Deutsches Patent- und Markenamt

DPMA München Ref. 2.2.3.

Auftrag:	2020-00058	**Gebiet:**	Waschmittel
Auftragsmenge:	17 Dokumente	**Ausgabe am:**	
Auftragsdatum:	29.06.2020	**Rückgabe am:**	
Analyseur:	[redacted]	**Rechnungsnr.:**	

	PN	Titel	Gebiet	Dokumenteinheiten	Beispielanzahl
1	EP 000001886664 A1	Chloramines enthaltend zusammensetzungen	Waschmittel	1	0
2	US 020030162678 A1	Carpet cleaners	Waschmittel	1	0
3	US 020070065391 A1	C10 alkanolalkoxylate mixtures and use thereof as ...	Waschmittel	1	0
4	US 020090229633 A1	CLEANING AGENT, CLEANING METHOD AND CLEANING APPAR...	Waschmittel	2	0
5	US 020110039751 A1	CLEANING AND/OR TREATMENT COMPOSITIONS	Waschmittel	1	0
6	US 020130210692 A1	CLEANING COMPOSITION AND METHOD OF FORMING THE SAM...	Waschmittel	1	0
7	US 020130217609 A1	CAPSULES AND COMPOSITIONS COMPRISING THE SAME	Waschmittel	1	0
8	US 020130252870 A1	CLEANING COMPOSITION INCLUDING A TERPOLYMER CONTAI...	Waschmittel	1	0
9	US 020130261044 A1	Cleaning Composition for Hard Surface	Waschmittel	1	0
10	US 020130274167 A1	CLEANING COMPOSITION FOR DISHWASHING	Waschmittel	1	0
11	US 020150044264 A1	Carbamates from Glycerine Carbonate for Pearlizati...	Waschmittel	1	0
12	WO 002013117665 A2	CALCIUM AND MAGNESIUM SALTS AS SQUEAKINESS ENHANCE...	Waschmittel	1	0
13	WO 002013124804 A2	CELLULOSE-BASED PAPER CONTAINING CLEANSING AGENTS ...	Waschmittel	1	0
14	WO 002013167613 A1	CARE ENZYME SYSTEM	Waschmittel	1	0
15	WO 002013173995 A1	CLEANING COMPOSITION	Waschmittel	1	0
16	WO 002014011424 A2	CLEANING AGENT FOR AIR-CONDITIONER RADIATOR	Waschmittel	1	0
17	WO 002014012375 A1	CLEANING COMPOSITIONS	Waschmittel	2	0
			Summe:	19	

Eine stichprobenartige Überprüfung der abgegebenen Analysen wurde durchgeführt.
Abgerechnet werden: 19 Dokumente a 19,00 €

Datum/Unterschrift:

Auftrag:	**2020-00058**
Analyseur:	[redacted]
PN:	**US 020030162678 A1**
Titel:	**Carpet cleaners**
Gebiet:	**Waschmittel**

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100		165		181		199		215	
15y		166		182		20y		216	
15x		167		183		20x		217	
150		168		184		200		218	
151		169		185		201		219	
152		17y		186		202		22y	
153		17x		187		203		22x	
154		170		188		204		220	
155		171		189		205		221	
156		172		19y		206		222	
157		173		19x		207		223	
158		174		190		208		224	
159		175		191		209		225	
16y		176		192		21y		226	
16x		177		193		21x		227	
160		178		194		210		228	
161		179		195		211		229	
162		18y		196		212		23y	
163		18x		197		213		23x	
164		180		198		214		230	

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231		257		281		307		331			
232		258		282		308		332			
233		259		283		309		333			
234		26y		284		31y		334			
235		26x		285		31x		335			
236		260		286		310		336			
237		261		287		311		337			
238		262		288		312		338			
239		263		289		313		339			
24y		264		29y		314		34y			
24x		265		29x		315		34x			
240		266		290		316		340			
241		267		291		317		341			
242		268		292		318		342			
243		269		293		319		343			
244		27y		294		32y		344			
245		27x		295		32x		345			
246		270		296		320		346			
247		271		297		321		347			
248		272		298		322		348			
249		273		299		323		349			
25y		274		30y		324		35y			
25x		275		30x		325		35x			
250		276		300		326		350			
251		277		301		327		351			
252		278		302		328		352			
253		279		303		329		353			
254		28y		304		33y		354			
255		28x		305		33x		355			
256		280		306		330		356			

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357		381		407		432		46y	
358		382		408		433		46x	
359		383		409		434		460	
36y		384		41y		435		461	
36x		385		41x		436		462	
360		386		410		437		463	
361		387		411		438		464	
362		388		412		439		465	
363		389		413		44y		466	
364		39y		414		44x		467	
365		39x		415		440		468	
366		390		416		441		469	
367		391		417		442		47y	
368		392		418		443		470	
369		393		419		444		471	
37y		394		42y		445		472	
37x		395		42x		446		473	
370		396		420		447		474	
371		397		421		448		475	
372		398		422		449		476	
373		399		423		450		477	
374		40y		424		451		478	
375		40x		426		452		479	
376		400		427		453		48y	
377		401		428		454		48x	
378		402		429		455		480	
379		403		43y		456		481	
38y		404		43x		457		483	
38x		405		430		458		484	
380		406		431		459		485	

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486		515		541		567		591	
487		516		542		568		592	
488		517		543		569		593	
489		518		544		57y		594	
49y		52y		545		57x		595	
49x		52x		546		570		596	
494		520		547		571		597	
495		521		548		572		598	
496		522		549		573		599	
497		523		55y		574		60y	
498		524		55x		575		60x	
499		525		550		576		600	
50y		526		551		577		601	
50x		527		552		578		602	
500		528		553		579		603	
501		529		554		58y		604	
502		53x		555		58x		605	
503		530		556		580		606	
504		531		557		581		607	
505		532		558		582		608	
506		533		559		583		609	
507		534		56y		584		61y	
508		535		56x		585		61x	
509		536		560		586		610	
51x		537		561		587		611	
510		538		562		588		612	
511		539		563		589		613	
512		54y		564		59y		614	
513		54x		565		59x		615	
514		540		566		590		616	

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617		641		667		691		717						
618		642		668		692		718						
619		643		669		693		719						
62y		644		67y		694		72y						
62x		645		67x		695		72x						
620		646		670		696		720						
621		647		671		697		721						
622		648		672		698		722						
623		649		673		699		723						
624		65y		674		70y		724						
625		65x		675		70x		725						
626		650		676		700		726						
627		651		677		701		727						
628		652		678		702		728						
629		653		679		703		729						
63y		654		68y		704		73y						
63x		655		68x		705		73x						
630		656		680		706		731						
631		657		681		707		732						
632		658		682		708		733						
633		659		683		709		734						
634		66y		684		71y		735						
635		66x		685		71x		736						
636		660		686		710		737						
637		661		687		711		738						
638		662		688		712		739						
639		663		689		713		74y						
64y		664		69y		714		74x						
64x		665		69x		715		740						
640		666		690		716		741						

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742		768		792		82x		846			
743		769		793		820		847			
744		77y		794		821		848			
745		77x		795		822		849			
746		770		796		823		85x			
747		771		797		824		850			
748		772		798		825		851			
749		773		799		826		852			
75y		774		800		827		853			
75x		775		801		828		854			
750		776		802		829		855			
751		777		803		83x		856			
752		778		804		830		857			
753		779		805		831		860			
754		78y		806		832		861			
755		78x		807		833		862			
756		780		808		834		863			
757		781		81y		835		864			
758		782		81x		836		865			
759		783		810		837		866			
76y		784		811		838		867			
76x		785		812		839		868			
760		786		813		84y		869			
761		787		814		84x		870			
762		788		815		840		871			
763		789		816		841		872			
764		79y		817		842		873			
765		79x		818		843		874			
766		790		819		844		875			
767		791		82y		845		876			

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878		906		93y		953		977	
879		907		93x		954		978	
880		908		930		955		979	
881		909		931		956		98y	
882		91y		932		957		98x	
883		91x		933		958		980	
884		910		934		959		981	
885		911		935		96y		982	
886		912		936		96x		983	
887		913		937		960		984	
888		914		939		961		985	
889		915		94y		962		986	
891		916		94x		963		987	
892		917		940		964		988	
893		918		941		965		989	
894		919		942		966		99y	
895		92y		943		967		99x	
896		92x		944		968		990	
897		920		945		969		991	
898		921		946		97y		992	
899		922		947		97x		993	
90y		923		948		970		994	
900		924		949		971		995	
901		925		95y		972		996	
902		926		95x		973		997	
903		927		950		974		998	
904		928		951		975		999	
905		929		952		976			

Info und ergänzende Bemerkungen (Analyse)	

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(54) **CARPET CLEANERS**

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(57) **ABSTRACT**

An improved quick breaking foam carpet cleaner is provided. Good cleaning is achieved and the foam breaks quickly, allowing for quicker cleaning and use of the carpet without the need for subsequent vacuuming.

CARPET CLEANERS

FIELD OF THE INVENTION

[0001] This invention relates to fabric cleaning compositions of the type adaptable for use in the cleaning of textile fabrics such as carpets, and more particularly to cleaning compositions for carpets that do not require rubbing, scrubbing, or vacuuming.

BACKGROUND OF THE INVENTION

[0002] Fabric cleaning formulations have been previously developed and employed in the cleaning of textile fabrics of the type normally found in carpets and rugs. Many of the prior fabric cleaning formulations involve the use of detergent materials in aqueous or solvent mediums, in which dirt and soil are removed by normal detergent action. Others involve formulations which are applied dry or damp to the fabric surface. Soil and dirt particles are, in effect, loosened by mild detergent action. Loosened particles are then adsorbed on particles of filler material and thereafter vacuumed from the fabric.

[0003] A disadvantage to many of the previous cleaning formulations is that the cleaned area is wet or damp for a long period of time, making the carpeted area unusable. In addition, some carpet cleaners are of the foam type in which the foam will remain stable for a long period of time, for example 15 to 20 minutes, before it collapses. Thereafter, the carpet is allowed to dry, when dry it can be vacuumed and then used.

[0004] Thus, an object of the present invention is to provide a composition with a quick breaking foam or even a bubbling action that cleans a variety of stains without the need for subsequent vacuuming of the carpet. In so doing, the carpeted area that has been cleaned will be useable in a shorter period of time.

SUMMARY OF THE INVENTION

[0005] The present invention is directed to a foaming or bubbling composition for cleaning carpets which comprises a solvent system comprising one or more organic solvents; a surfactant selected from the group consisting of anionic surfactant, non-ionic surfactant, and mixtures thereof; a propellant; and water. The composition may also contain an hydrotrope. The composition optionally contains one or more cationic surfactants, one or more corrosion inhibitors, pH buffering agents, perfumes, perfume carriers, pH adjusting agents, pH buffers, antioxidants, antimicrobials, germicidals, fungicidals, acaricides, allergen neutralizer and preservatives, wherein the foam breaks within ten minutes of application to the carpet.

[0006] The organic solvents can be selected from one or more of glycol ethers, m-Pyrol, low molecular weight alcohols, and mixtures thereof. Examples of glycol ethers include ethylene glycol monomethyl ether, ethylene glycol monobutyl ether, diethylene glycol monomethyl ether, diethylene glycol monobutyl ether, propylene glycol phenyl ether, propylene glycol monomethyl ether, dipropylene glycol methyl ether, propylene glycol monopropyl ether, dipropylene glycol monopropyl ether, propylene glycol monobutyl ether, dipropylene glycol monobutyl ether and ethylene glycol monohexyl ether. Examples of low molecular weight alcohols include methanol, ethanol, n-propanol, isopropanol, and the like. Preferably, the solvent system is selected from the group consisting of propylene glycol monopropyl ether or a mixture of dipropylene glycol methyl ether and dipropylene glycol monobutyl ether.

[0007] The non-ionic surfactant is preferably a surfactant having a formula $RO(CH_2CH_2O)_nH$ wherein R is a mixture of linear, even carbon-number hydrocarbon chains ranging from $C_{12}H_{25}$ to $C_{16}H_{33}$ and n represents the number of repeating units and is a number of from about 1 to about 12. Examples of other non-ionic surfactants include higher aliphatic primary alcohols containing about twelve to about 16 carbon atoms which are condensed with about three to thirteen moles of ethylene oxide.

[0008] Other examples of nonionic surfactants include primary alcohol ethoxylates (available under the Neodol tradename from Shell Co.), such as C_{11} alkanol condensed with 9 moles of ethylene oxide (Neodol 1-9), C_{12-13} alkanol condensed with 6.5 moles ethylene oxide (Neodol 23-6.5), C_{12-13} alkanol with 9 moles of ethylene oxide (Neodol 23-9), C_{12-15} alkanol condensed with 7 or 3 moles ethylene oxide (Neodol 25-7 or Neodol 25-3), C_{14-15} alkanol condensed with 13 moles ethylene oxide (Neodol 45-13), C_{9-11} linear ethoxylated alcohol, averaging 2.5 moles of ethylene oxide per mole of alcohol (Neodol 91-2.5), and the like.

[0009] Other examples of non-ionic surfactants suitable for use in the present invention include ethylene oxide condensate products of secondary aliphatic alcohols containing 11 to 18 carbon atoms in a straight or branched chain configuration condensed with 5 to 30 moles of ethylene oxide. Examples of commercially available nonionic detergents of the foregoing type are C_{11-15} secondary alkanol condensed with either 9 moles of ethylene oxide (Tergitol 15-S-9) or 12 moles of ethylene oxide (Tergitol 15-S-12) marketed by Union Carbide, a subsidiary of Dow Chemical.

[0010] Octylphenoxy polyethoxyethanol type non-ionic surfactants, for example, Triton X-100, as well as amine oxides can also be used as a non-ionic surfactant in the present invention.

[0011] Other examples of linear primary alcohol ethoxylates are available under the Tomadol tradename such as, for example, Tomadol 1-7, a C_{11} linear primary alcohol ethoxylate with 7 moles EO; Tomadol 25-7, a C_{12}-C_{15} linear primary alcohol ethoxylate with 7 moles EO; Tomadol 45-7,a C_{14}-C_{15} linear primary alcohol ethoxylate with 7 moles EO; and Tomadol 91-6, a C_9-C_{11}, linear alcohol ethoxylate with 6 moles EO.

