



dairymark.com

Dairy ingredients – a strategic review of opportunities and applications in the cream liqueur industry

Report #6 in Dairymark.com's 'Target business opportunities' series of publications

May 2008



Dairymark.com
A division of Shainwright Consulting and Research Group Pty Ltd
PO Box 3274
Norwood, SA 5067
AUSTRALIA

Email: info@dairymark.com
Website: www.dairymark.com



SHAINWRIGHT
CONSULTING & RESEARCH GROUP PTY LTD



'Dairy ingredients - a strategic review of opportunities and applications in the cream liqueur industry'

A new report on the use of dairy ingredients in the cream liqueur industry reveals that the cream liqueur industry, despite being commercially active only since the mid-1970s, is a large and growing sector of the alcoholic beverage industry. More specifically, cream liqueurs are included in specialty products which account for 2.7% of the huge (~ 26.5 billion litres) global alcoholic spirits market. And cream liqueurs represent > 17.5% of the specialty products segment. Thus, annual cream liqueur volume recorded almost 125 million litres on a worldwide basis in 2007. And the business is expected to continue its strong growth path, expanding to almost 150 million litres total global consumption by 2013.

Of interest to the dairy industry and dairy ingredient marketers is the fact that dairy plays an important part in the formulation of cream liqueurs. There is a fundamental and intrinsic relationship between dairy ingredients (especially milk fat and sodium caseinate) and cream liqueur formulations. The existing relationship can only strengthen through the future, with a greater offtake of dairy raw materials expected by the cream liqueur industry as the inevitable growth in consumption occurs. Moreover, with markets such as China being actively targeted as a growth opportunity by the global leader, Baileys Original Irish Cream, the forecasts for growth in global consumption could very likely be understated.

This report is the sixth in a series of publications produced by Dairymark.com entitled 'Target business opportunities'. It provides a solid overview of the cream liqueur industry, and dairy ingredient usage, including:

- Volume trends in cream liqueur consumption on a worldwide basis, including annual forecasts through to 2013
- Volume and global market share estimates for over 25 cream liqueur manufacturers over a four year period
- Compositional standards for cream liqueur manufacture (including variations to the norm) and the importance of product stability in choice of ingredients and manufacturing method
- Dairy ingredient applications, including use of sodium caseinates, double cream
- Possible developments in dairy ingredient usage – including alternative caseinates, alternative protein source, alternative milk fat, the use of dairy composite powders, alcohol from whey
- Innovation in cream liqueur formulation and manufacture, including a review of patents published over recent times

The report contains approximately 150 pages. It can be purchased at an introductory price for orders received and confirmed up to and including 05 August 2008 of €2200 (Australian subscribers \$A3990 incl. GST) – normal price for orders received and confirmed after 05 August 2008 will be €2900 (Australian subscribers \$A5330 incl. GST). For further information, please contact:

Dairymark.com
A division of Shainwright Consulting and Research Group Pty Ltd
PO Box 3274
Norwood, SA 5067
AUSTRALIA

Telephone/Facsimile: +61-8-8339 8185
Email: info@dairymark.com
Website: www.dairymark.com



Scope and objectives of the report

The report considers strategic business opportunities for dairy industry participants in terms of opportunities and applications for dairy ingredient supply to the cream liqueur industry. In this report opportunities are considered from two quite distinct perspectives:

Standard supply criteria for products to fulfil existing demand
New and innovative approaches to ingredient supply through alternative dairy material offering

In addition, formulation and processing techniques are discussed that provide indications on optimising product stability.

The report recognizes that the cream liqueur industry is a growing opportunity – global consumption is expanding at about 2.8% per year (roughly in sync with the growth in world milk production). Moreover, growth prospects could be considerably understated if the burgeoning China market has a high level of consumer acceptance. This market is being targeted by Baileys Original Irish Cream, the global market leader, with strong market growth prospects envisaged.

Profiles of leading cream liqueur companies are provided in this report, including:

- Diageo plc, United Kingdom
- Distell Group Ltd, South Africa
- C&C Group plc, Ireland
- E&J Gallo Winery, United States of America
- McCormick Distilling Company, Inc, United States of America
- Ponche Crema SA, Venezuela
- Eckes & Stock GmbH, Germany
- First Ireland Spirits (Manufacturing) Company Ltd, Ireland
- St Brendan's Irish Cream Liqueur Company Limited, Ireland
- Halewood International Limited, United Kingdom
- Pernod Ricard, France
- Destilerias Campeny SA, Spain
- Lucas Bols BV, The Netherlands

In addition, the discussion ranges through innovation and patent activity of interest to cream liqueur formulators, and raw material suppliers – especially companies engaged in the marketing of dairy ingredients.

