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**Shaped chocolate in confectionery**

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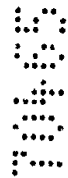
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(56) Related Art  
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**ABSTRACT**

A confectionery product comprising a frozen, chilled or ambient confectionery material, such as ice cream, having dispersed therein or distributed thereon discrete pieces of  
5 shaped chocolate or a fat-containing confectionery material having specific characteristic shapes.



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Invention Title: "SHAPED CHOCOLATE IN CONFECTIONERY"

The following statement is a full description of this invention,  
including the best method of performing it known to us:-

(File: 19155.00)

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**SHAPED CHOCOLATE IN CONFECTIONERY**

The present invention relates to a product comprising shaped chocolate pieces in confectionery, for example to a product comprising frozen, chilled or ambient confectionery materials, e.g. ice cream, in which are dispersed discrete pieces of shaped chocolate or a fat-containing confectionery material having specific characteristic shapes.

10 Ice cream products are known which have dispersed therein ingredients such as nuts, raisins, seeds, fruits, coconut flake, miniature marshmallows, candies or chocolate chips in order to impart certain specific organoleptic characteristics. Such ingredients can be inserted in a controlled manner into a flowing stream of ice cream by means of standard ingredient feeders commonly used in the ice cream industry. One kind of ingredient feeder is a continuous ingredient feeder manufactured by APV, Model S-420 in which positive, accurate metering is accomplished by means of an agitator and auger feed combination which transfers the ingredients from the main hopper, usually at room temperature, onto an enrobing rotor at a controlled rate of speed. The controlled speed and smooth action of the agitator and auger assure gentle handling without damage to the ingredients. This works very well for the sturdy ingredients such as nuts and seeds and for the more flexible products such as raisins and miniature marshmallows. With regard to chocolate chips which do not have any particular recognisable shape and consist of particles whose maximum dimensions are generally less than 5mm, usually from 1-3mm, the actual shape of the chips is of little significance: the desired effect of the presence of chocolate chips in ice cream is almost entirely organoleptic.

However, there has been a desire to have a novelty product, particularly for one with a visual appearance which adds to the interest and amusement of children, comprising ice cream in which are dispersed discrete pieces of shaped chocolate or a fat-containing confectionery material having specific characteristic shapes, e.g. cartoon animals, dinosaurs, stars, letters of the alphabet, etc. Due to their relatively small size many of these shapes or parts thereof may be rather delicate and, clearly, in order to maintain their novelty value, it is important that any damage or breakage during production and storage is minimised and, up until now, it has not been possible to distribute shaped products into ice cream economically.

Although it is possible to produce shaped chocolate or fat-containing confectionery pieces by traditional forming methods such as roller forming or liquid-state moulding, these methods are costly in operation and the investment required to produce a different shape is large due to the need for new sets of moulds or forming rollers.

In our co-pending EP-A-0603467, the contents of which are hereby incorporated into the present specification, a process is described for the cold extrusion of chocolate, which process enables the cost effective production of large quantities of extruded shaped chocolate pieces for incorporation into confectionery products. Since a new shape only requires investment in a new die (or dies) the relative cost of changing to a different shape is very low compared to other methods. This process therefore gives an economically viable method to produce large quantities of shaped chocolate or fat-containing confectionery pieces.

In this invention, "shaped" chocolate or fat-containing confectionery material should be understood to refer to a chocolate or fat-containing material having a shape

determined by an extrusion die, or by other moulding means such as forming rollers, tablet press, or traditional moulding methods, etc. or by injection moulding as described in EP-A-060467.

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Furthermore, the production of very small shaped pieces by traditional moulding techniques, is not reliable in view of the difficulty in controlling deposit shot weight as well as accuracy of positioning of the mould and demoulding of the final product. The cold extrusion process of EP-A-0603467 enables shapes with very high definition two dimensional outlines to be produced.

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Moreover, roller forming techniques inevitably results in a web of chocolate between the shapes emanating from the gap between the rollers, this web is difficult to remove from complex shapes and would therefore reduce the shape definition of the final product. In the cold extrusion process of EP-A-0603467, no such webbing exists.