[0012] Anionic surfactants can also be used in the present invention. Suitable anionic surfactants include, for example, alcohol sulfates (e.g. alkali metal or ammonium salts of alcohol sulfates) and sulfonates, alcohol phosphates and phosphonates, alkyl sulfonates, ethoxylated alkyl sulfonates, alkylaryl sulfonates, C_{10-16} alkyl benzene sulfonates, C_{10-18} alkyl alkoxy carboxylates having 1 to 5 moles of ethylene oxide, and the C_{10-18} sarcosinates.

[0013] The compositions of the present invention also contain propellants such as pressurized gases, including carbon dioxide, air, nitrogen, nitrous oxide, as well as others, for example, propane, butane, pentane, isobutane, isopentane, mixtures of hydrocarbon gases (such as, for example, A-46 and A-70 available from Phillips Petroleum, CAP 40

and CAP 48 available from Shell, BPAP 40 available from BP Chemicals), dimethyl ether, and mixtures thereof. The amount of propellant used is generally between 2 and 20% w/w of the entire composition. More preferably between 3 and 10% w/w of the entire composition. Typically, 6% w/w propellant is used.

[0014] The foam composition of the present invention is designed so that it collapses, or breaks, within a short period of time, preferably less than ten minutes, more preferably less than five minutes, even more preferably less than one minute and most preferably less than thirty seconds. Alternatively the composition can give a bubbling action for a short period of time, preferably less than five minutes, more preferably less than one minute even more preferably less than thirty seconds. The quick breaking of the foam or the bubbling action permits the spot to blotted up quickly, allowing the carpeted surface to be used in a shorter period of time over conventional foam-type carpet cleaners where the time for the foam to collapse is longer, making clean-up time longer.

[0015] The present invention also relates to a process for the removal of stains from carpets which comprises the step of applying an effective amount of the composition of the present invention to a carpet in need of such treatment.

DETAILED DESCRIPTION OF THE INVENTION

[0016] The present invention is directed to a foam composition for cleaning carpets which comprises a solvent system comprising one or more organic solvents; a surfactant selected from the group consisting of anionic surfactant, non-ionic surfactant, and mixtures thereof; a propellant; and water. The composition may also contain an hydrotrope. The composition optionally contains one or more cationic surfactants, one or more corrosion inhibitors, pH buffering-agents, perfumes, perfume carriers, pH adjusting agents, pH buffers, antioxidants, antimicrobials, germicidals, fungicidals, acaricides, allergen neutralizer and preservatives, wherein the foam breaks within ten minutes of application to the carpet.

[0017] The organic solvents can be selected from one or more of glycol ethers, m-Pyrol, low molecular weight alcohols, and mixtures thereof. Examples of glycol ethers include ethylene glycol monomethyl ether, ethylene glycol monobutyl ether, diethylene glycol monomethyl ether, diethylene glycol monobutyl ether, propylene glycol phenyl ether, propylene glycol monomethyl ether, dipropylene glycol methyl ether, propylene glycol monopropyl ether, dipropylene glycol monopropyl ether, propylene glycol monobutyl ether, dipropylene glycol monobutyl ether and ethylene glycol monohexyl ether. Examples of low molecular weight alcohols include methanol, ethanol, n-propanol, isopropanol, and the like. Preferably, the solvent system is selected from the group consisting of propylene glycol monopropyl ether or a mixture of dipropylene glycol methyl ether and dipropylene glycol monobutyl ether.

[0018] The non-ionic surfactant is preferably a surfactant having a formula $RO(CH_2CH_2O)_nH$ wherein R is a mixture of linear, even carbon-number hydrocarbon chains ranging from $C_{12}H_{25}$ to $C_{16}H_{33}$ and n represents the number of repeating units and is a number of from about 1 to about 12. Surfactants of this formula are presently marketed under the Genapol®, available from Hoechst Celanese Corp., Charlotte, N.C., including the 26-L series of the general formula $RO(CH_2CH_2O)_nH$ wherein R is a mixture of linear, even carbon-number hydrocarbon chains ranging from $C_{12}H_{25}$ to $C_{16}H_{33}$ and n represents the number of repeating units and is a number of from 1 to about 12, such as 26-L-1, 26-L-1.6, 26-L-2, 26-L-3, 26-L-5, 26-L-45, 26-L-50, 26-L-60, 26-L-60N, 26-L-75, 26-L-80, 26-L-98N, and the 24-L series, derived from synthetic sources and typically contain about 55% C_{12} and 45% C_{14} alcohols, such as 24-L-3, 24-L-45, 24-L-50, 24-L-60, 24-L-60N, 24-L-75, 24-L-92, and 24-L-98N, both of which are commercially available from Hoechst Celanese Corp. From product literature, the single number following the "L" corresponds to the average degree of ethoxylation (numbers between 1 and 5) and the two digit number following the letter "L" corresponds to the cloud point in ° C. of a 1.0 wt. % solution in water.

[0019] Examples of other non-ionic surfactants include higher aliphatic primary alcohols containing about twelve to about 16 carbon atoms which are condensed with about three to thirteen moles of ethylene oxide.

[0020] Amine oxides can also be used as the non-ionic surfactant of the present invention. Exemplary useful amine oxide compounds may be defined as one or more of the following of the four general classes:

[0021] (1) Alkyl di (lower alkyl) amine oxides in which the alkyl group has about 6-24, and preferably 8-18 carbon atoms, and can be straight or branched chain, saturated or unsaturated. The lower alkyl groups include between 1 and 7 carbon atoms, but preferably each include 1-3 carbon atoms. Examples include octyl dimethyl amine oxide, lauryl dimethyl amine oxide, myristyl dimethyl amine oxide, and those in which the alkyl group is a mixture of different amine oxides, such as dimethyl cocoamine oxide, dimethyl (hydrogenated tallow) amine oxide, and myristyl/palmityl dimethyl amine oxide;

[0022] (2) Alkyl di (hydroxy lower alkyl) amine oxides in which the alkyl group has about 6-22, and preferably 8-18 carbon atoms, and can be straight or branched chain, saturated or unsaturated. Examples include bis-(2-hydroxyethyl) cocoamine oxide, bis(2-hydroxyethyl) tallowamine oxide; and bis-(2-hydroxyethyl) stearylamine oxide;

[0023] (3) Alkylamidopropyl di(lower alkyl) amine oxides in which the alkyl group has about 10-20, and preferably 12-16 carbon atoms, and can be straight or branched chain, saturated or unsaturated. Examples include cocoamidopropyl dimethyl amine oxide and tallowamidopropyl dimethyl amine oxide; and

[0024] (4) Alkylmorpholine oxides in which the alkyl group has about 10-20, and preferably 12-16 carbon atoms, and can be straight or branched chain, saturated or unsaturated.

[0025] Other examples of nonionic surfactants include primary alcohol are ethoxylates (available under the Neodol tradename from Shell Co.), such as C_{11} alkanol condensed with 9 moles of ethylene oxide (Neodol 1-9), C_{12-13} alkanol condensed with 6.5 moles ethylene oxide (Neodol 23-6.5), C_{12-13} alkanol with 9 moles of ethylene oxide (Neodol 23-9),

C_{12-15} alkanol condensed with 7 or 3 moles ethylene oxide (Neodol 25-7 or Neodol 25-3), C_{14-15} alkanol condensed with 13 moles ethylene oxide (Neodol 45-13), and the like.

[0026] Other examples of non-ionic surfactants suitable for use in the present invention include ethylene oxide condensate products of secondary aliphatic alcohols containing 11 to 18 carbon atoms in a straight or branched chain configuration condensed with 5 to 30 moles of ethylene oxide. Examples of commercially available nonionic detergents of the foregoing type are C_{11-15} secondary alkanol condensed with either 9 moles of ethylene oxide (Tergitol 15-S-9) or 12 moles of ethylene oxide (Tergitol 15-S-12) marketed by Union Carbide, a subsidiary of Dow Chemical.

[0027] Octylphenoxy polyethoxyethanol type non-ionic surfactants, for example, Triton X-100, from Rohm & Haas, are also useful in the present invention.

[0028] Anionic surfactants can also be used in the present invention. Suitable anionic surfactants include, for example, alcohol sulfates (e.g. alkali metal or ammonium salts of alcohol sulfates) and sulfonates, alcohol phosphates and phosphonates, alkyl sulfonates, ethoxylated alkyl sulfonates, alkylaryl sulfonates, C_{10-16} alkyl benzene sulfonates, C_{10-18} alkyl alkoxy carboxylates having 1 to 5 moles of ethylene oxide, and the C_{10-18} sarcosinates Preferably, the alkyl chain length of a chosen surfactant will range from about nine-eleven carbon atoms to about 16 carbon atoms.

[0029] In the present invention, the preferred non-ionic surfactants are found in the Examples. The amount of non-ionic surfactant present in the compositions ranges from about 0.2 to about 0.5 wt. %, preferably from about 0.2 to about 0.4 wt % of the composition.

[0030] The compositions of the present invention also contain propellants such as pressurized gases, including carbon dioxide, air, nitrogen, nitrous oxide, as well as others, for example, propane, butane, pentane, isobutane, isopentane, mixtures of hydrocarbon gases (such as, for example, A-46 and A-70 available from Phillips-Petroleum, CAP 40 and CAP 48 available from Shell, BPAP 40 available from BP Chemicals), dimethyl ether, and mixtures thereof. The amount of propellant used is generally between 2 and 20% w/w of the entire composition. More preferably between 3 and 10% w/w of the entire composition. Typically, 6% w/w propellant is used.

[0031] The present invention also relates to a process for the removal of stains from carpets which comprises the step of applying an effective amount of the composition of the present invention to a carpet in need of such treatment.

[0032] The compositions are largely aqueous in nature, and comprise water. Water is added to order to provide to 100% by weight of the compositions of the invention. The water may be tap water, but is preferably distilled and is most preferably deionized water. If the water is tap water, it is preferably substantially free of any undesirable impurities such as organics or inorganics, especially mineral salts which are present in hard water which may thus undesirably interfere with the operation of the constituents present in the aqueous compositions according to the invention.

[0033] The composition of the present invention may also contain one or more hydrotropes. Suitable hydrotropes are sodium cumene sulfonate (ELTESOL SC40 available from Albright & Wilson), sodium xylene sulfonate (ELTESOL SX40 available from Albright & Wilson), di-sodium mono- and di-alkyl disulfonate diphenyloxide (DOWFAX 3B2 available from Dow Chemicals), n-octane sodium sulfonate (BIOTERGE PAS 7 S or 8 S available from Stepan).

[0034] The compositions of the present invention can optionally contain one or more cationic surfactants, one or more corrosion inhibitors, pH buffering agents, perfumes, perfume carriers, pH adjusting agents, pH buffers, antioxidants, antimicrobials, germicidals, fungicidals, acaricides, allergen neutralizer and preservatives which, when present, should be present in minor amounts, preferably in total comprise less than about 5% by weight (on an active weight basis) of the compositions, and desirably less than about 3%wt. It is known that certain types of fragrances can have an effect on the speed in which the foam breaks, but even with fragrance in the composition, the foam will still break within the range of ten minutes.

[0035] The foam composition of the present invention is designed so that it collapses, or breaks, within a short period of time, preferably less than ten minutes, more preferably less than five minutes, even more preferably less than one minute and most preferably less than thirty seconds. Alternatively the composition can give a bubbling action for a short period of time, preferably less than five minutes, more preferably less than one minute even more preferably less than thirty seconds. The quick breaking of the foam or the bubbling action permits the spot to blotted up quickly, allowing the carpeted surface to be used in a shorter period of time over conventional foam-type carpet cleaners where the time for the foam to collapse is longer, making clean-up time longer.

[0036] The foaming/bubbling composition is applied to the stained area on the carpet. The instantaneous foam/bubble production causes the stain to be lifted to the surface of the carpet pile and then the foam collapses. The stain is brought to the surface of the carpet, making it easier to blot and remove. While not being limited to this theory, it is believed that part of the good cleaning seen with the compositions of the present invention is due forces generated by the quick collapse of the foam, which causes the stains to lifted to the surface of the carpet.

[0037] The present invention also relates to a process for the removal of stains from carpets which comprises the step of applying an effective amount of the composition of the present invention to a carpet in need of such treatment.

[0038] The composition is typically prepared by mixing all the components together in a suitable container to form a concentrate, placing an amount of the concentrate in a suitable container useful to dispense aerosols, and then the propellant is added. For the examples below, a charge of the example formulation (equal to 94% of the finished product) is placed in a suitable canister and charged with 6% propellant. Examples of compositions forming a part of the present invention are set forth below in Table 1 with the various components identified in Table 2.

