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(54) **AEROSOL-GENERATING TOBACCO-CONTAINING COMPOSITION COMPRISING
MEDIUM-CHAIN TRIGLYCERIDE**

(57) Present invention relates to an aerosol-gener-
ating tobacco-containing composition, preferably provid-
ed in form of a foam or mousse, and an aerosol-gener-
ating article comprises said composition, wherein the
composition comprises particulate tobacco material and

lipid, wherein the lipid is medium-chain triglyceride, the
ratios of the medium-chain triglyceride to the tobac-
co-containing material on a dry weight basis are between
1:3 and 1:5.

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DescriptionTechnical field of the invention

5 **[0001]** Present invention relates to an aerosol-generating tobacco-containing composition comprising tobacco material comprising aerosol-generating material and medium-chain triglycerides and an aerosol-generating article comprising such composition, in particular a heat-not-burn type smoking article.

Background of the invention

10 **[0002]** A number of prior art documents related to aerosol-generating articles and its devices have disclosed the use of such articles as a new form of smoking. Such devices include for example electrically heated aerosol-generating devices in which an aerosol is generated by the transfer of heat from a heating element of the aerosol-generating device to aerosol-generating substrates or materials.

15 **[0003]** Tobacco material which has been homogenised is often used in the production of tobacco products. Parts of tobacco plants that are less suited for the production of cut filler such as tobacco stems or tobacco dust are typically materials used for homogenised tobacco material. Examples of common forms of homogenised tobacco material are for example powder form, reconstituted tobacco sheet and cast leaf.

20 **[0004]** It has been reported that in heat-not-burn aerosol-generating articles, aerosol-forming substrate is heated at a rather relatively low temperature, for instance below 350 °C, to avoid combustion thereof. A charge of inhalable aerosol can then be released from the aerosol-generating article.

25 **[0005]** The aerosol released is originated from the aerosol formers, which are incorporated into the tobacco material, which may be particulated or granulated. In order to be released, these aerosol formers have to be migrated from within the body of the homogenised tobacco material to surfaces of the homogenised tobacco material. During this process, other volatile compounds such as nicotine migrate in a similar fashion outwardly from the body of the homogenised tobacco material, and eventually be released in the charge of aerosol.

30 **[0006]** Document WO 2017/077112 A1 relates to a homogenised tobacco material comprises tobacco and lipid having a melting point between 50 °C and 150 °C. It was disclosed therein that homogenised tobacco material comprises the meltable lipid component advantageously allow less tobacco to be used while providing an equivalent nicotine or aerosol yield. Moreover, the inclusion of the meltable lipid component also allows the migration of aerosol-formers and other volatile compounds within the homogenised tobacco material to the surface area of the tobacco material. Nevertheless, these advantages come in the expense of the fact that side-tastes and off odours resulted from the meltable lipid component cannot be completely avoided.

35 **[0007]** It would therefore be desirable to provide an aerosol-generating tobacco-containing material for an aerosol-generating article which does not give unpleasant smell or taste to consumers. Moreover, it would be particularly desirable to improve delivery of volatile compounds including nicotine, and particularly when operating at lower temperatures. In addition, it would also be desirable to provide an aerosol-generating article having a homogenised tobacco material in new form which is suitable for the delivery of volatile compounds.

Summary of the invention

40 **[0008]** The inventors of the present invention have found solutions to the above-discussed problems through the aerosol-generating tobacco-containing composition as defined in the claims.

45 **[0009]** A first aspect of the invention is accordingly to provide an aerosol-generating tobacco-containing composition provided in form of a foam or a mousse, wherein the composition comprises particulate tobacco material and lipid, wherein the lipid is medium-chain triglyceride, the ratios of the medium-chain triglyceride to the tobacco-containing material on a dry weight basis are between 1:3 and 1:5.

[0010] A second aspect of the invention is accordingly to provide an aerosol-generating article comprising the aerosol-generating tobacco-containing composition provided in form of a foam or a mousse according to the present invention.

50 **[0011]** A third aspect of the invention is accordingly to provide a method of preparing an aerosol-generating tobacco-containing foam or mousse, comprising the steps of: (a) Mixing an aerosol-forming agent, a foam-forming agent and optionally a solvent, under heating; (b) Aerating the mixture with a gas or air for at least 5 minutes under room temperature; (c) Adding to the mixture a tobacco-containing ingredient and/or inhalable agent; (d) Optionally aerating the mixture with a gas or air; (e) Adding to the mixture a medium-chain triglyceride, wherein the ratios of the medium-chain triglyceride to the tobacco-containing material on a dry weight basis are between 1:3 and 1:5; (f) Aerating the mixture with a gas or air for at least 5 minutes under room temperature; (g) Adding a foam stabilizing agent.

