

Centec DeAlcoTec System – The taste of technology



Innovative Dealcoholisation of Fermented Beverages and Products - chance for a “new” market -

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Centec DeAlcoTec



1. Technology of dealcoholisation of beer

2. Market situation

3. Summary

1. Technology - DeAlcoTec at drinktec, Munich

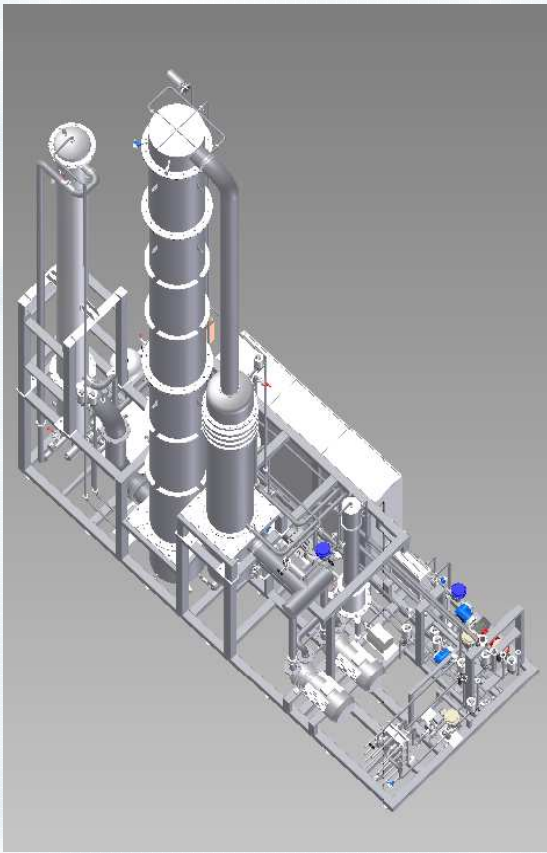


1. Technology - DeAlcoTec - Basic Facts



- Applicable for beer, wine, cider and other alcoholic beverages and products
- Based on the principle of vacuum evaporation
- Gentle processing due to low pressure technology (**$\ll 35^{\circ}\text{C}$ by 40 mbar**)
- Selective for alcohol removal and minimized loss of aroma
- Fully automated operation and process control

1. Technology - DeAlcoTec - Operating Principle



- After gentle pre-heating, the product is degassed, CO₂ is removed and then send to the evaporation column
- beer vapor flowing in counter current direction to the product removes the alcohol. On top of the column the first stage of aroma recovery is included
- The resulting alcohol-free product is chilled, blended to required gravity and carbonated
- The alcohol-rich exhaust vapor is concentrated and condensed delivering sellable alcohol (option)
- The aroma from vapor/CO₂ is recycled to the product by a recovery system

1. Technology - DeAlcoTec - Technical Data



- **Capacity:**
200 to 20.000 l/h; 2 – 250 hl/h
other capacities on request
- **Operation:**
24 h/day; CIP every 1 -2 weeks
- **Dealcoholisation:**
down to 0,01 vol%
- **Alcohol Concentration:**
30 to 35 vol%;
75 to 90 vol% (with add. rectification column)
- **Investment Cost (5hl/h ~ 30.000 hl/year):**
> 200.000 €, without options
- **Running costs:**
1,40 €/hl (no alcohol sale)
0,50 €/hl (with alcohol sale)

1. Technology - DeAlcoTec for Gaffel Brewery, Cologne



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DeAlcoTec for Gaffel Brewery, Cologne



DeAlcoTec for Gaffel Brewery, Cologne



1. Technology - PRODUCT MONITORING

Determination of extract, alcohol, Original Gravity and degree of fermentation



BEERMONITOR Combitec



CO2-MONITOR Carbotec



ALCOHOL MONITOR Rhotec "AlcTax"