Pricing & timing

This report is available to subscribers in hard copy, dispatched by courier on receipt of payment:

- An introductory price for orders received and confirmed up to and including 05 August 2008 of €2200 (Australian subscribers \$A3990 incl. GST)
- Prices for orders received and confirmed after 05 August 2008 will be priced at €2900 (Australian subscribers \$A5330 incl. GST)
- The report will be available mid-May 2008



Report Content: Table of Contents

1. Executive Summary and Strategic Synopsis	1
1.1. A strategic precursor to the report.....	1
1.2. Baileys Original Irish Cream – the industry pioneer	3
1.3. Key global players in the industry	5
1.4. Trends in market share by key global players	6
1.5. Stability as an issue in formulation	6
1.6. Compositional overview for cream liqueurs.....	7
1.7. Key ingredient sources.....	9
1.8. Cream liqueur processing techniques	10
1.9. Ethanol from whey for cream liqueur manufacture.....	11
1.10. Caseinate for cream liqueur manufacture	12
1.11. Milk fat for cream liqueur manufacture	12
2. The Liqueur Industry	14
2.1. A ‘specialty product’ overview	14
2.2. Defining liqueurs	15
2.3. A compositional overview.....	16
2.4. Liqueurs and ‘specialty products’ – some examples	16
2.5. Alcoholic milk drinks – national controversy and contradictions	16
3. Cream Liqueurs.....	17
3.1. Background.....	17
3.2. Global market size historic and projected volumes	17
3.3. A global geographic market split	18
3.4. Major global players in the cream liqueur sector	20
4. Cream Liqueurs – Formulations and Compositions	22
4.1. Defining cream liqueurs	22
4.2. Stability issues with cream liqueurs	22
4.3. Dairy ingredient usage	23
4.4. Manufacturing practices	27
5. Company Profile – Diageo PLC	30
6. Company Profile – Distell Group Ltd.....	31
7. Company Profile – C&C Group PLC.....	33
8. Company Profile – E&J Gallo Winery.....	36
9. Company Profile – McCormick Distilling Company, Inc.....	38
10. Company Profile – Ponche Crema SA.....	39
11. Company Profile – Eckes & Stock GmbH	41
12. Company Profile – First Ireland Spirits (Manufacturing) Co Ltd.....	43
13. Company Profile – St Brendan’s Irish Cream Liqueur Co Ltd	45
14. Company Profile – Halewood International Limited.....	47
15. Company Profile – Pernod Ricard	48
16. Company Profile – Destilerias Campeny SA	50
17. Company Profile – Lucas Bols BV	51
18. Mini Profiles – Other Cream Liqueur Manufacturers	53
18.1. Waldemar Behn GmbH & Co KG	53
18.2. Diego Zamora SA.....	54
18.3. CL WorldBrands Ltd.....	55
18.4. Peter Zwack Consoten AG.....	56



18.5. Milan Metelka Likerka	57
18.6. Louis Royer SA	58
18.7. Palirna U Zeleného Stromu	59
18.8. Remy Cointreau Group	60
18.9. Suntory Ltd.....	61
18.10. Foster's Group Limited	62
18.11. Tru Spol sro	63
18.12. Si&Si Co.....	64
18.13. C&E Baitz Pty Ltd.....	65
18.14. Campari Milano SpA	66
18.15. Mozart Distillerie GmbH	67
18.16. Halasi Bacchus Kft.....	68
19. Patent Activity – Milk Marketing Board ‘Cream powder’	69
19.1. Ingredients	69
19.2. Manufacturing methods.....	71
19.3. Formulae and process details – cream liqueur powder.....	72
19.4. Formulae and process details – cream liqueur beverage.....	72
20. Patent Activity – Seagram & Sons, Inc: ‘Cream-based liqueur and process for their production’	74
20.1. Abstract.....	74
20.2. Patent description	74
20.3. Ingredients	76
20.4. Manufacturing method	77
21. Patent Activity - Nabisco Brands, Inc: ‘Cream-based liqueur and process’	78
21.1. Abstract.....	78
21.2. Patent description	78
21.3. Formulae and batch process details	82
22. Patent Activity – DMV Campina BV: ‘Storage stable liqueur or alcohol-containing beverage containing medium chain triglycerides’	84
22.1. Abstract.....	84
22.2. Summary.....	84
22.3. General approach to preparation of MCT oils for cream liqueurs.....	85
22.4. Using milk fat products as starting material for MCT preparation.....	85
22.5. Formulations and methods comparing the MCT approach	87
23. Patent Activity – Gilbeys of Ireland: ‘Production of cream-based liqueurs’	90
23.1. Abstract.....	90
23.2. Description of invention.....	90
23.3. Managing the pH.....	92
23.4. A continuous method for production of a cream liqueur	93
24. Other Patent Activity.....	94
24.1. Alcoholic cream.....	94
24.2. Oxidation stable liqueur.....	94
24.3. Thermo-reversible food product	94
24.4. A non-dairy cream liqueur	95
24.5. Mixture for production of fondant sweets ‘Belissimo’ coffee with liqueur.....	95
24.6. A cream liqueur	95
24.7. Composition for a confectionery product.....	95
24.8. Liqueur	96
25. Ethanol in Cream Liqueur Manufacture	97
25.1. Background.....	97
25.2. Ethanol from whey	97
25.3. Carbery Group	99
25.4. Fonterra Co-operative Group – ethanol manufacture.....	101
26. Caseinate in Cream Liqueur Manufacture	114



