



- (51) **International Patent Classification:**
B08B 9/08 (2006.01)
- (21) **International Application Number:**
PCT/EP2012/059809
- (22) **International Filing Date:**
25 May 2012 (25.05.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
11167597.1 26 May 2011 (26.05.2011) EP
- (71) **Applicant (for all designated States except US):** SKÅNE-MEJERIER AB [SE/SE]; S-205 03 Malmö (SE).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** HANSEN, Kenneth [DK/DK]; Grydehøjvej 48, DK-4000 Roskilde (DK). OLESEN, Stig [DK/DK]; Kaprifolievej 1, DK-2300 København (DK).
- (74) **Agent:** AWAPATENT AB; Box 5117, S-200 71 Malmö (SE).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

- (88) **Date of publication of the international search report:**
3 October 2013

(54) **Title:** METHOD AND APPARATUS FOR FOOD PRODUCTION PLANT CLEANING

(57) **Abstract:** The present application relates to a plant (310) comprising a plurality of connected process units (316, 318, 320), said plant (310) being suitable for processing a liquid food preparation by a defined process, said process involving a plurality of steps where each of these steps are carried out in a process unit (316, 318, 320), said process unit being connected to other parts of said plant by valves (324, 350, 334, 336, 338, 339, 344), characterized in that each process unit (316, 318, 320) may be cleaned separately and that cleaning liquids are dispensed directly to each process unit (316, 318, 320) during cleaning. The application also discloses a cleaning method, a specific construction element that may be included in such a plant and a system for carrying out the cleaning operation.



INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2012/059809

A. CLASSIFICATION OF SUBJECT MATTER

INV. B08B9/08

ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B08B B67D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 94/05436 A1 (ALFA LAVAL AB [SE]; LOEFDAL JAN [SE]) 17 March 1994 (1994-03-17) page 1, line 1 - page 6, line 13 claims 1-4	1-4,6, 10,11
X	WO 01/38218 A1 (UNILEVER NV [NL]; UNILEVER PLC [GB]; LEVER HINDUSTAN LTD [IN]) 31 May 2001 (2001-05-31) page 1, line 5 - page 14, line 30 claims 1-20 figures 1-4b	1-4,6, 10,11
X	US 5 603 826 A (WELCH ELMER S [US]) 18 February 1997 (1997-02-18) column 1, line 7 - column 7, line 65 claims 1-8 figures 1-4	1-4,6, 10,11
	-/--	



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"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)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search

9 August 2013

Date of mailing of the international search report

20/08/2013

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Psoch, Christian

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/059809

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008/216876 A1 (LAFON REMI [FR] ET AL) 11 September 2008 (2008-09-11) paragraphs [0001] - [0029] claims 1-20 figure 1	1-4,10, 11
X	----- WOEHRMANN V: "CHEMISCHE ROHRREGENERIERUNG REINIGUNG VON INDUSTRIEROHREN//CLEANING OF INDUSTRIAL PIPES CHEMICAL PIPE REGENERATION", 3R INTERNATIONAL, VULKAN-VERLAG, ESSEN, DE, vol. 44, no. 6, 2 January 2005 (2005-01-02), pages 346-348, XP001231229, ISSN: 0340-3386 e) Ausführung; pages 1-3	1-4,6, 10,11
X	----- Miteco: "Advanced solutions for producing Soft Drinks, Fruit Juices and Liquid Food", 15 December 2010 (2010-12-15), pages 1-16, XP055023875, Retrieved from the Internet: URL: http://www.miteco.ch/downloads/advance d-solutions_3.pdf [retrieved on 2012-04-04] the whole document	1-13
X	----- DE 10 2009 025155 A1 (JUERGEN LOEHRKE GMBH [DE]) 30 December 2010 (2010-12-30) abstract paragraphs [0001] - [0029] claims 1-13; figure 1	1-13
X	----- EP 0 761 091 A1 (MAASLAND NV [NL]) 12 March 1997 (1997-03-12) column 1, line 3 - column 6, line 35; claims 1-15; figure 1 -----	1-13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2012/059809

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4, 6, 10, 11

Method and food processing apparatus having process units
suitable for being cleaned separately

2. claims: 5, 7-9, 12

A unit module adapted for carrying out a single processing
step while the unit module consists of two process units
connected in parallel

3. claim: 13

A system for cleaning a production plant, comprising means
for data entering, calculating and storing and means for
remotely processing a CIP

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2012/059809

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9405436	A1	17-03-1994	AT 178230 T 15-04-1999
		AU 680436 B2 31-07-1997	
		BR 9306969 A 12-01-1999	
		CA 2143195 A1 17-03-1994	
		DE 69324275 D1 06-05-1999	
		DE 69324275 T2 08-07-1999	
		DK 0726819 T3 11-10-1999	
		EP 0726819 A1 21-08-1996	
		ES 2131118 T3 16-07-1999	
		FI 950881 A 27-02-1995	
		GR 3030332 T3 30-09-1999	
		JP 3291505 B2 10-06-2002	
		JP H08500526 A 23-01-1996	
		NO 950753 A 28-02-1995	
		NZ 255628 A 24-03-1997	
		PL 307739 A1 12-06-1995	
		RU 2113291 C1 20-06-1998	
		SE 510024 C2 12-04-1999	
		SE 9202496 A 01-03-1994	
		US 5913984 A 22-06-1999	
		WO 9405436 A1 17-03-1994	
WO 0138218	A1	31-05-2001	AT 261394 T 15-03-2004
		AU 1520701 A 04-06-2001	
		CA 2389868 A1 31-05-2001	
		DE 60008913 D1 15-04-2004	
		DE 60008913 T2 29-07-2004	
		EP 1232114 A1 21-08-2002	
		ES 2215755 T3 16-10-2004	
		PT 1232114 E 30-07-2004	
		US 6391122 B1 21-05-2002	
		WO 0138218 A1 31-05-2001	
US 5603826	A	18-02-1997	NONE
US 2008216876	A1	11-09-2008	CN 101626844 A 13-01-2010
		EP 2131971 A2 16-12-2009	
		JP 2010520054 A 10-06-2010	
		JP 2012206119 A 25-10-2012	
		RU 2009135707 A 20-04-2011	
		US 2008216876 A1 11-09-2008	
		US 2010313914 A1 16-12-2010	
		WO 2008112384 A2 18-09-2008	
DE 102009025155	A1	30-12-2010	NONE
EP 0761091	A1	12-03-1997	AU 704681 B2 29-04-1999
		AU 6210296 A 13-03-1997	
		DE 69620959 D1 06-06-2002	
		DE 69620959 T2 28-11-2002	
		EP 0761091 A1 12-03-1997	
		JP H09117731 A 06-05-1997	
		NL 1001158 C2 11-03-1997	
		US 6323033 B1 27-11-2001	