O2-MONITOR Oxytrans



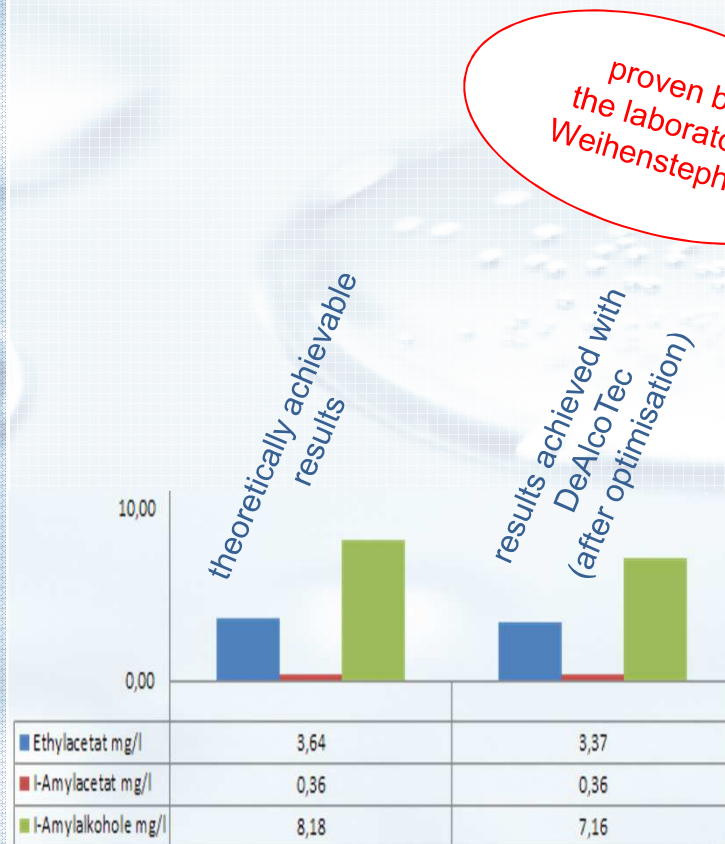
1. Technology–Why Centec developed DeAlcoTec ?



- Centec philosophy: Where ever a Centec sensor is in, we build this unit
- DeAlcoTec fits perfectly into the Centec product portfolio
- The system requires high precision Centec sensor technology
- Many potential customers are already using Centec sensors and systems and know the quality we supply
- DeAlcoTec delivers outstanding product quality; out of competition results!