TABLE 1

Components	Ex. 1 %	Ex. 2 %	Ex. 3 %	Ex. 4 %	Ex. 5 %	Ex. 6 %	Ex. 7 %
DI Water	82.45	82.45	82.25	81.45	81.45	81.45	81.45
Dowanol DPnB	4.5	—	4.5	4.5	4.5	4.5	4.5
Dowanol DPM	12.5	—	12.5	12.5	12.5	12.5	12.5
Dowanol PnP	—	17	—	—	—	—	—
Dowanol EB	—	—	—	—	—	—	—
IPA	—	—	—	—	—	—	—
Genapol 26-L-60	—	0.2	—	—	0.2	—	0.2
Genapol 26-L-80	0.2	—	0.2	0.2	—	0.2	—
Syntran 1575	—	—	—	1	1	—	—
Syntran 1580	—	—	—	—	—	1	1
Triton X-100	—	—	—	—	—	—	—
Sodium Benzoate	0.3	0.3	—	0.3	0.3	0.3	0.3
Monacor BE	—	—	0.5	—	—	—	—
Sodium Nitrite	—	—	—	—	—	—	—
Ammonium Hydroxide	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Total	100	100	100	100	100	100	100

Components	Ex. 8 %	Ex. 9 %	Ex. 10 %	Ex. 11 %	Ex. 12 %	Ex. 13 %	Ex. 14 %
DI Water	79.75	79.35	82.55	81.65	81.65	82.55	78.55
Dowanol DPnB	—	—	4.5	4.5	—	—	4.5
Dowanol DPM	—	—	12.5	12.5	—	—	16.5
Dowanol PnP	—	—	—	—	17	17	—
Dowanol EB	15	15	—	—	—	—	—
IPA	5	5	—	—	—	—	—
Genapol 26-L-60	—	—	—	—	0.2	0.2	—
Genapol 26-L-80	—	—	0.2	0.2	—	—	0.2
Triton X-100	0.05	0.05	—	—	—	—	—
Sodium Benzoate	—	—	—	0.3	0.3	—	—
Monacor BE	—	0.5	—	0.8	0.8	—	—
Sodium Nitrite	0.1	—	0.2	—	—	0.2	0.2
Ammonium Hydroxide	0.1	0.1	0.05	0.05	0.05	0.05	0.05
Total	100	100	100	100	100	100	100

Components	Ex. 15 %	Ex. 16 %	Ex. 17 %	Ex. 18 %	Ex. 19 %	Ex. 20 %	Ex. 21 %
DI Water	77.65	77.65	81.65	82.2	82.2	82.2	82.2
Dowanol DPnB	4.5	3.5	—	—	—	17	—
Dowanol DPM	16.5	17.5	8.5	—	—	—	—
Dowanol PnP	—	—	8.5	—	—	—	—
Dowanol EB	—	—	—	17	17	—	—
Dowanol PM	—	—	—	—	—	—	17
Genapol 26-L-60	—	—	0.2	0.2	0.2	0.2	0.2
Genapol 26-L-80	0.2	0.2	—	—	—	—	—
Sodium Benzoate	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Monacor BE	0.8	0.8	0.8	—	—	—	—
Sodium Bicarbonate	—	—	—	0.1	0.1	0.34	0.1
Fragrance	—	—	—	0.2	0.2	0.2	0.2
Ammonium Hydroxide	0.05	0.05	0.05	—	drop-wise	drop-wise	drop-wise
Total	100	100	100	100	100	100.24	100

Components	Ex. 22 %	Ex. 23 %	Ex. 24 %	Ex. 25 %	Ex. 26 %	Ex. 27 %	Ex. 28 %
DI Water	82.2	82.2	82.45	82.45	82.45	82.45	82.45
Dowanol DPnB	—	—	—	—	—	4.5	4.5
Dowanol EB	—	17	—	—	8.5	—	—
Dowanol PM	—	—	—	—	—	—	—
Dowanol DB	17	—	—	—	—	—	—
Dowanol DPM	—	—	—	—	—	12.5	12.5
m-Pyrol	—	—	17	15.5	8.5	—	—
Hexyl Cellosolve	—	—	—	1.5	—	—	—
Genapol 26-L-3	—	0.2	—	—	—	—	—
Genapol 26-L-60	0.2	—	0.2	0.2	0.2	—	—
Neodol 91-2.5	—	—	—	—	—	0.2	—
Tergitol 15-S-9	—	—	—	—	—	—	0.2
Sodium Benzoate	0.3	0.3	0.3	0.3	0.3	0.3	0.3

TABLE 1-continued

Sodium Bicarbonate	0.17	0.17	—	—	—	—	—
Fragrance	0.2	0.2	—	—	—	—	—
Ammonium Hydroxide	drop-wise	drop-wise	0.05	0.05	0.05	0.05	0.05
Total	100.07	100.07	100	100	100	100	100

Components	Ex. 29	Ex. 30	Ex. 31	Ex. 32	Ex. 33	Ex. 34	Ex. 35
DI Water	77.45	80.15	77.15	77.25	78.73	79.98	81.1
Dowanol DPnB	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Dowanol DPM	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Dowanol PnP							
Eltesol SC 40	5	2.2	5	5	2.5	1.25	
Dowfax 3B2							1.13
Genapol 26-L-60							
Genapol 26-L-80	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Sodium Benzoate	0.3	0.3	0.6		0.6	0.6	0.3
Monacor BE				0.5	0.82	0.82	
Sodium Bicarbonate							0.17
Fragrance		0.1					0.1
Ammonium Hydroxide	0.05	0.05	0.05	0.05	0.15	0.15	
Total	100	100	100	100	100	100.24	100

[0039]

TABLE 2

Component	Description of Component
DI Water	Deionized water
Dowanol DPnB	Dipropylene glycol n-butyl ether from Dow Chemical
Dowanol DPM	Dipropylene glycol methyl ether from Dow Chemical
Dowanol PnP	Propylene glycol n-propyl ether from Dow Chemical
Dowanol EB	Ethylene glycol n-butyl ether from Dow Chemical
Dowanol PM	Propylene glycol methyl ether from Dow Chemical
Dowanol DB	Diethylene glycol n-butyl ether from Dow Chemical
m-Pyrol	N-methyl-pyrrolidone from ISP
Hexyl Cellosolve	Ethylene glycol monohexyl ether from Dow Chemical
IPA	Isopropyl alcohol
Genapol 26-L-60	Primary alcohol ethoxylate from Hoechst Celanese
Genapol 26-L-80	Primary alcohol ethoxylate from Hoechst Celanese
Syntran 1575	Acrylic copolymer from Interpolymer Corporation
Syntran 1580	Carboxylated acrylic copolymer from Interpolymer Corporation
Neodol 91-2.5	C_{9-11} linear ethoxylated alcohol, averaging 2.5 moles of ethylene oxide per mole of alcohol from Shell Chemical
Tergitol 15-S-9	C_{11-15} secondary alkanol condensed with 9 moles of ethylene oxide from Union Carbide, a subsidiary of Dow Chemical
Monacor BE	Monoethanolamine borate/monoisopropanolamine borate mixture (100%) from Uniqema
Sodium Nitrite	Sodium nitrite
Sodium Bicarbonate	Sodium bicarbonate
Fragrance	Proprietary fragrance from various suppliers
Sodium Benzoate	Sodium benzoate
Eltesol SC 40	Sodium cumene sulphonate
Ammonium Hydroxide	Ammonium hydroxide

[0040] Certain compositions of Table 1 were evaluated in a cleaning test and were compared against a commercially available product "Spot Shot" which is advertised as an instant carpet cleaner ("Commercial Product"). The Commercial Product is believed to contain about 5% propellant, about 16 to 17% solvent (butyl cellosolve), about 0.8% Monacor BE, about 0.26% sodium benzoate, about 0.15% nonyl phenol type non-ionic surfactant, the balance being water.

[0041] The cleaning test that was conducted consisted of five stains cleaned with three compositions and five repetitions of each stain for each composition. The five stains tested were: Red Ink; Dirty Motor Oil; Red Wine; Spaghetti Sauce; and Coffee.

[0042] The compositions tested were Ex. 1; Ex. 2; and Commercial Product.

[0043] The test was conducted as follows: 6"×6" swatches of carpet were stained with the appropriate amount of the appropriate product.

Red Ink - 2" × 2" X
Dirty Motor Oil - 0.5 g
Red Wine - 1.5 g
Spaghetti Sauce - 2.0 g
Coffee - 1.5 g

[0044] The stains were allowed to dry for 24 hrs. in the room temperature chamber. Thereafter, approximately 9.5 g of the appropriate composition were applied on each swatch. Then, each swatch was blotted by hand twice for a count of ten. The swatches were allowed to dry overnight in the room temp chamber. The swatches were visually scored based on a scale from 0-100. 0=no soil removal and 100=complete soil removal.

[0045] The results were as follows:

[0046] For Red Ink: Ex. 1 is statistically better than Ex. 2. Both examples were at parity with the Commercial Product.

[0047] For Dirty Motor Oil: Ex. 1 and Ex. 2 were both at parity with the Commercial Product.

[0048] For Red Wine: Ex. 1 was at parity with Ex. 2. Both examples were prototypes were statistically better over the Commercial Product.

[0049] For Spaghetti Sauce: Ex. 1 and Ex. 2 were both at parity with the Commercial Product.

[0050] For Coffee: Ex. 1 was at parity with Ex. 2 and the Commercial Product. The Commercial Product was statistically better than Ex. 2.

We claim:

1. A foaming or bubbling carpet cleaning composition comprising:

(a) an glycol ether organic solvent;

(b) a non-ionic surfactant

(c) a propellant; and

(d) water,

the composition may also contain one or more hydrotropes,

the composition optionally contains one or more cationic surfactants, one or more corrosion inhibitors, pH buffering agents, perfumes, perfume carriers, pH adjusting agents, pH buffers, antioxidants, antimicrobials, germicidals, fungicidals, acaricides, allergen neutralizer and preservatives,

wherein the foam breaks within ten minutes of application to the carpet.

2. The composition of claim 1 wherein the solvent system (a) is selected from either a mixture of dipropylene glycol methyl ether and dipropylene glycol n-butyl ether or propylene glycol n-propyl ether.

3. The composition of claim 2 wherein the solvent system (a) is propylene glycol n-propyl ether.

4. The composition of claim 1 wherein the non-ionic surfactants are selected from primary alcohol ethoxylates and secondary alcohol ethoxylates.

5. The composition of claim 4 wherein the non-ionic surfactant is a secondary alcohol ethoxylate.

6. The composition of claim 5 wherein the non-ionic surfactant is a primary alcohol ethyoxiate of formula $RO(CH_2CH_2O)_nH$ wherein R is a mixture of linear, even carbon-number hydrocarbon chains ranging from $C_{12}H_{25}$ to $C_{15}H_{33}$ and n represents the number of repeating units and is a number of from about 1 to about 12.

7. The composition of claim 6 wherein the foam breaks within or the bubbling action lasts for at least five minutes of application to the carpet.

8. The composition of claim 7 wherein the foam breaks within or the bubbling action lasts for at least one minute of application to the carpet.

9. The composition of claim 8 wherein the foam breaks within or the bubbling action lasts for at least thirty seconds of application to the carpet.

10. The composition of claim 9 wherein the foam breaks within or the bubbling action lasts for at least fifteen seconds of application to the carpet.

11. The composition of claim 2 wherein the solvent system (a) is a mixture of dipropylene glycol methyl ether and dipropylene glycol n-butyl ether.

12. The composition of claim 11 wherein the surfactant (b) is selected from non-ionic surfactants.

13. The composition of claim 12 wherein the non-ionic surfactants are selected from primary alcohol ethoxylates and secondary alcohol ethoxylates.

14. The composition of claim 13 wherein the non-ionic surfactant is a primary alcohol ethyoxiate of formula $RO(CH_2CH_2O)_nH$ wherein R is a mixture of linear, even carbon-number hydrocarbon chains ranging from $C_{12}H_{25}$ to $C_{16}H_{33}$ and n represents the number of repeating units and is a number of from about 1 to about 12.

15. The composition of claim 1 to **14** wherein the hydrotrope is selected from sodium cumene sulfonate, sodium xylene sulfonate, di-sodium mono- and di-alkyl disulfonate diphenyloxide, n-octane sodium sulfonate.

16. The composition of claim 15 wherein the hydrotrope is sodium cumene sulfonate.

17. The composition of claim 11 to **16** wherein the foam breaks within or the bubbling action lasts for at least five minutes of application to the carpet.

18. The composition of claim 17 wherein the foam breaks within or the bubbling action lasts for at least one minute of application to the carpet.

19. The composition of claim 18 wherein the foam breaks within or the bubbling action lasts for at least thirty seconds of application to the carpet.

20. The composition of claim 19 wherein the foam breaks within or the bubbling action lasts for at least 15 seconds of application to the carpet.

21. A process for the removal of stains from carpeting which comprises the step of applying an effective amount of the composition according to claim 1 to a carpet needing such treatment.

* * * * *

Deutsches Patent- und Markenamt

DPMA München Ref. 2.2.3.

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Auftragsmenge: 18 Dokumente
Auftragsdatum: 04.02.2021
Analyseur: [redacted]

Gebiet: Kosmetik
Ausgabe am:
Rückgabe am:
Rechnungsnr.:

	PN	Titel	Gebiet	Dokumenteinheiten	Beispielanzahl
1	DE 102015110577 A1	Topische Zubereitung zur Hautpflege	Kosmetik	1	0
2	US 000009517197 B1	Toothpaste composition containing ganoderma lucidu...	Kosmetik	1	0
3	US 020030130162 A1	Transparent softening agents	Kosmetik	1	0
4	US 020130131097 A1	TOPICAL TREATMENT FOR CHEMOTHERAPY INDUCED EYELASH...	Kosmetik	1	0
5	US 020140017277 A1	TREATMENT AND COMPOSITION FOR ACHIEVING SKIN ANTI-...	Kosmetik	1	0
6	US 020140170093 A1	SUNSCREEN COMPOSITIONS HAVING SYNERGISTIC COMBINAT...	Kosmetik	1	0
7	US 020140170094 A1	SUNSCREEN COMPOSITIONS HAVING SYNERGISTIC COMBINAT...	Kosmetik	1	0
8	US 020140170095 A1	SUNSCREEN COMPOSITIONS HAVING SYNERGISTIC COMBINAT...	Kosmetik	1	0
9	US 020140170246 A1	Topical Composition	Kosmetik	1	0
10	US 020140170251 A1	Topical Formulations for Increasing the Dermal Con...	Kosmetik	1	0
11	US 020140171399 A1	TOPICAL SKIN CARE COMPOSITION	Kosmetik	1	0
12	US 020140173833 A1	TEXTILE FRIENDLY NONAEROSOL-ANTIPERSPIRANTS WITH M...	Kosmetik	1	0
13	US 020140178315 A1	Topical Compositions Comprising Ionic Fluids	Kosmetik	1	0
14	US 020140178321 A1	TEXTILE FRIENDLY NON-AEROSOL ANTIPERSPIRANTS WITH ...	Kosmetik	1	0
15	US 020140186272 A1	SYNTHESIS OF CYCLOHEXANE DERIVATIVES USEFUL AS SEN...	Kosmetik	1	0
16	US 020150174253 A1	TOPICAL GEL COMPOSITIONS INCLUDING POLY(MONOSTEARO...	Kosmetik	1	0
17	US 020150305992 A1	Treating Cariogenic diseased oral biofilm with ele...	Kosmetik	1	0
18	US 020160361249 A1	TOPICAL COMPOSITIONS AND METHODS OF USE	Kosmetik	1	0
			Summe:	18	

Eine stichprobenartige Überprüfung der abgegebenen Analysen wurde durchgeführt.
Abgerechnet werden: 18 Dokumenteneinheiten a 19,00 €

Datum/Unterschrift:

Auftrag:	**2021-00011**
Analyseur:	[redacted]
PN:	**US 020140170093 A1**
Titel:	**SUNSCREEN COMPOSITIONS HAVING SYNERGISTIC COMBINATION OF UV FILTERS**
Gebiet:	**Kosmetik**

