

4. Documentos relevantes del trámite ante la UKIPO.
5. Copia de la patente GB2576336 (B) correspondiente a la publicación de la concesión de la solicitud GB1813273.8;
6. Copia de las reivindicaciones concedidas por la UKIPO con su respectiva traducción al español;
7. Nuevo capítulo reivindicatorio conformado por 25 reivindicaciones, correspondiente a las reivindicaciones 1 a 25 concedidas por la UKIPO.
8. Comprobante de pago por concepto de modificación del capítulo reivindicatorio.
9. Finalmente, a continuación, se encuentra la tabla donde se consigna la correspondencia de las reivindicaciones que han sido concedidas por la UKIPO y las presentadas junto con este memorial ante la SIC como modificación voluntaria.

TABLA DE CORRESPONDENCIA	
Reivindicaciones presentadas ante la sic como OSP junto con este memorial	Reivindicaciones consideradas patentables por la UKIPO
Reivindicación 1, en la que se modificaron los porcentajes en peso del portador y de agua	Reivindicación 1
Reivindicación 2	Reivindicación 2
Reivindicación 3	Reivindicación 3
Reivindicación 4, es nueva y se refiere a las formas físicas de la composición limpiadora sólida.	Reivindicación 4
Reivindicación 5, es nueva y se refiere a las formas físicas de la composición limpiadora sólida.	Reivindicación 5
Reivindicación 6, correspondiente a la reivindicación 4 originalmente presentada.	Reivindicación 6
Reivindicación 7, correspondiente a la reivindicación 5 originalmente presentada.	Reivindicación 7
Reivindicación 8, combina las características de las reivindicaciones 6 y 7, originalmente presentadas.	Reivindicación 8

Reivindicación 9, correspondiente a la reivindicación 8 originalmente presentada.	Reivindicación 9
Reivindicación 10, combina las características de las reivindicaciones 9 y 10 originalmente presentadas.	Reivindicación 10
Reivindicación 11	Reivindicación 11
Reivindicación 12	Reivindicación 12
Reivindicación 13, modificada para indicar que el valor del HLB cuando hay dos o más emulsionantes es un promedio ponderado teniendo en cuenta sus valores de HLB individuales y las cantidades de dichos emulsionantes.	Reivindicación 13
Reivindicación 14	Reivindicación 14
Reivindicación 15	Reivindicación 15
Reivindicación 16	Reivindicación 16
Reivindicación 17	Reivindicación 17
Reivindicación 18	Reivindicación 18
Reivindicación 19	Reivindicación 19
Reivindicación 20	Reivindicación 20
Reivindicación 21, en la que se modificaron los porcentajes en peso del portador, de agua y del emulsionante (c).	Reivindicación 21
Reivindicación 22 es nueva y divulga que el valor del HLB cuando hay dos o más emulsionantes es un promedio ponderado teniendo en cuenta sus valores de HLB individuales y las cantidades de dichos emulsionantes.	Reivindicación 22
Reivindicación 23, comprende las características de la reivindicación 22 originalmente presentada y ha sido modificada para precisar que el componente emulsionante (c) está presente en una cantidad de al menos 3% en peso.	Reivindicación 23
Reivindicación 24, es nueva e indica que la composición sólida limpiadora está en la forma de copos, pellets, virutas o polvo, o se ha consolidado en la forma de un bloque, barra o pastilla.	Reivindicación 24
Reivindicación 25, comprende características esenciales de la antigua reivindicación 24. Precisa que la composición es un sólido dentro del rango de 0°C a 40°C y que el componente	Reivindicación 25

(c) comprende al menos 16% y hasta 50% en
peso de agua

Se considera entonces, que las reivindicaciones presentadas son “suficientemente correspondientes” a las concedidas por la UKIPO, ya que las reivindicaciones presentadas ante la SIC se refieren a la misma materia que aquella consideradas como otorgables por la Oficina de Examen Anterior (OEA).

Cumpliendo así lo dispuesto para que una solicitud sea aceptada en el procedimiento acelerado de exámenes de patente entre la UKIPO actuando como Oficina de Examen Anterior (OEA) y la SIC como Oficina de Segunda Presentación, atentamente solicito que se continúe con el trámite correspondiente a esta solicitud de patente de invención.

Señora Directora,

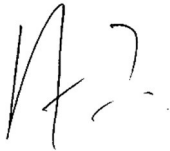
ANDRÉS RINCÓN USCÁTEGUI

CC 79.780.910 de Bogotá

TP 114.908

	Espacio reservado para el adhesivo de radicación
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DIRECCIÓN DE NUEVAS CREACIONES
Procedimiento acelerado de exámenes de patente (PPH)

1	NÚMERO DE SOLICITUD ANTE LA SIC		
2	GLOBAL - PPH ☒ PAÍS REINO UNIDO	3	PCT – PPH ☐ PAÍS
4	PROSUR ☐ PAÍS	5	Alianza del Pacifico (AdP) ☐ PAÍS
6	OFICINA DE PRIMERA PRESENTACIÓN (OPP) ☐	7	OFICINA DE EXAMEN ANTERIOR (OEA) ☐
8	NÚMERO DE SOLICITUD O PUBLICACIÓN DE LA SOLICITUD (OPP) ☐ NÚMERO DE SOLICITUD EN OFICINA DE EXAMEN ANTERIOR (OEA): ☒ NÚMERO DE SOLICITUD PCT: ☐		1. 1813273.8
9	☐ REPRESENTANTE LEGAL ☒ APODERADO		
APELLIDOS RINCÓN USCÁTEGUI		NOMBRES JOSÉ ANDRÉS	IDENTIFICACIÓN C.C .79.780.910 T.P .114.908
DIRECCIÓN	Carrera 4 No. 72A - 35		No. TELÉFONO 3473611
CIUDAD	Bogotá, D.C.		CORREO ELECTRÓNICO cavelier@cavelier.com
PAÍS	COLOMBIA		No. RADICACIÓN O PROTOCOLO DE PODER GENERAL
10	CONDICIONES PARA ACCEDER A ESTE PROCESO:		
10.1. DATOS DE PRIORIDAD ☒ SI ☐ NO			
(33) PAÍS DE ORIGEN		CÓDIGO PAÍS	(31) NÚMERO
1.Reino Unido		GB	1813273.8
2.			(32) FECHA (AAAA/MM/DD)
			2018/08/14
10.2. DATOS SOLICITUD INTERNACIONAL PCT ☒ SI ☐ NO			
Solicitud Internacional No.		PCT/GB2019/052266	Fecha 2019/08/12
Publicación Internacional No.		WO/2020/035671	Fecha 2020/02/20
*El solicitante presenta una copia de la(s) reivindicación(es) patentable(s) u otorgable(s) de la solicitud de la Oficina de Primera Presentación que profirió el examen de patentabilidad, junto con una traducción al castellano. ☒ SI ☐ NO			
*El solicitante presenta los resultados de búsqueda de la Oficina de Examen Anterior, junto con una traducción al castellano ☐ SI ☐ NO			
REQUISITOS PARA EL RECONOCIMIENTO DE LOS RESULTADOS DE EXÁMENES DE PATENTABILIDAD EFECTUADOS A SOLICITUDES EXTRANJERAS			
Para que la Superintendencia de Industria y Comercio pueda reconocer los resultados de exámenes de patentabilidad producidos por otras Oficinas de Propiedad Industrial se debe cumplir con las siguientes condiciones:			
(a) Al momento de solicitar el examen de patentabilidad, si el solicitante pide que se reconozcan exámenes de patentabilidad de otras oficinas extranjeras, deberá aportar junto con el pago de la tasa correspondiente, los siguientes anexos:			
(i) Copia de las resoluciones, fallos o decisiones que han sido relevantes para la determinación de la patentabilidad de la(s) solicitud(es) en la Oficina que haya proferido el examen de patentabilidad que contienen reivindicaciones patentables u otorgables que son la base de la petición, y si es del caso, su traducción al castellano. ☒ SI ☐ NO			
(ii) Copia de todas las reivindicaciones determinadas como patentables u otorgables en la Oficina que profirió el examen de patentabilidad y, si es del caso, su traducción al castellano. ☒ SI ☐ NO			
(iii) Copia de los antecedentes, información o documentos citados por el examinador de la Oficina de Primera Presentación del examen de patentabilidad, en las resoluciones, fallos o decisiones correspondientes, incluyendo la literatura no patente. Los documentos de patente deberán presentarse siempre y cuando no estén disponibles para la Superintendencia de Industria y Comercio mediante el simple acceso a bases de datos gratuitas. ☐ SI ☒ NO			
(iv) Una tabla de correspondencias de las reivindicaciones que han sido determinadas como patentables u otorgables en la solicitud de la Oficina que haya proferido el examen de patentabilidad. ☒ SI ☐ NO			
11	FIRMA DEL SOLICITANTE, DEL APODERADO O DEL REPRESENTANTE LEGAL <i>Junto a cada firma, indicar el nombre del firmante y su calidad (si tal calidad no es obvia al leer el petitorio)</i>		
 ANDRÉS RINCÓN USCÁTEGUI C.C. No. 79.780.910 de Bogotá T.P.A. No. 114.908 del C.S.J.			

10 (iv)	TABLA DE CORRESPONDENCIA DE REIVINDICACIONES	
Reivindicaciones en la solicitud en Colombia	Reivindicaciones otorgables en la solicitud ante la Oficina de Examen Anterior (UKIPO)	Explicación sobre la suficiente correspondencia ó Comentarios que explican la correspondencia
1-25	1-25	Las reivindicaciones 1 a 25 del capítulo reivindicatorio de la solicitud de patente NC2021/0003083 presentado corresponden a las reivindicaciones 1 a 25 consideradas concedidas por la UKIPO como oficina de examen anterior.

EPM\MVM\ID-775829\WPC26451
Agte: 5280 - 6

E. S. D

Referencia	:	Expediente No. NC2021/0003083
Asunto	:	Solicitud de patente para MEJORAS CON RESPECTO A LA FABRICACIÓN DE COMPOSICIONES PARA LIMPIEZA PERSONAL
Solicitante	:	THOS. BENTLEY & SON LIMITED
Fecha de solicitud	:	9 de marzo de 2021

MODIFICACIONES VOLUNTARIAS

ANDRÉS RINCÓN USCÁTEGUI, identificado como aparece al pie de mi firma, obrando como apoderado de la sociedad solicitante para el asunto en referencia, doy alcance a mi memorial de PPH con el fin de modificar el capítulo reivindicatorio actualmente presentado.

I. EN CUANTO AL CAPÍTULO REIVINDICATORIO

Junto con el presente memorial aportó un nuevo capítulo reivindicatorio, conformado por 25 reivindicaciones, en el cual se realizaron las siguientes modificaciones:

1.1 Las nuevas reivindicaciones 1 y 21 han sido modificada para indicar que la cantidad del portador, componente (b), es de al menos 10% en peso y que la cantidad del agua, el componente (d), en la composición sólida es de al menos 5% en peso. El soporte de estas modificaciones se puede encontrar en las páginas 2 (líneas 1 a 6 y 30 a 35) y 24 (líneas 1 y 2).

1.2 Las nuevas reivindicaciones 4 y 5 se refieren a las formas físicas de la composición limpiadora sólida formada por el método de la reivindicación independiente 1. Estas modificaciones encuentran soporte en la descripción en las páginas 1 (líneas 5 a 7) y 5 (líneas 7 a 10).

1.3 La nueva reivindicación 8 contiene las características esenciales de las antiguas reivindicaciones 6 y 7.

1.4 La nueva reivindicación 10 contiene las características esenciales de las antiguas reivindicaciones 9 y 10.

1.5 Las reivindicaciones 13 y 22 han sido modificadas para especificar que cuando dos o más emulsionantes están presentes, el valor de HLB es un promedio ponderado teniendo en cuenta sus valores de HLB individuales y las cantidades de los dos o más emulsionantes. Esta modificación encuentra soporte en la página 15 (líneas 10 a 16) de la descripción.

1.6 Las reivindicaciones 21 y 23 se han modificado para precisar que el componente emulsionante (c) está presente en una cantidad de al menos 3% en peso, en lugar de 1% en peso. El soporte de estas modificaciones se puede encontrar en las páginas 2 (líneas 1 a 6 y 30 a 35) y 24 (líneas 1 y 2).

1.8 La nueva reivindicación 24 especifica que la composición solida limpiadora está en la forma de copos, pellets, virutas o polvo, o se ha consolidado en la forma de un bloque, barra o pastilla. Esta modificación tiene soporte en la descripción en la página 5 (líneas 7 a 10).

1.9 La nueva reivindicación 25 comprende características esenciales de la antigua reivindicación 24. En ella, además, se ha precisado que la composición es un sólido dentro del rango de 0°C a 40°C y que el componente (c) comprende al menos 16% y hasta 50% en peso de agua, de acuerdo con lo divulgado en las páginas 25 (línea 5) y 27 (líneas 15 a 19) de la descripción.

1.10 Todas las reivindicaciones, así como sus relaciones de dependencia han sido reenumeradas conforme a las modificaciones antes mencionadas.

En vista de lo anterior, me permito resaltar que el nuevo capítulo reivindicatorio presentado se ajusta completamente a lo exigido por el Artículo 34 de la Decisión 486 de 2000, ya que no constituye una ampliación de la protección que correspondería a la divulgación contenida en la solicitud inicial.

II. PETICIÓN

Amablemente solicito a ese Despacho aceptar las modificaciones aquí presentadas y considerar el capítulo reivindicatorio adjunto al presente memorial durante las etapas siguientes del trámite administrativo de la solicitud de patente de referencia.

III. ANEXOS

1. Nuevo capítulo reivindicatorio conformado por 25 reivindicaciones.
2. Pago en línea por concepto de modificación del capítulo reivindicatorio.
3. Pago en línea por concepto de 15 reivindicaciones adicionales.

Señora Directora,

ANDRÉS RINCÓN USCÁTEGUI

C.C. 79.780.910 de Bogotá

T.P. 114.908

REIVINDICACIONES

1. Un método para preparar una composición limpiadora sólida, en donde la composición comprende:

- (a) al menos 15 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 45 °C;
- (b) al menos 10 % en peso de un portador que tiene un punto de fusión de al menos 45 °C;
- (c) al menos 1 % en peso de un emulsionante; y
- (d) al menos 5 % en peso de agua;

en donde la composición es un sólido en todo el rango de 0 °C a 40 °C;

y en donde el método comprende:

- (i) preparar una emulsión que contenga los componentes (a) a (d), pero con una mayor presencia de masa de agua que en la composición de limpieza sólida, siendo la temperatura de la emulsión de al menos 45 °C,
- (ii) someter la emulsión a enfriamiento y solidificación, en el que el contenido de agua se reduce durante el enfriamiento y solidificación para producir la composición limpiadora sólida que tiene los componentes (a) a (d) en las cantidades definidas.

2. El método de acuerdo con la reivindicación 1, en donde la emulsión se enfría y solidifica para formar partículas de la composición limpiadora sólida.