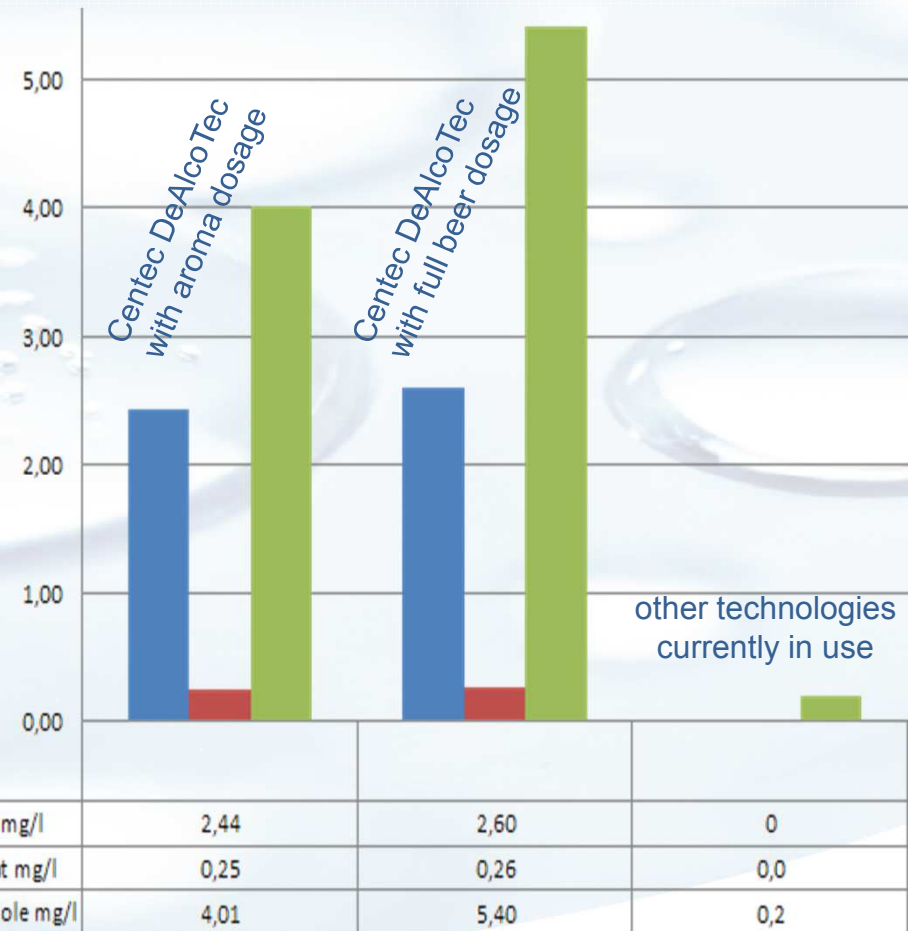
1. Technology - Lab Proven Results

DeAlcoTec conserves beer flavor (mainly ethyl / amyl acetate) almost to the extend *theoretically* achievable



proven by the laboratory
Weißenstephan

DeAlcoTec conserves beer flavor better than *any other technology*



2. Market situation Centec DeAlcoTec

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???

WHY

???

???

“the hell” ???

???

???

alcohol FREE beer?

2. Market situation Centec DeAlcoTec

World beer sale

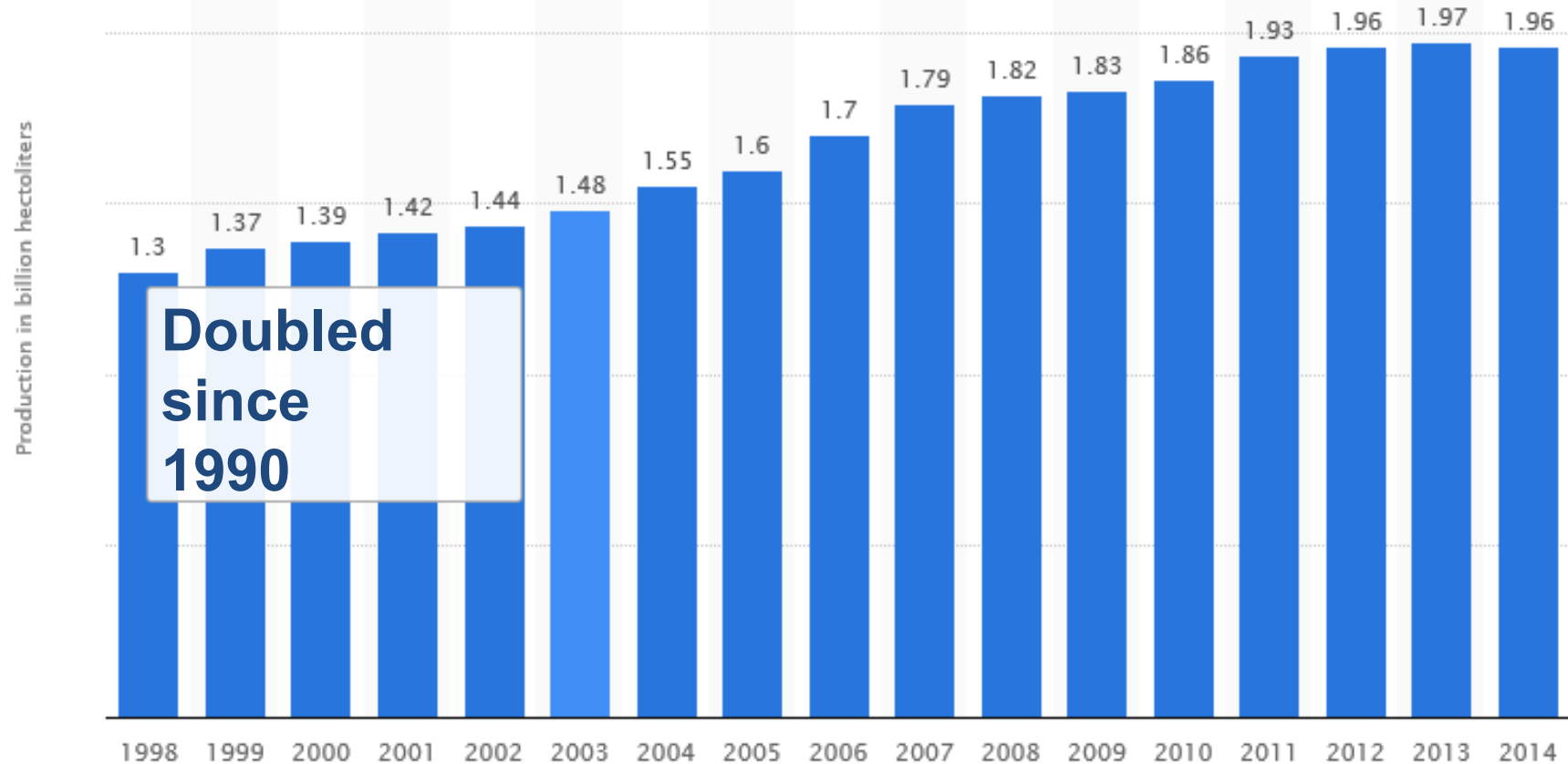
	2013 1000 hl	2014 1000 hl	2013 +/- % rel.	2014 +/- % rel.
Europäische Union	382 547	383 505	-1,6 %	0,3 %
Restliches Europa	149 408	139 324	-8,0	-6,7 %
Europa gesamt	531 955	522 829	-3,5 %	-1,7 %
Nordamerika	325 870	324 447	-1,9 %	-0,4 %
Mittelamerika/Karibik	17 383	17 475	3,0 %	0,5 %
Südamerika	227 387	230 548	1,9 %	1,4 %
Amerika gesamt	570 640	572 470	-0,3 %	0,3 %
Asien	714 898	704 079	3,3 %	-1,5 %
Afrika	132 857	139 760	6,2 %	5,2 %
Australien/Ozeanien	21 731	21 097	0,6 %	-2,9 %
WELT GESAMT	1 972 081	1 960 235	0,5 %	-0,6 %

