

Customer

Brewery Duvel Moortgat

Duvel



Customer profile

The Euronext-quoted Belgian brewer Duvel Moortgat was founded in 1871 and has a tradition in premium high fermentation beers. With a yearly throughput of more than 175 million bottles, Moortgat's golden ale Duvel, is considered among the best of many Belgian beers.

Project summary

Until May 2003, Moortgat was using a poorly integrated, custom-made traceability solution. A package was needed for food safety and traceability that raises operational profitability.

"The custom software infrastructure no longer fitted today's needs with respect to product quality management and traceability", states Gert Thoonen, Project Manager MES-ICT, "We started looking for an integrated, database-driven solution that allowed for fast configuration according to our specific needs and included real-time, bi-directional data exchange. you.trace.it appeared to be the best buy because of the fast return-on-investment".

Solution

Tracewise developed a business model to allow for registering all batch transformations in the Duvel brewing process. The configuration includes 30 process stages and 46 quality controls, which keep records of more than 750 pieces of information.

Automatic track & trace

you.trace.it keeps track of lot transformations during the consecutive operations in the 3-month brewing process, from brewing to fermentation, maturation, filtration, tank storage up to bottling and shipment.

Integrated quality assurance

The premium quality of both the processing equipment and the brew itself are closely monitored. After a given number of production hours, you.trace.it prints a bar code label for a microbiological sample to be inspected. The installation can only be restarted after confirmation of the results.

Benefits

Apart from preventing recalls, Gert Thoonen emphasizes that you.trace.it helps increase business efficiency and reduce costs:

Reduced water consumption in CIP

CIP reports generated by you.trace.it show that the volume of waste water (40.000 l/month) and used cleaning product (200 l/month) were reduced considerably. This results in a more ecological production process, financial profits and increased machinery availability.

Workflow feedback

To diagnose production problems or quality fluctuations, the interpretation of lot-related process and quality data is of great help. The cause of unpredictable bacterial infections could be found by analysing traceability data.

Security

Built-in security with tag readers allows to log personal actions, which increases personal responsibility, but also improves the consistency of the beer quality due to reduced manual parameter adjustments.

Sampling

Frequent quality sampling prevents infections. The outcome of laboratory tests determines whether production is resumed.

Reduced cost of ownership

With a reduced cost of ownership Moortgat captures twice the volume of data than before, in real-time and bi-directional.

Process flow

Duvel's process flow consists of the following operations:

Wort filtration



Milled malt and water are mixed and heated, which separates the wort from the druff. The wort is boiled and supplemented with the hops. Every 2 seconds, oxygen, temperature and Ph levels are captured.

Fermentation & maturation



High fermentation takes place at a temperature of 20 to 26 °C for 4 to 8 days. Then, the beer is cooled to 0 °C for 3 weeks in conditioning vats for maturation. Every 15 minutes, the fermentation temperature is captured.

Filtration



When the beer is sufficiently mature, it is filtered to remove remaining solid particles from the beer. Distinctive parameters are the circuit, the beer, CO₂ and sugar levels. Every 2 seconds, 15 analog values are monitored.

Bright beer tanks



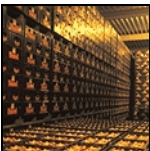
After filtration the beer is matured in the bright beer tanks. Temperature and pressure are monitored every 15 minutes.

Bottling



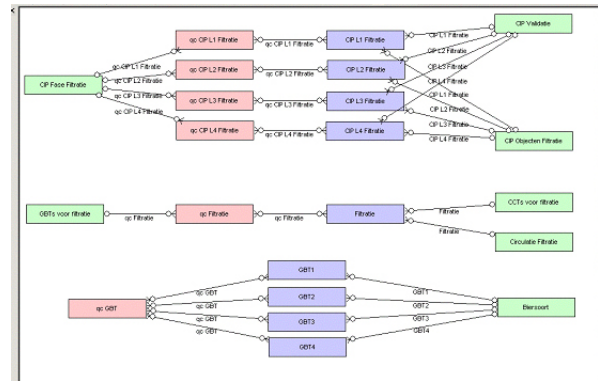
Barrels or bottles are filled with the beer after they have been cleaned and sterilised. Pressure and temperature are monitored. Recipe & best before date are major lot ID parameters.

Secondary fermentation



Secondary fermentation occurs at 22 °C for 10 days. After the warm comes the cold cell, where the beer stays for 6 weeks at a temperature of 6 °C.