3. El método de acuerdo con la reivindicación 1 o 2, en donde la emulsión a una temperatura de al menos 45 °C es un líquido que fluye libremente.

4. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde la composición limpiadora sólida está en la forma de copos, pellets, virutas o polvo.

5. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el método comprende un paso (iii) de consolidar la composición limpiadora sólida en un bloque, barra o pastilla.

6. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde la composición limpiadora sólida no contiene jabón.
7. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en el que la masa de agua inicialmente presente en la emulsión es al menos un 40 % mayor que la masa de agua presente en la composición limpiadora sólida.
8. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el componente (a) comprende un tensioactivo aniónico no jabonoso de sulfato, sulfonato, anfoacetato, sulfoacetato, sulfosuccinato, fosfato o carboxilato, seleccionados, en cada caso, para obtener un punto de fusión por encima de 45 °C; preferiblemente en donde el componente (a) comprende un isetionato de acilo, por ejemplo, lauroil isetionato de sodio o cocoil isetionato de sodio.
9. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el tensioactivo aniónico no jabonoso constituye al menos el 20 % en peso y hasta el 60 % en peso de la composición limpiadora sólida.
10. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el portador (b) comprende uno o más entre una cera, un triglicérido, un ácido graso o un alcohol graso; preferiblemente en donde el portador (b) comprende un triglicérido de origen vegetal que se ha hidrogenado para lograr la saturación de sustancialmente todas las cadenas de ácidos grasos en el triglicérido, y cuyas cadenas de ácidos grasos son residuos de ácidos grasos C₈-C₃₂.
11. El método de acuerdo con la reivindicación 10 en donde el componente (b) comprende al menos uno entre aceite de colza hidrogenado, aceite de soja hidrogenado, aceite de girasol hidrogenado, aceite de palma hidrogenado, aceite de ricino hidrogenado, aceite de cártamo hidrogenado y aceite de cacahuete hidrogenado.
12. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el portador (b) constituye al menos el 15 % en peso y hasta el 40 % en peso de la composición limpiadora sólida.

13. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el emulsionante, el componente (c), tiene un valor de HLB de al menos 6 y hasta 12; y preferiblemente de al menos 8 y hasta 10, en donde cuando dos o más emulsionantes están presentes, el HLB es un promedio ponderado teniendo en cuenta sus valores de HLB individuales y las cantidades de los dos o más emulsionantes.

14. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el emulsionante (c), es seleccionado de entre ésteres de ácidos grasos de sorbitán, ésteres de ácidos grasos de sorbitán etoxilados y ésteres de ácidos grasos de glicerol o poliglicerol.

15. El método de acuerdo con la reivindicación 14, en donde el emulsionante (c) comprende o consiste de ésteres de glicerol o poliglicerol de ácidos grasos C_8 - C_{24} .

16. El método de acuerdo con la reivindicación 15, en donde el emulsionante, componente (c), es el producto de la reacción de esterificación de:

- A) un triglicérido, o un ácido graso, o un éster metílico de un ácido graso (o cualquier combinación de los mismos), y
- B) un alcohol polihídrico que comprende
 - B1) un poliglicerol que tiene al menos 3 unidades de glicerol, en el que el peso molecular promedio del poliglicerol en el componente B1), que tiene al menos 3 unidades de glicerol, está en el rango de 220-500 g/mol, y
 - B2) glicerol y/o diglicerol.

17. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el emulsionante, componente (c), constituye al menos el 2 % en peso y hasta el 9 % en peso de la composición limpiadora sólida.

18. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el agua, componente (d), constituye al menos el 5 % en peso y hasta el 16 % en peso de la composición limpiadora sólida.

19. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde la composición limpiadora sólida comprende:

- (a) al menos 20 % en peso y hasta 60 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 45 °C;
- (b) al menos 20 % en peso y hasta 60 % en peso de un portador que tiene un punto de fusión de al menos 45 °C;
- (c) al menos 2 % en peso y hasta 9 % en peso de un emulsionante;
- (d) al menos 5 % en peso y hasta 16 % en peso de agua;

en donde los componentes (a) a (d) constituyen al menos el 70 % y hasta el 100 % del peso de la composición limpiadora sólida.

20. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde la composición limpiadora sólida comprende:

- (a) al menos 35 % en peso y hasta 55 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 50 °C;
- (b) al menos 20 % en peso y hasta 40 % en peso de un triglicérido que tiene un punto de fusión de al menos 50 °C;
- (c) al menos 3 % en peso y hasta 8 % en peso de un emulsionante;
- (d) al menos 8 % en peso y hasta 12 % en peso de agua;

en donde los componentes (a) a (d) constituyen al menos el 80 % y hasta el 100 % del peso de la composición limpiadora.

21. Una composición limpiadora sólida que comprende:

- (a) al menos 15 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 45 °C;
- (b) al menos 10 % en peso de un portador que tiene un punto de fusión de al menos 45 °C;
- (c) al menos 3 % en peso de un emulsionante; y
- (d) al menos 5 % en peso de agua;

en donde la composición es un sólido en todo el rango de 0 °C a 40 °C.

22. La composición limpiadora sólida de acuerdo con la reivindicación 21, en donde el emulsionante, componente (c), tiene un valor de HLB de al menos 6 y hasta 12; y preferiblemente de al menos 8 y hasta 10, en donde cuando dos o más emulsionantes están presentes, el HLB es un promedio ponderado teniendo en cuenta sus valores de HLB individuales y las cantidades de los dos o más emulsionantes.

23. La composición limpiadora sólida de acuerdo con la reivindicación 21 o la reivindicación 22 que comprende:

- (a) al menos 20 % en peso y hasta 60 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 45 °C;
- (b) al menos 20 % en peso y hasta 60 % en peso de un portador de triglicérido que tiene un punto de fusión de al menos 45 °C;
- (c) al menos 3 % en peso y hasta 9 % en peso de un emulsionante;
- (d) al menos 5 % en peso y hasta 14 % en peso de agua;

y que, preferiblemente, no contiene jabón ni almidón;

en donde los componentes (a) a (d) constituyen al menos el 70 % y hasta el 100 % del peso de la composición limpiadora sólida;

en donde la composición es un sólido en todo el rango de 0 °C a 40 °C;

y en donde la composición limpiadora sólida tiene una microestructura completa o predominantemente homogénea.

24. La composición limpiadora sólida de acuerdo con cualquiera de las reivindicaciones 21 a 23, en donde la composición limpiadora sólida está en la forma de copos, pellets, virutas o polvo, o ha sido consolidada en la forma de un bloque, barra o pastilla.

25. Una emulsión para la preparación de una composición limpiadora sólida, en donde la composición es un sólido dentro del rango de 0°C a 40°C, la emulsión comprende

- (a) al menos 20 % en peso y hasta 50 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 45 °C;
- (b) al menos 20 % en peso y hasta 50 % en peso de un portador que tiene un punto de fusión de al menos 45 °C;
- (c) al menos 2 % en peso y hasta 9 % en peso de un emulsionante; y
al menos 16 % y hasta 50% en peso de agua;

en donde la emulsión se encuentra a una temperatura de al menos 45 °C, y

en donde los componentes (a) a (d) constituyen al menos el 70 % y hasta el 100 % del peso de la emulsión.



- 1 MAR 2019

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Your Reference: P34076GB1/JWM
Application No: GB1813273.8

28 February 2019

Dear Sirs

Patents Act 1977: Search Report under Section 17(5)

I enclose a copy of my search report. Please note that published patent documents mentioned in my report may be obtained for free on the internet and are usually freely available from <http://worldwide.espacenet.com>.

Clarity and Plurality of invention

Claim 1 of the present invention describes a product and the method of its production, generally this would be taken as the product only however given all the dependant claims are method claims it has been read as a claim to the method only and searched as such.

In light of this consider that your application relates to more than one invention as follows:

Claim 22 is the broadest claim of the application and each of claims 1, 23 and 25 fall in to the scope of the 15 wt% surfactant, 10% carrier, 1% emulsifier and at least 3% water with the requirement the composition is solid throughout 0-40 degrees.

Claim 24 however comprises at least 12 wt% of surfactant and would not necessitate the resulting product would be a solid in the same temperature range.

My search report relates to the first invention only. If you want the other invention searched, you should file a further Patents Form 9A however careful attention should be paid to citations made against the first invention when making this decision.



Other search results

If you have applied to another patent office for a patent for this invention you will be receiving from them the results of their search. If you decide to proceed with the present application you are asked to provide a copy of any such official search report or details of any documents cited and category assigned in the report. You may file such information electronically using the online patent filing services detailed in <https://www.gov.uk/government/publications/how-to-file-documents-with-the-intellectual-property-office>.

Cut-off date This request applies to search reports that you have received before the date when you send a response to our first examination report under section 18(3) or section 18(4); if you make no response to an initial section 18(4) report the cut-off date is two months after the date of that report. Tell us about a search report sooner rather than later if that would allow it to be considered during our first examination.

Exceptions You do not have to supply details of a search report that (1) shows a nil response, or (2) has been published by WIPO or EPO, or (3) you have already supplied to us on a previous GB application.

Publication

I estimate that preparations for publication of your application will be completed soon after **7 January 2020**. At this time you will receive a letter confirming the exact date of the completion of the preparations for publication. This letter will also tell you the publication number and date of publication of your application. However, it should **NOT** be relied upon as a reminder if you are intending to withdraw your application before publication, as it may not be issued in time for you to do so.

On the date of publication details of your application, including your name and address, will be entered in the Register of Patents and will become publicly available, including on our website. Some documents and correspondence from your application file will also be made publicly available on our website at <http://www.ipo.gov.uk/p-ipsum>.

Withdrawal

If you wish to withdraw your application to prevent publication you must withdraw it before the preparations for publication are complete. One way that you can withdraw your application is by emailing withdraw@ipo.gov.uk. Further details on withdrawal are available from <https://www.gov.uk/patent-your-invention>. **WARNING** – once preparations for publication are complete it will NOT be possible to prevent publication.

Amendment

If you wish to file amended claims for inclusion with the published application you must do so before the preparations for publication are completed.



Correspondence

If you write to the Office less than 3 weeks before 7 January 2020 please mark your letter prominently: **"URGENT - PUBLICATION IMMINENT"**.

Yours faithfully

Dr Peter Aspinall

Dr Peter Aspinall
Examiner



Application No: GB1813273.8

Examiner: Dr Peter Aspinall

Claims searched: 1-23 and 25

Date of search: 27 February 2019

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1-14, 17-23, 25	WO 99/10467 A1 (ICI PLC) See whole document; claims and examples in particular.

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

Worldwide search of patent documents classified in the following areas of the IPC

C11D

The following online and other databases have been used in the preparation of this search report

EPODOC, WPI, Patent Fulltext

International Classification:

Subclass	Subgroup	Valid From
C11D	0017/06	01/01/2006
C11D	0001/04	01/01/2006
C11D	0001/12	01/01/2006
C11D	0001/28	01/01/2006
C11D	0001/34	01/01/2006

The Comptroller
UK Intellectual Property Office
Concept House
Cardiff Road
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United Kingdom

Filed electronically

Your Ref: 1813273.8
Our Ref: P34076GB1/JWM
Date: 10 March 2020

Dear Sirs

Patent Application: 1813273.8
Country: United Kingdom
Applicant: Thos. Bentley & Son Limited
Title: Improvements in relation to the manufacture of personal cleansing compositions

We enclose a completed Patents Form 10 to request examination of this patent application. We also enclose amended claims 1-24 (both in clean format and showing tracked changes), which we request replace the claims currently on file. We also have the following comments on patentability of the amended claims in response to the objections raised in the Search Report under Section 17(5) dated 28 February 2019, which we request are taken into account when further examining this patent application.

Request for Green Channel acceleration

We also request that examination of this application be accelerated through the Green Channel. Currently "soap-free" or "syndet" personal care bars are expensive due to the specialised equipment required for their manufacture and the energy intensive high-pressure processes used to produce them. The present invention provides extruded syndet noodles which can be used to produce syndet bars using existing soap-making equipment using a less energy-intensive process than would otherwise be possible. Therefore the present invention saves the carbon footprint of new equipment which would have to be made and installed to produce syndet bars by current methods and reduces the environmental impact of syndet bar production by lowering energy consumption compared with current processes. The present invention may also allow an overall reduction in the packaging used for personal care products, and therefore a reduction in the environmental impact of such packaging. The ease and lower cost / energy consumption in the production of syndet bars according to the present invention may lead to a greater uptake of solid syndet products in the market, allowing such solid personal care products which require minimal packaging to displace liquid products in the market which are typically packaged in robust plastic bottles having a higher environmental impact.

JWM / JWM

Amendments

Method claim 1 has been amended to specify that the amount of component (d) water in the solid cleansing composition is at least 5 %wt. Basis for this amendment can be found on page 21, lines 5-6 of the specification as filed.

A corresponding amendment has been made to the solid cleansing composition claim 21.

Claim 1 has also been amended to correct the preamble so that it reads "*A method of making a solid cleansing composition...*". Basis for this amendment can be found on page 1, lines 33-24 of the specification as filed.

Emulsion claims 23 and 24 (previously claims 24 and 25) have been amended to specify that the amount of component (d) water is "*at least 16 %wt and up to 50 %wt*". Basis for these amendments can be found on page 21, line 36 of the specification as filed.

Emulsion claim 23 has also been amended to specify that the solid cleansing composition formed by the emulsion "*is a solid throughout the range from 0°C to 40°C*". Basis for this amendment can be found in original claims 1 and 22 of the specification as filed.

The claim numbering has been corrected and current claim 24, previous claim 25, has been made dependent on claim 23.

Unity of invention

In the Search Report, the Examiner objected that emulsion claim 24 lacked unity with the independent claims 1, 23 and 25, due to the emulsion claim 24 not specifying that the solid cleansing composition formed by the emulsion is "*a solid throughout the range from 0°C to 40°C*", as stated in the other independent claims. As described above, amended emulsion claim 23 (previously claim 24) now includes this feature. Therefore the amended claims are considered to have unity of invention.

Novelty**Claims 1 and 21**

In the Examination Report, the Examiner appeared to consider previous claims 1 and 22 to lack novelty or an inventive step over the prior art document WO99/10467A1. The solid cleansing compositions of WO99/10467A1 appear to comprise 2.5 or 3 wt% water (see Examples 1-4). As discussed above, amended claims 1 and 21 require at least 5 wt% water in the solid cleansing composition. Therefore amended claims 1 and 21 are novel over WO99/10467A1 for at least this reason.

Furthermore, there does not appear to be a clear disclosure in WO99/10467A1 of a solid cleansing composition comprising both (b) a carrier and (c) an emulsifier, which are required in certain amounts by amended claims 1 and 21. Therefore amended claims 1 and 21 are novel over WO99/10467A1 for this reason also.

