Turning Whey into Alcohol at Dubliner Cheese

O₂ Environmental

Water Technology Market Experts

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Details on BlueTech Tracker™ & Webinars
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Dairy Industry

• Large global industry worth $296Bn worldwide
• In the US there are
  – 485 Fluid milk manufacturing plants
  – 481 Cheese manufacturing plants
  – 196 Dry, condensed, and evaporated dairy product manufacturing.
• It is water & energy intensive
We work with
- Emerging Technology Companies
- Investors and Corporations
- Larger Water Companies
Technology Assessment Group (TAG)
BlueTech Tracker™
BlueTech Tracker provides intelligence on water technology innovation. We are focused on what is changing, how new approaches, new technologies, and new needs, are re-shaping the water technology market.

For Plans & Pricing visit: www.BlueTechTracker.com
Sample Reference Clients

- OSTARA Nutrient Recovery Technologies Inc.
- MaxWest Environmental Systems Inc.
- Oasys
- SCFI
- CODEXIS
- UV SCIENCES
- APT water
- SEVERN TRENT SERVICES
- TROJAN UV Water Confidence
- FourWinds Capital Management
- frog capital
- Global Water Intelligence
- NORAM
- BC INNOVATION COUNCIL
- EnviroGene
US Dairy Water Use

- Potable water use: 80-160 MGD
- Organic Loading equivalent of more than 16 Million people per day.
Carbery Milk Products
Whey

- 90.5 Billion pounds of whey produced,
- about 45% of this can be accounted for in whey products.
- But …65% is unaccounted for and much of that may be treated as a wastewater, but could be fermented into alcohol.
- Potential in US
  - 203 Million gallons of ethanol
Whey 2-3% Lactose → Fermenter: Beer at 3% → Distillation: 96% → Alcohol 660,000 g/a
Whey Ethanol
Whey 2-3% Lactose → Fermenter: Beer at 3% → Distillation: 96% → Alcohol 660,000 g/a

Heat Requirements:
- Pre-heating of Milk
- Boiler Feedwater Temp Increase
- Pasteurisation of Milk
- CIP

Heat Recovery from Steam → Anaerobic Digestion → Biogas for Boiler
Anaerobic Treatment
Whey 2-3% Lactose

Fermenter: Beer at 3%

Distillation: 96%

Alcohol 660,000 g/a

Heat Recovery from Steam

Heat Requirements:
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Anaerobic Digestion

Biogas for Boiler

Heat Exchanger

WWTP

Water Re-use

High Quality Treated Water 1 MGD

Phosphorus
Phosphorous
D.A.F. System
Water Re-use

- APT Water
  - HiPox Advanced Oxidation System
Carbery Milk Products
Whey
2-3% Lactose

Fermenter:
Beer at 3%

Distillation: 96%

Alcohol
660,000 g/a

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Boiler Feedwater Temp Increase
Pasteurisation of Milk
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Heat Recovery from Steam

Anaerobic Digestion

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High Quality Treated Water
1 MGD

Water Re-use

Phosphorus
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