DPMA München Ref. 2.2.3 - Vordruck KOS

Auftrags.Nr.: 2021-00011 PN: US 020140170093 A1

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103		124		146		168		189	
104		125		147		169		190	
105		126		148		170		191	
106		127		149		171		192	
107		128		150		172		193	
108		130		151		173		194	
109		131		152		174		195	
110		132		153		175		196	
111		133		154		176		197	
112		134		155		177		198	
113		135		156		179		199	
114		136		157		180		200	
115		137		159		181		201	
116		138		160		182		202	
117		139		161		183		203	
119		141		162		184		204	
120		142		163		185		205	

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Auftrags.Nr.: 2021-00011 PN: US 020140170093 A1

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209		239		267		296		324	
210		240		268		297		325	
211		241		269		298		326	
212		242		270		299		327	
213		243		271		30x		328	
214		244		272		300		329	
215		245		273		301		330	
216		246		274		302		331	
217		247		275		303		332	
218		248		276		304		333	
219		249		277		305		334	
220		25x		278		306		335	
221		250		279		307		336	
222		251		28x		308		337	
223		252		280		309		338	
224		253		281		310		339	
225		254		282		311		340	
226		255		283		312		341	
227		256		284		313		342	
228		257		285		314		343	
229		258		286		315		344	
230		259		287		316		345	
231		26x		288		317		346	
232		260		289		318		347	
233		261		290		319		348	
234		262		291		32x		349	
235		263		292		320		350	

DPMA München Ref. 2.2.3 - Vordruck KOS

Auftrags.Nr.: 2021-00011 PN: US 020140170093 A1

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355		385		418		448		479			
356		386		419		449		480			
357		387		420		450		481			
358		389		421		451		482			
359		390		422		452		483			
360		391		423		453		484			
361		392		424		454		485			
362		393		425		455		486			
363		394		426		456		487			
364		395		427		457		488			
365		396		428		458		489			
366		397		429		459		490			
367		398		430		460		491			
368		399		431		461		492			
369		400		432		462		493			
370		401		433		464		494			
371		403		434		465		495			
372		404		435		466		496			
373		405		436		467		497			
374		406		437		468		498			
375		407		438		469		500			
376		408		439		470		501			
377		409		440		471		502			
378		410		441		472		503			
379		412		442		473		504			
380		413		443		474		505			
381		414		444		475		506			

DPMA München Ref. 2.2.3 - Vordruck KOS

Auftrags.Nr.: 2021-00011 PN: US 020140170093 A1

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510		545		576		606		638	
511		546		577		607		639	
512		547		578		608		640	
513		548		579		609		641	
514		549		580		610		642	
515		550		581		611		643	
516		551		582		612		644	
517		552		583		613		645	
518		553		584		614		646	
519		554		585		615		647	
520		555		586		616		648	
521		556		587		618		649	
522		557		588		620		650	
523		558		589		621		651	
524		559		590		622		653	
525		560		591		623		655	
528		561		592		624		656	
529		562		593		625		657	
530		563		594		626		658	
532		564		595		627		659	
533		565		596		628		660	
534		566		597		629		661	
535		567		598		630		662	
538		568		599		631		663	
539		569		600		632		664	
540		570		601		633		665	
541		571		602		634		666	
542		572		603		635		667	

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668		698		728		760		790	
669		699		729		761		791	
670		700		730		762		792	
671		701		731		763		793	
672		702		732		764		794	
673		703		733		765		795	
674		704		734		766		796	
675		705		735		767		797	
676		706		736		768		798	
677		707		737		769		799	
678		708		738		770		800	
679		709		739		771		801	
680		710		740		772		802	
681		711		741		773		803	
682		712		742		774		804	
683		713		743		775		805	
684		714		745		776		806	
685		715		746		777		807	
686		716		747		778		808	
687		717		748		779		810	
688		718		749		780		811	
689		719		750		781		812	
690		720		751		782		813	
691		721		752		783		814	
692		722		753		784		815	
693		723		755		785		816	
694		724		756		786		817	
695		725		757		787		818	
696		726		758		788		819	
697		727		759		789		820	

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821		851		880		905		931	
822		852		881		906		932	
823		853		882		907		933	
824		854		883		908		934	
825		856		884		909		935	
826		857		885		910		936	
827		858		886		911		937	
828		859		887		912		938	
829		860		888		913		939	
830		861		889		914		940	
831		862		890		915		941	
832		863		891		916		942	
833		864		892		917		943	
834		865		893		918		945	
835		866		894		919		946	
836		867		895		920		947	
837		870		896		921		948	
838		871		897		922		949	
839		872		898		923		950	
840		873		899		924		951	
841		874		900		925		952	
842		875		901		926		953	
843		876		902		928		954	
844		877		903		929		955	
850		878		904		930		956	

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Info und ergänzende Bemerkungen (Analyse)	

Deutsches Patent- und Markenamt

DPMA München Ref. 2.2.3.

Auftrag: 2020-00058
Auftragsmenge: 17 Dokumente
Auftragsdatum: 29.06.2020
Analyseur: [redacted]

Gebiet: Waschmittel
Ausgabe am: [redacted]
Rückgabe am: [redacted]
Rechnungsnr.:

	PN	Titel	Gebiet	Dokumenteinheiten	Beispielanzahl
1	EP 000001886664 A1	Chloramines enthaltend zusammensetzungen	Waschmittel	1	2
2	US 020030162678 A1	Carpet cleaners	Waschmittel	3	11
3	US 020070065391 A1	C10 alkanolalkoxylate mixtures and use thereof as ...	Waschmittel	1	0
4	US 020090229633 A1	CLEANING AGENT, CLEANING METHOD AND CLEANING APPAR...	Waschmittel	2	5
5	US 020110039751 A1	CLEANING AND/OR TREATMENT COMPOSITIONS	Waschmittel	3	12
6	US 020130210692 A1	CLEANING COMPOSITION AND METHOD OF FORMING THE SAM...	Waschmittel	1	1
7	US 020130217609 A1	CAPSULES AND COMPOSITIONS COMPRISING THE SAME	Waschmittel	1	1
8	US 020130252870 A1	CLEANING COMPOSITION INCLUDING A TERPOLYMER CONTAI...	Waschmittel	1	1
9	US 020130261044 A1	Cleaning Composition for Hard Surface	Waschmittel	1	3
10	US 020130274167 A1	CLEANING COMPOSITION FOR DISHWASHING	Waschmittel	1	2
11	US 020150044264 A1	Carbamates from Glycerine Carbonate for Pearlizati...	Waschmittel	2	8
12	WO 002013117665 A2	CALCIUM AND MAGNESIUM SALTS AS SQUEAKINESS ENHANCE...	Waschmittel	1	4
13	WO 002013124804 A2	CELLULOSE-BASED PAPER CONTAINING CLEANSING AGENTS ...	Waschmittel	1	1
14	WO 002013167613 A1	CARE ENZYME SYSTEM	Waschmittel	1	1
15	WO 002013173995 A1	CLEANING COMPOSITION	Waschmittel	1	1
16	WO 002014011424 A2	CLEANING AGENT FOR AIR-CONDITIONER RADIATOR	Waschmittel	1	2
17	WO 002014012375 A1	CLEANING COMPOSITIONS	Waschmittel	6	22
			Summe:	28	

Eine stichprobenartige Überprüfung der abgegebenen Analysen wurde durchgeführt.
Abgerechnet werden: 28 Dokumenteneinheiten a 19,00 €

Datum/Unterschrift:

Auftrag:	**2020-00058**
Analyseur:	[redacted]
PN:	**US 020030162678 A1**
Titel:	**Carpet cleaners**
Gebiet:	**Waschmittel**

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100	Z	165		181		199		215	
15y		166		182		20y		216	
15x		167		183		20x		217	
150		168		184		200		218	
151		169		185		201		219	
152		17y		186		202		22y	
153		17x		187		203		22x	
154		170		188		204		220	
155		171		189	TWY	205		221	
156		172		19y	B	206		222	
157		173		19x		207		223	
158		174		190		208		224	
159		175		191		209		225	
16y		176		192		21y		226	
16x		177		193		21x		227	
160	ZOPQRSTUVWXY	178		194		210		228	
161		179		195		211		229	
162		18y		196		212		23y	
163		18x		197		213		23x	
164		180		198		214		230	

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231		257		281		307		331	
232		258		282		308		332	D
233		259		283		309		333	C
234		26y		284		31y		334	
235		26x		285		31x		335	CDWX
236		260		286		310		336	
237		261		287		311		337	
238		262		288		312		338	
239		263		289		313		339	
24y		264		29y		314		34y	EY
24x		265		29x		315		34x	
240		266		290		316		340	
241		267		291		317		341	
242		268		292		318		342	
243		269	OPQRSTUVWXY	293		319		343	
244		27y		294		32y		344	
245		27x		295		32x		345	
246		270		296		320		346	
247		271		297		321		347	
248		272		298		322		348	
249		273		299		323		349	
25y		274		30y		324		35y	
25x		275		30x		325		35x	
250		276		300		326		350	
251		277		301		327		351	
252		278		302		328		352	
253		279		303		329		353	
254		28y	WXY	304	Z	33y		354	
255		28x		305		33x		355	
256		280		306		330		356	

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357		381		407		432		46y	
358		382		408		433	ZiORSTUWXY	46x	
359		383		409		434		460	
36y		384		41y		435	ZV	461	
36x	E	385		41x		436		462	
360		386		410		437	ZFPQ	463	
361		387		411		438		464	
362	Z	388		412		439		465	
363		389		413		44y		466	
364		39y		414		44x		467	
365		39x		415		440		468	
366		390		416		441		469	
367		391	Z	417		442		47y	
368		392	Z	418		443		470	
369		393		419		444		471	
37y		394		42y		445		472	
37x		395		42x		446		473	
370		396		420		447		474	
371		397		421		448		475	
372		398		422		449		476	
373		399		423		450		477	
374		40y		424		451		478	
375		40x		426		452		479	
376		400		427		453		48y	
377		401		428		454		48x	
378		402		429		455		480	
379		403		43y		456		481	
38y		404		43x		457		483	
38x		405		430		458		484	
380		406		431		459		485	

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486		515		541		567		591	
487		516		542		568		592	
488		517		543		569		593	
489		518		544		57y		594	
49y		52y		545		57x		595	
49x		52x		546		570	QSX	596	
494		520		547		571		597	
495		521		548		572		598	
496		522		549		573	PR	599	T
497		523		55y		574		60y	
498		524		55x		575		60x	
499		525		550		576		600	
50y		526		551		577		601	
50x		527		552		578		602	
500		528		553		579		603	
501		529		554		58y		604	
502		53x		555		58x		605	
503		530		556		580		606	
504		531		557		581		607	
505		532		558		582		608	
506		533		559		583		609	
507		534		56y		584		61y	
508		535		56x		585		61x	
509		536		560		586		610	QSX
51x		537		561		587		611	
510		538		562		588	OPQRSTUVWX	612	
511		539		563		589		613	
512		54y		564		59y		614	
513		54x		565		59x		615	
514		540		566		590		616	

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617		641		667		691		717	
618		642		668		692		718	
619		643		669		693		719	
62y		644		67y		694		72y	
62x		645		67x		695		72x	
620		646		670		696		720	
621		647		671		697		721	
622		648		672		698		722	
623		649		673		699		723	
624		65y		674		70y		724	
625		65x		675		70x	ZABHOPQRSTVWXY	725	
626		650		676		700	AH	726	
627		651		677		701		727	GU
628		652	OSTUVWY	678		702		728	
629		653		679		703		729	
63y		654		68y		704		73y	
63x		655		68x		705		73x	
630	PQ	656		680		706		731	
631		657		681		707		732	
632		658		682		708		733	
633		659		683		709		734	
634		66y		684		71y		735	
635		66x		685		71x		736	
636		660		686		710		737	
637		661		687		711		738	
638		662		688		712		739	
639		663		689		713		74y	
64y		664		69y		714		74x	
64x		665		69x		715		740	
640		666		690		716		741	

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742		768		792		82x		846	
743		769		793		820		847	
744		77y		794		821		848	
745		77x		795		822		849	
746		770		796		823		85x	
747		771		797		824		850	
748		772		798		825		851	
749		773		799		826		852	
75y		774		800		827		853	
75x		775		801		828		854	
750		776		802		829		855	
751		777		803		83x		856	
752		778		804		830		857	
753		779		805		831		860	
754		78y		806		832		861	F
755		78x		807		833		862	F
756		780		808		834		863	
757		781		81y		835		864	
758		782		81x		836		865	
759		783		810		837		866	
76y		784		811		838		867	
76x		785		812		839		868	
760		786		813		84y		869	
761		787		814		84x		870	
762		788		815		840		871	
763		789		816		841		872	
764		79y		817		842		873	
765		79x		818		843		874	
766		790		819		844		875	
767		791		82y	G	845		876	

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878		906		93y		953		977	
879		907		93x		954	O	978	
880		908		930		955		979	
881		909		931		956		98y	
882		91y	AH	932		957		98x	
883		91x		933		958		980	
884		910		934	H	959		981	
885		911		935		96y		982	
886		912		936		96x		983	
887		913		937		960		984	
888		914		939		961		985	
889		915		94y		962		986	
891		916		94x		963		987	
892	i	917		940		964		988	
893		918		941		965		989	
894		919		942		966		99y	
895		92y		943		967		99x	
896		92x		944		968		990	
897		920		945		969		991	
898		921		946		97y		992	
899		922		947		97x		993	
90y		923		948		970		994	
900		924		949		971		995	
901		925		95y		972		996	
902		926		95x		973		997	
903		927		950		974		998	
904		928		951		975		999	
905		929		952		976			

Info und ergänzende Bemerkungen (Analyse)	

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(54) **SUNSCREEN COMPOSITIONS HAVING SYNERGISTIC COMBINATION OF UV FILTERS**

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USPC **424/60**

(57) **ABSTRACT**

The disclosure relates to sunscreen compositions having a synergistic combination of ultraviolet light (UV) filtering agents that provide a high sun protection factor (SPF). Compositions according to the disclosure have high SPF values without requiring high overall amounts of UV filtering agents. Furthermore, the disclosure relates to methods of using the described compositions for protecting keratinous substances such as skin and hair from UV radiation.