Claim 23

In the Examination Report, the Examiner appeared not to cite any documents against emulsion claim 24, now claim 23. Therefore we assume that amended claim 23, and the claims now dependent thereon, are considered to be novel and inventive. However, in order to further distinguish emulsion claim 23 from the prior art document WO99/10467A1, amended claim 23 specifies that component (d) water is present in an amount of “*at least 16 %wt and up to 50 %wt*”. The emulsions disclosed in WO99/10467A1 appear to contain significantly more water than this – around 70 wt% (see Example 1, page 10 of WO99/10467A1).

Therefore amended claim 23 is novel over WO99/10467A1.

Inventive step

The amended claims are also considered to involve an inventive step over WO99/10467A1. The present invention provides a solid cleansing composition, a method of forming such a solid cleansing composition and an emulsion for forming said solid cleansing composition which are improvements on current methods of producing “syndet” type personal cleansing bars.

WO99/10467A1 notes that current methods of producing syndet bars involve mixing the raw materials using high shear blending with a relatively small amount of water, but that this produces an inhomogeneous and therefore unsatisfactory composition. WO99/10467A1 attempts to solve the problems of syndet bar production by “*pre-processing a composition containing the synthetic detergent to produce a relatively finely divided powder*” (see page 1 of WO99/10467A1) and by apparently minimising the water content of the powder by spray drying at high temperature (see page 6, 2nd paragraph of WO99/10467A1) to produce the low water products of the Examples.

Increasing the water content of such compositions was previously thought to adversely affect the composition. The present inventors have surprisingly found that a higher water content composition can provide processing improvements, when the combination of carrier (b), emulsifier (c) and water (d) specified in the claims are used. This combination allows the production of a solid composition (such as a noodle) which can be easily worked into syndet bars using current soap-making techniques and equipment.

The skilled person reading WO99/10467A1, which teaches lower water contents and does not disclose the combination of carrier (b) and emulsifier (c) currently claimed, would not have been motivated to produce the solid cleansing composition, emulsion or method of the amended claims with the expectation of providing the processing and product benefits obtained by the present invention.

Therefore the amended claims involve an inventive step.

Final remarks

If any of these amendments delete any subject-matter from the application, the Applicant does not abandon such subject-matter unconditionally. The Applicant reserves the right to restore any deleted subject-matter to the application at a later date and/or to file a divisional application for that subject-matter.

We would welcome a telephone discussion with the Examiner, if that would help to move this application toward grant. Also, it seems appropriate to have at least one more round of written correspondence if any objections remain. However, we trust that this response has overcome all of the objections and look forward to receiving a notice of allowance at your earliest convenience.

Yours faithfully
For and on behalf of Appleyard Lees IP LLP

James Myatt

Enc: Amended claims (clean and tracked changes versions)
PF10



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Your Reference: P34076GB1/JWM
Application No: GB1813273.8

2 April 2020

Dear Sirs

Patents Act 1977: Examination Report under Section 18(3)

Latest date for reply:

2 June 2020

I enclose a copy of my examination report. Please note that published patent documents mentioned in my report may be obtained for free on the internet and are usually freely available from <http://worldwide.espacenet.com>.

By the above date you should either file amendments to meet the objections in the enclosed report or make observations on them. If you do not, the application may be refused. I will consider your response and will reply in a timescale consistent with our current target: <https://www.gov.uk/government/publications/timeliness-target-for-re-examination-of-patent-applications>

Online e-filing

You may file such amendments or observations electronically if you wish, using the online patent filing services detailed in <https://www.gov.uk/government/publications/how-to-file-documents-with-the-intellectual-property-office>.

Yours faithfully

Dr Peter Aspinall

Dr Peter Aspinall
Examiner

Use of E-mail: Please note that e-mail should be used for correspondence only.
Disclaimer: Please note the documents we send you may be subject to copyright.



Your ref : P34076GB1/JWM
Application No: GB1813273.8
Applicant : Thos. Bentley & Son Limited

Examiner : Dr Peter Aspinall
Tel : 01633 811233
Date of report : 2 April 2020

Latest date for reply: 2 June 2020

Page 1/2

Patents Act 1977 Examination Report under Section 18(3)

Plurality of invention

1. Your claims define two separate inventions not forming a single inventive concept.

Claims 21, and 22 for solid cleaning products and claims 23 and 24 for emulsions for the preparation thereof are considered to be broader claims than claim 1 which is a specific method. The broadest of the claims is considered to be claim 21, claim 22 falling in to the scope of this claim. Claim 24 also falls in to the scope of claim 21. Claim 23 however is an emulsion comprising at least 12 wt% of non-soap anionic surfactant and at least 8 wt% of a carrier, both of these values are lower than those of claim 21 and so cannot fall within its scope, similarly the value of at least 16 wt% of water present in claim 23 is larger than that of claim 21, and so claim 23 cannot be considered the broadest, claim 21 not falling in to the scope presented thereof.

As such the claims form 2 inventions,

Claim 21 along with claims 1-20, 22 and 24 form a first invention.

Claim 23 forms a second invention.

You will need to amend your claims, so that they relate to only one invention or inventive concept. You will also need to make consequential amendments to the description.

Top up Search

2. No topping up of the search has been conducted at this stage, final searching cannot be completed until 21 months after earliest date. Should the application be in order before this date further searching up to that date will be completed and may be finalised post-grant.

Clarity

3. Consequential amendments to the description to conform with any changes made to the claims by amendment should be undertaken.



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Your ref : P34076GB1/JWM
Application No : GB1813273.8

Date of report: 2 April 2020
Page 2 / 2

[Examination Report contd.]

The Comptroller
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South Wales
NP10 8QQ
United Kingdom

Filed electronically

Your Ref: 1813273.8
Our Ref: P34076GB1/JWM
Date: 07 April 2020

Dear Sirs

Patent Application: 1813273.8
Country: United Kingdom
Applicant: Thos. Bentley & Son Limited
Title: Improvements in relation to the manufacture of personal cleansing compositions

In response to your Examination Report under Section 18(3) of 2 April 2020, we have the following comments and enclose a replacement set of claims 1-23 (both in clean format and showing tracked changes) which we request take the place of the claims currently on file. We also enclose amended description pages 1-30 which we request replaces the description currently on file.

Amendments

Claim 23 has been amended to include the features of previous claim 24. Previous claim 24 has therefore been deleted.

The description has been amended to conform with the current amended claims.

Unity

In section 1 of the Examination Report, the Examiner objected that previous claim 23 was not in unity with the other claims and also noted that claim 24 was in unity with the other claims. Therefore, claim 23 has been amended to include the features of previous claim 24 and is now considered to have unity with the other claims, specifically claims 1 and 21.

Clarity

In section 3 of the Examination Report, the Examiner noted that amendments to the description should be made in order to conform with the amendments made to the claims. The enclosed amended description is considered to satisfy this requirement.

JWM / JWM

Novelty and inventive step

As there were no novelty or inventive step objections to the previous claims in the Examination Report, we assume that the current amended claims will be considered allowable and we look forward to receiving a Notice of Allowance at your earliest convenience.

Final remarks

If any of these amendments delete any subject-matter from the application, the Applicant does not abandon such subject-matter unconditionally. The Applicant reserves the right to restore any deleted subject-matter to the application at a later date and/or to file a divisional application for that subject-matter.

We would welcome a telephone discussion with the Examiner, if that would help to move this application toward grant. Also, it seems appropriate to have at least one more round of written correspondence if any objections remain.

Yours faithfully
For and on behalf of Appleyard Lees IP LLP

James Myatt

Enc: Amended claims 1-23 (clean and tracked changes versions)
Amended description pages 1-30 (clean and tracked changes versions)

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Filed electronically

Your Ref: 1813273.8
Our Ref: P34076GB1/JWM
Date: 21 October 2020

Dear Sirs

Patent Application: 1813273.8
Country: United Kingdom
Applicant: Thos. Bentley & Son Limited
Title: Improvements in relation to the manufacture of personal cleansing compositions

In response to your Intention to Grant under Section 18(4) of 30 September 2020, we request that the enclosed amended claims and amended description replace the claims and description currently on file and that the present application proceeds to grant with these replacement claims and description.

These amendments have been made by the Applicant in order to further distinguish the claims from the prior art on record, to focus the claims more closely on the Applicant's commercial products and to emphasise some further features of the solid cleansing compositions claimed.

Amendments

New dependent claims 4 and 5 have been added which refer to the physical forms of the solid cleansing composition formed by the method of claim 1. Basis for these new claims can be found on page 1, lines 5-7 and on page 4, lines 27-29 of the specification as filed.

Previous claims 6 and 7 and claims 9 and 10 have been combined.

Claim 13 has been amended to specify that when two or more emulsifiers are present, the HLB is a weighted average taking into account the individual HLB values and amounts of the two or more emulsifiers. Basis for this amendment can be found on page 13, lines 21-25 of the specification as filed.

Claims 21 and 23 have been amended to specify that the emulsifier component (c) is present in an amount of at least 3 wt%, rather than 1 or 2 wt% respectively. Basis for this amendment can be found on page 20, line 1 of the specification as filed.

JWM / JWM

New dependent claim 22 has the corresponding HLB features to new claim 13 and therefore has basis in the passage referred to above.

New dependent claim 24 specifies that the solid cleansing composition is in the form of noodles, pellets, flakes or powder, or has been consolidated into the form of a block, bar or tablet. Basis for this amendment can be found on page 4, lines 27-29 of the specification as filed.

The description has been amended to conform with the current amended claims.

As these amendments only further narrow the scope of the relevant claims and use features clearly disclosed in the specification as filed, we trust that the amended claims will be considered allowable for the same reasons as the previously allowed claims.

Final remarks

If any of these amendments delete any subject-matter from the application, the Applicant does not abandon such subject-matter unconditionally. The Applicant reserves the right to restore any deleted subject-matter to the application at a later date and/or to file a divisional application for that subject-matter.

If any of these amendments are considered to present a problem for the allowability of this application, we would welcome a telephone discussion with the Examiner, if that would help to move this application toward grant.

Yours faithfully
For and on behalf of Appleyard Lees IP LLP

James Myatt

Enc: Amended claims 1-25 (clean and tracked changes versions)
Amended description pages 1-30 (clean and tracked changes versions)



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E-Mail: kelly.sheppard@ipo.gov.uk
Switchboard: 0300 300 2000

Your Reference: P34076GB1/JWM
Application No: GB1813273.8

27 October 2020

Dear Sirs

Patents Act 1977: Voluntary amendments under Section 19(1)

Thank you for your letter of 21 October 2020 requesting amendment of your application. The examiner has no objection to the amendment so I will send the amended application to grant.

Yours faithfully

Kelly Sheppard

Kelly Sheppard
Examiner Assistant



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<http://www.gov.uk/ipo>

Your Reference: P34076GB1/JWM

17 November 2020

Dear Sir/Madam

PATENTS ACT 1977: PATENTS RULES 2007

NOTIFICATION OF GRANT: PATENT SERIAL NUMBER:GB2576336

1. I am pleased to tell you that your patent application number GB1813273.8 complies with the requirements of the Act and Rules, and that you are therefore granted a patent (for the purposes of Sections 1-23 of the Act) as from the date of this letter.

2. Grant of the patent is expected to be announced in the Patents Journal on 16 December 2020. In accordance with section 25(1), the patent will be treated for all later sections of the Act as having been granted and as taking effect on that date. The patent specification will be published on the same date, and you will receive the Certificate of Grant for your patent shortly afterwards. If you would also like a copy of your granted specification, this will be freely available from our website at www.ipo.gov.uk/p-find-publication.

3. **Renewing your patent** – IMPORTANT – To keep your patent in force, you must pay the Office an annual renewal fee:

- (i) To renew your patent visit: [**www.gov.uk/renew-patent**](http://www.gov.uk/renew-patent)
- (ii) Annual renewal fees are due once a patent has been granted. For most patents, the date on which the first renewal fee is due is the last day of the month in which the fourth anniversary of the filing date falls. Subsequent renewal fees will be due, each year, on the same due date. If you wish, you can pay a renewal fee in the 3-month period before each due date.
- (iii) Where the patent is granted later than three years and nine months after the filing date then the first renewal fee must be paid by the last day of the third month after the date

PB05

BPUB

of grant.

- (iv) Subsequent renewals will revert to being due on the last day of the month in which the anniversary of your filing date falls, as described in paragraph (iii) above. Please note: in certain circumstances, e.g. when a patent is granted later than four years and nine months after the filing date, you may be required to pay multiple years' renewal fees at the same time. If this applies then further information will be supplied with the Certificate of Grant.
- (v) If any renewal fee is not paid by the due date, a further six months is allowed in which to pay the fee, however additional fees will be payable one month after the due date.
- (vi) An example - For a patent filed on 17 October 2015, the first renewal fee would be due for payment on 31 October 2019. The fee could be paid in advance from 1 August 2019. Subsequent renewal fees would be due on 31 October annually. The first free month of the late payment period would end on 30 November 2019 and if no payment was received by 30 April 2020 the patent would cease with effect from 17 October 2019.

For further information about patent renewal fees visit www.gov.uk/renew-patent.

4. Accelerated processing in other Offices

If you have a pending application for the same invention which is still awaiting examination at another intellectual property office then you may be able to apply for accelerated prosecution of your application under the Patent Prosecution Highway. Further information can be found at www.gov.uk/patents-accelerated-processing.

5. Disputes over your patent

If you become involved in a dispute with someone else about the infringement or validity of your patent, then you may wish to consider using one of our dispute resolution services as a low cost alternative to Court. Further information is available at www.gov.uk/government/publications/patents-filing-proceeding-at-the-ipo or from our Information Centre on 0300 300 2000.

Yours faithfully

David Holdsworth

DAVID HOLDSWORTH

DEPUTY CHIEF EXECUTIVE AND DIRECTOR OF OPERATIONAL DELIVERY



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Your Reference: P34076GB1/JWM
Application No: GB1813273.8

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Yours faithfully

Kelly Sheppard

Kelly Sheppard
Examiner Assistant



THOS. BENTLEY & SON LIMITED
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Conmutador: 0300 300 2000

Su referencia: P34076GB1/JWM

Solicitud No: GB1813273.8

27 de octubre de 2020

Estimados Señores

**LEY DE PATENTES DE 1977: MODIFICACIONES VOLUNTARIAS BAJO SECCIÓN
19(1)**

Gracias por su carta de 21 de octubre de 2020 solicitando la modificación de su solicitud. El Examinador no tiene objeciones sobre las modificaciones por lo que enviaré la solicitud modificada para concesión.

Atentamente,

Kelly Sheppard

Asistente del Examinador



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Your Reference: P34076GB1/JWM

17 November 2020

Dear Sir/Madam

PATENTS ACT 1977: PATENTS RULES 2007

NOTIFICATION OF GRANT: PATENT SERIAL NUMBER:GB2576336

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of grant.