» Moortgat's business model in you.model.it:



» Lot ID registration in you.trace.it:

OID	Lot ID	Begin tijd	Endtijd	Gecreëerd op	Laatste
30	FILT401210396	21/01/2004 10:38	21/01/2004 10:40	21/01/2004 10:38	21/01/2
31	FILT4012114055	21/01/2004 14:03	21/01/2004 23:24	21/01/2004 14:03	21/01/2
32	FILT4012038440	26/01/2004 8:44	27/01/2004 8:54	26/01/2004 8:44	27/01/2
33	FILT4012709544	27/01/2004 8:54	27/01/2004 8:54	27/01/2004 8:54	27/01/2
34	FILT4012712001	27/01/2004 13:10	27/01/2004 13:10	27/01/2004 13:10	27/01/2
35	FILT4012805432	28/01/2004 4:43	28/01/2004 4:43	28/01/2004 4:43	28/01/2
36	FILT4012905456	28/01/2004 5:45	28/01/2004 21:41	28/01/2004 5:45	28/01/2
37	FILT4013005513	30/01/2004 8:51	30/01/2004 13:19	30/01/2004 8:51	30/01/2
38	FILT4020056245	2/02/2004 5:43	2/02/2004 23:39	2/02/2004 5:43	2/02/200
39	FILT4020412184	4/02/2004 12:18	4/02/2004 13:22	4/02/2004 12:18	4/02/200
40	FILT4020414380	4/02/2004 14:38	4/02/2004 18:01	4/02/2004 14:38	4/02/200
41	FILT4020510234	5/02/2004 19:32	6/02/2004 0:08	5/02/2004 19:32	6/02/200
42	FILT4021103434	11/02/2004 13:43	12/02/2004 12:33	11/02/2004 13:43	12/02/200
43	FILT4021212302	12/02/2004 12:30	12/02/2004 12:38	12/02/2004 12:30	12/02/200
44	FILT4021705105	17/02/2004 9:18	17/02/2004 18:21	17/02/2004 9:18	17/02/200
45	FILT4021805391	18/02/2004 5:39	18/02/2004 4:48	18/02/2004 5:39	18/02/200
46	FILT4022311040	23/02/2004 11:04	23/02/2004 22:03	23/02/2004 11:04	23/02/200
47	FILT4022005001	26/02/2004 8:30	26/02/2004 8:32	26/02/2004 8:30	26/02/200
48	FILT4030210624	2/03/2004 10:52	4/03/2004 10:52	2/03/2004 10:52	4/03/200
49	FILT4030210624	2/03/2004 10:52	4/03/2004 10:52	2/03/2004 10:52	4/03/200
50	FILT4030413193	4/03/2004 13:19	4/03/2004 13:47	4/03/2004 13:19	4/03/200

» Lot genealogy in you.trace.it:

OID	Lot ID	Begin tijd	Endtijd	Gecreëerd op	Laatste update op	Lot hoeveelheid	Erftree	Recept	Batchlabel	Afvalhoeveel
46	FILT4022311040	23/02/2004 11:04	23/02/2004 22:03	23/02/2004 11:04	23/02/2004 22:03	1088	IN	Duvel		
47	FILT4022005001	26/02/2004 8:30	26/02/2004 8:32	26/02/2004 8:30	26/02/2004 8:32	1081	IN	Fout Recept Lezen		
48	FILT4030210624	2/03/2004 10:52	4/03/2004 10:52	2/03/2004 10:52	4/03/2004 10:52	1082	IN	Duvel		
49	FILT4030210624	2/03/2004 10:52	4/03/2004 10:52	2/03/2004 10:52	4/03/2004 10:52	1082	IN	Duvel		
50	FILT4030413193	4/03/2004 13:19	4/03/2004 13:47	4/03/2004 13:19	4/03/2004 13:47	1107	IN	BEL_Val		

Voorwaarts Traceren	Afvalhoeveel	Waarden
OID	51520	
Lot ID	AFVU4030413193	
Begin tijd	4/03/2004 13:19	29
Endtijd	4/03/2004 13:21	29
Gecreëerd op	4/03/2004 13:19	29
Laatste update op	4/03/2004 13:21	29
Lot hoeveelheid	259	
Erftree	IN	
Recept	Duvel	
Batchlabel	070004/02	
Afvalhoeveel	Flessen	