SUNSCREEN COMPOSITIONS HAVING SYNERGISTIC COMBINATION OF UV FILTERS

FIELD OF THE DISCLOSURE

[0001] The present disclosure relates to sunscreen compositions comprising a synergistic combination of ultra violet ("UV") filters, and to methods of using the combination of UV filters to protect keratinous substrates such as skin and hair from UV radiation.

BACKGROUND

[0002] The negative effects of exposure to ultraviolet ("UV") light are well-known. Prolonged exposure to sunlight causes damage such as sunburn to the skin and dries out hair making it brittle. When skin is exposed to UV light having a wavelength of from about 290 nm to about 400 nm, long term damage can lead to serious conditions such as skin cancer.

[0003] UV light also contributes to aging by causing free radicals to form in the skin. Free radicals include, for example, singlet oxygen, hydroxyl radical, the superoxide anion, nitric oxide and hydrogen radicals. Free radicals attack DNA, membrane lipids and proteins, generating carbon radicals. These in turn react with oxygen to produce a peroxyl radical that can attack adjacent fatty acids to generate new carbon radicals. This cascade leads to a chain reaction producing lipid peroxidation products. Damage to the cell membrane results in loss of cell permeability, increased intercellular ionic concentration, and decreased ability to excrete or detoxify waste products. The end result is a loss of skin elasticity and the appearance of wrinkles. This process is commonly referred to as photo-aging.

[0004] Sunscreens can be used to protect against UV damage and delay the signs of aging. The degree of UV protection afforded by a sunscreen composition is directly related to the amount and type of UV filters contained therein. The higher the amount of UV filters, the greater the degree of UV protection. Nevertheless, it is desirable to achieve the best photo protection efficacy with the lowest amount of UV filters. The inventors of the instant disclosure discovered ways to attain SPFs that were not previously attainable with such low amounts of overall UV filters.

SUMMARY OF THE INVENTION

[0005] The present disclosure relates to sunscreen compositions that have low amounts of UV filters yet excellent Sun Protection Factors (SPF). Typically, the more UV filters included in a sunscreen composition the higher the SPF. The inventors discovered that when certain UV filters are combined in particular ratios, they interact synergistically to exhibit a surprisingly effective SPF. This allows for use of less UV filters while achieving sufficient SPF.

[0006] The present disclosure relates to a sunscreen composition comprising a combination of the UV filters set forth in the table below:

INCI NAME	TECHNICAL NAME
Octocrylene	Octocrylene
Butyl Methoxydibenzoylmethane	Avobenzone
Bis-EthylHexyloxyphenol Methoxyphenyl Triazine	Tinosorb S
Ethylhexyl Triazone	Uvinul T150
Terephthalylidene Dicamphor Sulfonic Acid	Mexoryl SX
Drometrizole Trisiloxane	Mexoryl XL

[0007] The ratio of each filter relative to avobenzone in the sunscreen compositions is typically as follows:

[0008] the ratio of octocrylene to avobenzone is 0.8:1.0 to 1.5:1.0;

[0009] the ratio of Tinosorb S to avobenzone 0.3:1.0 to 0.8:1.0;

[0010] the ratio of Uvinul T150 to avobenzone is 0.3:1.0 to 1.0:1.0;

[0011] the ratio of Mexoryl SX to avobenzone is 0.1:1.0 to 0.5:1.0; and

[0012] the ratio of Mexoryl XL to avobenzone is 0.3:1.0 to 1.0:1.0.

[0013] In particular, the ratio of each filter relative to avobenzone is about: 1.2:1.0:0.5:0.6:0.4:0.6 (octocrylene:avobenzone:Tinosorb S:Uvinul T150:Mexoryl SX:Mexoryl XL).

[0014] In one embodiment the UV filters are present in the following percentages by weight relative to the entire weight of the sunscreen composition:

[0015] 2 to 7 wt. % octocrylene;

[0016] 2 to 5 wt. % avobenzone;

[0017] 0.1% to 2 wt. % Tinosorb S;

[0018] 0.1% to 3 wt. % Uvinul T 150;

[0019] 0.1% to 2 wt. % Mexoryl SX; and

[0020] 0.1% to 3 wt. % Mexoryl XL.

[0021] In another embodiment the UV filters are present in the following percentages by weight relative to the entire weight of the sunscreen composition: about 5% octocrylene; about 4.0% Avobenzone; about 2% Tinosorb S; about 2.5% UvinulT150; about 1.5% MexorylSX; and about 2.5% MexorylXL.

[0022] Octisalate is another UV filter than can optionally be included in the sunscreen compositions described herein. If included, octisalate is typically present in an amount greater than 0 to about 5 wt. %.

[0023] The present disclosure is also directed to methods of protecting a keratinous substrate from ultraviolet radiation and to methods of absorbing ultraviolet light. Such methods encompass applying a sunscreen composition to a keratinous substrate and subjecting the keratinous substrate to ultraviolet radiation.

DETAILED DESCRIPTION

[0024] Where the following terms are used in this specification, they are used as defined below.

[0025] The terms "comprising," "having," and "including" are used in their open, non-limiting sense.

[0026] The terms "a" and "the" are understood to encompass the plural as well as the singular.

[0027] As used herein, the expression "at least one" means one or more and thus includes individual components as well as mixtures/combinations.

[0028] "Cosmetically acceptable" means that the item in question is compatible with any keratinous substrate. For

example, "cosmetically acceptable carrier" means a carrier that is compatible with any keratinous substrate.

[0029] A "physiologically acceptable medium" means a medium which is not toxic and can be applied to the skin, lips, hair, scalp, lashes, brows, nails or any other cutaneous region of the body. The composition of the instant disclosure may especially constitute a cosmetic or dermatological composition.

[0030] The phrase "essentially free" refers to less than or equal to 0.5, 0.1, 0.05 or 0.01 wt. %.

[0031] The phrase "stable emulsion" refers to a composition that does not undergo phase separation up to a temperature of 45° C. for at least two weeks.

[0032] As mentioned above, the present disclosure relates to a sunscreen composition having the following combination of UV filters: octocrylene, avobenzone, Tinosorb S, Uvinul T150, Mexoryl SX, Mexoryl XL; wherein the ratio of each filter relative to avobenzone is as follows:

[0033] the ratio of octocrylene to avobenzone is 0.8:1.0 to 1.5:1.0;

[0034] the ratio of Tinosorb S to avobenzone 0.3:1.0 to 0.8:1.0;

[0035] the ratio of Uvinul T150 to avobenzone is 0.3:1.0 to 1.0:1.0; and

[0036] the ratio of Mexoryl SX to avobenzone is 0.1:1.0 to 0.5:1.0

[0037] the ratio of Mexoryl XL to avobenzone is 0.3:1.0 to 1.0:1.0

[0038] In particular, the ratio of each filter relative to avobenzone is about: 1.2:1.0:0.5:0.6:0.4:0.6 (octocrylene:avobenzone:Tinosorb S:Uvinul T150:Mexoryl SX:Mexoryl XL).

[0039] The total amount of the combination of UV filters can vary depending on the desired SPF and overall UV filtering strength of a final sunscreen composition. In one aspect, the total amount of the combination of UV filters in a sunscreen combination is about 50, 40, 30, 25, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, or 1 wt. % or less. In another aspect, the sunscreen formulation can have an SPF value that is at least about 5, 6, 7, 8, 9, or 10 times the total weight percent of the combination of UV filters of the sunscreen compositions. For example, it is possible for a composition comprising about 17.6 wt. % of a total combination of UV filters to exhibit an SPF of 174.73, as shown in Example 1 below (the SPF is about 9.9 times higher than the total amount of the combination of UV filters used in the composition).

[0040] In one embodiment the UV filters are independently present in the following percentages by weight relative to the entire weight of the sunscreen composition:

[0041] from about 2, 3, or 4, to about 6, or 7 wt. % octocrylene;

[0042] from about 2, 3, or 3.5 to about 4.5 or 5 wt. % avobenzone;

[0043] from about 0.1, 0.5, or 1 to about 2, 2.5, or 3 wt. % Tinosorb S;

[0044] from about 0.1, 0.5, or 1 to about 2.5, 3, 3.5 or 4 wt. % Uvinul T 150;

[0045] from about 0.1, 0.5, or 1, to about 1.5, 2, 2.5, or 3 wt. % Mexoryl SX; and

[0046] from about 0.1, 0.5, 1, or 1.5 to about 2, 2.5, or 3 wt. % Mexoryl XL.

[0047] In another embodiment the UV filters are present in the following percentages by weight relative to the entire weight of the sunscreen composition:

[0048] about 5% octocrylene;

[0049] about 4.0% Avobenzone;

[0050] about 2% Tinosorb S;

[0051] about 2.5% UvinulT150;

[0052] about 1.5% MexorylSX; and

[0053] about 2.5% MexorylXL.

[0054] Octisalate is another UV filter than can optionally be included in the sunscreen compositions described herein. If included, octisalate is typically present in an amount greater than 0 to about 5 wt. %. It may also be present in an amount of about 0.1, 0.5, 1, 1.5, or 2 wt. % to about 2.5, 3, 3.5, 4, 4.5, or 5 wt. %.

[0055] The present disclosure makes it possible to achieve the described SPFs in sunscreen compositions without the use of boosters, or essentially free of boosters, e.g., sorbeth-2-hexaoleate. Although boosters may be included in the sunscreen compositions of the instant disclosure, they are not required.

[0056] Sunscreen compositions according to the present disclosure can be formulated to achieve a variety of different SPFs. For example, the sunscreen formulations can have an SPF of at least 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 150, 155, 160, 165, 170, or higher.

[0057] The present disclosure is also directed to methods for protecting a keratinous substrate from ultraviolet radiation and to methods of absorbing ultraviolet light. Such methods encompass applying a sunscreen composition to a keratinous substrate and subjecting the keratinous substrate to ultraviolet radiation.

Oils/Emollients

[0058] Examples of oils/emollients that may be included in the sunscreen compositions include: hydrocarbon-based oils of plant origin, such as liquid triglycerides of fatty acids containing from 4 to 10 carbon atoms, for instance heptanoic or octanoic acid triglycerides, or alternatively, for example, sunflower oil, corn oil, soybean oil, marrow oil, grapeseed oil, sesameseed oil, hazelnut oil, apricot oil, macadamia oil, arara oil, coriander oil, castor oil, avocado oil, caprylic/capric acid triglycerides, for instance those sold by the company Stearineries Dubois or those sold under the names Miglyol 810, 812 and 818 by the company Dynamit Nobel, jojoba oil, shea butter oil and caprylyl glycol; synthetic esters and ethers, especially of fatty acids, for instance Purcellin oil, 2-octyldodecyl stearate, 2-octyldodecyl erucate, isostearyl isostearate; hydroxylated esters, for instance isostearyl lactate, octyl hydroxystearate, octyldodecyl hydroxystearate, diisostearyl malate or triisocetyl citrate; fatty alcohol heptanoates, octanoates or decanoates; polyol esters, for instance propylene glycol dioctanoate, neopentyl glycol diheptanoate and diethylene glycol diisononanoate; and pentaerythritol esters, for instance pentaerythrityl tetraisostearate, or isopropyl lauroyl sarcosinate, sold especially under the trade name Eldew SL 205 by the company Ajinomoto; linear or branched hydrocarbons, of mineral or synthetic origin, such as volatile or non-volatile liquid paraffins, and derivatives thereof, petroleum jelly, polydecenes, isohexadecane, isododecane, hydrogenated polyisobutene such as Parleam oil, or the mixture of n-undecane (C_{11}) and of n-tridecane (C_{13}) sold under the reference Cetiol UT by the company Cognis; fluoro oils that

are partially hydrocarbon-based and/or silicone-based, for instance those described in document JP-A-2 295 912; silicone oils, for instance volatile or non-volatile polymethylsiloxanes (PDMS) with a linear or cyclic silicone chain, which are liquid or pasty at room temperature, in particular volatile silicone oils, especially cyclopolydimethylsiloxanes (cyclomethicones) such as cyclohexadimethylsiloxane and cyclopentadimethylsiloxane; polydimethylsiloxanes comprising alkyl, alkoxy or phenyl groups, which are pendent or at the end of a silicone chain, these groups containing from 2 to 24 carbon atoms; phenyl silicones, for instance phenyl trimethicones, phenyl dimethicones, phenyltrimethylsiloxydiphenylsiloxanes, diphenyl dimethicones, diphenylmethyldiphenyltrisiloxanes or 2-phenylethyl trimethylsiloxy silicates, and polymethylphenylsiloxanes; mixtures thereof.

[0059] Additional examples include benzoic acid esters of C_9-C_{15} alcohols, isononyl iso-nonanoate, C_{12}-C_{15} alkyl benzoate, or any combinations thereof.

[0060] Specific examples of oils/emollients include cocoglyceride, cyclomethicone, dimethicone, dicapryl maleate, caprylic/capric triglyceride, isopropyl myristate, octyl stearate, isostearyl linoleate, lanolin oil, coconut oil, cocoa butter, olive oil, avocado oil, aloe extracts, jojoba oil, castor oil, fatty acid, oleic acid, stearic acid, fatty alcohol, cetyl alcohol, hexadecyl alcohol, diisopropyl adipate, hydroxybenzoate esters, benzoic acid esters of C_9-C_{15} alcohols, isononyl iso-nonanoate, alkanes, mineral oil, silicone, dimethyl polysiloxane, ether, polyoxypropylene butyl ether, polyoxypropylene cetyl ether, C_{12}-C_{15} alkyl benzoate, aryl alkyl benzoate, Isopropyl Lauroyl sarcosinate, and any combinations thereof.

[0061] Examples of hydrophilic organic solvents that may be included in the sunscreen compositions include:

[0062] monohydric C_1-0_8 alcohols such as ethanol, propanol, butanol, isopropanol, isobutanol;

[0063] Polyethylene glycols from 6 to 80 ethylene oxides such as propylene glycol, isoprene glycol, butylene glycol, glycerol, sorbitol;

[0064] mono or di-alkyl isosorbides such as dimethyl isosorbide;

[0065] Examples of amphiphilic organic solvents include : polypropylene glycol (PPG) like propylene glycol alkyl ester or alkyl ether of PPG like PPG-23 oleyl ether and PPG-36 oleate.

[0066] The above lists are only examples and not limiting.

