

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
4 November 2004 (04.11.2004)

PCT

(10) International Publication Number  
**WO 2004/093564 A3**

(51) International Patent Classification<sup>7</sup>: **A23L 1/20**,  
A21D 2/36

PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(21) International Application Number:  
PCT/US2004/012289

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-  
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,  
GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,  
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,  
ML, MR, NE, SN, TD, TG).

(22) International Filing Date: 19 April 2004 (19.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
10/420,139 21 April 2003 (21.04.2003) US

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted  
a patent (Rule 4.17(ii)) for the following designations AE,  
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,  
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE,  
EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,  
JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,  
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ,  
TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM,  
ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD,  
SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY,  
KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG,  
CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT,  
LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF,  
BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,  
TD, TG)
- of inventorship (Rule 4.17(iv)) for US only

(71) Applicant (for all designated States except US):  
**CARGILL, INCORPORATED** [US/US]; Law De-  
partment, P.O. Box 5624, Minneapolis, MN 55440-5624  
(US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ATWELL, William**,  
A. [US/US]; 11389 Preserve Lane North, Champlin, MN  
55316 (US). **GILBERTSON, Dennis, B.** [US/US]; 10208  
Hillside Lane, Minnetonka, MN 55305 (US). **EARLING,**  
**Jessica, Lee** [US/US]; 3920 Drew Avenue South, Min-  
neapolis, MN 55410 (US). **ENGLESON, Jodi** [US/US];  
2770 Foxgate Drive, Minnetonka, MN 55305 (US).  
**MATTSSEN, Jody, Lee** [US/US]; 108 Spruce Street W.,  
South Saint Paul, MN 55075 (US).

(74) Agents: **KLOS, John, F.** et al.; Fulbright & Jaworski  
L.L.P., 2100 IDS Center, 80 South Eighth Street, Min-  
neapolis, MN 55402-2112 (US).

**Published:**

- with international search report
- before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,

(88) Date of publication of the international search report:  
22 December 2005

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: PARTICULATE-BASED INGREDIENT DELIVERY SYSTEM

(57) Abstract: A particulate ingredient delivery system for food products is described. The system is capable of providing to a food product a nutrient or other ingredients at desired levels without adversely affecting the quality of the food product. The system can be utilized to provide food products meeting specific nutrient-based FDA health claim labeling requirements.

WO 2004/093564 A3

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US04/12289

<p>A. CLASSIFICATION OF SUBJECT MATTER                  IPC(7) : A23L 1/20; A21D 2/36                  US CL : 426/ 549, 552, 555, 615, 618, 622, 634, 653, 656                  According to International Patent Classification (IPC) or to both national classification and IPC</p>																						
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols)                  U.S. : 426/ 549, 552, 555, 615, 618, 622, 634, 653, 656</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)                  particulate, flour, soy, soya, dough, bake, bakery, baked, wheat, grits, protein.</p>																						
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>DE 3708622 (FEUCHT) 29 SEPTEMBER 1988 (29.09.88), see English abstract.</td> <td>1-18, 21, 22-27, 30-31, 35-36</td> </tr> <tr> <td>---</td> <td></td> <td>-----</td> </tr> <tr> <td>Y</td> <td></td> <td>1-36</td> </tr> <tr> <td>Y</td> <td>US 4,109,018 A (THOMPSON) 22 August 1978 (22.08.78), see entire document.</td> <td>1-36</td> </tr> <tr> <td>Y</td> <td>GB 1 522 439 A. 23 August 1978 (23.08.78), see entire document.</td> <td>1-36</td> </tr> </tbody> </table>			Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	DE 3708622 (FEUCHT) 29 SEPTEMBER 1988 (29.09.88), see English abstract.	1-18, 21, 22-27, 30-31, 35-36	---		-----	Y		1-36	Y	US 4,109,018 A (THOMPSON) 22 August 1978 (22.08.78), see entire document.	1-36	Y	GB 1 522 439 A. 23 August 1978 (23.08.78), see entire document.	1-36		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																				
X	DE 3708622 (FEUCHT) 29 SEPTEMBER 1988 (29.09.88), see English abstract.	1-18, 21, 22-27, 30-31, 35-36																				
---		-----																				
Y		1-36																				
Y	US 4,109,018 A (THOMPSON) 22 August 1978 (22.08.78), see entire document.	1-36																				
Y	GB 1 522 439 A. 23 August 1978 (23.08.78), see entire document.	1-36																				
<input type="checkbox"/> Further documents are listed in the continuation of Box C.		<input type="checkbox"/> See patent family annex.																				
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A"</td> <td>document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T"</td> <td>later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E"</td> <td>earlier application or patent published on or after the international filing date</td> <td>"X"</td> <td>document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L"</td> <td>document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y"</td> <td>document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O"</td> <td>document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P"</td> <td>document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E"	earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	document published prior to the international filing date but later than the priority date claimed		
"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention																			
"E"	earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone																			
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art																			
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family																			
"P"	document published prior to the international filing date but later than the priority date claimed																					
Date of the actual completion of the international search 24 August 2005 (24.08.2005)		Date of mailing of the international search report 14 OCT 2005																				
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Keith Hendricks Telephone No. (571) 272-1700 																				