- (iv) Subsequent renewals will revert to being due on the last day of the month in which the anniversary of your filing date falls, as described in paragraph (iii) above. Please note: in certain circumstances, e.g. when a patent is granted later than four years and nine months after the filing date, you may be required to pay multiple years' renewal fees at the same time. If this applies then further information will be supplied with the Certificate of Grant.
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Yours faithfully

David Holdsworth

DAVID HOLDSWORTH

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<http://www.gov.uk/ipo>

Su referencia: P34076GB1/JWM

17 de noviembre de 2020

Estimado Señor(a)

LEY DE PATENTES DE 1977 REGLAMENTO DE PATENTES DE 2007

NOTIFICACIÓN DE CONCESIÓN: NÚMERO SERIAL DE PATENTE: GB2576336

1. Me complace comunicarle que su solicitud de patente número GB1813273.8 cumple con los requisitos de la Ley y el Reglamento, por lo que se le concede una patente (a efectos de los artículos 1-23 de la Ley) a partir de la fecha de esta última.

2. Se espera que la concesión de la patente se anuncie en el Diario de Patentes el 16 de diciembre de 2020. De acuerdo con el artículo 25(1), la patente se considerará, a efectos de todas las secciones posteriores de la Ley, como concedida y con efecto en esa fecha. La descripción de la patente se publicará en la misma fecha, y usted recibirá el Certificado de Concesión de su patente poco después. Si también desea una copia de la descripción concedida, esta estará disponible gratuitamente en nuestro sitio web en www.ipo.gov.uk/p-find-publication.

[...]

Atentamente,

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(54) Title of the Invention: Improvements in relation to the manufacture of personal
cleansing compositions

(51) INT CL: **C11D 17/06** (2006.01) **C11D 1/04** (2006.01) **C11D 1/12** (2006.01) **C11D 1/28** (2006.01)
C11D 1/34 (2006.01) **C11D 1/83** (2006.01) **C11D 11/00** (2006.01) **C11D 17/00** (2006.01)

(21) Application No: **1813273.8**

(22) Date of Filing: **14.08.2018**

(60) Parent of Application No(s)
2016716.9 under section 15(9) of the Patents Act 1977

(43) Date of A Publication **19.02.2020**

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(56) Documents Cited:
WO 1999/010467 A1

(58) Field of Search:
As for published application 2576336 A viz:
INT CL **C11D**
Other: **EPODOC, WPI, Patent Fulltext**
updated as appropriate

Additional Fields
Other: **None**

IMPROVEMENTS IN RELATION TO THE MANUFACTURE OF PERSONAL CLEANSING COMPOSITIONS

This invention relates to improvements in relation to the manufacture of personal cleansing compositions in solid form, for example in particulate form, for example as noodles, flakes, pellets or powders, or in consolidated form, for example in block, bar or tablet form. The invention further relates to the solid compositions produced by such manufacture, and to compositions used in such manufacture.

- 10 Soap (that is, fatty acid salts) is an inexpensive solid personal cleansing composition. The large scale manufacture of soap is efficient. However soap is not a product which is universally favoured by consumers. The pH of most soaps is about 9-10, whereas the natural pH of skin is about 5.5. Soap is an effective cleanser but is widely considered to be detrimental to skin. For this reason many consumers avoid soap and
15 instead use "cleansing bars" which contain no soap or only a low proportion of soap.

- Many cleansing bars (also called "detergent bars" or "syndet bars") contain an isethionate surfactant as a major component. However for reasons associated with the cost of ingredients, or for reasons associated with the manufacture, or both,
20 cleansing bars are typically significantly more expensive than soap bars.

- GB 783027 describes a detergent tablet which contains an alkali metal acyl isethionate and further components, which may include up to 25% of alkali metal soap. It is known in the art that care must be taken to avoid reaction between the
25 alkali metal acyl isethionate and the soap. It is stated in the examples that the ingredients are mixed to form a hot pasty mass which can then be milled and plodded. It may be inferred that the alkali metal acyl isethionate and the soap do not react in the hot pasty mass.

- 30 It is an object of embodiments of the invention to make a solid cleansing composition by a more efficient and less expensive method.

In accordance with a first aspect of the present invention there is provided a method of making a solid cleansing composition, the composition comprising:

- 35 (a) at least 15 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
(b) at least 10 %wt of a carrier having a melting point of at least 45°C;

- (c) at least 1 %wt of an emulsifier; and
- (d) at least 5 %wt water;

wherein the composition is a solid throughout the range from 0°C to 40°C;

and wherein the method comprises:

- 5 (i) preparing an emulsion containing the components (a) to (d), but with a greater mass of water present than in the solid cleaning composition, the temperature of the emulsion being at least 45°C,
- (ii) 10 (ii) subjecting the emulsion to cooling and solidification, wherein its water content is reduced during the cooling and solidification to produce the solid cleansing composition having components (a) to (d) in the amounts defined.

Suitably the solid cleansing composition produced by the method of the first aspect has a completely or predominantly homogeneous microstructure.

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Suitably the emulsion formed in step (i) and the solid cleansing composition do not contain soap. Suitably the emulsion formed in step (i) and the solid cleansing composition do not contain starch. Suitably the emulsion formed in step (i) and the solid cleansing composition do not contain soap or starch.

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In accordance with a second aspect of the present invention there is provided a solid cleansing composition which comprises:

- (a) at least 15 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
- 25 (b) at least 10 %wt of a carrier having a melting point of at least 45°C;
- (c) at least 3 %wt of an emulsifier; and
- (d) at least 5 %wt water;

wherein the composition is a solid throughout the range from 0°C to 40°C.

30 In accordance with a third aspect of the present invention there is provided a solid cleansing composition which comprises

- (a) at least 20 %wt and up to 60 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
- (b) at least 20 %wt and up to 60 %wt of a carrier having a melting point of at least 45°C;
- 35 (c) at least 3 %wt and up to 9 %wt of an emulsifier;
- (d) at least 5 %wt and up to 16 %wt of water;

and which preferably does not contain soap or starch;
wherein components (a) to (d) make up at least 70% and up to 100% of the weight of the solid cleansing composition;
wherein the composition is a solid throughout the range from 0°C to 40°C.

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Suitably the solid cleansing composition of the second aspect and of the third aspect has a completely or predominantly homogeneous microstructure.

In accordance with a fourth aspect of the present invention there is provided an emulsion for the preparation of a solid cleansing composition, the emulsion comprising

- (a) at least 20 %wt and up to 50 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
- (b) at least 20 %wt and up to 50 %wt of a carrier having a melting point of at least 45°C;
- (c) at least 2 %wt and up to 9 %wt of an emulsifier; and
- (d) at least 16 %wt water;

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wherein the emulsion is at a temperature of at least 45°C, and
wherein components (a) to (d) make up at least 70% and up to 100% of the weight of the emulsion.

20

The following further definitions apply to all aspects of the invention, whether they be to the method, to the solid cleansing composition or to the emulsion (or precursor composition); unless it should be stated otherwise or the context demands otherwise.

25

Suitably, in the first and fourth aspects the emulsion is at a temperature at which it is a free-flowing liquid.

In a preferred feature of the first or fourth aspect of the invention the non-soap anionic surfactant (a) has a melting point of at least 50°C, the carrier (b) has a melting point of at least 50°C, and the emulsion is at a temperature of at least 50°C, at which temperature the emulsion is a free-flowing liquid.

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In a preferred feature of the first or fourth aspect of the invention the non-soap anionic surfactant (a) has a melting point of at least 55°C, the carrier (b) has a melting point of at least 55°C, and the emulsion is at a temperature of at least 55°C, at which temperature the emulsion is a free-flowing liquid.

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In a preferred feature of the first or fourth aspect of the invention the non-soap anionic surfactant (a) has a melting point of at least 60°C, the carrier (b) has a melting point of at least 60°C, and the emulsion is at a temperature of at least 60°C, at which temperature the emulsion is a free-flowing liquid.

Suitably, in the method of the first aspect the emulsion is cooled and solidified to form particulates, for example noodles, pellets, flakes or powder or the like, which may be consolidated into a mass and separated into blocks, bars, tablets or the like.

Ultimately the product offered to consumers of cleansing bars may be a bar or tablet of conventional size, for example 50 – 200g; typically 80 – 130g. Alternatively the product could be provided in the form of noodles, pellets, particles, flakes, chips or the like from which a manufacturer may make such bars or tablets.

The particulates and the resulting solid consolidated mass are suitably homogeneous in their microstructure, not heterogeneous. In preferred embodiments there is no post-solidification addition of any components to the solid cleansing material; the entire process preferably occurs in the liquid phase.

Preferably in the method of the first aspect, and of the fourth aspect, the emulsion is at a temperature of at least 60°C, preferably at least 70°C, preferably at least 75°C, preferably at least 80°C, preferably at least 85°C.

Preferably in the method of the first aspect, and of the fourth aspect, the emulsion is at a temperature of up to 100°C, preferably up to 95°C, more preferably up to 90°C.

Preferably in the method of the first aspect, and of the fourth aspect, the emulsion is at a temperature in the range 80°C to 95°C, most preferably in the range 85°C to 90°C.

Preferably the non-soap anionic surfactant (a) is added to water (d) which is at a selected elevated temperature. The emulsifier (c) is preferably added at the same time as the surfactant (a) or subsequently; the carrier (b) is added to the water after the addition of the surfactant (a) and emulsifier (c). The addition to the water of the emulsifier before the carrier means that the emulsifier is present to immediately start

to emulsify the carrier, and preventing it from forming a film which otherwise could disrupt the process.

Other ingredients, if present, are preferably added whenever convenient. Frequently
5 it is suitable to add them to the water with the anionic surfactant, or before.

It is important in the method that the emulsion contains excess water, compared with the water content of the solid cleansing composition. The presence of excess water allows the temperature of the mass to be controlled. Water is typically lost from the
10 emulsion during the cooling and solidification. This may be carried out by using a spray dryer or any other method in which the emulsion is separated into droplets or pellets which are exposed to air and may rapidly lose heat, as they cool.

Preferably the mass of water used for the process of manufacture is at least 30%
15 higher than the mass of water present in solid cleansing composition; preferably at least 40% higher; preferably at least 50% higher; preferably at least 60% higher, and in some preferred embodiments at least 70% higher. In some especially preferred embodiments the mass of water is at least 100% higher than the mass of water in the solid cleansing composition, and may be at least 125% higher.

20 Preferably the mass of water used for the process of manufacture is not more than 300% higher than the mass of water present in the solid cleansing composition; preferably not more than 250% higher; preferably not more than 200% higher.

25 It should be noted that the above definitions compare the mass of water used in the process of manufacture – that is, the mass of water in the emulsion - with the mass of water present in the solid cleansing composition. They do not define the mass of water in the emulsion expressed in terms of total mass of components in the emulsion, nor the mass of water in the solid cleansing composition expressed in terms
30 of total mass of components in the solid cleansing composition. Such definitions are given later in this specification.

The manufacture of syndet bars by methods used up to this time has been slow, compared to manufacture of soap bars. This is one reason why syndet bars are
35 expensive, in comparison with soap bars. By virtue of the ingredients and process parameters used the method of the first aspect is essentially able to use the

equipment and techniques of conventional soap making, leading to significantly higher production rates that have been achieved before for syndet bars.

Suitably component (a) may comprise a sulfate, sulfonate, amphotoacetate, sulfoacetate, sulfosuccinate, phosphate or carboxylate non-soap anionic surfactant; selected in each case to have a melting point of at least 45°C.

Suitably component (a) may have a melting point of at least 50°C, preferably of at least 55°C, more preferably of at least 60°C. In some preferred embodiments component (a) has a melting point of at least 65°C.

Sulfate non-soap anionic surfactants may include ammonium lauryl sulfate, sodium lauryl sulfate (SLS), fatty alcohol sulfates, and alkyl-ether sulfates, for example sodium laureth sulfate (SLES), sodium myreth sulfate and polyoxyethylene fatty alcohol ether sulfates.

Sulfonate non-soap anionic surfactants may include alkyl sulfonates, alkylbenzene sulfonates, alkenyl sulfonates, alkyl succinate sulfonates, alkylphenol sulfonates perfluoroalkylsulfonates and acyl isethionates. A suitable alkyl succinate sulfonate is disodium laureth sulfosuccinate.

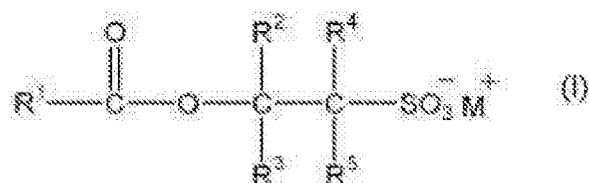
Amphotoacetates, sulfoacetates, and sulfosuccinates non-soap anionic surfactants may include sodium lauryl sulfoacetate and disodium laureth sulfosuccinate.

Phosphate non-soap anionic surfactants may include alkyl-aryl ether phosphates and alkyl ether phosphates.

Carboxylate non-soap anionic surfactants may include sarcosinates, for example sodium lauroyl sarcosinate, and carboxylate-based fluorosurfactants, for example perfluorononanoate and perfluorooctanoate (PFOA or PFO).

Preferred non-soap anionic surfactants (a) for use on this invention are acyl isethionates.

An acyl isethionate for use in this invention is suitably of formula



wherein R¹ is an alkyl or alkenyl group having from 8 to 24 carbon atoms;

5 R² is a hydrogen atom or an alkyl or alkenyl group having from 1 to 8 carbon atoms;

R³ is a hydrogen atom or an alkyl or alkenyl group having from 1 to 8 carbon atoms;

R⁴ is a hydrogen atom or an alkyl or alkenyl group having from 1 to 8 carbon atoms;

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R⁵ is a hydrogen atom or an alkyl or alkenyl group having from 1 to 8 carbon atoms;

and M⁺ is a cation.

15 Preferably M⁺ represents an optionally substituted ammonium cation or, most preferably, a metal cation. Suitable ammonium cations include NH₄⁺ and the ammonium cation of triethanolamine. Suitable metal cations include alkali metal cations, for example sodium, lithium and potassium cations, and alkaline earth metal cations, for example calcium and magnesium cations (it should be noted here that
20 when M⁺ represents an alkaline earth metal cation M⁺ has a double positive charge and the compound has two anions). Preferably M⁺ represents a potassium cation, or, especially, a sodium cation.

R¹ may be an alkyl group or an alkenyl group. Preferably R¹ is an alkyl group. In some
25 embodiments component (a) may comprise a surfactant derived from a mixture of fatty acids to form a mixture of compounds of formula (I) in which R¹ may be different.

R¹ is preferably the residue of a fatty acid. Fatty acids obtained from natural oils often include mixtures of fatty acids. For example the fatty acid obtained from coconut oil
30 contains a mixture of fatty acids including C12 lauric acid, C14 myristic acid, C16 palmitic acid, C8 caprylic acid, and C18 stearic and oleic.

R¹ may include the residue of one or more naturally occurring fatty acids and/or of one

or more synthetic fatty acids. In some preferred embodiments R^1 consists essentially of the residue of a single fatty acid.