Quelle: Barth Bericht 2014/2015

Nearly 2 billion hl/year

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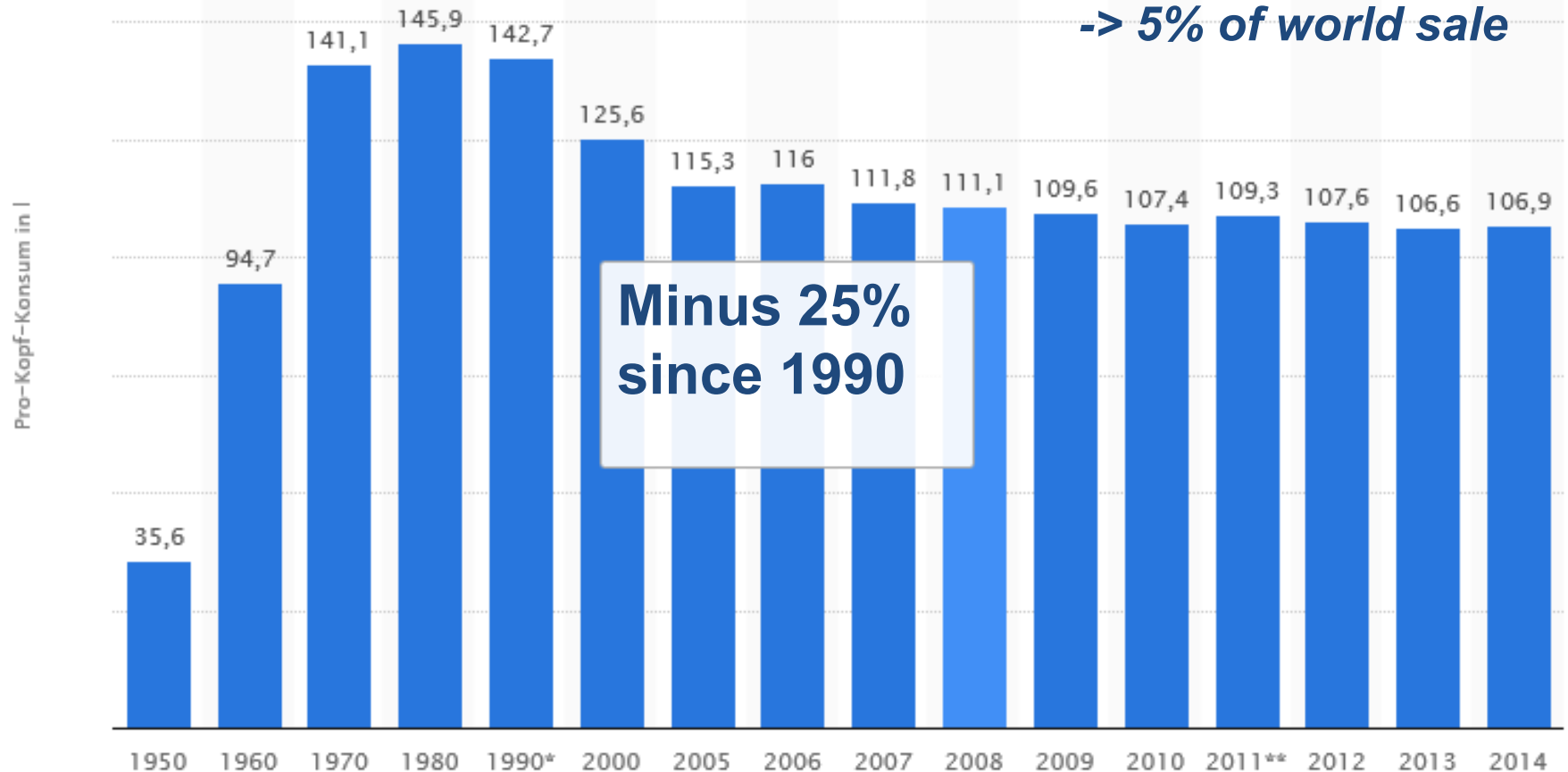
World beer sale development (~ 2 bill. hl)