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Although the presence in ice cream of discrete pieces of shaped chocolate or a fat-containing confectionery material having specific characteristic shapes is important for the organoleptic characteristics, a major object of their presence, in contrast to normal chocolate chips, is their visual effect. Therefore any breakage or damage to these specific characteristic shapes will impair the visual appearance.

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We have found, surprisingly, that by reducing the temperature of the discrete pieces of shaped chocolate or a fat-containing confectionery material to below ambient temperature, e.g. below about 20°C and especially below 15°C, such pieces can be inserted into ice cream using standard equipment without substantial breakage or damage.

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According to the present invention there is provided a process for preparing a confectionery product comprising distributing pieces of a chocolate material which are images and which have a temperature less than 15°C into a stream of a confectionery material selected from the group consisting of frozen and chilled confectionery material  
5 to obtain a composite product in which the image pieces are dispersed in the confectionery material so that the composite product comprises the images buried in the confectionery material and wherein the chocolate material is selected from the group consisting of a chocolate of a chocolate substitute comprising a cocoa butter replacement and of a chocolate analogue comprising a cocoa butter replacement.

10 Unless the context clearly requires otherwise, throughout the description and the claims, the words 'comprise', 'comprising', and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to".

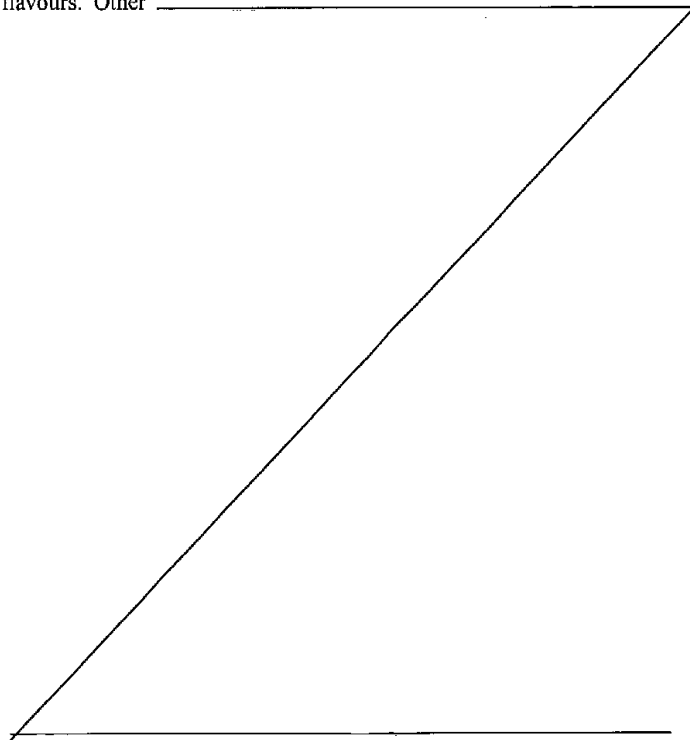
Examples of frozen confectionery materials include ice cream, sorbet, frozen  
15 yoghurt, or low fat frozen desserts, etc. Examples of chilled confectionery materials include mousses, yoghurts, custards, or jellies, etc. Examples of ambient confectionery materials include fondant, mousse, praline, marshmallow, nougat, or flour confectionery such as cakes and cookies. The ice cream may be hard or soft ice cream, and may have any desired flavour, e.g. vanilla, peppermint, strawberry, raspberry, etc. One advantage  
20 of using a softer ice cream is that the visible discrete pieces of shaped chocolate or fat containing confectionery material are less likely to be broken during scooping. Another advantage is that the discrete pieces of shaped chocolate or fat-containing confectionery material buried within the ice cream bulk are able to move without breaking thus



revealing their full shape which is not visible in the undisturbed bulk material. The discrete pieces of shaped chocolate or fat-containing confectionery material which are buried within the ice cream bulk may be the same or different from the visible discrete pieces.