Examples of carboxylic acids from which R^1 may be derived include coco acid, butyric acid, hexanoic acid, caproic acid, caprylic acid, capric acid, lauric acid, myristic acid, palmitic acid, palmitoleic acid, stearic acid, oleic acid, linoleic acid, arachidic acid, gadoleic acid, arachidonic acid, eicosapentanoic acid, behenic acid, erucic acid, docosahexanoic lignoceric acid, naturally occurring fatty acids such as those obtained from coconut oil, tallow, palm kernel oil, butterfat, palm oil, olive oil, corn oil, linseed oil, peanut oil, fish oil and rapeseed oil; synthetic fatty acids made as chains of a single length or a selected distribution of chain lengths; and mixtures thereof. Most preferably R^1 comprises the residue of lauric acid, that is a saturated fatty acid having 12 carbon atoms or the residue of mixed fatty acids derived from coconut oil, in which lauric acid chains predominate.

R^2 is preferably a hydrogen atom or an alkyl or alkenyl group having from 1 to 4 carbon atoms. Most preferably R^2 is a hydrogen atom.

R^3 is preferably a hydrogen atom or an alkyl or alkenyl group having from 1 to 4 carbon atoms. Most preferably R^3 is a hydrogen atom.

R^4 is preferably a hydrogen atom or an alkyl or alkenyl group having from 1 to 4 carbon atoms. Most preferably R^2 is a hydrogen atom.

R^6 is preferably a hydrogen atom or an alkyl or alkenyl group having from 1 to 4 carbon atoms. Most preferably R^2 is a hydrogen atom.

In some embodiments three of the entities R^2 , R^3 , R^4 and R^5 are hydrogen and only one is an alkyl or alkenyl group having from 1 to 8 carbon atoms. In such embodiments preferably R^3 , R^4 and R^5 are hydrogen and R^2 is the alkyl or alkenyl group.

However in especially preferred embodiments R^2 , R^3 , R^4 and R^5 are all hydrogen.

In some especially favoured embodiments component (a) comprises one or more or all of sodium lauroyl isethionate (SLI), sodium oleoyl isethionate and sodium cocoyl isethionate (SCI), which is closely related to but not identical to SLI.

Most preferably the component (a) of the composition of the present invention comprises or consists of sodium cocoyl isethionate and/or sodium lauroyl isethionate.

- 5 An acyl isethionate may serve as the only constituent of component (a). However in some acceptable embodiments component (a) may comprise an acyl isethionate in admixture with one or more further non-soap anionic surfactants, for example any of those defined above. In such admixture embodiments acyl isethionate(s) suitably constitute(s) at least 50 %wt of, and preferably at least 65 %wt, of component (a).

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Suitably the non-soap anionic surfactant constitutes at least 20 %wt of the solid cleansing composition.

Suitably in some embodiments the non-soap anionic surfactant constitutes at least

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24 %wt of the solid cleansing composition.

Suitably in some embodiments the non-soap anionic surfactant constitutes at least 28 %wt of the solid cleansing composition.

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Suitably in some embodiments the non-soap anionic surfactant constitutes at least 32 %wt of the solid cleansing composition.

Suitably in some embodiments the non-soap anionic surfactant constitutes at least 35 %wt of the solid cleansing composition.

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Suitably in some embodiments the non-soap anionic surfactant constitutes up to 60 %wt of the solid cleansing composition.

Suitably the non-soap anionic surfactant constitutes up to 55 %wt of the solid cleansing composition.

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Suitably the non-soap anionic surfactant constitutes up to 50 %wt of the solid cleansing composition.

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Suitably in some embodiments the non-soap anionic surfactant constitutes up to 45 %wt of the solid cleansing composition.

Suitably in some embodiments the non-soap anionic surfactant constitutes at least 22 %wt of the emulsion.

5 Suitably in some embodiments the non-soap anionic surfactant constitutes at least 24 %wt of the emulsion.

Suitably in some embodiments the non-soap anionic surfactant constitutes at least 26 %wt of the emulsion.

10 Suitably in some embodiments the non-soap anionic surfactant constitutes up to 50 %wt of the emulsion.

Suitably the non-soap anionic surfactant constitutes up to 40 %wt of the emulsion.

15 Suitably the non-soap anionic surfactant constitutes up to 36 %wt of the emulsion.

Suitably in some embodiments the non-soap anionic surfactant constitutes up to 32 %wt of the emulsion.

20 Suitably component (b) may have a melting point of at least 50°C, preferably of at least 55°C, more preferably of at least 60°C. In some preferred embodiments component (b) may have a melting point of at least 65°C.

25 Suitably the carrier, component (b), is selected from a triglyceride, a fatty acid, a fatty alcohol or a wax (including a mixture of any of these components).

Suitably the carrier, component (b), may be beeswax, or may be a triglyceride, fatty acid, fatty alcohol or a wax of vegetal origin.

30 Preferably component (b) is a triglyceride whose fatty acid chains are residues of a C₈ fatty acid, or of higher fatty acids. Preferably they are residues of C₈-C₃₂ fatty acids, preferably of C₁₀-C₂₄ fatty acids, preferably of C₁₂-C₂₀ fatty acids and most preferably of C₁₂₋₁₆ fatty acids.

35 Preferably component (b) is a saturated triglyceride. Preferably substantially all fatty acid chains in the triglyceride are saturated. Preferably it is a hydrogenated triglyceride.

Suitably component (b) comprises at least one of hydrogenated rapeseed oil, hydrogenated soybean oil, hydrogenated sunflower oil, hydrogenated palm oil, hydrogenated castor oil, hydrogenated safflower oil and hydrogenated peanut oil.

- 5 Such oils may be employed singly or in admixture of two, three, four or more or all of these hydrogenated oils. Suitably these oils (summed if more than one is used) make up at least 50 %wt, preferably at least 60 %wt, preferably at least 70 %wt, preferably at least 80 %wt, preferably at least 90 %wt, and preferably 100 %wt, of the carrier, component (b).

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Suitable carriers also include fatty acids, suitably C_8 fatty acid, or higher fatty acids; for example C_8 - C_{32} fatty acids, preferably C_{10} - C_{24} fatty acids, preferably C_{12} - C_{20} fatty acids and most preferably C_{12} - C_{16} fatty acids.

- 15 Suitable carriers also include fatty alcohols, suitably C_{16} fatty alcohol, or higher fatty alcohol; for example C_8 - C_{32} fatty alcohols, preferably C_{10} - C_{24} fatty alcohols, preferably C_{12} - C_{20} fatty alcohols and most preferably C_{16} - C_{18} fatty alcohols.

- 20 A fatty acid or fatty alcohol residue C_{xx} herein denotes a fatty acid or fatty alcohol residue in which C_{xx} represents the mean of the residues or in which residues C_{xx} constitute more than half the weight of total fatty acid or fatty alcohol residues. If either of these definitions is satisfied the definitions given herein apply.

- 25 Suitable waxes include waxes of vegetal origin, for example carnauba wax, and beeswax.

Suitably the carrier, component (b), constitutes at least 15 %wt of the solid cleansing composition.

- 30 Suitably in some embodiments the carrier constitutes at least 20 %wt of the solid cleansing composition.

Suitably in some embodiments the carrier constitutes at least 25 %wt of the solid cleansing composition.

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Suitably in some embodiments the carrier constitutes at least 30 %wt of the solid cleansing composition.

Suitably the carrier constitutes up to 50 %wt of the solid cleansing composition.

Suitably the carrier constitutes up to 45 %wt of the solid cleansing composition.

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Suitably the carrier constitutes up to 40 %wt of the solid cleansing composition.

Suitably in some embodiments the carrier constitutes at least 24 %wt of the emulsion.

10 Suitably the carrier constitutes up to 45 %wt of the emulsion.

Suitably the carrier constitutes up to 40 %wt of the emulsion.

Suitably the carrier constitutes up to 36 %wt of the emulsion.

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Suitably the carrier constitutes up to 32 %wt of the emulsion.

Suitably the %wt of the non-soap anionic surfactant (a) exceeds the %wt of the carrier (b) in the solid cleansing composition.

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Suitably the emulsifier, component (c), has an HLB value of at least 6, preferably at least 7, and most preferably at least 8.

Suitably the emulsifier has an HLB value of up to 12, preferably up to 11, and most preferably up to 10.

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Thus a suitable range for the emulsifier is from 6 to 12, and a preferred range is from 8 to 10.

30 The desired HLB value may be that of a single emulsifier or may be achieved by selection of two or more emulsifiers which in combination – calculated as a weighted average taking into account their individual HLB values and their amounts in the blend - achieve the desired HLB value, within the preferred range 6 to 12 or 8 to 10. Thus, a weighted average for emulsifiers A¹, A², A³..... can be calculated using the equation:

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$$\frac{(\text{mass of A}^1 \times \text{HLB of A}^1) + (\text{mass of A}^2 \times \text{HLB of A}^2) + (\text{mass of A}^3 \times \text{HLB of A}^3) + \dots}{\text{mass of A}^1 + \text{mass of A}^2 + \text{mass of A}^3 + \dots}$$

Suitable emulsifiers (c) include sorbitan fatty acid esters and ethoxylated sorbitan fatty acid esters. Suitable sorbitan fatty acid esters, non-ethoxylated, include sorbitan monolaurate, sorbitan monooleate, sorbitan monopalmitate, sorbitan monostearate and sorbitan tristearate. Suitable ethoxylated sorbitan fatty acid esters include polyoxyethylene sorbitan monolaurate, polyoxyethylenesorbitan monooleate, polyoxyethylene sorbitan monopalmitate, polyoxyethylene sorbitan monostearate and polyoxyethylene sorbitan tristearate.

- 10 Suitable emulsifiers (c) include glycerol esters of fatty acids; that is, esters of fatty acids and glycerol or polyglycerol. A very wide range of suitable glycerol esters may be made by reaction of glycerol or polyglycerol and $C_6 - C_{36}$ fatty acids, for example $C_{12} - C_{24}$ fatty acids. The fatty acids may be supplied to the esterification reaction as fatty acids or as precursor ester compounds, for example triglycerides. Examples
- 15 suitable for use in this invention include glycerol monostearate, glycerol monooleate, glycerol palmitate and glycerol monolaurate.

It has been found useful to employ a blend of a glycerol ester of a fatty acid and a sorbitan fatty acid ester or a polyethoxylated sorbitan fatty acid ester, in order to

20 achieve (as a weighted average) an HLB value as defined above for the emulsifier (c).

We have found that one particular sub-class of glycerol esters, described below, is especially beneficial in the present invention.

- 25 In such embodiments of the invention the emulsifier, component (c), may be the esterification reaction product of A) a triglyceride, or a fatty acid, or a methyl ester of a fatty acid (or any combination thereof) and B) a polyhydric alcohol which comprises B1) a polyglycerol having at least 3 glycerol units, and B2) glycerol and / or diglycerol.

- 30 Preferably the triglyceride A) is an oil (being a liquid at ambient temperature of 18°C) of plant origin. Preferably it is a naturally-occurring oil, or fat, whose structure has not been chemically modified prior to the esterification reaction.

- Batches of triglycerides may vary in their average molecular weight and in their
- 35 distribution of components but the values stated in this specification define typical situations.

The triglyceride, or the parent triglyceride of the fatty acid or methyl ester of a fatty acid, may be from a single triglyceride source, for example a single named oil or fat, or from a plurality of triglyceride sources, blended.

- 5 The fatty acid moieties of the triglyceride, or of the fatty acid or of the methyl ester of a fatty acid, each have an R-CO- moiety, where R represents a hydrocarbyl moiety. Preferably there are at least 6 carbon atoms in the R-CO- moiety, preferably at least 8 carbon atoms; preferably at least 10 carbon atoms; most preferably at least 12 carbon atoms. Preferably there are up to 36 carbon atoms in the R-CO- moiety, preferably up to 28 carbon atoms, preferably up to 24 carbon atoms, more preferably up to 20 carbon atoms.

Suitably fats or oils for use in the esterification reaction may be selected from one or more of the following: almond oil, babassu oil, borage oil, canola oil, cocoa butter, coconut oil, corn oil (maize oil), cottonseed oil, flaxseed oil, grape seed oil, hazelnut oil, illipe, oat oil, olive oil, palm oil, palm olein, palm kernel oil, peanut oil, rapeseed oil, safflower oil, sesame oil, shea nut, soybean oil, tucum oil, sunflower oil, walnut oil, apricot oil, sweet almond oil, avocado oil, baobab oil, blueberry seed oil, calendula oil, camellia oil, cherry kernel oil, cranberry seed oil, hemp oil, jojoba oil, kukur nut oil, macadamia nut oil, manketti oil, melon seed oil, moringe oil, peach kernel oil, pistachio oil, raspberry seed oil, rice bran oil, rosehip oil, soya oil, wheatgerm oil, yangu oil; and their hydrogenated derivatives. A blend of oils or fats may be employed.

- 25 Fatty acids or methyl esters of fatty acids, which may be used in the esterification reaction, may include fatty acids or methyl esters derived from any of the fats or oils described above.

Fatty acids which may be used in the esterification reaction, or which may be regarded as 'delivered' to the esterification reaction by a fat or oil, may be selected from one or more of the following: caproic acid, caprylic acid, capric acid, lauric acid, myristic acid, palmitic acid, palmitoleic acid, stearic acid, oleic acid, ricinoleic acid, vaccenic acid, linoleic acid, alpha-linolenic acid (ALA), gamma-linolenic acid (GLA), arachidic acid, gadoleic acid, arachidonic acid (AA), EPA (5,8,11,14,17-eicosapentaenoic acid), behenic acid, erucic acid, DHA (4,7,10,13,16,19-docosahexaenoic acid), and lignoceric acid; and methyl esters of such acids. A blend of fatty acids and / or fatty acid methyl esters may be employed.

Especially preferred acids include caproic acid, caprylic acid, capric acid, lauric acid, myristic acid, palmitic acid, stearic acid, linoleic acid, alpha-linolenic acid (ALA) – and gamma-linoleic acid (GLA). Especially preferred methyl esters may be methyl esters of such fatty acids. Oils or fats which yield such fatty acids are preferred oils or fats. Especially preferred oils are flax seed (flax) oil (which can yield alpha-linolenic acid, ALA), borage seed (borage) oil (which can yield gamma-linolenic acid, GLA) and palm kernel oil (which can yield palmitic acid).

The fatty acid moieties, whether as free acids or methyl esters thereof or as components of a triglyceride, may be saturated or unsaturated. If unsaturated they may suitably have from 1 to 6 double bonds, preferably 1 to 3 double bonds. The fatty acids or methyl esters or parent oils or fats may have been hydrogenated.

In one embodiment the fatty acid moieties, whether free acids or methyl esters thereof or as a component of a triglyceride, are saturated fatty acid moieties having an average molecular weight of less than 282 g/mol, preferably less than 260 g/mol, preferably less than 240 g/mol.

In one embodiment the fatty acid moieties, whether free acids or methyl esters thereof or as a component of a triglyceride, are unsaturated fatty acid moieties having an average molecular weight of less than 320 g/mol, preferably less than 300 g/mol.