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German beer sale development (~ 100 mill. hl)

-> 5% of world sale



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Conclusion of the graphics:

- **Increase** of beer (& alcohol) consumption only in the emergine markets
- In high level industrial countries, beer (& alcohol) consumption **decrease**
→ by reason alcohol

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Only the dose makes the poison
(Paracelsus)

**Beer is maybe the greatest, marvelous,
fantastic, tasty and healthy drink ever!**
Unfortunately only limited by alcohol ...
(Prof. Dr. A. Koller)

2. Market situation Centec DeAlcoTec

Looking back into history (Germany):

- About beginning of last century, brewing industry was one of the leading industries
 - Successfull, they also started out to produce soft drinks after 2nd world war
 - But today, soft drinks became an own and lost market for the brewing industry
- > Uncompetitivity

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Latest stories of **success** in the German brewing industry market

- Alcohol free beer (1980)
- Radler / Shandy (in bottles) (1990)
- The Bionade story starts (1995)
- Beer mix drinks (2000)
- Alcohol FREE white beer (2005)
- Alcohol FREE Radler / Shandy
= **Fassbrause** (2010)

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Alcohol free beer market Germany (Global)

alkoholf. Bier 2003
414 890
130 736
289 293
179 691
649 903
176 432
426 683
0
0
0
0
0
2 267 628