26.1. Overview	114
26.2. Variations in types of caseinate produced	115
26.3. Manufacturing methods	116
26.4. Standards and specifications for caseinate	119
26.5. Caseinate properties	121
27. Cream in Cream Liqueur Manufacture	123
27.1. Determining the fat content of cream	123
27.2. Types of cream	125
27.3. Cream products in the context of fluid milk products	128
27.4. Manufacturing cream specification	129
27.5. Managing viscosity in cream processing	129
27.6. Considerations for the packaging of cream	130
27.7. Glanbia supply of cream to Baileys	132
28. AMF in cream liqueur manufacture	133
28.1. AMF manufacture	133
28.2. AMF specification	136
28.3. Use of butteroil as a cream replacer in cream liqueur manufacture	137
29. Manufacture of Cream Liqueurs Using WPC	138



Report Content: List of Figures

Figure 1: Cream liqueur consumption trends (2000-2013, million litres p.a.)	1
Figure 2: The major cream liqueur industry players – volume estimates (2006, million litres)	5
Figure 3: Trends in global volume share – key players	6
Figure 4: Cream liqueur – a standard composition	7
Figure 5: Leading ‘specialty product’ brands – type and manufacturer	14
Figure 6: Estimated global volume share – key ‘specialty products’ (% , 2007)	15
Figure 7: Examples of liqueurs and ‘specialty product’ compositions	16
Figure 8: Global volume trends – cream liqueur consumption (2000-2013, million litres)	17
Figure 9: Estimated global share of cream liqueur consumption (2007, regional %)	18
Figure 10: The leading players in world cream liqueur market – global volume & share trends (2003-2006)	20
Figure 11: Typical composition of cream liqueurs	25
Figure 12: Process schematics – cream liqueur manufacture	27
Figure 13: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Diageo plc	30
Figure 14: Diageo major global brands – volume and key markets	31
Figure 15: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Distell Group Limited	31
Figure 16: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – C&C Group	33
Figure 17: Carolans Irish Cream – four stage manufacturing process	34
Figure 18: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – E&J Gallo Winery	36
Figure 19: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – McCormick Distilling Co., Inc.	38
Figure 20: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Ponche Crema	39
Figure 21: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Eckes & Stock	41
Figure 22: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – First Ireland Spirits company	43
Figure 23: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – St Brendan’s Irish Cream Liqueur Company	45
Figure 24: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Halewood International Limited	47
Figure 25: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Pernod Ricard	48
Figure 26: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Destileras Campeny	50
Figure 27: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Lucas Bols BV	51
Figure 28: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Waldemar Behn	53
Figure 29: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Diego Zamora	54
Figure 30: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – CL WorldBrands	55
Figure 31: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Peter Zwack Consorten	56
Figure 32: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Milan Metelka	57
Figure 33: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Louis Royer	58
Figure 34: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Palirna U Zeleného	59
Figure 35: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Remy Cointreau	60
Figure 36: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Suntory Limited	61
Figure 37: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Fosters Group Limited	62
Figure 38: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Tru Spol	63
Figure 39: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Si&Si Company	64
Figure 40: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – C&E Baitz	65
Figure 41: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Gruppo Campari	66
Figure 42: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Mozart Distillerie	67
Figure 43: Volume trend estimates in cream liqueur sales (2003-2006, million litres) – Halasi Bacchus	68
Figure 44: Compositions used to illustrate the invention – example 1	87
Figure 45: Compositions used to illustrate the invention – example 2	87
Figure 46: Compositions used to illustrate the invention – example 3	88
Figure 47: Compositions used to illustrate the invention – example 4	89
Figure 48: Dairy site process overview	98
Figure 49: Carbery Group Neutral Spirit Specifications [1]	100
Figure 50: Additional tests & specifications – Carbery Neutral Spirits [1]	100