5 The specific characteristics shapes of the discrete pieces of shaped chocolate or a fat-containing confectionery material may be cartoon characters, animals, stars, numbers or letters of the alphabet. Examples of cartoon characters are Mickey Mouse, Donald Duck, Miss Piggy, etc. and examples of animals are dinosaurs. The specific characteristics shapes of the discrete pieces may be of the same or different shapes,  
10 colours or flavours. Other

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ingredients such as nuts, raisins, normal chocolate chips or caramel pieces may be present in addition to the discrete pieces of shaped chocolate or fat-containing confectionery material.

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The size of the discrete pieces of shaped chocolate may vary and is such that the maximum dimension is not usually greater than 5cm, preferably not greater than 3cm and more preferably not greater than 2cm. The volume of each discrete piece of shaped chocolate may be from 5 to 10,000mm<sup>3</sup>, preferably from 10 to 2000mm<sup>3</sup> and more preferably from 15 to 500mm<sup>3</sup>.

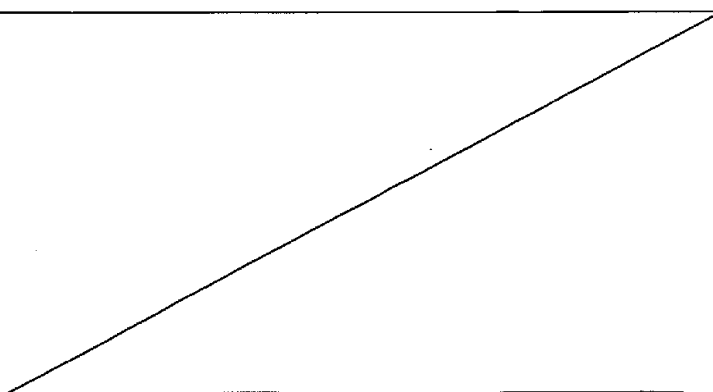
The discrete pieces of shaped chocolate or a fat-containing confectionery material may be produced by techniques such as injection or compression moulding, tablet pressing, by more traditional moulding methods, by roller forming, or by extrusion. The extrusion process is preferably the cold extrusion process described in the afore-mentioned EP-A-0603467 in which the material is extruded in a solid or semi-solid non-pourable or non-flowable form to produce an extruded solid or semi-solid non-pourable or non-flowable product having a temporarily flexibility or plasticity which product can be injection moulded under pressure at a temperature below the normal melting point of the chocolate or a fat-containing confectionery material.

The chocolate material may be dark, milk or white chocolate. Fat containing confectionery materials may include sugar, milk derived components, and fat and solids from vegetable or cocoa sources in differing proportions having a moisture content less than 10%, more usually less than 5% by weight. They may be chocolate substitutes containing direct cocoa butter replacements, stearines, coconut oil, palm oil, butter or any mixture thereof; nut pastes such as peanut butter and fat; praline;

confectioner's coatings used for covering cakes usually comprising chocolate analogues with cocoa butter replaced by a cheaper non-tempering fat; or "Caramac" (RTM) sold by Nestlé comprising non-cocoa butter fats, sugar and milk. Colourings and/or flavourings as are well known in the art may be added to any of the above materials. Since the fat  
5 containing confectionery material contains less than 10% water, flour confectionery products such as cakes and pastries are excluded from the discrete pieces of shaped material but, however, are not excluded from the confectionery material containing the discrete pieces of shaped material.

The number or proportion of discrete pieces of shaped material in and/or on the  
10 confectionery product may be chosen as desired both for the visual and/or organoleptic effect. The proportion of the discrete pieces in the confectionery product may be up to 100g or more per 100 ml of confectionery product, such as from 1 to 50 g and conveniently from 2 g to 20 g per 100 ml of confectionery product.

For example, when ice cream is the confectionery material, the discrete pieces of  
15 shaped chocolate are conveniently inserted into a flowing stream of the ice cream, by using a



standard ingredient feeder commonly used in the ice cream industry such as a continuous ingredient feeder manufactured by APV, Model S-420 in which positive, accurate metering is accomplished by means of an agitator and auger feed combination which transfers the discrete pieces from the main hopper onto an enrobing rotor at a controlled rate of speed.