[0067] The total amount of oils/emollient present in the compositions is typically about 0.1, 0.5, 1.0, or 2.5 wt. % to about 5.0, 7.5, 10.0, 15.0, 20.0, or 30 wt. % of the total weight of the composition.

[0068] Film Formers

[0069] Film-formers are often incorporated into sunscreen compositions to ensure even coverage of the UV filters and can be used to render the composition water resistant. The film former is typically a hydrophobic material that imparts film forming and/or waterproofing characteristics. One such agent is polyethylene, which is available from New Phase Technologies as Performalene® 400, a polyethylene having a molecular weight of 400. Another suitable film former is polyethylene 2000 (molecular weight of 2000), which is available from New Phase Technologies as Performalene®. Yet, another suitable film former is synthetic wax, also available from New Phase Technologies as Performa® V-825. Other typical film-formers include acrylates/acrylamide copolymer, acrylates copolymer, acrylates/C_{12}-C_{22} alkylmethacrylate copolymer, polyethylene, waxes, VP/dimethiconylacrylate/polycarbamylpolyglycol ester, butylated PVP, PVP/hexadecene copolymer, octadecene/MA copolymer, PVP/eicosene copolymer, tricontanyl PVP, Brassica Campestris/Aleuritis Fordi Oil copolymer, decamethyl cyclopentasiloxane (and) trimethylsiloxysilicate, and mixtures thereof. In some cases, the film former is acrylates/C_{12}-C_{22} alkylmethacrylate copolymer sold under the tradename Allianz OPT® by ISP.

[0070] Many of the common film-forming polymers included in sunscreen compositions are not soluble in ethanol (such as PVP/Eicosene copolymer). A common film-former employed in ethanol based sunscreen products is Dermacryl LT or Dermacryl 79 marketed by Akzo Nobel (INCI Name: acrylates/octylacrylamide copolymner). Dermacryl LT (CAS Number: 80570-62-3) is a hydrophobic, high molecular weight carboxylated acrylic copolymer. It functions as a film-former in a broad range of cosmetic formulations, imparting waterproofing, increased occlusivity and decreased rub-off of actives.

[0071] The above lists are only examples and not limiting.

[0072] The total amount of film-formers present in the compositions is typically in an amount of about 0.1, 0.5, 1.0, or 5 wt. % to about 5, 10, 20, or 25 wt. %, based on the total weight of the composition.

Emulsifiers

[0073] The sunscreen compositions typically include at least one emulsifier such as an amphoteric, anionic, cationic or nonionic emulsifier, used alone or as a mixture, and optionally a co-emulsifier. The emulsifiers are chosen in an appropriate manner according to the emulsion to be obtained (W/O or O/W). The emulsifier and the co-emulsifier are generally present in the composition in a proportion ranging from 0.3% to 30% by weight and preferably from 0.5% to 20% by weight relative to the total weight of the composition.

[0074] For W/O emulsions, examples of emulsifiers that may be mentioned include dimethicone copolyols, such as the mixture of cyclomethicone and dimethicone copolyol sold under the trade name DC 5225 C by the company Dow Corning, and alkyl dimethicone copolyols such as the lauryl dimethicone copolyol sold under the name Dow Corning 5200 Formulation Aid by the company Dow Corning, and the cetyl dimethicone copolyol sold under the name Abil EM 90™ by the company Goldschmidt. A crosslinked elastomeric solid organopolysiloxane comprising at least one oxyalkylene group, such as those obtained according to the procedure of Examples 3, 4 and 8 of U.S. Pat. No. 5,412,004 and of the examples of U.S. Pat. No. 5,811,487, especially the product of Example 3 (synthesis example) of U.S. Pat. No. 5,412,004, such as the product sold under the reference KSG 21 by the company Shin-Etsu, may also be used as surfactants for W/O emulsions.

[0075] For O/W emulsions, examples of emulsifiers that may be mentioned include nonionic emulsifiers such as oxyalkylenated (more particularly polyoxyethylenated) fatty acid esters of glycerol; oxyalkylenated fatty acid esters of sorbitan; oxyalkylenated (oxyethylenated and/or oxypropylenated) fatty acid esters; oxyalkylenated (oxyethylenated and/or oxypropylenated) fatty alcohol ethers; sugar esters such as sucrose stearate; and mixtures thereof.

[0076] The fatty acid esters of a sugar that can be used as nonionic amphiphilic lipids can be chosen in particular from the group comprising esters or mixtures of esters of a C_8-C_{22}

fatty acid and of sucrose, of maltose, of glucose or of fructose, and esters or mixtures of esters of a C_{14}-C_{22} fatty acid and of methylglucose. The C_8-C_{22} or $^0{}_{14}$-C_{22} fatty acids forming the fatty unit of the esters that can be used in the emulsion comprise a saturated or unsaturated linear alkyl chain having, respectively, from 8 to 22 or from 14 to 22 carbon atoms. The fatty unit of the esters can be chosen in particular from stearates, behenates, arachidonates, palmitates, myristates, laurates, caprates and mixtures thereof.

[0077] By way of example of esters or of mixtures of esters of a fatty acid and of sucrose, of maltose, of glucose or of fructose, mention may be made of sucrose monostearte, sucrose distearate, sucrose tristearate and mixtures thereof, such as the products sold by the company Croda under the name Crodesta F50, F70, F110 and F160 having, respectively, an HLB (Hydrophilic Lipophilic Balance) of 5, 7, 11 and 16; and, by way of example of esters or of mixtures of esters of a fatty acid and of methylglucose, mention may be made of the disearate of methylglucose and of polyglycerol-3, sold by the company Goldschmidt under the name Tegocare 450. Mention may also be made of glucose monoesters or maltose monoesters, such as methyl O-hexadecanoyl-6-D-glucoside and O-hexadecanoyl-6-D-maltoside.

[0078] The fatty alcohol ethers of a sugar that can be used as nonionic amphiphilic lipids can be chosen in particular form the group comprising ethers or mixtures of ethers of a C_8-C_{22} fatty alcohol and of glucose, of maltose, of sucrose or of fructose, and ethers or mixtures of ethers of a C_{14}-C_{22} fatty alcohol and of methylglucose. They are in particular alkylpolyglucosides.

[0079] The C_8-C_{22} or C_{14}-C_{22} fatty alcohols forming the fatty unit of the ethers that can be used in the emulsion of the instant disclosure comprise a saturated or unsaturated linear alkyl chain having, respectively, from 8 to 22 or from 14 to 22 carbon atoms. The fatty unit of the ethers can be chosen in particular from decyl, cetyl, behenyl, arachidyl, stearyl, palmityl, myristyl, lauryl, capryl and hexadecanoyl units, and mixtures thereof such as cetearyl.

[0080] By way of example of fatty alcohol ethers of a sugar, mention may be made of alkylpolyglucosides, such as decylglucoside and laurylglucoside sold, for example, by the company Henkel under the respective names Plantaren 2000 and Plantaren 1200, cetostearylglucoside, optionally as a mixture with cetostearyl alcohol, sold, for example, under the name Montanov 68 by the company Seppic, under the name Tegocare CG90 by the company Goldschmidt and under the name Emulgade KE3302 by the company Henkel, and also arachidylglucoside, for example in the form of the mixture of arachidyl and behenyl alcohols and of arachidylglucoside sold under the name Montanov 202 by the company Seppic.

[0081] Use is more particularly made, as nonionic amphiphilic lipid of this type, of sucrose monostearate, sucrose distearate, sucrose tristearate and mixtures thereof, the distearate of methylglucose and of polyglycerol-3, and alkylpolyglucosides.

[0082] The glycerol fatty esters that can be used as nonionic amphiphilic lipids can be chosen in particular from the group comprising the esters formed from at least one acid comprising a saturated linear alkyl chain having from 16 to 22 carbon atoms, and from 1 to 10 glycerol units. Use may be made of one or more of these glycerol fatty esters in the emulsion of the instant disclosure.

[0083] These esters may be chosen in particular from stearates, behenates, arachidates, palmitates and mixtures thereof. Stearates and palmitates are preferably used.

[0084] By way of example of a surfactant that can be used in the emulsion of the instant disclosure, mention may be made of decaglycerol monostearate, distearate, tristearate and pentastearate (10 glycerol units) (CTFA names: polyglyceryl-10 stearate, polyglyceryl-10 distearate, polyglyceryl-10 tristearate, polyglyceryl-10 pentastearate), such as the products sold under the respective names Nikkol Decaglyn 1-S, 2-S, 3-S and 5-S by the company Nikko, and diglyceryl monostearate (CTFA name: polyglyceryl-2 stearate) such as the product sold by the company Nikko under the name Nikkol DGMS.

[0085] The sorbitan fatty esters that can be used as nonionic amphiphilic lipids chosen in particular from the group comprising esters of a C_{16}-C_{22} fatty acid and of sorbitan and oxyethylenated esters of a C_{16}-C_{22} fatty acid and of sorbitan. They are formed from at least one fatty acid comprising at least one saturated linear alkyl chain, having, respectively, from 16 to 22 carbon atoms, and from sorbitol or from ethoxylated sorbitol. The oxyethylenated esters generally comprise from 1 to 100 ethylene oxide units, and preferably from 2 to 40 ethylene oxide (EO) units.

[0086] These esters can be chosen in particular from stearates, behenates, arachidates, palmitates and mixtures thereof. Stearates and palmitates are preferably used.

[0087] By way of example of sorbitan fatty ester and of an oxyethylenated sorbitan fatty ester, mention may be made of sorbitan monostearate (CTFA name: sorbitan stearate) sold by the company ICI under the name Span 60, sorbitan monopalmitate (CTFA name: sorbitan palmitate) sold by the company ICI under the name Span 40, or sorbitan 20 EO tristearate (CTFA name: polysorbate 65) sold by the company ICI under the name Tween 65.

[0088] The ethoxylated fatty ethers are typically ethers made up of 1 to 100 ethylene oxide units and of at least one fatty alcohol chain having from 16 to 22 carbon atoms. The fatty chain of the ethers can be chosen in particular from behenyl, arachidyl, stearyl and cetyl units, and mixtures thereof, such as cetearyl. By way of example of ethoxylated fatty ethers, mention may be made of ethers of behenyl alcohol comprising 5, 10, 20 and 30 ethylene oxide units (CTFA names: beheneth-5, beheneth-10, beheneth-20 and beheneth-30), such as the products sold under the names Nikkol BB5, BB10, BB20 and BB30 by the company Nikko, and the ether of stearyl alcohol comprising 2 ethylene oxide units (CTFA name: steareth-2), such as the product sold under the name Brij 72 by the company ICI.

[0089] The ethoxylated fatty esters that can be used as nonionic amphiphilic lipids are esters made up of 1 to 100 ethylene oxide units and of at least one fatty acid chain comprising from 16 to 22 carbon atoms. The fatty chain of the esters can be chosen in particular from stearate, behenate, arachidate and palmitate units, and mixtures thereof. By way of example of ethoxylated fatty esters, mention may be made of the ester of stearic acid comprising 40 ethylene oxide units, such as the product sold under the name Myrj 52 (CTFA name: PEG-40 stearate) by the company ICI, and the ester of behenic acid comprising 8 ethylene oxide units (CTFA name: PEG-8 behenate), such as the product sold under the name Compritol HD5 ATO by the company Gattefosse.

[0090] The block copolymers of ethylene oxide and of propylene oxide that can be used as nonionic amphiphilic can be

chosen in particular from poloxamers and in particular from Poloxamer 231, such as the product sold by the company ICI under the name Pluronic L81 of formula (V) with x=z=6, y=39 (HLB 2); Poloxamer 282, such as the product sold by the company ICI under the name Pluronic L92 of formula (V) with x=z=10, y=47 (HLB 6); and Poloxamer 124, such as the product sold by the company ICI under the name Pluronic L44 of formula (V) with x=z=11, y=21 (HLB 16).

[0091] As nonionic amphiphilic lipids, mention may also be made of the mixtures of nonionic surfactants described in document EP-A-705593, incorporated herein for reference.

[0092] Suitable hydrophobically-modified emulsifiers include, for example, inulin lauryl carbamate, commercially available from Beneo Orafti under the tradename Inutec SP1.

[0093] The above lists are only examples and not limiting.

[0094] The total amount of emulsifier present in the compositions is typically in an amount of about 0.1, 0.2, or 0.5 wt. % to about 4.0, 5.0, 6.0, or 7.5 wt. %, based on the total weight of the composition.

Gelling Agent

[0095] Gelling agents may also be included in the sunscreen compositions. Examples of suitable hydrophilic gelling agents include carboxyvinyl polymers such as the Carbopol products (carbomers) and the Pemulen products (acrylate/C10-C30-alkylacrylate copolymer); polyacrylamides, for instance the crosslinked copolymers sold under the names Sepigel 305 (CTFA name: polyacrylamide/C13-14 isoparaffin/Laureth 7) or Simulgel 600 (CTFA name: acrylamide/sodium acryloyldimethyltaurate copolymer/isohexadecane/polysorbate 80) by the company SEPPIC; 2-acrylamido-2-methylpropanesulfonic acid polymers and copolymers, which are optionally crosslinked and/or neutralized, for instance the poly(2-acrylamido-2-methylpropanesulfonic acid) (CTFA name: ammonium polyacryldimethyltauramide); cellulose-based derivatives such as hydroxyethyl-cellulose; polysaccharides and especially gums such as xanthan gum; and mixtures thereof.

[0096] Lipophilic gelling agents (thickeners) that may be mentioned include modified clays such as hectorite and its derivatives, for instance the products sold under the name bentone.

[0097] In some instances, the gelling agent is ammonium acryloyldimethyltaurate/steareth-25 methacrylate crosspolymer, commercially available from Clariant under the tradename Aristoflex HMS.

[0098] The above lists are only examples and not limiting.

[0099] The gelling agent is typically used in an amount of about 0.05 to about 1.5% by weight, from about 0.08 to about 1.0% by weight, or about 0.1 to about 0.5% by weight, based on the total weight of the composition.