55 **[0012]** The inventors of the present invention have found out that the aerosol-generating tobacco-containing composition, more prominently when being provided in form of a foam or mousse, unexpectedly solves the problem of side-

tastes and off odours of the homogenised tobacco material where lipids are being used. The inventors found out that medium-chain triglyceride (MCT) is a better option to be mixed with the homogenised tobacco material compared to lipid, as the MCTs are highly regarded for their clean organoleptic quality. They are odourless and tasteless; hence they do not contribute any off-notes to products.

[0013] In addition, the inventor found out that when the ratios of the MCTs to the homogenised tobacco material on a dry weight basis are between 1:3 and 1:5, the porosity of the composition not only increases significantly and the texture of the product obtained is fluffier, the flavour and aroma of the tobacco, which is highly sought after by the consumer, also increases significantly. Interestingly, these effects are not being observed when the ratio of the MCTs to the homogenised tobacco material on a dry weight basis is outside of these range i.e. more than 1:5 or less than 1:3.

[0014] For instance when the MCTs is less than 20 % by weight from the total weight on a dry weight basis, regardless of the final amount of the tobacco-containing material, these effects (porosity and fluffiness of the composition and stronger tobacco flavour (e.g. when in form of a mousse or a foam) as mentioned above have not been optimal, as fewer volatile compounds are being released along with the charge of aerosol. The stronger tobacco flavour and aroma obtained in this invention is attributed to the MCTs. MCTs are widely used in the flavour industry because of their superior organoleptic quality and solvent capabilities. Moreover, MCTs is also superior in extracting flavouring. Most probably for this reason, higher percentage of MCTs i.e. ratio between MCTs and tobacco-containing material is at least 1:5 but less than 1:3, the stronger tobacco aroma and flavour can instantly be noticed by the consumer when in use, as these ratios of the MCTs to tobacco has good porosities in the end products such that higher amount of volatile compounds from the aerosol-generating substrate can be released along with the charge of aerosol. Moreover, it has been found out by the inventors that the aerosol-generating tobacco-containing composition as claimed presently generally has a micropore size of less than 2 nm and the general fluffiness of the composition is between 1-3 g/cm³. Thanks to these features of the composition, the aerosol-generating article comprising these compositions are immediately distinguishable from others and hence are preferred choice.

[0015] In one particular preferred embodiment, the ratio of the medium-chain triglycerides to tobacco-containing material on a dry weight basis is 1:3. This embodiment is most preferred as the volatile compounds such as nicotine delivery rate is found to be the highest compared to all other samples having different ratios. The inventors of the present invention have found out that when the ratio of MCTs and tobacco-containing material on a dry weight basis is 1:3, the porosity and texture of the aerosol-generating materials of the end products is in an optimal condition (e.g. a mixture of open pored foam and closed-cell foam) to have most of the volatile compounds released in the aerosol.

[0016] In one particularly preferred embodiment, the composition is provided in form of a foam or a mousse. Compared to other forms where the materials are provided for example in the form of reconstituted tobacco sheet or powder, when the aerosol-generating material are provided in the form of a foam or a mousse, the volume of the porous microstructure of the foam is enhanced by the usage of MCTs, especially when the ratio of MCTs and tobacco-containing material on a dry weight basis is 1:3. In this connection, it is disclosed herein that foam-forming agent and the foam-stabilizing agent are involved in the formation of the foam as well as maintaining of the foam microstructure.

[0017] To this end, it is reiterated that the present invention in form of a foam or a mousse can be applied in all other embodiments discussed herein.

[0018] According to one embodiment, the mixture is aerated in each step with a heated gas or air of between 35 °C and 50 °C for at least 10 minutes. Such elevated temperature increases the texture, consistency and nicotine delivery of the aerosol-generating tobacco-containing foam or mousse compared to products made of powder form for instance. Moreover, the volume of the porous microstructure of the foam can be enhanced by the usage of MCTs under such temperature.

