

[0049] The presence of a ring 50 associated with said at least one first aperture 41 of the liner 40 allows to protect the surface of said liner 40 which is exposed most to the heat coming from the heating element 30.

[0050] The cooking top and the liner described herein by way of example may be subject to many possible variations without departing from the novelty spirit of the inventive idea; it is also clear that in the practical implementation of the invention the illustrated details may have different shapes or be replaced with other technically equivalent elements.

[0051] It can therefore be easily understood that the present invention is not limited to the above-described cooking top and liner, but may be subject to many modifications, improvements or replacements of equivalent parts and elements without departing from the inventive idea, as clearly specified in the following claims.

Claims

1. A household cooking top (1), of the type comprising:

- a first surface (10) which houses at least one cooking point (20);
- at least one heating element (30) associated with said at least one cooking point (20);
- a liner (40) adapted to protect at least one portion of said first surface (10), **characterized in that**

said liner (40) is made of a silicone-based material.

2. A cooking top (1) according to claim 1, **characterized in that** said silicone-based material is the material known under the brand name SILOPREN LSR2660.

3. A cooking top (1) according to claim 1, **characterized in that** the silicone-based material of the liner (40) is reinforced with glass fibre.

4. A cooking top (1) according to claim 1, **characterized in that** the thickness of said liner (40) is between 0.2 mm and 2 mm, preferably between 0.5 mm and 1 mm.

5. A cooking top (1) according to claim 1, **characterized in that** said liner (40) comprises at least one first aperture (41) adapted to allow one heating element (30) to pass through.

6. A cooking top (1) according to claim 5, **characterized in that** the shape of said first aperture (41) is such as to allow accessories of the heating element (30) to pass through.

7. A cooking top (1) according to one or more of claims 5 and 6, **characterized in that** said liner (40) comprises at least one ring (50) associated with said at least one first aperture (41).

8. A cooking top (1) according to claim 7, **characterized in that** said at least one ring (50) is made of a metallic material, in particular steel or aluminium, or of a polymeric material **characterized by** high heat resistance.

9. A cooking top (1) according to one or more of claims 7 to 8, **characterized in that** said at least one ring (50) is so designed as to have a flat section.

10. A cooking top (1) according to one or more of claims 7 to 8, **characterized in that** said at least one ring (50) is so designed as to have a dish or bent section.

11. A cooking top (1) according to claim 7, **characterized in that** said at least one ring (50) has a height and a shape which are adapted to support a cooking vessel.

12. A cooking top (1) according to claim 1, **characterized in that** it comprises at least one adjuster element (31) adapted to be operated by a user for turning on and/or off and/or for adjusting said at least one heating element (30).

13. A cooking top (1) according to claim 12, **characterized in that** said at least one adjuster element (31) is located on the first surface (10) of the cooking top (1), and said liner (40) is so designed as to include a recess (40R) that leaves uncovered that portion of the cooking top (1) where said at least one adjuster element (31) is located.

14. A cooking top (1) according to claim 12, **characterized in that** said at least one adjuster element (31) is located on the first surface (10) of the cooking top (1), and said liner (40) is so designed as to include at least one second aperture adapted to allow said at least one adjuster element (31) and/or a control interface and/or an additional component of the cooking top (1) to pass through. 5
15. A liner (40) for a cooking top (1) according to one or more of the preceding claims 1 to 14. 10