Figure 51: Anchor Ethanol – plant overview.....	102
Figure 52: Overview of ethanol from acid whey process.....	103
Figure 53: The distillation flow pattern for Fonterra’s Reporoa distillery.....	104
Figure 54: Fonterra’s Edgecumbe Ethanol Manufacturing Process.....	105
Figure 55: Growth curve of yeast used in ethanol manufacture from whey.....	107
Figure 56: Potential further sites worldwide where Fonterra could manufacture ethanol from whey permeate.....	110
Figure 57: Anchor ethanol grade specifications.....	111
Figure 58: Types and end use applications for ethanol grades.....	112
Figure 59: Overview of sodium caseinate production process.....	114
Figure 60: Major global caseinate manufacturers.....	115
Figure 61: Methods for manufacture of different types of caseinate.....	116
Figure 62: Method for the manufacture of sodium caseinate.....	118
Figure 63: Plant schematic for sodium caseinate manufacture.....	119
Figure 64: Typical composition and properties of sodium caseinate.....	119
Figure 65: Approximate compositions for commercial caseinate products (vol. %).....	120
Figure 66: Composition, physical and sensory standards, and requirements for microbiological quality for spray dried sodium caseinate.....	120
Figure 67: Principles of fat standardization – cream & market milk.....	123
Figure 68: Basic principles of cream separation.....	124
Figure 69: Spectrum of application of membrane separation processes in the dairy industry.....	125
Figure 70: A simple schematic of fluid milk & cream products.....	128
Figure 71: Specification: Pasteurized Sweet Cream ex T.C. Jacoby & Co.....	129
Figure 72: Process schematic – AMF manufactured direct from cream.....	133
Figure 73: Anhydrous milk fat – mass balance.....	135
Figure 74: Typical specification – AMF.....	136
Figure 75: IDF standards for AMF, anhydrous butteroil & butteroil.....	137
Figure 76: Composition of a typical cream liqueur using WPC.....	138
Figure 77: Variations in cream liqueur production using WPC.....	138
Figure 78: Stability of various cream liqueur formulations made from WPC.....	139



Dairymark.com's credentials

Dairymark.com is a division of Shainwright Consulting & Research Group Pty Ltd, and is a specialist dairy industry intelligence and consulting organization. The company has completed a number of strategic, market and business development dairy research assignments for Australian and international clients. Recent examples include:

- Bangladesh dairy market study
- An overview of global dairy supply and demand
- A longitudinal dairy pricing study
- A strategic review of dairy industry patent activity
- A strategic review of dairy R&D activity
- A strategic review of trends in whey permeate utilization
- A study of the Australasian dairy industry
- Strategic research identifying trends and opportunities in Asian feed markets for dairy ingredients

In addition the company has published multi-client reports, including:

- Milk ingredients – a strategic review of opportunities and applications in the oral care industry
- Dairy carbohydrates – a strategic review of opportunities and applications
- Dairy permeates – a strategic review of opportunities and applications
- Buttermilk – a strategic review of opportunities and applications
- Colostrum – a strategic review of opportunities and applications
- Global ice cream industry – strategic market, international trade & production review

Copyright

Information contained in Dairymark.com reports is confidential and for use only by clients and subscribers of Dairymark.com with valid contracts.

No part of this publication may be copied, reproduced, stored in a retrieval system, or transmitted in any form by any means electronic, mechanical, photocopying, recording or otherwise without the written permission of the publisher. All material published within this report is copyright Dairymark.com, a division of Shainwright Consulting & Research Group Pty Ltd.

Liability

Whilst every effort has been made to ensure that the information contained in this report is accurate and the opinions expressed are sound, Shainwright Consulting & Research Group Pty Ltd cannot be made liable for any errors, omissions or incorrect information or for any loss or consequential losses arising as a result of decisions taken based on the contents of this report.

For further information please contact the publisher:

Dairymark.com
A division of Shainwright Consulting and Research Group Pty Ltd
PO Box 3274
Norwood, SA 5067
AUSTRALIA

Email: info@dairymark.com
Website : www.dairymark.com