[0019] In another preferred embodiment, the aerosol-generating tobacco-containing composition comprising the medium-chain triglyceride is aerated for at least 5 minutes, preferably at least 10 minutes, under room temperature. The aeration step mentioned herein increases the volume of the porous microstructure of the aerosol-generating material of the present invention.

[0020] According to one embodiment, the particulate tobacco material has a particle size of less than 100 µm, preferably less than 90 µm, 80 µm, 70 µm, 60, µm or 50 µm, more preferably between 40 µm and 90 µm. When the particle size of the tobacco-containing material is provided to be less than 100 µm, the aerosol-generating material of the present invention which consists predominantly of the tobacco materials will have a homogenised tobacco particle size. Furthermore, due to the small particle size, the amount of surface area per unit volume of homogenised tobacco material is also increased. The volatile compounds from the aerosol-generating material can thus be released easily and more efficiently in the aerosol.

[0021] According to another embodiment, the lipid is derived from palm kernel oil or coconut oil.

[0022] In yet another embodiment, the lipid consists of caprylic acid (C8:0), capric acid (C10:0) and/or preferably lauric acid (C12:0).

[0023] In another preferred embodiment, over 50 wt.-%, preferably over 60 wt.-% or 66 wt.-% of the lipid are MCT caprylic acid (C8:0) based on the total weight of the lipid.

[0024] According to another embodiment, the composition further comprises maltodextrin acacia gum, silicon dioxide and/or sunflower lecithin.

[0025] In one further embodiment, the composition comprises any of a propellant, an aerosol-forming agent, a foam-stabilizing agent, and/or a foam-forming agent.

[0026] According to a further embodiment, the composition comprises an aerosol-forming agent in a proportion of 10 - 80 wt.-%, preferably 30 - 70 wt.-% of the weight of the aerosol-generating material.

[0027] By "about" or "approximately" in relation to a given numerical value, it is meant to include numerical values within 10% of the specified value. All values given in the present disclosure are to be understood to be complemented by the word "about", unless it is clear to the contrary from the context.

[0028] The indefinite article "a" or "an" does not exclude a plurality, thus should be treated broadly.

[0029] Unless defined otherwise, technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs.

[0030] A tobacco-containing material can be any compound, mixture, particle matter, and/or solution that contains and/or carries a constituent of tobacco, either artificially included or naturally contained in tobacco, e.g. tobacco, tobacco particles, tobacco flavor and/or nicotine. In contrast, an example for an artificially added non-tobacco-specific flavor would be menthol.

[0031] As used herein, the term "aerosol-generating article" refers to an aerosol-generating article for producing an aerosol comprising an aerosol-generating material that is intended to be heated rather than combusted in order to release volatile compounds that can form an aerosol.

[0032] As used herein, the term "aerosol-generating material" refers to a material, upon heating, capable of releasing volatile compounds, which can form an aerosol. The aerosol generated from aerosol-generating material of aerosol-generating articles described herein may be visible or invisible and may include vapours (for example, fine particles of substances, which are in a gaseous state, that are ordinarily liquid or solid at room temperature) as well as gases and liquid droplets of condensed vapours.

[0033] As used herein, the term "medium-chain triglyceride" is used to define an oil comprising one or more triglycerides, each triglyceride having two or three fatty acid chains having a chain length of between 6 and 12 carbon atoms. The fatty acid chain may therefore include one or more of caproic acid (C6), caprylic acid (C8), capric acid (C10) and lauric acid (C12). These can be present in the medium-chain triglyceride oil in any combination and in any relative amounts, provided the required properties of the medium-chain triglyceride oil are obtained. For each triglyceride within the medium-chain triglyceride oil, the three fatty acid chains may have the same length as each other or a different length, provided at least two of the fatty acid chains has a chain length of between 6 and 12 carbon atoms. For each triglyceride, the three fatty acid chains may be identical, or two or more of the fatty acid chains may be different to each other. The triglycerides may individually be saturated or unsaturated.

[0034] As used herein, the term "homogenised tobacco material" encompasses any tobacco material formed by the agglomeration of particles of tobacco material, along or in a mixture with other plant materials. For example, the homogenised tobacco material may be provided in granulated (powder) form, or it can be provided as sheets or webs of homogenised tobacco material by agglomerating particulate tobacco material obtained by grinding or otherwise powdering of one or both of tobacco leaf lamina and tobacco leaf stems. In addition, homogenised tobacco material may comprise a minor quantity of one or more of tobacco dust, tobacco fines, and other particulate tobacco by-products formed during the treating, handling and shipping of tobacco. The homogenised tobacco material may also be provided in small particle size e.g. less than 100 μm such as claimed presently, and subsequently be used to constitute for the aerosol-generating material, which can be in form of a foam or a mousse.