15

20

25

30

35

40

45

50

55

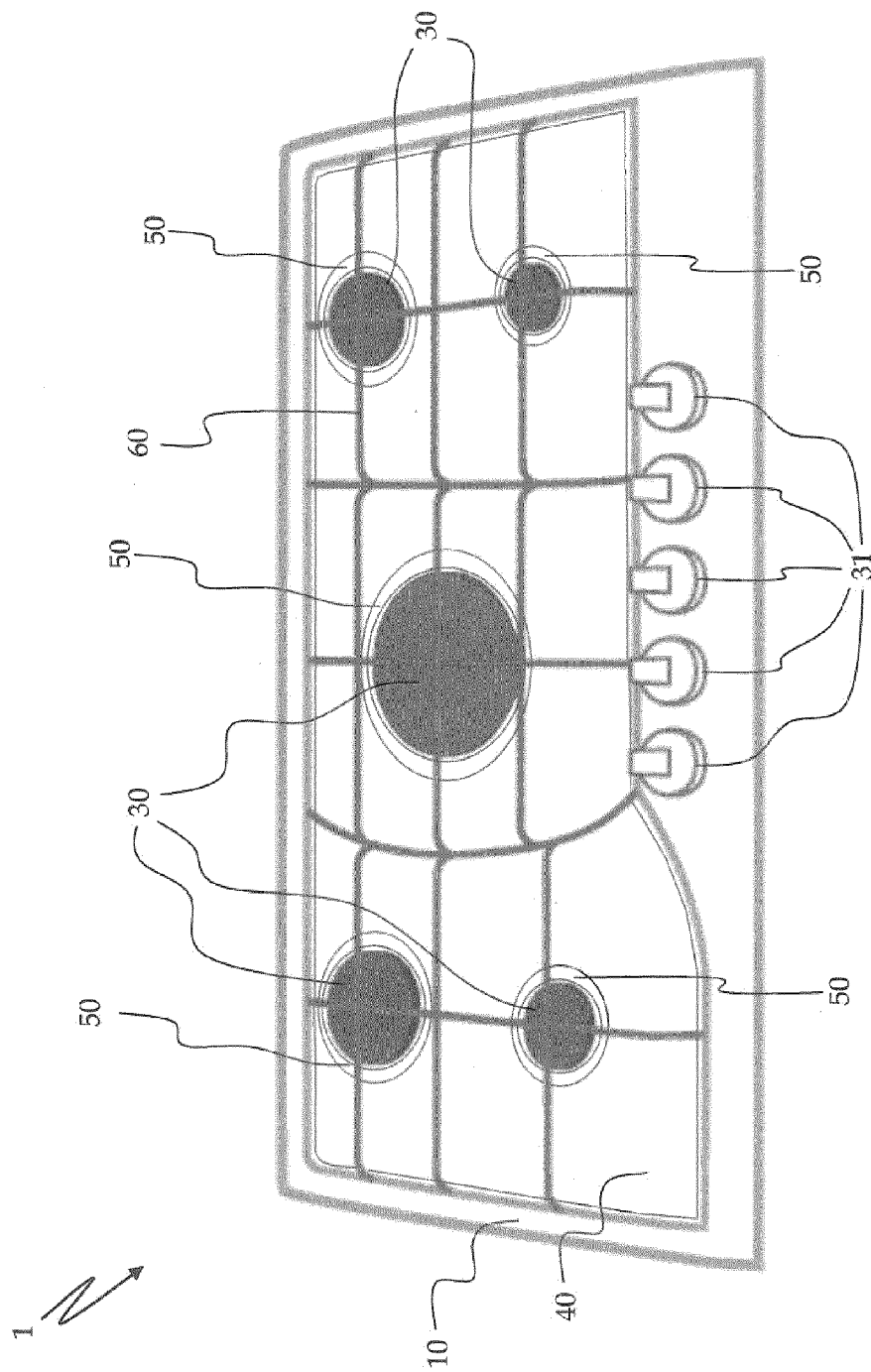


Fig. 1

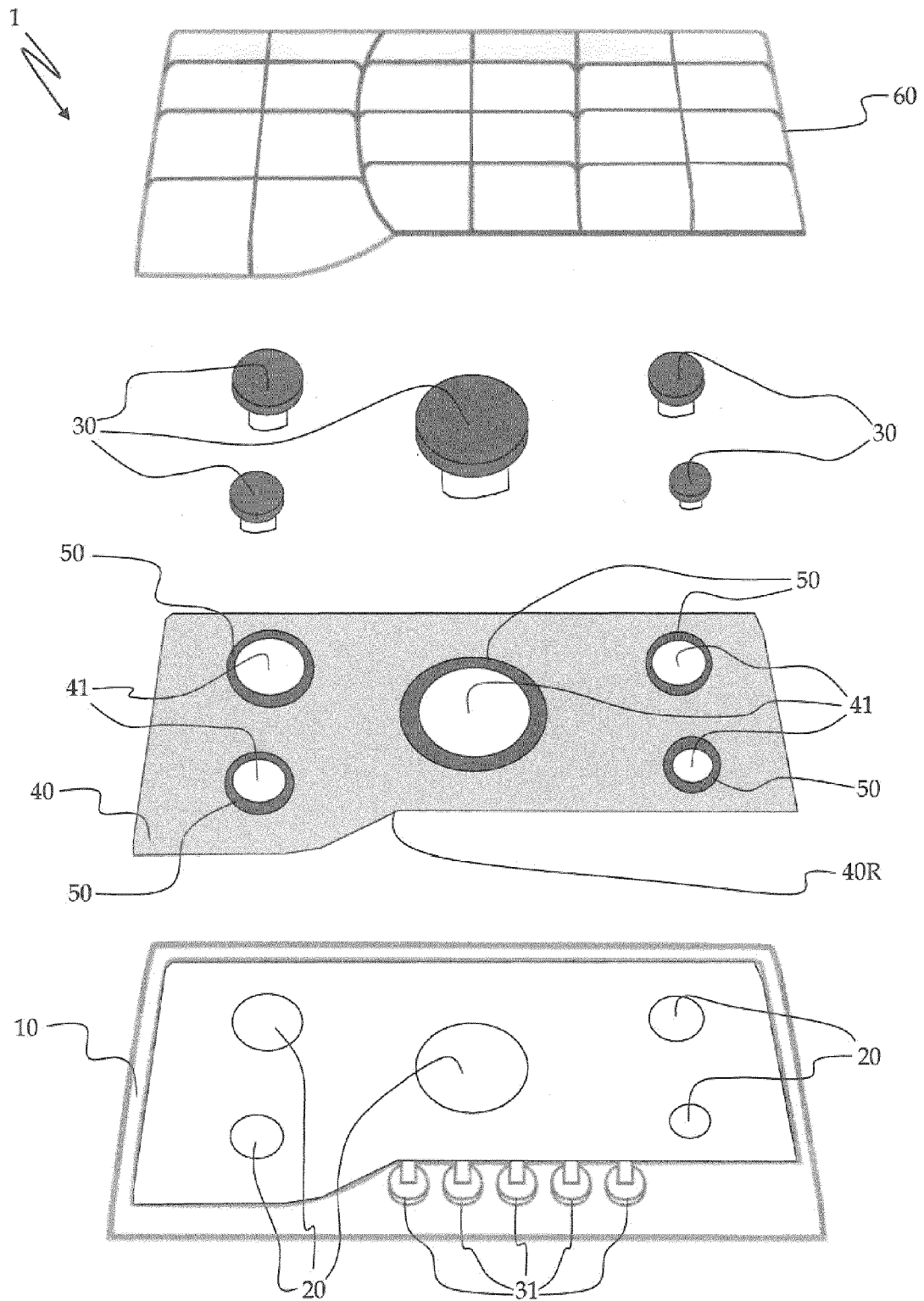


Fig. 2



EUROPEAN SEARCH REPORT

Application Number
EP 12 17 5210

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 02/05596 A1 (CAI EDWARD Z [US]) 17 January 2002 (2002-01-17) * page 16; figures 1-10a *	1-15	INV. F24C15/12 F24C15/14 B08B17/02
A	US 5 353 781 A (CALVILLO MAX [US]) 11 October 1994 (1994-10-11) * the whole document *	1-15	
A	CN 101 462 345 A (SHANGHAI INST OF RUBBER PRODUCTS) 24 June 2009 (2009-06-24) * the whole document *	2	
A	FR 2 678 849 A1 (RIES CLAUDE [FR]) 15 January 1993 (1993-01-15) * the whole document *	1-15	
A	FR 2 767 908 A1 (QUIASSANCA LENDA [FR]) 5 March 1999 (1999-03-05) * the whole document *	3	
A	US 6 410 891 B1 (MUSKALLA MICHAEL [DE] ET AL) 25 June 2002 (2002-06-25) * the whole document *	1-15	
A	WO 2006/065475 A1 (SAINT GOBAIN PERFORMANCE PLAST [US]) 22 June 2006 (2006-06-22) * the whole document *	1-15	F24C B08B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20 August 2012	Examiner Makúch, Milan
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

1
EPO FORM 1503 03.02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 12 17 5210

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-08-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0205596 A1	17-01-2002	EP 1316241 A1 US 6399924 B1 WO 0205596 A1	04-06-2003 04-06-2002 17-01-2002
US 5353781 A	11-10-1994	NONE	
CN 101462345 A	24-06-2009	NONE	
FR 2678849 A1	15-01-1993	NONE	
FR 2767908 A1	05-03-1999	NONE	
US 6410891 B1	25-06-2002	AT 263341 T BR 0001005 A CA 2300459 A1 DE 19910467 C1 EP 1039234 A2 ES 2217684 T3 JP 2000289049 A PL 338878 A1 US 6410891 B1	15-04-2004 26-09-2000 10-09-2000 19-10-2000 27-09-2000 01-11-2004 17-10-2000 11-09-2000 25-06-2002
WO 2006065475 A1	22-06-2006	EP 1828685 A1 US 7005613 B1 WO 2006065475 A1	05-09-2007 28-02-2006 22-06-2006

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 2258990 A [0013]