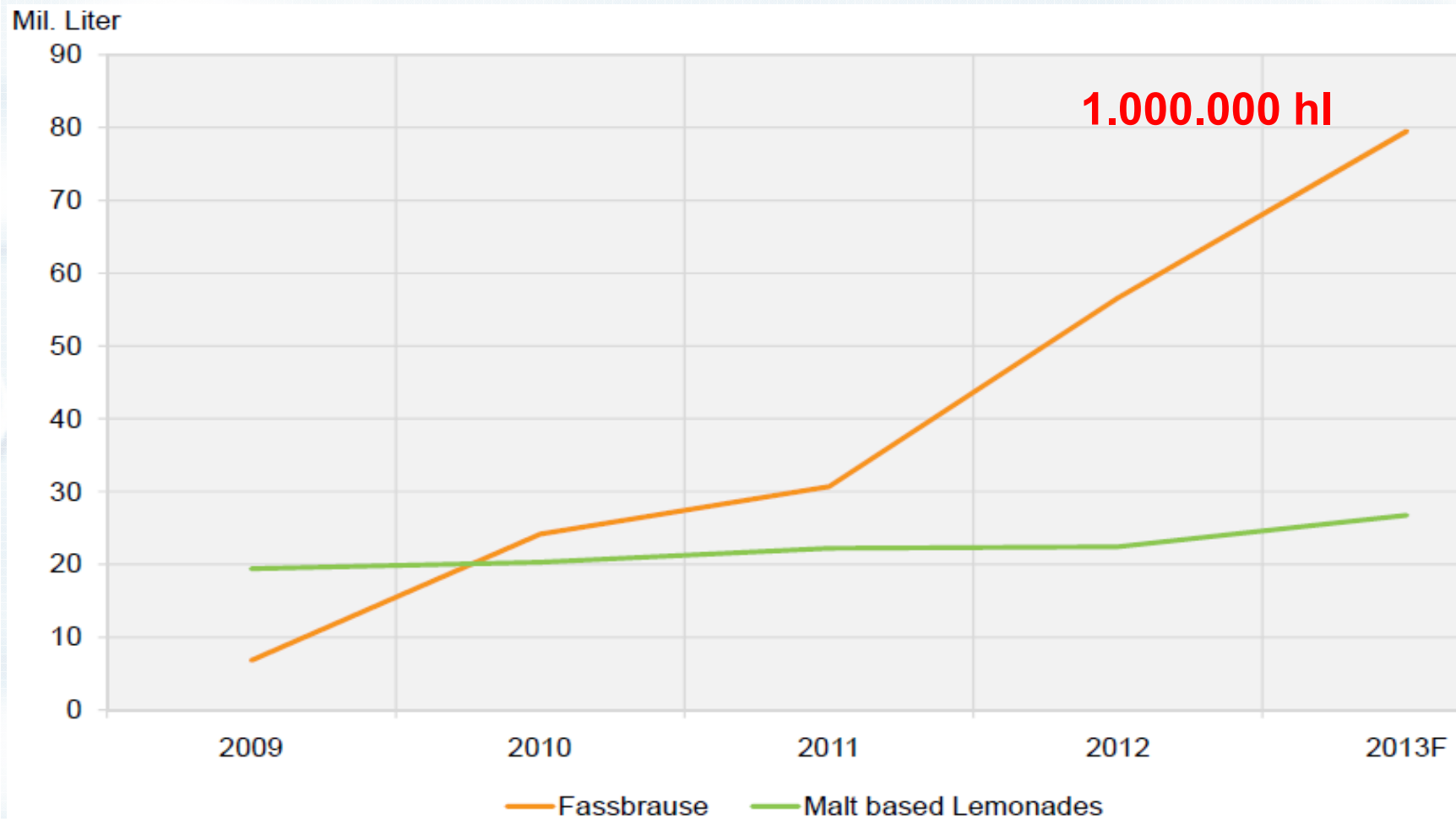
- 1980 started
- 20 years later increased to 2 mill. hl
- 10 years later doubled to ~ 5 mill. hl in 2013!

**-> 2013 ~ 5% of the total
German beer market of 100 mill. hl**
(5% of global beer market 2.bill. hl = 100 mill . hl)

alkoholf. Bier 2013
569 727
140 000
1 128 000
260 000
450 000
176 000
1 700 000
100 000
18 500
200 338
0
94 000
4 836 565

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Market development “Fassbrause”



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The benefits of alcohol FREE beer and beer mix:

- **NO limits by ALCOHOL**
- New market with higher income
- New customers
- No cannibalism
- Brand and marketing symbiosis and support
- Hard to copy (for soft drink industry)

3. Summary - Centec DeAlcoTec

Summary

The beer market in Europe is in decline, not only due to legal and social trends, but also changes in drinking habits,

And while retail sales of beer in Europe and Germany dropped about 6 – 8 % over the last five years, **the sales of non-alcohol beer & beer mix increased about 33% (90% by Germany)**

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Centec  **centec**

➤ **THE TASTE OF
TECHNOLOGY**

**Tank you very much for
your attention**