WaferWorld

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The regular insider information from R&D Engineers

2012 03

Creaming Machine
Double head CR5 - DH

"Twin" cream wafers...

...exciting new possibilities

Contents

TECHNICAL

Perfectly "Crispy" Cones

More info at www.stablemicrosystems.com

Ice cream cone manufacturers can now measure key textural parameters such as brittleness, toughness and crispiness. The Ice Cream Cone Support Rig from Stable Micro Systems reliably informs cone formulation and design, for optimum consumer acceptance and product success.

A cone strength test measures the force required to cause breakage by simulating the stress imposed when ice cream is pressed into the cone. The resulting textural profile will highlight any weakness and consequent need to review ingredient proportions, formulation or cone dimensions.

Ice Cream Cone Strength
Assesses the structural strength of ice cream wafer cones under compression, simulating likely conditions of use.

Jo Smewing, applications manager at Stable Micro Systems comments, "Ice cream remains a popular treat and a competitive sector, particularly during the summer season. As well as satisfying consumer demands for taste and texture, ice cream cone manufacturers should also consider the role of structural strength in the safe handling, shipping and distribution of cones. Our new Ice Cream Cone Support Rig is a valuable tool with which to assess textural characteristics of ice cream cones, helping manufacturers refine their batter recipes and tailor cone designs for ultimate taste and durability."

The equipment can be adjusted to accommodate all cone varieties, including waffle, flat-bottomed and sugar cones, and is supplied with two ice cream scoop simulators for use with varying cone rim diameters.

(As reported in Confectionery Production - July / August 2012)

Traditional methods of testing cones strength

PRODUCT IDEAS

INNOVATIVE PRODUCTS

PHOTO FEATURE

Sharing experiences.

FORTHCOMING EXHIBITIONS

Germany

Date: 16th Sep -21st Sep, 2012
Hall: A6, Stall No.:285,
Venue: New Munich Trade Fair Centre,
Munich, Germany

Indonesia

Date: 21st Nov - 25th Nov, 2012
Stall No.:DM-315
Venue: JIExpo, Kemayoran. Jakarta
Jakarta, Indonesia

Dubai

Date: 25th Feb - 28th Feb, 2013
Stall No.:S1-B72 in Sheikh Saeed
Venue: Dubai International Convention
and Exhibition Centre. Dubai

TECHNOLOGY

Wafer Biscuit Manufacturing Science

Part - 06

continued from...

Rapid cooling of wafer sheets with both sides of each shed exposed to the atmosphere is claimed to permit rapid equilibration of moisture throughout each sheet. Some manufacturers go to great lengths to ensure equilibration of the moisture in wafer sheets before further processing, e.g. by holding the sheets under controlled atmosphere conditions for several days. Yet others expose the sheets to an atmosphere with a high relative humidity for a short time (20-30 min) to permit the wafer moisture content to increase to about 5%. This allows some expansion of the wafer to take place and is supposed to reduce the tendency for further absorption of moisture to occur. However, wafer at 5% moisture content is in equilibrium with an atmospheric relative humidity of about 20%. Since the normal atmospheric relative humidity is nearer to 50% than 20%, adequate packaging would still he required to prevent further absorption of moisture and consequent expansion of exposed wafer. In addition, at moisture contents above 6% the wafer loses its crispness and tends to become chewy.

ROLE OF INGREDIENTS IN WAFER-MAKING

The principal ingredients in wafer-making are flour and water. Wafers can be made from just these two components and are in fact so made in significant quantities for use as altar bread. Wafers can indeed be made from starch and water alone. As mentioned at the beginning of this chapter, wafers consist of a dried, highly aerated starch gel. A wafer sheet consists of two outer layers of gel containing numerous small holes joined together by a more tenuous gel containing much larger air cells.

Any other non-volatile ingredient present in the formulation are held in suspension in the starch gel, by far the largest component of wafer batter is water. The total amount present (including the moisture content of the flour) can rise to 65% of the weight of the batter. However, as in the case of biscuit dough, the role of water is primarily that of a processing aid rather than an ingredient since all but a very small amount is removed during the baking process.

The presence of this large amount of water at the beginning of the baking process, together with the rapid rise in temperature and pressure, facilitates the gelatinization and total disruption of the starch granules present in the batter. The increasing pressure as the water is converted to steam helps to spread the batter over the baking plates and is the primary cause of the development of the aerated structure of the finished product. Although the mineral content of water varies considerably from place to place there is no evidence that such variations influence the wafer-making process.

(...to be continued)

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