Batches of polyglycerols may vary in their average molecular weight and in their distribution of components but the values stated in this specification define typical situations or typical average values.

Preferably the polyglycerol component B1) comprises polyglycerol-4.

Polyglycerol-4 is a commercially available product sold under that name. Polyglycerol-4 is a distribution of a polyglycerol compounds in which the average molecular weight of the polyglycerol is centred on polyglycerol-4.

Preferably the polyglycerol component B1) constitutes at least 50 %wt of polyglycerol compounds composed of 3 to 6 glycerol units, preferably at least 60 %wt, preferably at least 70 %wt, most preferably at least 85 %wt.

Preferably the polyglycerol component B1) constitutes at least 20 %wt of the compound tetraglycerol, preferably at least 25 %wt.

Triglycerol may also be a significant component, even when the average molecular weight of the polyglycerol is centred on polyglycerol-4. Preferably the polyglycerol component B1) constitutes at least 20 %wt of the compound triglycerol, preferably at least 25 %wt.

Preferably the compound tetraglycerol is present in the polyglycerol component B1) in a higher amount by weight than the compound pentaglycerol.

In some embodiments, the compound tetraglycerol may be the single compound present in the largest proportion by weight in the polyglycerol component B1).

In commercial sources of polyglycerol-4, which may be used in the present invention as a preferred component B1), the proportions by weight of compounds is typically as follows:

triglycerol, 20-50 %wt

tetraglycerol, 20-50 %wt

higher polyglycerols, 15-40 %wt in total

other compounds, not more than 20 %wt, typically less than 12 %wt.

Higher polyglycerols herein means polyglycerol compounds formed of 5 or more glycerol units.

The other compounds may include water and diglycerol. Small amounts of glycerol may sometimes be present.

When glycerol and/or diglycerol is/are present in the polyglycerol source they may supply some or all of the component B2). However the amount of glycerol and diglycerol in a polyglycerol source is generally low. Therefore, in such embodiments, it is generally required to supply glycerol and/or diglycerol to reach the desired amount. This may be done by simple addition of glycerol and/or diglycerol. When a triglyceride is used it may occur by the liberation of glycerol in the esterification reaction.

Preferably the average molecular weight of the polyglycerols in component B1), having at least 3 glycerol units, is in the range 220-500 g/mol, preferably 230-450 g/mol, preferably 240-420 g/mol, preferably 250-400 g/mol, preferably, preferably 260-370 g/mol, 280-350 g/mol, most preferably 300-330 g/mol.

5

Preferably glycerol constitutes at least 60 %wt of the component B2), preferably at least 70 %wt, preferably at least 80 %wt.

Preferably the ratio by weight of the component B2) to component B1) is one part B2) to at least 4 parts B1), preferably one part B2) to at least 6 parts B1), and most preferably at least one part B2) to at least 8 parts B1).

10

Preferably the ratio by weight of the component B2) to component B1) is one part B2) to up to 24 parts B1), preferably one part B2) to up to 20 parts B1), and most preferably one part B2) to up to 16 parts B1).

15

Preferably the components B1) and B2) make up at least 50 %wt of the functional fluid, preferably at least 60 %wt, preferably at least 70 %wt, preferably at least 80 %wt, preferably at least 90 %wt.

20

When a triglyceride A) is employed to make component (c) the reaction may be regarded as an interesterification reaction. As noted above glycerol liberated in the reaction may provide some or all of component B2). Preferably it provides all of the glycerol comprised by component B2). Glycerol could be removed or added.

25

Preferably, no glycerol is removed. Preferably, when a triglyceride is used, no glycerol is added.

When a fatty acid or fatty acid methyl ester is used for the esterification reaction to make component (c), component B2) is added to the reaction mixture, suitably in such an amount as to satisfy at least one of the B1) : B2) definitions given above.

30

When a triglyceride is used, preferably the molar ratio of the polyglycerol to the triglyceride in the reaction mixture, based on average molecular weights, is 0.5 – 5 to 1, preferably 1 – 4 to 1, preferably 1.5 – 3 to 1, most preferably 2 – 2.5 to 1. Average molecular weight may be determined by normal measures. In the case of the triglyceride this may be from GC results. In the case of polyglycerol the raw material specifications may be used.

35

When a fatty acid or derivative is used, the molar ratio of the polyglycerol to the fatty acid in the reaction mixture, based on average molecular weights, is 0.2 – 3 to 1, preferably 0.3 – 2 to 1, preferably 0.5 – 1.5 to 1, most preferably 0.7 – 1.3 to 1.

5

“Esterification” herein includes transesterification or interesterification.

Standard esterification conditions may be used for the manufacture of the glycerol ester emulsifier. Suitably reactions which employ triglycerides are carried out under alkaline conditions (e.g. by addition of sodium hydroxide or potassium hydroxide) and at elevated temperature, for example at least 150°C, preferably 200-250°C. Suitably reactions which employ fatty acids added to the reaction mixture are carried out under acidic conditions (e.g. by addition of sulphonic acid or orthophosphoric acid) and at elevated temperature, for example at least 150°C, preferably 200-250°C.

15

Preferably the process is a one-pot process, even when it employs a triglyceride.

Preferably the emulsifier is the product of the esterification reaction, without work up (other than neutralisation of any catalyst present). Preferably it is a liquid at ambient temperature of 18°C.

20

Preferably the emulsifier comprises a plurality of esters, formed from the range of triglycerides present in oil or fat (or from the range of fatty or methyl esters obtained from such triglycerides), and the range of polyglycerol compounds present in an as-supplied “polyglycerol” source. The emulsifier may comprise many esters, for example over 20 ester compounds, or over 50 ester compounds, or over 100 ester compounds. Suitably the emulsifier comprises monoglycerol fatty acid esters, triglycerol fatty acid esters and tetraglycerol fatty acid esters, suitably according to the amounts of the different glycerol and polyglycerol components used in the esterification reaction.

25
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By use of the methods described herein, emulsifiers having an HLB value in the ranges stated above, or able to provide a weighted average HLB value when mixed with other emulsifiers, may be made and are found to be suitably for use in the present invention.

35

Suitably the emulsion is an oil-in-water emulsion.

The emulsion may be prepared according to the methods disclosed in WO2014170641.

5 Suitably the emulsifier constitutes at least 4 %wt of the solid cleansing composition.

Suitably the emulsifier constitutes at least 5 %wt of the solid cleansing composition.

Suitably the emulsifier constitutes at least 6 %wt of the solid cleansing composition.

10

The emulsifier may in some embodiments constitute up to 9 %wt of the solid cleansing composition.

15 The emulsifier may in some embodiments constitute up to 8 %wt of the solid cleansing composition.

The emulsifier may in some embodiments constitute up to 7 %wt of the solid cleansing composition.

20 The emulsifier may in some embodiments constitute up to 6 %wt of the solid cleansing composition.

Suitably the emulsifier, component (c), constitutes at least 2 %wt of the emulsion.

25 Suitably the emulsifier, component (c), constitutes at least 3 %wt of the emulsion.

Suitably the emulsifier constitutes at least 4 %wt of the emulsion.

Suitably the emulsifier constitutes at least 5 %wt of the emulsion.

30

Suitably in some embodiments the emulsifier constitutes at least 6 %wt of the emulsion.

In some embodiments the emulsifier constitutes up to 9 %wt of the emulsion.

35

In some embodiments the emulsifier constitutes up to 8 %wt of the emulsion.

In some embodiments the emulsifier constitutes up to 7 %wt of the emulsion.

In some embodiments the emulsifier constitutes up to 6 %wt of the emulsion.

5 Suitably the emulsifier constitutes up to 5 %wt of the emulsion.

Water, component (d), constitutes at least 5 %wt of the solid cleansing composition.

Suitably water constitutes at least 6 %wt of the solid cleansing composition.

10

Suitably water constitutes at least 7 %wt of the solid cleansing composition.

Suitably water constitutes at least 8 %wt of the solid cleansing composition.

15 Suitably water constitutes at least 9 %wt of the solid cleansing composition.

Suitably water constitutes up to 16 %wt of the solid cleansing composition.

Suitably water constitutes up to 14 %wt of the solid cleansing composition.

20

Suitably water constitutes up to 12 %wt of the solid cleansing composition.

Suitably water constitutes up to 11 %wt of the solid cleansing composition.

25 Suitably water constitutes up to 10 %wt of the solid cleansing composition.

Suitably water, component (d), constitutes at least 12 %wt of the emulsion.

Suitably water constitutes at least 16 %wt of the emulsion.

30

Suitably water constitutes at least 20 %wt of the emulsion.

Suitably water constitutes at least 22 %wt of the emulsion.

35 Suitably water constitutes at least 24 %wt of the emulsion.

Suitably water constitutes up to 50 %wt of the emulsion.

Suitably water constitutes up to 40 %wt of the emulsion.

Suitably water constitutes up to 36 %wt of the emulsion.

5

Suitably water constitutes up to 32 %wt of the emulsion.

Suitably water constitutes up to 30 %wt of the emulsion.

10 Further components

Optional further components may include (without limitation) polyhydric alcohols, chelants, fatty alcohols and amphoteric surfactants. Further components may offer manufacturing benefits, for example foam control during manufacture, and/or end product user benefits, for example foam control during washing, or emolliency. Further components may preferably be present in total in an amount of up to 30 %wt of the solid cleansing composition.

Suitable polyhydric alcohols include C₂-C₄ alcohols, especially glycols and glycerols, for example monopropylene glycol and glycerine. Polyhydric alcohols, when present, may suitably be present in total in an amount of up to 15 %wt of the solid cleansing composition, preferably up to 10 %wt.

Suitable chelants include DTPA (diethylenetriaminepentaacetic acid), HEDP (hydroxyethylidene diphosphonic acid), NTA (nitrilotriacetic acid), EDTA (ethylenediaminetetraacetic acid), EDDS (ethylenediamine-N,N'-disuccinic acid), GLDA (N,N-dicarboxymethyl glutamic acid tetrasodium salt) and PDTA (propylenedinitrilotetraacetic acid); and chelants which are analogues of any of the foregoing. Chelants, when present, may suitably be present in total in an amount of up to 0.5 %wt of the solid cleansing composition, preferably up to 0.2 %wt.

Amphoteric surfactants include betaines, for example cocamidopropyl betaine (CAPB). Amphoteric surfactants, when present, may suitably be present in total in an amount of up to 10 %wt of the solid cleansing composition, preferably up to 6 %wt.

Preferably a solid cleansing composition of the present invention does not contain any soap (salt of a fatty acid).

5 Preferably a solid cleansing composition of the present invention does not contain any starch.

The pH of the solid cleansing composition of the present invention (measured at 5 wt% dilution into water) is preferably less than 8, more preferably less than 7, more preferably less than 6.5. Suitably the pH (20%) of the solid cleansing composition is
10 greater than 4, and preferably greater than 5, and preferably greater than 5.5.

In a preferred method of the first aspect the solid composition comprises:

- (a) at least 20 %wt and up to 60 %wt, preferably at least 30 %wt and up to 50 %wt, of a non-soap anionic surfactant having a melting point of at least 45°C;
- 15 (b) at least 20 %wt and up to 60 %wt, preferably at least 30 %wt and up to 50 %wt, of a carrier having a melting point of at least 60°C;
- (c) at least 2 %wt and up to 9 %wt, preferably at least 3 %wt and up to 8 %wt, of an emulsifier;
- (d) at least 5 %wt and up to 16 %wt, preferably at least 8 %wt and up to 12 %wt,
20 of water;

and preferably does not contain soap or starch;

wherein components (a) to (d) make up at least 70 % and up to 100 % of the weight of the solid cleansing composition. Any further components, when present, are preferably selected from the further components described above.

25

In a further preferred method of the first aspect the solid cleansing composition comprises:

- (a) at least 30 %wt and up to 55 %wt, of a non-soap anionic surfactant having a melting point of at least 50°C;
- 30 (b) at least 20 %wt and up to 40 %wt, of a triglyceride having a melting point of at least 60°C;
- (c) at least 5 %wt and up to 9 %wt of an emulsifier;
- (d) at least 8 %wt and up to 12 %wt of water;

and preferably does not contain soap or starch;

35 wherein components (a) to (d) make up 80 – 100% of the weight of the solid cleansing composition. Any further components, when present, may suitably be selected from the further components described above.

The solid cleansing composition of the first aspect is a solid throughout the range from 0 to 40°C. Preferably it is homogenous; no particulates can be seen when a cut surface is examined under an optically microscope at 100x magnification. The homogenous nature is the result of a molten process for the preparation of the solid cleansing composition.

A solid cleansing composition in bar form, having ingredients as defined above in amounts as defined above, is manufactured by preparing an emulsion of the ingredients, in which the amount of water is higher than in the final solid cleansing composition, cooling and drying it and solidifying it to form a particulate mass, consolidating the particulate mass into a monolithic mass, and separating the monolithic mass into bars.

It will be understood by the skilled reader that components of the compositions of the invention – notably components (a) and (b) – may be derived from natural sources and may contain a distribution of molecules about a mean carbon value. Such components are expected to melt over a temperature range, rather than have a sharp melting point. The melting point definitions defined in this specification refer to the temperatures at which a material is completely melted. The method described in the paper *Determination of melting point of vegetable oils and fats by differential scanning calorimetry (DSC) technique* by Renata Tieko Nassu and Lireny Aparecida Guaraldo Gonçalves, in the *Grasas y Aceites* Vol. 50. Fase. 1 (1999), 16-22 may be consulted. DSC as described in this paper can be used to determine when a material is completely in the liquid state.

Throughout this specification “% wt” means percentage by weight of the composition which is then being defined.

The invention will now be further described by way of illustration with reference to the following examples.

Example 1

The following ingredients were added in the amounts stated in the second column and remained in the final product in the amounts stated in the third column. Addition of the ingredients was in the order stated, starting with water.

Ingredient	As added %wt	Final product %wt
Water	25.0	9.5
PUREACT I-78	36.1	43.4
Glycerine	3.6	4.3
DISSOLVINE GL 47S	0.2	0.12
DUROSOFT PK-SG (emulsifier)	6.9	8.4
Hydrogenated sunflower oil	28.2	34.3

DISSOLVINE GL 47S is a Trade Mark of Akzo Nobel of the Netherlands. It is a chelating agent, tetrasodium N, N-bis(carboxylatomethyl)-L-glutamate (GLDA).

5

PUREACT I-78 is a Trade Mark of Innospec Performance Chemicals, of Ellesmere Port, UK. Its major component is sodium cocoyl isethionate (SCI), 83-89 %wt; generally also having <1 %wt water, <14 %wt coconut fatty acid and 4-7 %wt sodium isethionate.

10

DUROSOFT PK-SG is a Trade Mark of Stephenson Group Limited of Leeds, UK. It is an ester of palm kernel oil and polyglycerol-4 (average Mw = 250). DUROSOFT PK-SG has an HLB value of 8.8. A preparation of this product is given in WO2014170641.