[0035] An aerosol-forming agent can be any compound, mixture and/or solution that is capable of forming an aerosol, e.g. when heated and/or in mixture with a tobacco ingredient containing agent. Well known examples include humectants such as glycerin and propylene glycol, other alcohols, such as ethanol, etc.

[0036] An open pored foam as used herein is to be understood as a foam which can be considered as being formed of a plurality of interconnecting pores (formed out of a structural material derived from the foam forming agent cooperating with the interacting components such as the foam stabilizing agent, solid components such as tobacco particles and some solvent, etc.) which are able to contain fluid, in particular a mixture of humectant/liquid aerosol-forming substrate and air, wherein at least a significant portion (e.g. greater than 50% by volume) of the pores in the foam are fluidly connected with each other, contrary to a closed-cell foam, wherein the majority of the pores form discrete pockets, each completely enclosed by pore-forming material so as to substantially prevent fluid from passing freely between pores. It is currently believed that the mousses formed as described herein are largely open-pored mousses because after cooling or heating of the aerosol-generating material comprising the MCTs, vapour is released from the mousse, substantially all of the humectant appears to be released based on measuring of the weight of the mousse portion before and after heating, which could not be readily explained if the humectant was not able to travel through neighboring pores to reach the surface of the mousse portion. However, alternative explanations cannot be totally excluded - for example closed pores could perhaps be opened by rupturing a closed cell wall as a result of the pressure of vaporized gas, etc.

[0037] An electronic cigarette (e-cigarette) or similar devices like electronic pipes or heat-not-burn devices, as referred to in the present invention, are not particularly limited, and may be used to provide a user with an aerosol to inhale. It can, according to certain embodiments, comprise a mouthpiece, a heater, a receiving portion, e.g. a pod, stick, capsule and a casing.

[0038] As used herein, the term "melting point" refers to the clear point or complete melting point of the medium-chain triglyceride. This corresponds to the temperature, in degrees Celsius, at which the oil is fully liquid and completely clear with no solid particles remaining. Many methods known in the art can be used to measure the clear point melting point of an oil, for example, the capillary technique or Stuart SMP50 melting point apparatus.

[0039] As used herein, wt.-% is to be understood as weight percent, based on the total weight of the substance on a dry basis, unless explicitly otherwise specified. In the present disclosure, all amounts are given in wt.-%, unless clearly stated otherwise or obvious from context. In the present disclosure, furthermore all amounts given in wt.-% add up to 100 wt.-%. The weight percent are thereby calculated by dividing the mass of each component by the total mass e.g. of the foam, unless indicated otherwise or clear from context.

Detailed description of the invention

[0040] Present invention relates to an aerosol-generating a tobacco-containing composition, comprising a lipid in form a medium-chain triglyceride (MCTs) oil. The composition can be provided in many forms such as one or more sheets of homogenised tobacco material or be provided in form of a foam or a mousse or powder, wherein the ratios between the MCTs and the tobacco-containing material on a dry basis is between 1:3 and 1:5. It is emphasized herein that the present invention is not restricted in these two forms, other forms such as powder form, gel, or coating the aerosol-generating material of the present invention on a carrier would also be possible.

[0041] Due to the fact that MCT has a melting point around 20 °C, the MCT as discussed in the present invention therefore always exists in a completely liquid form at room temperature (e.g. 22-24 °C). The homogenised tobacco material therefore includes the MCT oil in liquid form dispersed within a matrix (solid or semi-solid such as foam or gel) of the tobacco-containing material.

[0042] The MCTs used in the present invention is commercially available. For example it is obtained from the Sensory Effects Company (Product ID: Richmix 5025 IP(175755)), comprising a 52 % fat MCT oil powdered creamer made from palm-derived, palm kernel and/or coconut based fatty acids. According to the product description, maltodextrin and acacia gum, silicon dioxide and sunflower lecithin are also comprised in said product. Said MCTs have a melting point significantly below 20 °C, wherein the ratio of the MCT C6:C8:C10:C12 is approximately 1:20:10:1. In other words, the content of C6 and C12 in the MCTs used in the present invention is negligible.