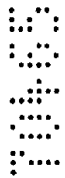
The temperature of the discrete pieces of shaped chocolate or a fat-containing confectionery material having specific characteristic shapes as they are inserted into and/or distributed onto the confectionery material depends on a variety of factors, the major ones being the temperature and viscosity of the bulk material and particularly the mixing methods used. For example, chocolate in the solid state may be added to yoghurt at ambient temperature. For ice cream, the temperature of the discrete pieces of shaped chocolate or fat-containing material added is preferably below +20°C, more preferably from -20°C to +15°C, even more preferably from -5°C to +10°C and especially from 0°C to +6°C.

The present invention will now be further illustrated by the following Example.

#### Example

Discrete pieces of shaped chocolate having the shapes of 10mm diameter 5-pointed stars, produced on a Manumold Injection Moulding machine provided with a modified barrel to carry an extrusion die, according to the process described in our co-pending EP-A-0603467 at +25°C and 80 bars pressure and cut to 2mm width, are fed from a hopper at +5°C into the agitator and auger feed combination of a continuous ingredient feeder manufactured by APV, Model S-420 through which they are transported and metered at a

controlled rate of speed onto an enrobing rotor where they are inserted into a flowing stream of soft ice cream and then mixed in a low shear blender to produce an ice cream product containing 10 g per 100 ml of the ice cream of 5 discrete pieces.



THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A process for preparing a confectionery product comprising distributing pieces of a chocolate material which are images and which have a temperature less than 15°C into a stream of a confectionery material selected from the group consisting of frozen and  
5 chilled confectionery material to obtain a composite product in which the image pieces are dispersed in the confectionery material so that the composite product comprises the images buried in the confectionery material and wherein the chocolate material is selected from the group consisting of a chocolate, of a chocolate substitute comprising a cocoa butter replacement and of a chocolate analogue comprising a cocoa butter  
10 replacement.
2. A process according to claim 1 further comprising mixing the composite product to obtain a mixed product wherein the images are buried in the confectionery material.
3. A process according to claim 2 wherein the pieces have a temperature of from -  
5°C. to +10°C.
- 15 4. A process according to claim 3 wherein the confectionery material is selected from the group consisting of ice cream, sorbet and frozen yoghurt.
5. A process according to claim 2 wherein the confectionery material is ice cream.
6. A process according to claim 1 wherein the temperature of less than 15°C. extends in a range to -20°C.
- 20 7. A process according to claim 1 wherein the confectionery material is selected from the group consisting of chilled mousse, chilled yoghurt, chilled custard and chilled jelly.
8. A process according to claim 1 wherein the confectionery material is ice cream.
9. A process according to claim 1 wherein the images are selected from the group consisting of cartoon characters, animals, stars, letters of the alphabet and numbers.



10. A process according to claim 1 wherein the distributing of the pieces comprises passing the pieces at a controlled rate via an agitator and auger feed combination to an enrobing rotor to meter the pieces into the stream.

11. A process according to claim 1 wherein the pieces are distributed into the  
5 confectionery material stream so that the composite product has from 1 g to 50 g of the pieces per 100 ml of the composite product.

12. A process according to claim 1 wherein the pieces have a dimension not greater than 5 cm and individually have a volume of from 5 mm<sup>3</sup> to 10,000 mm<sup>3</sup>.

13. A process according to claim 1 further comprising feeding a particulate substance,  
10 wherein the substance is selected from the group consisting of a chocolate, of a chocolate substitute comprising a cocoa butter replacement and of a chocolate analogue comprising a cocoa butter replacement into an extruder and applying pressure to the substance to pass the substance through the extruder and to and through an extruder die to obtain an extrudate from the die, wherein the substance passed through the extruder and the  
15 extrudate from the die are at a temperature so that the substance and extrudate are in a non-pourable state for preparing the pieces.

14. A process for preparing a confectionery product substantially as herein described with reference to the example.

DATED this 28th day of January, 2000

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