Additional Sunscreen Filters (Protective Agents)

[0100] The sunscreen compositions can include additional sunscreen filters such as, for example, mineral UV filters. Examples of mineral UV filters include pigments and nanopigments (mean size of the primary particles is generally is from 5 nm to 100 nm or from 10 nm to 50 nm) of treated or untreated metal oxides such as, for example, nanopigments of titanium oxide (amorphous or crystallized in rutile and/or anatase form), of iron oxide, of zinc oxide, of zirconium oxide or of cerium oxide. The treated nanopigments are pigments that have undergone one or more surface treatments of chemical, electronic, mechanochemical and/or mechanical nature with compounds as described, for example, in Cosmetics & Toiletries, February 1990, Vol. 105, pp. 53-64, such as amino acids, beeswax, fatty acids, fatty alcohols, anionic surfactants, lecithins, sodium, potassium, zinc, iron or aluminium salts of fatty acids, metal (titanium or aluminium) alkoxides, polyethylene, silicones, proteins (collagen or elastin), alkanolamines, silicon oxides, metal oxides, sodium hexametaphosphate, alumina or glycerol. The treated nanopigments may more particularly be titanium oxides treated with:

[0101] silica and alumina, such as the products "Microtitanium Dioxide MT 500 SA" and "Microtitanium Dioxide MT 100 SA" from the company Tayca, and the products "Tioveil Fin", "Tioveil OP", "Tioveil MOTG" and "Tioveil IPM" from the company Tioxide;

[0102] alumina and aluminium stearate, such as the product "Microtitanium Dioxide MT 100 T" from the company Tayca;

[0103] alumina and aluminium laurate, such as the product "Microtitanium Dioxide MT 100 S" from the company Tayca;

[0104] iron oxides and iron stearate, such as the product "Microtitanium Dioxide MT 100 F" from the company Tayca;

[0105] silica, alumina and silicone, such as the products "Microtitanium Dioxide MT 100 SAS", "Microtitanium Dioxide MT 600 SAS" and "Microtitanium Dioxide MT 500 SAS" from the company Tayca;

[0106] sodium hexametaphosphate, such as the product "Microtitanium Dioxide MT 150 W" from the company Tayca;

[0107] octyltrimethoxysilane, such as the product "T-805" from the company Degussa;

[0108] alumina and stearic acid, such as the product "UVT-M160" from the company Kemira;

[0109] alumina and glycerol, such as the product "UVT-M212" from the company Kemira;

[0110] alumina and silicone, such as the product "UVT-M262" from the company Kemira.

[0111] Other titanium oxide nanopigments treated with a silicone are TiO_2 treated with octyltrimethylsilane and for which the mean size of the elementary particles is between 25 and 40 nm, such as the product sold under the trade name "T805" by the company Degussa Silices, TiO_2 treated with a polydimethylsiloxane and for which the mean size of the elementary particles is 21 nm, such as the product sold under the trade name "70250 Cardre UF TiO2SI3" by the company Cardre, anatase/rutile TiO_2 treated with a polydimethylhydrogenosiloxane and for which the mean size of the elementary particles is 25 nm, such as the product sold under the trade name "Microtitanium Dioxide USP Grade Hydrophobic" by the company Color Techniques.

[0112] Uncoated titanium oxide nanopigments are sold, for example, by the company Tayca under the trade names "Microtitanium Dioxide MT 500 B" or "Microtitanium Dioxide MT 600 B", by the company Degussa under the name "P 25", by the company Wackher under the name "Oxyde de titane transparent PW", by the company Myoshi Kasei under the name "UFTR", by the company Tomen under the name "ITS" and by the company Tioxide under the name "Tioveil AQ".

[0113] The uncoated zinc oxide nanopigments are, for example:

[0114] those sold under the name "Z-Cote" by the company Sunsmart;

[0115] those sold under the name "Nanox" by the company Elementis; and

[0116] those sold under the name "Nanogard WCD 2025" by the company Nanophase Technologies.

[0117] The coated zinc oxide nanopigments are, for example:

[0118] those sold under the name "Zinc Oxide CS-5" by the company Toshibi (ZnO coated with polymethylhydrogenosiloxane);

[0119] those sold under the name "Nanogard Zinc Oxide FN" by the company Nanophase Technologies (as a 40% dispersion in Finsolv TN, C_{12}-C_{15} alkyl benzoate);

[0120] those sold under the name "Daitopersion ZN-30" and "Daitopersion ZN-50" by the company Daito (dispersions in cyclopolymethylsiloxane/oxyethylenated polydimethylsiloxane, containing 30% or 50% of nanozinc oxides coated with silica and polymethylhydrogenosiloxane);

[0121] those sold under the name "NFD Ultrafine ZNO" by the company Daikin (ZnO coated with perfluoroalkyl phosphate and copolymer based on perfluoroalkylethyl as a dispersion in cyclopentasiloxane);

[0122] those sold under the name "SPD-Z1" by the company Shin-Etsu (ZnO coated with silicone-grafted acrylic polymer, dispersed in cyclodimethylsiloxane);

[0123] those sold under the name "Escalol Z100" by the company ISP (alumina-treated ZnO dispersed in an ethylhexyl methoxycinnamate/PVP-hexadecene/methicone copolymer mixture);

[0124] those sold under the name "Fuji ZNO-SMS-10" by the company Fuji Pigment (ZnO coated with silica and polymethylsilsesquioxane); and

[0125] those sold under the name "Nanox Gel TN" by the company Elementis (ZnO dispersed at a concentration of 55% in C_{12}-C_{15} alkyl benzoate with hydroxystearic acid polycondensate).

[0126] The uncoated cerium oxide nanopigments are sold under the name "Colloidal Cerium Oxide" by the company Rhone-Poulenc. The uncoated iron oxide nanopigments are sold, for example, by the company Arnaud under the names "Nanogard WCD 2002 (FE 45B)", "Nanogard Iron FE 45 BL AQ", "Nanogard FE 45R AQ" and "Nanogard WCD 2006 (FE 45R)" or by the company

[0127] Mitsubishi under the name "TY-220". The coated iron oxide nanopigments are sold, for example, by the company Arnaud under the names "Nanogard WCD 2008 (FE 45B FN)", "Nanogard WCD 2009 (FE 45B 556)", "Nanogard FE 45 BL 345" and "Nanogard FE 45 BL" or by the company BASF under the name "Transparent Iron Oxide".

[0128] Mixtures of metal oxides may also be used, especially of titanium dioxide and of cerium dioxide, including the silica-coated equal-weight mixture of titanium dioxide and of cerium dioxide, sold by the company Ikeda under the name "Sunveil A", and also the alumina, silica and silicone-coated mixture of titanium dioxide and of zinc dioxide, such as the product "M 261" sold by the company Kemira, or the alumina, silica and glycerol-coated mixture of titanium dioxide and of zinc dioxide, such as the product "M 211" sold by the company Kemira.

[0129] The above lists are only examples and not limiting.

[0130] The compositions according to the instant disclosure may be prepared according to techniques that are well known to those skilled in the art, in particular those intended for the preparation of emulsions of oil-in-water or water-in-oil type. They may be in particular in the form of a simple or complex emulsion (O/W, W/O, O/W/O or W/O/W emulsion) such as a cream or a milk, in the form of a gel or a cream-gel, or in the form of a lotion.

[0131] The instant disclosure will be better understood from the examples that follow, all of which are intended for illustrative purposes only and are not meant to limit the scope of the instant disclosure in any way.

EXAMPLES 1-12

[0132] Samples comprising different amounts of UV filters were prepared by dissolving the UV filters in ethanol and solvent as illustrated in the table below.

TABLE 1

Ingredient	Range
Octocrylene	4.40-6.00%
Avobenzone (Butyl Methoxydibenzoylmethane)	3.50-4.50%
Tinosorb S (Bis-EthylHexyloxyphenol Methoxyphenyl Triazine)	0.50-2.00%
UvinulT150 (Ethylhexyl Triazone)	0.50-3.00%
Mexoryl SX (Terephthalylidene Dicamphor Sulfonic Acid)	1.67-2.00%
Mexoryl XL (Drometrizole Trisiloxane)	0.50-3.00%
TEA (Triethanolamine)	0-1.05%
Polysorbate 20	5.50%
Propylene Glycol	5%
Eldew SL205 Solvent*	31.75%
Dermacryl 79**	2.5%
Ethanol	Qs 100%

*Eldew SL 205 (Ajinomoto) is Isopropyl Lauroyl Sarcosinate (emollient)

**Dermacryl 79 (Akzo Nobel) is an acrylate/octylacrylamide Copolymer (film-former)

[0133] Each sample was applied to a PMMA plate (polymethyl methacrylate plate) with a draw down bar to control the thickness and the homogeneity of the film. The in vitro SPF was measured using a Labsphere 2000. Each measurement was made 6 times (6 times on each plate) times on 3 plates for each composition. The amount of UV filters included in each sample and the resulting SPF is reported in the table below.

TABLE 2

No.	Octocrylene	Avobenzone (Butyl Methoxydibenzoylmethane)	Tinosorb S (Bis-EthylHexyloxyphenol Methoxyphenyl Triazine)	Uvinul T150 (Ethylhexyl Triazone)	Mexoryl SX (Terephthalylidene Dicamphor Sulfonic Acid)	Mexoryl XL (Drometrizole Trisiloxane)	Total UV Filters	SPF
1	4.89	4.11	1.97	2.69	1.45	2.49	17.6	174.73
			Comparisons					
2	4.40	4.00	0.50	3.00	1.00	2.50	15.40	150.27
3	5.88	4.84	0.68	2.83	0.95	2.84	18.02	143.96
4	5.21	4.97	0.65	2.87	1.71	2.90	18.31	137.67
5	5.73	4.89	1.35	2.28	1.04	2.86	18.15	129.53
6	5.54	4.63	1.29	2.42	0.98	2.76	17.62	127.34
7	5.97	4.61	1.35	2.74	1.87	2.87	19.41	126.63
8	5.88	4.71	1.20	2.94	1.08	2.85	18.66	125.59

TABLE 2-continued

No.	Octocrylene	Avobenzone (Butyl Methoxydibenzoylmethane)	Tinosorb S (Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine)	Uvinul T150 (Ethylhexyl Triazone)	Mexoryl SX (Terephthalylidene Dicamphor Sulfonic Acid)	Mexoryl XL (Drometrizole Trisiloxane)	Total UV Filters	SPF
9	5.50	4.47	1.12	2.71	1.49	2.63	17.92	118.71
10	5.44	4.33	1.11	2.74	1.41	2.89	17.92	114.16
11	5.85	4.77	1.10	2.72	1.62	2.83	18.89	113.10
12	5.61	4.98	0.96	2.85	1.76	2.43	18.59	110.52
13	5.20	4.50	1.00	2.50	2.00	1.00	16.20	104.97
14	5.61	4.85	0.80	2.59	1.99	2.59	18.43	103.34
15	5.87	4.81	0.86	2.57	1.64	1.99	17.74	98.61
16	5.60	4.00	2.00	1.00	2.00	3.00	17.60	93.87
17	5.31	4.99	1.76	1.28	1.90	2.91	18.15	89.81
18	6.00	4.50	2.00	0.50	1.67	2.50	17.17	85.00
19	5.97	4.73	1.81	0.53	1.79	2.83	17.66	80.88
20	5.60	3.50	1.00	1.50	2.00	3.00	16.60	80.45
21	5.59	4.26	0.94	2.98	1.99	1.95	17.71	75.70
22	6.00	4.00	2.00	2.00	2.00	0.50	16.50	61.57
23	4.80	4.00	0.50	2.50	2.00	0.50	14.30	60.01
24	5.60	4.00	1.00	1.50	2.00	2.00	16.10	56.14
25	4.80	3.50	1.00	2.00	1.67	3.00	15.97	51.68

[0134] The following table corresponds to the table above (TABLE 2) but lists each UV filter as a ratio relative to avobenzone.

TABLE 3

No.	Octocrylene	Avobenzone (Butyl Methoxydibenzoylmethane)	Tinosorb S (Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine)	Uvinul T150 (Ethylhexyl Triazone)	Mexoryl SX (Terephthalylidene Dicamphor Sulfonic Acid)	Mexoryl XL (Drometrizole Trisiloxane)	Total UV Filters	SPF
1	1.19	1.00	0.48	0.65	0.35	0.61	17.6	174.73
			Comparisons					
2	1.10	1.00	**0.13**	0.75	0.25	0.63	**15.40**	**150.27**
3	1.21	1.00	**0.14**	0.58	**0.20**	0.59	**18.02**	**143.96**
4	1.05	1.00	**0.13**	0.58	0.34	0.58	**18.31**	**137.67**
5	1.17	1.00	**0.28**	0.47	**0.21**	0.58	**18.15**	**129.53**
6	1.20	1.00	**0.28**	0.52	**0.21**	0.60	**17.62**	**127.34**
7	1.30	1.00	**0.29**	0.59	0.40	0.62	**19.41**	**126.63**
8	1.25	1.00	**0.25**	0.62	**0.23**	0.61	**18.66**	**125.59**
9	1.23	1.00	**0.25**	0.61	0.33	0.59	**17.92**	**118.71**
10	1.26	1.00	**0.26**	0.63	0.32	0.67	**17.92**	**114.16**
11	1.23	1.00	**0.23**	0.57	0.34	0.59	**18.89**	**113.10**
12	1.13	1.00	**0.19**	0.57	0.35	0.49	**18.59**	**110.52**
13	1.16	1.00	**0.22**	0.56	0.44	**0.22**	**16.20**	**104.97**
14	1.16	1.00	**0.16**	0.53	0.41	0.53	**18.43**	**103.34**
15	1.22	1.00	**0.18**	0.53	0.34	0.41	**17.74**	**98.61**
16	1.40	1.00	0.50	**0.25**	**0.50**	0.75	**17.60**	**93.87**
17	1.06	1.00	0.35	**0.26**	0.38	0.58	**18.15**	**89.81**
18	1.33	1.00	0.44	**0.11**	0.37	0.56	**17.17**	**85.00**
19	1.26	1.00	0.38	**0.11**	0.38	0.60	**17.66**	**80.88**
20	**1.60**	1.00	**0.29**	0.43	**0.57**	0.86	**16.60**	**80.45**
21	1.31	1.00	**0.22**	0.70	**0.47**	0.46	**17.71**	**75.70**
22	1.50	1.00	0.50	0.50	**0.50**	**0.13**	**16.50**	**61.57**
23	1.20	1.00	**0.13**	0.63	**0.50**	**0.13**	**14.30**	**60.01**
24	1.40	1.00	**0.25**	0.37	**0.50**	0.50	**16.10**	**56.14**
25	1.37	1.00	**0.29**	0.57	**0.48**	0.86	**15.97**	**51.68**

*NOTE:
The bolded numbers fall outside the claimed range.