[0043] To this end, it is reiterated that any commercially available MCTs would be suitable to be used in the present invention, as long as the commercially available products meet the criteria and being sold as medium-chain triglycerides oil.

[0044] The use of a medium-chain triglyceride oil having a melting point below 20 °C such that the oil is liquid at room temperature also provides advantages to the manufacture of the homogenised tobacco material. For example, since the MCT oil exists naturally as a liquid at the room temperature, compared to other lipids such as wax, MCT oil does not required to be heated and melted. The homogenised tobacco material which derived usually from a pulp does not need to be heated in order to retain the oil in liquid form. The manufacturing process can therefore be carried out without the need for external heating. This not only simplifies the manufacturing process but it also avoid the loss of volatile compounds from the tobacco-containing material during the external heating process. Moreover, the use of MCTs in the homogenised tobacco materials also solves the stickiness problem as typically found aerosol-generating article where lipids are being used in the manufacturing process. The stickiness characteristic of lipid prevents volatile compounds to be released efficiently compared to MCTs.

[0045] The inventors of the present invention have found out from the test results that when the ratios of MCT to tobacco material on a dry basis are between 1:3 and 1:5, MCT works best in extracting volatile compounds from the tobacco-containing material. It has been found out that in those samples, not only the side tastes and off odour which typically exist in lipid-containing samples (e.g. wax) is no longer noticeable, it also gives the strongest tobacco aroma and flavours to the consumers, as well as the highest nicotine delivery.

[0046] The diffusivity of volatile compounds, such as aerosol formers and nicotine, is greater in a liquid phase than in a solid phase. The liquid medium-chain triglyceride will therefore act to facilitate the transfer of volatile compounds within the particulate tobacco material to its surface. As such, the transfer of these volatile compounds from the granulated tobacco material to an aerosol may be enhanced in comparison with a homogenised tobacco material that does not contain the liquid medium-chain triglyceride oil within the specific claimed ratios. Interestingly, the inventors found out that when the ratios of MCT to tobacco material on a dry basis is outside of the claimed ranges of 1:3 and 1:5, the samples are immediately recognisable as less preferred choices. This is especially obvious when the samples contain a ratio of 1:10 or less of MCT to tobacco material on a dry basis, where these less preferred samples can be recognised

immediately. It is therefore concluded that a certain minimum threshold of percentage of MCT to tobacco materials are needed in order to have the volatile compounds to be optimally extracted and be released as aerosol, as it allows for the formation of a good mixture of open pored foam and closed cell foam.

[0047] The medium chain triglyceride oil is preferably evenly distributed throughout the tobacco-containing material, which means that at room temperature there are no separately distinguishable regions of oil and plant material. Rather, the oil and particles are fully homogenised or granulated.

[0048] The use of a homogenised tobacco material having a medium-chain triglyceride oil incorporated into it, as described herein, may allow equivalent nicotine or aerosol yields at a lower heating temperature compared to the use of a homogenised tobacco material without a medium chain triglyceride oil as defined. In fact, it has been surprisingly found that the use of a particulated tobacco-containing material with a medium-chain triglyceride at a certain ratio as defined herein may provide a higher nicotine or aerosol yield at a lower heating temperature than is provided by the same material at a higher heating temperature. The potential use of a lower heating temperature may provide a number of benefits when the composition of the invention, as it is meant for, is used in aerosol-generating devices such as heat-not-burn for instance. For example, a lower temperature of operation may allow for longer periods of use of the aerosol-generating device without the need to recharge a battery. As a further example, a lower temperature of operation may allow for use of a smaller battery. As a further example, a lower temperature of operation may reduce the liberation of undesirable aerosol constituents from the homogenised tobacco material.

Examples 1

[0049] An aerosol-generating tobacco-containing composition according to the invention has been prepared from tobacco material mixed with MCT oil. The resulting composition forms an aerosol-generating material, which in this example is provided in powder form, each having different percentage/ratio of compositions and have been tested, using a method as described herein:

Table 1: Aerosol-generating material provided in powder form having different ratios of MCT to tobacco-containing material on a dry basis.