15

The sodium cocoyl isethionate (SCI) and the hydrogenated sunflower oil were melted and added to the water, which was at 90°C. The other ingredients were added in turn (the hydrogenated sunflower oil last) and the mass was worked for about 5 hours, whilst still molten. The emulsion, a readily flowable liquid, was then pumped twice through a needle plate having a 0.5 mm mesh and allowed to solidify as particles. During this phase of the processing, water was lost by evaporation and the water content was thereby reduced to approximately 9.5 %wt on weight of the resulting solid cleansing composition. The particles were allowed to cool before being passed to a proprietary plodder. A typical plodder is the Duplex Model M400-2/M400-4 plodder manufactured by Mazzoni S.P.A. of Busto Arsizio, Italy. During plodding the temperature of the solid cleansing composition was maintained between 38°C and 42°C. The billet produced by plodding, still at 38 - 42°C, was stamped into bars on chilled dies.

20

25

The pH of the solid cleansing composition was 6 - 7 at 5% dilution, as measured by a commercial pH meter.

The resulting products were of high quality, perfectly suitable for use.

5

Example 2

The following ingredients were added in the amounts stated in the second column and remained in the final product in the amounts stated in the third column. Addition of the ingredients was in the order stated, starting with water and the process parameters described for Example 1 were applied.

10

Ingredient	As added %wt	Final product %wt
Water	29.5	10
Glycerine	3.2	4.1
Pentesodium pentatate (pentasodium DTPA - chelant)	0.05	0.06
DEQUEST 2016 (1-Hydroxyl ethylidene -1,1,-diphosphonic acid / HEDP - chelant)	0.05	0.06
PUREACT I-78	36.0	45.9
DUROSOFT PK-SG (emulsifier)	3.2	4.1
Hydrogenated sunflower oil	28.0	35.7

DEQUEST is a Trade Mark of Italmatch Chemicals S.P.A. of Genova, Italy.

15

Preparation of cleansing tablets was as described in Example 1.

The pH of the solid cleansing composition was 6 - 7 at 5% dilution, as measured by a commercial pH meter.

20

Example 3

The following ingredients were added in the amounts stated in the second column and remained in the final product in the amounts stated in the third column. Addition of the ingredients was in the order stated, starting with water.

25

Ingredient	As added %wt	Final product %wt
Water	23.5	10
Glycerine	3.5	4.1
Stearic acid	4.3	5.1
PUREACT I-78	43.5	51.1
DUROSOFT PK-SG (emulsifier)	2.6	3.1
Cocamidopropyl betaine (CAPB)	4.3	5.1
Glyceryl monostearate (GMS)	4.3	5.1
Hydrogenated sunflower oil	13.9	16.4

Preparation of cleansing tablets was as described in Example 1.

- 5 The pH of the cleansing composition was 6 - 7 at 5% dilution, as measured by a commercial pH meter.

The resulting tablets were quite soft but still suitable for use.

10 Example 4

The following ingredients were added in the amounts stated in the second column and remained in the final product in the amounts stated in the third column. Addition of the ingredients was in the order stated, starting with water.

15

Ingredient	As added %wt	Final product %wt
Water	15.6	10
Glycerine	2.6	2.8
Monopropylene glycol (MPG)	6.1	6.5
PUREACT I-78	34.8	37.1
Disodium lauryl sulphosuccinate (DSLSS)	7.0	7.4
DUROSOFT PK-SG (emulsifier)	3.5	3.7
Hydrogenated sunflower oil	30.4	32.5

Preparation of cleansing tablets was as described in Example 1.

The pH of the cleansing composition was 6 - 7 at 5% dilution, as measured by a commercial pH meter.

- 5 The resulting tablets were slightly too uneven in their dissolution to be regarded as optimal ("somewhat "gritty", in the terminology used in the art) but were still suitable for use.

Example 5

- 10 The following ingredients were added in the amounts stated in the second column and remained in the final product in the amounts stated in the third column. Addition of the ingredients was in the order stated, starting with water.

Ingredient	As added %wt	Final product %wt
Water	18.7	10
Glycerine	2.6	2.8
Monopropylene glycol (MPG)	4.3	4.7
PUREACT I-78	34.2	37.9
Disodium lauryl sulphosuccinate (DSLSS)	6.8	7.6
DUROSOFT PK-SG (emulsifier)	3.4	3.8
Glyceryl monostearate (GMS)	3.0	3.3
Hydrogenated sunflower oil	14.1	15.6
C16-C18 linear alcohols (NAFOL 1618)	12.8	14.2

- 15 NAFOL is a trade mark of Sasol of Sandton, South Africa.

Preparation of cleansing tablets was as described in Example 1.

- 20 The pH of the cleansing composition was 6 - 7 at 5% dilution, as measured by a commercial pH meter.

The resulting tablets were quite soft but still suitable for use.

Example 6

- The following ingredients were added in the amounts stated in the second column and remained in the final product in the amounts stated in the third column. Addition of the ingredients was in the order stated, starting with water.

Ingredient	As added %wt	Final product %wt
Water	25.5	10
Glycerine	3.4	4.1
Diethylenetriamine pentaacetic acid (VERSENEX - chelant)	0.05	0.06
DEQUEST 2016 (chelant)	0.05	0.06
PUREACT I-78	40.1	48.4
Sorbitan monolaurate (SPAN 20)	3.4	4.1
Hydrogenated sunflower oil	27.6	33.3

VERSENEX is a Trade Mark of Dow Chemicals of Auburn, Michigan, USA.

- SPAN 20 is a Trade Mark of Croda International, of Yorkshire, UK.

SPAN 20 has an HLB value of 8.6.

Preparation of cleansing tablets was as described in Example 1.

The pH (20%) of the cleansing composition was 6 - 7 at 5% dilution, as measured by a commercial pH meter.

The resulting tablets were of high quality, perfectly suitable for use.

Example 7

The following ingredients were added in the amounts stated in the second column and remained in the final product in the amounts stated in the third column. Addition of the ingredients was in the order stated, starting with water.

Ingredient	As added %wt	Final product %wt
Water	25.5	10
Glycerine	3.4	4.1
Diethylenetriamine pentaacetic acid (VERSENEX chelant)	0.05	0.06
DEQUEST 2016 (chelant)	0.05	0.06
PUREACT I-78	40.1	48.3
Glyceryl stearate	2.1	2.5
Polyoxyethylene (20) sorbitan monolaurate (Polysorbate 20)	1.3	1.6
Hydrogenated sunflower oil	27.6	33.3

Polysorbate 20 has a HLB value of 16.7. Glyceryl stearate has an HLB value of 3.8. The weighted average of these emulsifiers is calculated by the equation given above as 8.8.

Preparation of cleansing tablets was as described in Example 1 except that during the processing small quantities of water were added to keep the foam down.

The pH (20%) of the cleansing composition was 6 - 7 at 5% dilution, as measured by a commercial pH meter.

The resulting tablets were softer than we would regard as optimal but still suitable for use.

CLAIMS

1. A method of making a solid cleansing composition, the composition comprising:
- 5 (a) at least 15 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
- (b) at least 10 %wt of a carrier having a melting point of at least 45°C;
- (c) at least 1 %wt of an emulsifier; and
- (d) at least 5 %wt water;
- wherein the composition is a solid throughout the range from 0°C to 40°C;
- 10 and wherein the method comprises:
- (i) preparing an emulsion containing the components (a) to (d), but with a greater mass of water present than in the solid cleaning composition, the temperature of the emulsion being at least 45°C,
- 15 (ii) subjecting the emulsion to cooling and solidification, wherein the water content is reduced during the cooling and solidification to produce the solid cleansing composition having components (a) to (d) in the amounts defined.
2. The method as claimed in claim 1 wherein the emulsion is cooled and solidified
- 20 to form particles of the solid cleansing composition.
3. The method as claimed in claim 1 or 2 wherein the emulsion at a temperature of at least 45°C is a free-flowing liquid.
- 25 4. The method as claimed in any preceding claim, wherein the solid cleansing composition is in the form of noodles, pellets, flakes or powder.
5. The method as claimed in any preceding claim, wherein the method comprises a step (iii) of consolidating the solid cleansing composition into a block, bar or tablet.
- 30 6. The method as claimed in any preceding claim, wherein the solid cleansing composition is soap-free.
7. The method as claimed in any preceding claim wherein the mass of water
- 35 initially present in the emulsion is at least 40% higher than the mass of water present in the solid cleansing composition.

8. The method as claimed in any preceding claim wherein component (a) comprises a sulfate, sulfonate, amphoteric, sulfoacetate, sulfosuccinate, phosphate or carboxylate non-soap anionic surfactant; selected in each case to have a melting point above 45°C; preferably wherein component (a) comprises an acyl isethionate, for example sodium lauroyl isethionate or sodium cocoyl isethionate.

9. The method as claimed in any preceding claim wherein the non-soap anionic surfactant constitutes at least 20 %wt and up to 60 %wt of the solid cleansing composition.

10

10. The method as claimed in any preceding claim wherein the carrier (b) comprises one or more of a wax, a triglyceride, a fatty acid or a fatty alcohol; preferably wherein the carrier (b) comprises a triglyceride of vegetal origin which has been hydrogenated to achieve saturation of substantially all fatty acid chains in the triglyceride, and whose fatty acid chains are residues of C₈ - C₃₂ fatty acids.

11. The method as claimed in claim 10 wherein component (b) comprises at least of one of hydrogenated rapeseed oil, hydrogenated soybean oil, hydrogenated sunflower oil, hydrogenated palm oil, hydrogenated castor oil, hydrogenated safflower oil and hydrogenated peanut oil.

12. The method as claimed in any preceding claim wherein the carrier (b) constitutes at least 15 %wt and up to 40 %wt of the solid cleansing composition.

13. The method as claimed in any preceding claim wherein the emulsifier, component (c), has an HLB value of at least 6 and up to 12; and preferably at least 8 and up to 10; wherein when two or more emulsifiers are present, the HLB is a weighted average taking into account the individual HLB values and amounts of the two or more emulsifiers.

30

14. The method as claimed in any preceding claim wherein the emulsifier (c) is selected from sorbitan fatty acid esters, ethoxylated sorbitan fatty acid esters and glycerol or polyglycerol esters of fatty acids.

15. The method as claimed in claim 14 wherein the emulsifier (c) comprises or consists of glycerol or polyglycerol esters of C₈ - C₂₄ fatty acids.

16. The method as claimed in claim 15 wherein the emulsifier, component (c), is the esterification reaction product of:

A) a triglyceride, or a fatty acid, or a methyl ester of a fatty acid (or any combination thereof), and

5 B) a polyhydric alcohol which comprises

B1) a polyglycerol having at least 3 glycerol units, wherein the average molecular weight of the polyglycerol in component B1), having at least 3 glycerol units, is in the range 220-500 g/mol, and

B2) glycerol and / or diglycerol.

10

17. The method as claimed in any preceding claim wherein the emulsifier, component (c), constitutes at least 2 %wt and up to 9 %wt of the solid cleansing composition.

15 18. The method as claimed in any preceding claim wherein water, component (d), constitutes at least 5 %wt and up to 16 %wt of the solid cleansing composition.

19. The method as claimed in any preceding claim wherein the solid cleansing composition comprises:

20 (a) at least 20 %wt and up to 60 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;

(b) at least 20 %wt and up to 60 %wt of a carrier having a melting point of at least 45°C;

(c) at least 2 %wt and up to 9 %wt of an emulsifier;

25 (d) at least 5 %wt and up to 16 %wt of water;

wherein components (a) to (d) make up at least 70 % and up to 100 % of the weight of the solid cleansing composition.

30 20. The method as claimed in any preceding claim wherein the solid cleansing composition comprises:

(a) at least 35 %wt and up to 55 %wt of a non-soap anionic surfactant having a melting point of at least 50°C;

(b) at least 20 %wt and up to 40 %wt of a triglyceride having a melting point of at least 50°C;

35 (c) at least 3 %wt and up to 8 %wt of an emulsifier;

(d) at least 8 %wt and up to 12 %wt of water;

wherein components (a) to (d) make up at least 80 % and up to 100% of the weight of the cleansing composition.

21. A solid cleansing composition which comprises:

- 5 (a) at least 15 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
- (b) at least 10 %wt of a carrier having a melting point of at least 45°C;
- (c) at least 3 %wt of an emulsifier; and
- (d) at least 5 %wt water;

10 wherein the composition is a solid throughout the range from 0°C to 40°C.

22. The solid cleansing composition according to claim 21, wherein the emulsifier, component (c), has an HLB value of at least 6 and up to 12; and preferably at least 8 and up to 10; wherein when two or more emulsifiers are present, the HLB is a
15 weighted average taking into account the individual HLB values and amounts of the two or more emulsifiers.

23. The solid cleansing composition according to claim 21 or claim 22 which comprises:

- 20 (a) at least 20 %wt and up to 60 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
- (b) at least 20 %wt and up to 60 %wt of a triglyceride carrier having a melting point of at least 45°C;
- (c) at least 3 %wt and up to 9 %wt of an emulsifier;
- 25 (d) at least 5 %wt and up to 14 %wt of water;

and which preferably does not contain soap or starch;

wherein components (a) to (d) make up at least 70% and up to 100% of the weight of the solid cleansing composition;

wherein the composition is a solid throughout the range from 0°C to 40°C;

30 and wherein the solid cleansing composition has a completely or predominantly homogeneous microstructure.

24. The solid cleansing composition according to any of claims 21 to 23, wherein the solid cleansing composition is in the form of noodles, pellets, flakes or powder, or

35 has been consolidated into the form of a block, bar or tablet.

25. An emulsion for the preparation of a solid cleansing composition, wherein the composition is a solid throughout the range from 0°C to 40°C, the emulsion comprising:

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- (a) at least 20 %wt and up to 50 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
 - (b) at least 20 %wt and up to 50 %wt of a carrier having a melting point of at least 45°C;
 - (c) at least 2 %wt and up to 9 %wt of an emulsifier; and
 - (d) at least 16 %wt and up to 50 wt% water;
- 10
- wherein the emulsion is at a temperature of at least 45°C, and wherein components (a) to (d) make up at least 70% and up to 100% of the weight of the emulsion.

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CLAIMS

1. A method of making a solid cleansing composition, the composition comprising:
 - (a) at least 15 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
 - (b) at least 10 %wt of a carrier having a melting point of at least 45°C;
 - (c) at least 1 %wt of an emulsifier; and
 - (d) at least 5 %wt water;
 wherein the composition is a solid throughout the range from 0°C to 40°C;
 and wherein the method comprises:
 - (i) preparing an emulsion containing the components (a) to (d), but with a greater mass of water present than in the solid cleaning composition, the temperature of the emulsion being at least 45°C,
 - (ii) subjecting the emulsion to cooling and solidification, wherein the water content is reduced during the cooling and solidification to produce the solid cleansing composition having components (a) to (d) in the amounts defined.
2. The method as claimed in claim 1 wherein the emulsion is cooled and solidified to form particles of the solid cleansing composition.
3. The method as claimed in claim 1 or 2 wherein the emulsion at a temperature of at least 45°C is a free-flowing liquid.
4. The method as claimed in any preceding claim, wherein the solid cleansing composition is in the form of noodles, pellets, flakes or powder.
5. The method as claimed in any preceding claim, wherein the method comprises a step (iii) of consolidating the solid cleansing composition into a block, bar or tablet.
6. The method as claimed in any preceding claim, wherein the solid cleansing composition is soap-free.
7. The method as claimed in any preceding claim wherein the mass of water initially present in the emulsion is at least 40% higher than the mass of water present in the solid cleansing composition.