[0135] As illustrated in the tables above, Example 1, having a ratio of about 1.2:1.0:0.5:0.6:0.4:0.6 (Octocylene:Avobenzone:Tinosorb S:Uvinul T 150:Mexoryl SX, Mexoryl XL) shows an dramatic jump in SPF.

EXAMPLE 13

[0136] Using the procedures described above for Examples 1-12, the following composition was prepared and the SPF measured.

TABLE 4

Clear Spray-On Sunscreen SPF 175 (In Vitro)

Ingredient	Range
Octocrylene	4.89%
Avobenzone	4.11%

TABLE 4-continued

Clear Spray-On Sunscreen SPF 175 (In Vitro)

Ingredient	Range
Tinosorb S	1.97%
UvinulT150	2.69%
Mexoryl SX	1.45%
Mexoryl XL	2.49%
TEA	0.76%
Polysorbate 20	5.50%
Propylene Glycol	5%
Eldew SL205 Solvent*	31.75%
Dermacryl 79**	2.5%
Ethanol	Qs 100%

*Eldew SL 205 (Ajinomoto) is Isopropyl Lauroyl Sarcosinate (emollient)
**Dermacryl 79 (Akzo Nobel) is an acrylate/octylacrylamide Copolymer (film-former)

EXAMPLE 14

[0137] The following composition was prepared and the SPF measured.

TABLE 5

Lotion Sunscreen Spray

Phase	Chemical Name	% wt/wt
A-1	Water	Q.S.
	Preservative	0.1 to 2.00
	Disodium EDTA	0.100
	O/W emulsifier	0.1 to 2.00
A-2	Mexoryl Sx	1.45
	TEA	0.650
B	Avobenzone	4.110
	Octocrylene	4.890
	Uvinul T-150	2.690
	Mexoryl XL	2.490
	Tinosorb S	1.970
	Emollient	2.0-20.0
	Silicone	1.0-3.0
	W/O emulsifier	0.1-2.5
	Co-emulsifier	0.1-2.0
	Vit E	0.100
C	Water	7.000
	Silicone	1.0-5.0
D	Booster	1.0-6.0
E	Wetting Agent	0.1-1.5

[0138] The components of the Lotion Sunscreen were combined as outlined below.

[0139] 1) Weigh Phase A and heat to 85° C.

[0140] 2) Weigh Phase B ingredients in another beaker and heat to 85° C.

[0141] 3) Add Phase B into Phase A and homogenized for 20 minutes. Maintain the temperature at 90° C.

[0142] 4) Check emulsion quality. If emulsion quality is good then begin cooling to room temperature.

[0143] 5) Add Phase C into Phase A/B and homogenize for 5 minutes.

[0144] 6) Pass the emulsion through a high pressure homogenizer two times at 500 bar.

[0145] 7) Add phase D at room temperature and mix for 5 minutes.

It is claimed:

1. A sunscreen composition comprising the following combination of UV filters:

octocrylene, butyl methoxydibenzoylmethane, bis-ethylhexyloxyphenol methoxyphenyl triazine, ethylhexyl triazone, terephthalylidene dicamphor sulfonic acid,and drometrizole trisiloxane; wherein the ratio of each filter relative to butyl methoxydibenzoylmethane is as follows:

the ratio of octocrylene to butyl methoxydibenzoylmethane is 0.8:1.0 to 1.5:1.0;

the ratio of bis-ethylhexyloxyphenol methoxyphenyl triazine to butyl methoxydibenzoylmethane 0.3:1.0 to 0.8:1.0;

the ratio of ethylhexyl triazone to butyl methoxydibenzoylmethane is 0.3:1.0 to 1.0:1.0;

the ratio of terephthalylidene dicamphor sulfonic acid to butyl methoxydibenzoylmethane is 0.1:1.0 to 0.5:1.0; and

the ratio of drometrizole trisiloxane to butyl methoxydibenzoylmethane is 0.3:1.0 to 1.0:1.0.

2. The sunscreen composition according to claim **1**, wherein the ratio of each filter relative to butyl methoxydibenzoylmethane is about 1.2:1.0:0.5:0.6:0.4:0.6 (octocrylene:butyl methoxydibenzoylmethane:bis-ethylhexyloxyphenol methoxyphenyl triazine:ethylhexyl triazone:terephthalylidene dicamphor sulfonic acid:drometrizole trisiloxane).

3. The sunscreen composition according to claim **1** having an SPF of at least 15.

4. The sunscreen composition according to claim **1** having an SPF of at least 30.

5. The sunscreen composition according to claim **1** having an SPF of at least 50.

6. The sunscreen composition according to claim **1** having an SPF of at least 75.

7. The sunscreen composition according to claim **1** having an SPF of at least 100.

8. The sunscreen composition according to claim **1** having an SPF of at least 125.

9. The sunscreen composition according to claim **1** having an SPF of at least 150.

10. The sunscreen composition according to claim **1** comprising:

2 to 7 wt. % octocrylene;

2 to 5 wt. % butyl methoxydibenzoylmethane;

0.1% to 2 wt. % bis-ethylhexyloxyphenol methoxyphenyl triazine;

0.1% to 3 wt. % ethylhexyl triazone;

0.1% to 2 wt. % terephthalylidene dicamphor sulfonic acid; and

0.1% to 3 wt. % drometrizole trisiloxane.

11. The sunscreen composition according to claim **1** comprising:

about 5 wt. % octocrylene;

about 4 wt. % butyl methoxydibenzoylmethane;

about 2 wt. % bis-ethylhexyloxyphenol methoxyphenyl triazine;

about 2.5 wt. % ethylhexyl triazone;

about 1.5 wt. % terephthalylidene dicamphor sulfonic acid; and

about 2.5% drometrizole trisiloxane.

12. The sunscreen composition according to claim **1**, further comprising a booster.

13. The sunscreen composition according to claim **1**, further comprising octisalate.

14. The sunscreen composition according to claim 13, wherein the octisalate is present in an amount greater than 0 to about 5 wt. %, based on the total weight of the sunscreen composition.

15. A method of protecting a keratinous substrate from ultraviolet radiation comprising applying a sunscreen composition according to claim 1 to the keratinous substrate.

16. A method of absorbing ultraviolet light comprising applying a sunscreen composition according to claim 1 to a keratinous substrate and subjecting the keratinous substrate to ultraviolet light.

* * * * *

Deutsches Patent- und Markenamt

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Auftragsdatum: 04.02.2021
Analyseur: [redacted]

Gebiet: Kosmetik
Ausgabe am: [redacted]
Rückgabe am: [redacted]
Rechnungsnr.:

	PN	Titel	Gebiet	Dokumenteinheiten	Beispielanzahl
1	DE 102015110577 A1	Topische Zubereitung zur Hautpflege	Kosmetik	1	1
2	US 000009517197 B1	Toothpaste composition containing ganoderma lucidu...	Kosmetik	1	1
3	US 020030130162 A1	Transparent softening agents	Kosmetik	1	3
4	US 020130131097 A1	TOPICAL TREATMENT FOR CHEMOTHERAPY INDUCED EYELASH...	Kosmetik	1	1
5	US 020140017277 A1	TREATMENT AND COMPOSITION FOR ACHIEVING SKIN ANTI-...	Kosmetik	2	6
6	US 020140170093 A1	SUNSCREEN COMPOSITIONS HAVING SYNERGISTIC COMBINAT...	Kosmetik	1	3
7	US 020140170094 A1	SUNSCREEN COMPOSITIONS HAVING SYNERGISTIC COMBINAT...	Kosmetik	1	3
8	US 020140170095 A1	SUNSCREEN COMPOSITIONS HAVING SYNERGISTIC COMBINAT...	Kosmetik	1	3
9	US 020140170246 A1	Topical Composition	Kosmetik	2	6
10	US 020140170251 A1	Topical Formulations for Increasing the Dermal Con...	Kosmetik	2	4
11	US 020140171399 A1	TOPICAL SKIN CARE COMPOSITION	Kosmetik	1	1
12	US 020140173833 A1	TEXTILE FRIENDLY NONAEROSOL-ANTIPERSPIRANTS WITH M...	Kosmetik	4	17
13	US 020140178315 A1	Topical Compositions Comprising Ionic Fluids	Kosmetik	3	11
14	US 020140178321 A1	TEXTILE FRIENDLY NON-AEROSOL ANTIPERSPIRANTS WITH ...	Kosmetik	2	7
15	US 020140186272 A1	SYNTHESIS OF CYCLOHEXANE DERIVATIVES USEFUL AS SEN...	Kosmetik	1	1
16	US 020150174253 A1	TOPICAL GEL COMPOSITIONS INCLUDING POLY(MONOSTEARO...	Kosmetik	1	2
17	US 020150305992 A1	Treating Cariogenic diseased oral biofilm with ele...	Kosmetik	2	7
18	US 020160361249 A1	TOPICAL COMPOSITIONS AND METHODS OF USE	Kosmetik	2	6
			Summe:	29	

Eine stichprobenartige Überprüfung der abgegebenen Analysen wurde durchgeführt.
Abgerechnet werden: 29 Dokumenteneinheiten a 19,00 €

Datum/Unterschrift:

Auftrag:	**2021-00011**
Analyseur:	[redacted]
PN:	**US 020140170093 A1**
Titel:	**SUNSCREEN COMPOSITIONS HAVING SYNERGISTIC COMBINATION OF UV FILTERS**
Gebiet:	**Kosmetik**

DPMA München Ref. 2.2.3 - Vordruck KOS

Auftrags.Nr.: 2021-00011 PN: US 020140170093 A1

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103		124		146		168		189	
104		125		147		169		190	
105		126		148		170		191	
106		127		149		171		192	
107		128		150		172		193	
108		130		151		173		194	
109		131		152		174		195	
110		132		153		175		196	
111		133		154		176		197	Y
112		134		155		177		198	
113	ZWXY	135		156		179		199	
114		136		157		180		200	
115		137		159		181		201	
116		138		160		182		202	
117		139		161		183		203	
119		141		162		184		204	
120		142		163		185		205	

DPMA München Ref. 2.2.3 - Vordruck KOS

Auftrags.Nr.: 2021-00011 PN: US 020140170093 A1

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207		237		265		294		322	
208		238		266		295		323	
209		239		267		296		324	W
210		240		268		297		325	
211		241		269		298		326	
212		242		270		299		327	
213		243		271		30x		328	XY
214		244		272		300		329	
215		245		273		301		330	
216		246		274		302		331	K
217		247		275		303		332	
218		248		276		304		333	
219		249		277		305		334	
220		25x		278		306		335	
221		250	Y	279		307		336	
222		251		28x		308		337	
223		252		280		309		338	
224		253		281		310		339	
225		254		282		311		340	
226		255		283		312		341	
227		256		284		313		342	
228		257		285		314		343	
229		258		286		315		344	
230		259		287		316		345	
231		26x		288		317		346	
232		260		289		318		347	
233		261		290		319		348	
234		262		291		32x		349	
235		263		292		320		350	

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Auftrags.Nr.: 2021-00011 PN: US 020140170093 A1

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358		389		421		451		482	
359		390		422		452		483	
360		391		423		453		484	
361		392		424		454		485	
362		393		425		455		486	
363		394		426		456		487	
364		395		427		457		488	
365		396		428		458		489	
366		397		429		459		490	WX
367		398		430		460		491	
368		399		431		461		492	
369		400		432		462		493	
370		401		433		464		494	
371		403		434		465		495	
372		404		435		466		496	
373		405		436		467		497	
374		406		437		468		498	
375		407		438		469		500	
376		408		439		470		501	
377		409		440		471		502	
378		410		441		472		503	
379		412		442		473		504	
380		413		443		474		505	
381		414		444		475		506	

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Auftrags.Nr.: 2021-00011 PN: US 020140170093 A1

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511		546		577		607		639	
512		547		578		608		640	
513		548		579		609		641	
514		549		580		610		642	
515		550		581		611		643	
516		551		582		612		644	
517		552		583		613		645	
518		553		584		614		646	
519		554		585		615		647	
520		555		586		616		648	
521		556		587		618		649	
522		557		588		620		650	
523		558		589		621		651	
524		559		590		622		653	
525		560		591		623		655	
528		561		592		624		656	i
529		562		593		625		657	
530		563		594		626		658	ABCDGH
532		564		595		627		659	ABD
533		565		596		628		660	
534		566		597		629		661	
535		567		598		630		662	
538		568		599		631		663	
539		569		600		632		664	
540		570		601		633		665	
541		571		602		634		666	
542		572		603		635		667	i

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668		698		728		760		790	
669	i	699	WX	729		761		791	
670		700		730		762		792	
671		701		731		763		793	
672	ACDHiJ	702		732		764		794	C
673		703		733	ZAHiWXY	765	D	795	BCG
674		704		734		766		796	
675		705		735	D	767		797	BH
676		706		736		768		798	BC
677		707		737		769		799	G
678		708		738		770		800	
679		709		739		771		801	
680		710		740		772		802	
681		711		741		773		803	
682		712		742		774		804	
683		713		743		775		805	
684		714		745		776		806	
685		715		746		777	D	807	
686		716		747		778		808	
687		717		748		779		810	
688		718		749	ZBWXY	780		811	
689		719		750		781	F	812	
690	WX	720		751		782		813	
691		721		752		783		814	
692		722		753		784		815	
693		723		755		785		816	ZCDGWXY
694		724		756		786		817	
695		725	i	757	i	787		818	CG
696		726	A	758		788		819	
697	WXY	727		759		789		820	

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821		851		880		905		931	
822		852	KY	881		906		932	
823		853		882		907		933	
824		854		883		908		934	
825	ZGWXY	856		884		909		935	ZEFWXY
826		857		885		910		936	
827		858		886	JWX	911	J	937	
828		859		887		912	J	938	
829		860		888		913		939	
830		861		889		914		940	LY
831		862		890		915		941	
832		863		891		916		942	
833		864		892	Y	917		943	
834		865		893		918		945	
835		866		894		919		946	
836		867		895		920	J	947	
837		870		896		921		948	
838		871		897		922		949	
839		872		898		923		950	
840		873		899	J	924		951	
841		874		900		925		952	
842		875		901		926		953	E
843		876		902		928		954	
844		877		903	J	929		955	
850		878		904		930		956	

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Info und ergänzende Bemerkungen (Analyse)	