Component	Powder A wt.- %	Powder B wt.- %	Powder C wt.- %	Powder D wt.- %	Powder E wt.- %
Tobacco	60	60	60	60	60
MCT oil	0	30	20	12	6
Glycerine	18.5	3.5	8.5	12.5	15.5
Propylene Glycol	18.5	3.5	8.5	12.5	15.5
Guar	2	2	2	2	2
Cellulose fibres	1	1	1	1	1

[0050] The MCT oil used for Powders B, C, D and E was Richmix 5025 IP (175755) which was obtained from Sensory Effects®, a subsidiary of Balchem Company. For each tobacco sample, the powder/particulated tobacco was formed into an aerosol-generating substrate, using conventional techniques. The aerosol-generating articles incorporating Powders B, C, D and E are provided according to the present invention, with medium-chain triglyceride oil in the tobacco-containing material. The aerosol-generating article incorporating Powder A, which does not include the medium-chain triglyceride oil, is a control sample for the purposes of comparison.

[0051] Examples of cellulose fibres could be for instance Cekol® 2000, whereas the guar could be for instance gellan gum food grade.

[0052] Each aerosol-generating article was subjected to the heating test defined above, at both 360 °C and 280 °C. The nicotine level in the aerosol delivered from each aerosol-generating article were measured, with the results shown in Table 2 below.

[0053] The nicotine level was measured using the ISO method which is used to measure the tar, nicotine and carbon monoxide (TNCO) contents in cigarettes and are determined using a smoking machine, which smokes a cigarette in accordance with an established method. In the EU this method is widely known as ISO method, as set out by the European Commission. It is mentioned herein that other methods such as Canadian intense method can also be used in the measurement.

Table 2: Nicotine delivery efficiency under two different heating temperatures.

Ratio of MCT: Tobacco	Nicotine delivery at 360 °C (mg)	% change	Nicotine delivery at 280 °C (mg)	% change
0 (Pow. A)	1.15		0.7	
1:2 (Pow. B)	1.41	22.61 %	0.91	30.00 %
1:3 (Pow. C)	2.05	78.26 %	1.31	87.14 %
1:5 (Pow. D)	1.82	58.26 %	1.22	74.29 %
1:10 (Pow. E)	1.30	13.04 %	0.89	27.14 %

[0054] As can be seen from Table 2, an increase in the delivery of nicotine from the aerosol-generating tobacco-containing composition was observed in all of the aerosol-generating articles which has incorporated the medium-chain triglyceride in the tobacco-containing material, relative to the control sample (Powder A). Nevertheless, only the samples in Powders C and D show the most significant improvement in nicotine delivery. This proves that volatile compounds can efficiently be released when the optimal ratios of MCT to tobacco-containing material are being selected. Amongst these ratios, the ratio of 1:3 being the most promising candidate by showing 78 % and 87 % increment of nicotine delivery compared to the control sample (Powder A), when being heated under 360 °C and 280 °C, respectively. Surprisingly, it was observed that a lower heating temperature (e.g. 280 °C) encourages the release of higher amount of nicotine in the aerosol as compared to those samples where the aerosol-generating substrates (tobacco-containing composition) are being heated at 360 °C.

Examples 2

[0055] The same experiments were repeated on the aerosol-generating tobacco-containing composition of the present invention, whereby the aerosol-generating tobacco-containing compositions in this example are being provided in form of a foam or a mousse. The foam characteristic and its manufacturing is known in the art, for example as described in the patent document WO 2018/122375 A1, with the exception that the MCTs and its ratio to tobacco-containing material were used in the present invention.

[0056] Other than the fact that the aerosol-generating tobacco-containing composition is provided in form of a foam, all other parameters were similar to those as described in the Example 1.

Table 3: Aerosol-generating material provided in form of a foam or a mousse having different ratios of MCT to tobacco-containing material on a dry basis.

Component	Foam M wt.- %	Foam N wt.- %	Foam O wt.- %	Foam P wt.- %	Foam Q wt.- %
Tobacco	60	60	60	60	60
MCT oil	0	30	20	12	6
Glycerine	18.5	3.5	8.5	12.5	15.5
Propylene Glycol	18.5	3.5	8.5	12.5	15.5
Guar	2	2	2	2	2
Cellulose fibres	1	1	1	1	1

[0057] Each aerosol-generating article was subjected to the heating test defined above, at both 360 °C and 280 °C. The nicotine level in the aerosol delivered from each aerosol-generating article were measured, with the results shown below in Table 3.

Table 4: Nicotine delivery efficiency under two different heating temperatures.