8. The method as claimed in any preceding claim wherein component (a) comprises a sulfate, sulfonate, amphoteric, sulfoacetate, sulfosuccinate, phosphate or carboxylate non-soap anionic surfactant; selected in each case to have a melting point above 45°C; preferably wherein component (a) comprises an acyl isethionate, for example sodium lauroyl isethionate or sodium cocoyl isethionate.

9. The method as claimed in any preceding claim wherein the non-soap anionic surfactant constitutes at least 20 %wt and up to 60 %wt of the solid cleansing composition.

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10. The method as claimed in any preceding claim wherein the carrier (b) comprises one or more of a wax, a triglyceride, a fatty acid or a fatty alcohol; preferably wherein the carrier (b) comprises a triglyceride of vegetal origin which has been hydrogenated to achieve saturation of substantially all fatty acid chains in the triglyceride, and whose fatty acid chains are residues of C₈ - C₃₂ fatty acids.

11. The method as claimed in claim 10 wherein component (b) comprises at least of one of hydrogenated rapeseed oil, hydrogenated soybean oil, hydrogenated sunflower oil, hydrogenated palm oil, hydrogenated castor oil, hydrogenated safflower oil and hydrogenated peanut oil.

12. The method as claimed in any preceding claim wherein the carrier (b) constitutes at least 15 %wt and up to 40 %wt of the solid cleansing composition.

13. The method as claimed in any preceding claim wherein the emulsifier, component (c), has an HLB value of at least 6 and up to 12; and preferably at least 8 and up to 10; wherein when two or more emulsifiers are present, the HLB is a weighted average taking into account the individual HLB values and amounts of the two or more emulsifiers.

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14. The method as claimed in any preceding claim wherein the emulsifier (c) is selected from sorbitan fatty acid esters, ethoxylated sorbitan fatty acid esters and glycerol or polyglycerol esters of fatty acids.

15. The method as claimed in claim 14 wherein the emulsifier (c) comprises or consists of glycerol or polyglycerol esters of C₈ - C₂₄ fatty acids.

16. The method as claimed in claim 15 wherein the emulsifier, component (c), is the esterification reaction product of:
- A) a triglyceride, or a fatty acid, or a methyl ester of a fatty acid (or any combination thereof), and
 - 5 B) a polyhydric alcohol which comprises
 - B1) a polyglycerol having at least 3 glycerol units, wherein the average molecular weight of the polyglycerol in component B1), having at least 3 glycerol units, is in the range 220-500 g/mol, and
 - B2) glycerol and / or diglycerol.
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17. The method as claimed in any preceding claim wherein the emulsifier, component (c), constitutes at least 2 %wt and up to 9 %wt of the solid cleansing composition.
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18. The method as claimed in any preceding claim wherein water, component (d), constitutes at least 5 %wt and up to 16 %wt of the solid cleansing composition.
19. The method as claimed in any preceding claim wherein the solid cleansing composition comprises:
- 20 (a) at least 20 %wt and up to 60 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
 - (b) at least 20 %wt and up to 60 %wt of a carrier having a melting point of at least 45°C;
 - (c) at least 2 %wt and up to 9 %wt of an emulsifier;
 - 25 (d) at least 5 %wt and up to 16 %wt of water;
- wherein components (a) to (d) make up at least 70 % and up to 100 % of the weight of the solid cleansing composition.
20. The method as claimed in any preceding claim wherein the solid cleansing composition comprises:
- 30 (a) at least 35 %wt and up to 55 %wt of a non-soap anionic surfactant having a melting point of at least 50°C;
 - (b) at least 20 %wt and up to 40 %wt of a triglyceride having a melting point of at least 50°C;
 - 35 (c) at least 3 %wt and up to 8 %wt of an emulsifier;
 - (d) at least 8 %wt and up to 12 %wt of water;

wherein components (a) to (d) make up at least 80 % and up to 100% of the weight of the cleansing composition.

21. A solid cleansing composition which comprises:

- 5 (a) at least 15 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
- (b) at least 10 %wt of a carrier having a melting point of at least 45°C;
- (c) at least 3 %wt of an emulsifier; and
- (d) at least 5 %wt water;
- 10 wherein the composition is a solid throughout the range from 0°C to 40°C.

22. The solid cleansing composition according to claim 21, wherein the emulsifier, component (c), has an HLB value of at least 6 and up to 12; and preferably at least 8 and up to 10; wherein when two or more emulsifiers are present, the HLB is a weighted average taking into account the individual HLB values and amounts of the two or more emulsifiers.

23. The solid cleansing composition according to claim 21 or claim 22 which comprises:

- 20 (a) at least 20 %wt and up to 60 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
- (b) at least 20 %wt and up to 60 %wt of a triglyceride carrier having a melting point of at least 45°C;
- (c) at least 3 %wt and up to 9 %wt of an emulsifier;
- 25 (d) at least 5 %wt and up to 14 %wt of water;

and which preferably does not contain soap or starch;

wherein components (a) to (d) make up at least 70% and up to 100% of the weight of the solid cleansing composition;

wherein the composition is a solid throughout the range from 0°C to 40°C;

- 30 and wherein the solid cleansing composition has a completely or predominantly homogeneous microstructure.

24. The solid cleansing composition according to any of claims 21 to 23, wherein the solid cleansing composition is in the form of noodles, pellets, flakes or powder, or
35 has been consolidated into the form of a block, bar or tablet.

25. An emulsion for the preparation of a solid cleansing composition, wherein the composition is a solid throughout the range from 0°C to 40°C, the emulsion comprising:

- 5 (a) at least 20 %wt and up to 50 %wt of a non-soap anionic surfactant having a melting point of at least 45°C;
- (b) at least 20 %wt and up to 50 %wt of a carrier having a melting point of at least 45°C;
- (c) at least 2 %wt and up to 9 %wt of an emulsifier; and
- 10 (d) at least 16 %wt and up to 50 wt% water;
- wherein the emulsion is at a temperature of at least 45°C, and
- wherein components (a) to (d) make up at least 70% and up to 100% of the weight of the emulsion.

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REIVINDICACIONES

1. Un método para preparar una composición limpiadora sólida, en donde la composición comprende:

- (a) al menos 15 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 45 °C;
- (b) al menos 10 % en peso de un portador que tiene un punto de fusión de al menos 45 °C;
- (c) al menos 1 % en peso de un emulsionante; y
- (d) al menos 5 % en peso de agua;

en donde la composición es un sólido en todo el rango de 0 °C a 40 °C;

y en donde el método comprende:

- (i) preparar una emulsión que contenga los componentes (a) a (d), pero con una mayor presencia de masa de agua que en la composición de limpieza sólida, siendo la temperatura de la emulsión de al menos 45 °C,
- (ii) someter la emulsión a enfriamiento y solidificación, en el que el contenido de agua se reduce durante el enfriamiento y solidificación para producir la composición limpiadora sólida que tiene los componentes (a) a (d) en las cantidades definidas.

2. El método de acuerdo con la reivindicación 1, en donde la emulsión se enfría y solidifica para formar partículas de la composición limpiadora sólida.

3. El método de acuerdo con la reivindicación 1 o 2, en donde la emulsión a una temperatura de al menos 45 °C es un líquido que fluye libremente.

4. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde la composición limpiadora sólida está en la forma de copos, pellets, virutas o polvo.

5. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el método comprende un paso (iii) de consolidar la composición limpiadora sólida en un bloque, barra o pastilla.

6. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde la composición limpiadora sólida no contiene jabón.
7. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en el que la masa de agua inicialmente presente en la emulsión es al menos un 40 % mayor que la masa de agua presente en la composición limpiadora sólida.
8. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el componente (a) comprende un tensioactivo aniónico no jabonoso de sulfato, sulfonato, anfoacetato, sulfoacetato, sulfosuccinato, fosfato o carboxilato, seleccionados, en cada caso, para obtener un punto de fusión por encima de 45 °C; preferiblemente en donde el componente (a) comprende un isetionato de acilo, por ejemplo, lauroil isetionato de sodio o cocoil isetionato de sodio.
9. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el tensioactivo aniónico no jabonoso constituye al menos el 20 % en peso y hasta el 60 % en peso de la composición limpiadora sólida.
10. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el portador (b) comprende uno o más entre una cera, un triglicérido, un ácido graso o un alcohol graso; preferiblemente en donde el portador (b) comprende un triglicérido de origen vegetal que se ha hidrogenado para lograr la saturación de sustancialmente todas las cadenas de ácidos grasos en el triglicérido, y cuyas cadenas de ácidos grasos son residuos de ácidos grasos C₈-C₃₂.
11. El método de acuerdo con la reivindicación 10 en donde el componente (b) comprende al menos uno entre aceite de colza hidrogenado, aceite de soja hidrogenado, aceite de girasol hidrogenado, aceite de palma hidrogenado, aceite de ricino hidrogenado, aceite de cártamo hidrogenado y aceite de cacahuete hidrogenado.
12. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el portador (b) constituye al menos el 15 % en peso y hasta el 40 % en peso de la composición limpiadora sólida.

13. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el emulsionante, el componente (c), tiene un valor de HLB de al menos 6 y hasta 12; y preferiblemente de al menos 8 y hasta 10, en donde cuando dos o más emulsionantes están presentes, el HLB es un promedio ponderado teniendo en cuenta sus valores de HLB individuales y las cantidades de los dos o más emulsionantes.

14. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el emulsionante (c), es seleccionado de entre ésteres de ácidos grasos de sorbitán, ésteres de ácidos grasos de sorbitán etoxilados y ésteres de ácidos grasos de glicerol o poliglicerol.

15. El método de acuerdo con la reivindicación 14, en donde el emulsionante (c) comprende o consiste de ésteres de glicerol o poliglicerol de ácidos grasos C_8 - C_{24} .

16. El método de acuerdo con la reivindicación 15, en donde el emulsionante, componente (c), es el producto de la reacción de esterificación de:

- A) un triglicérido, o un ácido graso, o un éster metílico de un ácido graso (o cualquier combinación de los mismos), y
- B) un alcohol polihídrico que comprende
 - B1) un poliglicerol que tiene al menos 3 unidades de glicerol, en el que el peso molecular promedio del poliglicerol en el componente B1), que tiene al menos 3 unidades de glicerol, está en el rango de 220-500 g/mol, y
 - B2) glicerol y/o diglicerol.

17. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el emulsionante, componente (c), constituye al menos el 2 % en peso y hasta el 9 % en peso de la composición limpiadora sólida.

18. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde el agua, componente (d), constituye al menos el 5 % en peso y hasta el 16 % en peso de la composición limpiadora sólida.

19. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde la composición limpiadora sólida comprende:

- (a) al menos 20 % en peso y hasta 60 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 45 °C;
- (b) al menos 20 % en peso y hasta 60 % en peso de un portador que tiene un punto de fusión de al menos 45 °C;
- (c) al menos 2 % en peso y hasta 9 % en peso de un emulsionante;
- (d) al menos 5 % en peso y hasta 16 % en peso de agua;

en donde los componentes (a) a (d) constituyen al menos el 70 % y hasta el 100 % del peso de la composición limpiadora sólida.

20. El método de acuerdo con cualquiera de las reivindicaciones anteriores, en donde la composición limpiadora sólida comprende:

- (a) al menos 35 % en peso y hasta 55 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 50 °C;
- (b) al menos 20 % en peso y hasta 40 % en peso de un triglicérido que tiene un punto de fusión de al menos 50 °C;
- (c) al menos 3 % en peso y hasta 8 % en peso de un emulsionante;
- (d) al menos 8 % en peso y hasta 12 % en peso de agua;

en donde los componentes (a) a (d) constituyen al menos el 80 % y hasta el 100 % del peso de la composición limpiadora.

21. Una composición limpiadora sólida que comprende:

- (a) al menos 15 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 45 °C;
- (b) al menos 10 % en peso de un portador que tiene un punto de fusión de al menos 45 °C;
- (c) al menos 3 % en peso de un emulsionante; y
- (d) al menos 5 % en peso de agua;

en donde la composición es un sólido en todo el rango de 0 °C a 40 °C.

22. La composición limpiadora sólida de acuerdo con la reivindicación 21, en donde el emulsionante, componente (c), tiene un valor de HLB de al menos 6 y hasta 12; y preferiblemente de al menos 8 y hasta 10, en donde cuando dos o más emulsionantes están presentes, el HLB es un promedio ponderado teniendo en cuenta sus valores de HLB individuales y las cantidades de los dos o más emulsionantes.

23. La composición limpiadora sólida de acuerdo con la reivindicación 21 o la reivindicación 22 que comprende:

- (a) al menos 20 % en peso y hasta 60 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 45 °C;
- (b) al menos 20 % en peso y hasta 60 % en peso de un portador de triglicérido que tiene un punto de fusión de al menos 45 °C;
- (c) al menos 3 % en peso y hasta 9 % en peso de un emulsionante;
- (d) al menos 5 % en peso y hasta 14 % en peso de agua;

y que, preferiblemente, no contiene jabón ni almidón;

en donde los componentes (a) a (d) constituyen al menos el 70 % y hasta el 100 % del peso de la composición limpiadora sólida;

en donde la composición es un sólido en todo el rango de 0 °C a 40 °C;

y en donde la composición limpiadora sólida tiene una microestructura completa o predominantemente homogénea.

24. La composición limpiadora sólida de acuerdo con cualquiera de las reivindicaciones 21 a 23, en donde la composición limpiadora sólida está en la forma de copos, pellets, virutas o polvo, o ha sido consolidada en la forma de un bloque, barra o pastilla.

25. Una emulsión para la preparación de una composición limpiadora sólida, en donde la composición es un sólido dentro del rango de 0°C a 40°C, la emulsión comprende

- (a) al menos 20 % en peso y hasta 50 % en peso de un tensioactivo aniónico no jabonoso que tiene un punto de fusión de al menos 45 °C;
- (b) al menos 20 % en peso y hasta 50 % en peso de un portador que tiene un punto de fusión de al menos 45 °C;
- (c) al menos 2 % en peso y hasta 9 % en peso de un emulsionante; y
al menos 16 % y hasta 50% en peso de agua;

en donde la emulsión se encuentra a una temperatura de al menos 45 °C, y

en donde los componentes (a) a (d) constituyen al menos el 70 % y hasta el 100 % del peso de la emulsión.