Ratio of MCT: Tobacco	Nicotine delivery at 360 °C (mg)	% change	Nicotine delivery at 280 °C (mg)	% change
0 (Foam M)	1.40		0.90	

(continued)

Ratio of MCT: Tobacco	Nicotine delivery at 360 °C (mg)	% change	Nicotine delivery at 280 °C (mg)	% change
1:2 (Foam N)	1.84	30.71 %	1.21	34.44 %
1:3 (Foam O)	2.75	96.43 %	1.81	101.11 %
1:5 (Foam P)	2.52	80.00 %	1.72	91.11 %
1:10 (Foam Q)	1.88	34.26 %	1.25	38.89 %

[0058] As can be seen in the Table 4, when the aerosol-generating tobacco-containing compositions are provided in form of a foam or a mousse, the efficiency of nicotine delivery is observed to be improved significantly compared to the Example 1. In other words, aerosol-generating substrates in form of a foam would be a preferred option over aerosol-generating substrates in powder form when the higher release rate of volatile compounds such as nicotine is to be sought after.

[0059] Similar to the Example 1, it has been discovered that lower heating temperature i.e. 280 °C is more efficient in releasing volatile compounds compared to heating aerosol-generating material of the present invention at the higher temperature of 360 °C. Moreover, the MCT to tobacco-containing material of 1:3 gave the highest nicotine delivery amount, followed by the ratio of 1:5.

[0060] These results demonstrated that the use of an aerosol-generating tobacco-containing material having a medium-chain triglyceride oil incorporated into it provide an increased nicotine or aerosol yield compared to a homogenised tobacco material having the same amount of tobacco but without a medium chain triglyceride oil as defined. This effect is furthermore significantly observed when the ratio of MCT to tobacco-containing material on a dry basis is between 1:3 and 1:5.

Claims

1. An aerosol-generating tobacco-containing composition provided in form of a foam or a mousse, wherein the composition comprises particulate tobacco material and lipid, wherein the lipid is medium-chain triglyceride, the ratios of the medium-chain triglyceride to the tobacco-containing material on a dry weight basis are between 1:3 and 1:5.
2. The composition according to claim 1, wherein the particulate tobacco material has a particle size of less than 100 μm , preferably less than 90 μm , 80 μm , 70 μm , 60 μm or 50 μm , more preferably between 40 μm and 90 μm .
3. The composition according to claim 1 or claim 2, wherein the ratio of the medium-chain triglycerides to tobacco-containing material on a dry weight basis is 1:3.
4. The composition according to any one of the preceding claims, wherein the lipid is derived from palm kernel oil or coconut oil.
5. The composition according to any one of the preceding claims, wherein the lipid consists of caprylic acid (C8:0), capric acid (C10:0) and/or lauric acid (C12:0).
6. The composition according to any one of the preceding claims, wherein over 50 wt.-%, preferably over 60 wt.-% or 66 wt.-% of the lipid are MCT caprylic acid (C8:0) based on the total weight of the lipid.
7. The composition according to any one of the preceding claims, wherein the composition further comprises maltodextrin, acacia gum, silicon dioxide and/or sunflower lecithin.
8. The composition according to any one of the preceding claims, wherein the composition comprises any of a propellant, an aerosol-forming agent, a foam-stabilizing agent, and/or a foam-forming agent.
9. The composition according to any one of the preceding claims, wherein the composition comprises an aerosol-forming agent in a proportion of 10 - 80 wt.-%, preferably 30 - 70 wt.-% of the weight of the aerosol-generating material.
10. A method of preparing an aerosol-generating tobacco-containing foam or mousse, comprising the steps of:

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- a. Mixing an aerosol-forming agent, a foam-forming agent and optionally a solvent, under heating;
- b. Aerating the mixture with a gas or air for at least 5 minutes under room temperature;
- c. Adding to the mixture a tobacco-containing ingredient and/or inhalable agent;
- d. Optionally aerating the mixture with a gas or air;
- e. Adding to the mixture a medium-chain triglyceride, wherein the ratios of the medium-chain triglyceride to the tobacco-containing material on a dry weight basis are between 1:3 and 1:5;
- f. Aerating the mixture with a gas or air for at least 5 minutes under room temperature;
- g. adding a foam stabilizing agent.

11. The method according to claim 10, wherein the mixture is aerated in each step with a heated gas or air of between 35 °C and 50 °C for at least 10 minutes.

12. An aerosol-generating article comprising the aerosol-generating tobacco-containing composition according to any one of the preceding claims.

REFERENCES CITED IN THE DESCRIPTION

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