Analytical and sensorial evaluation of the shelf-life of freshly opened and already opened BiB Chardonnay

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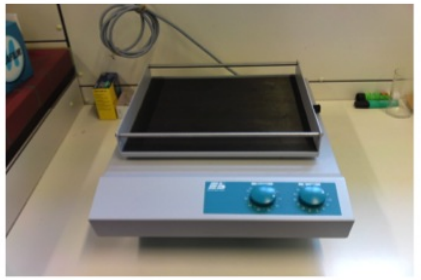
Bottling in April 2008, Chardonnay CA, vintage 2006

- BiB (3L):
  - PA, EVOH 6 µm
  - PA, EVOH 8 µm
  - PA, metallized
  - PB, EVOH 6 µm





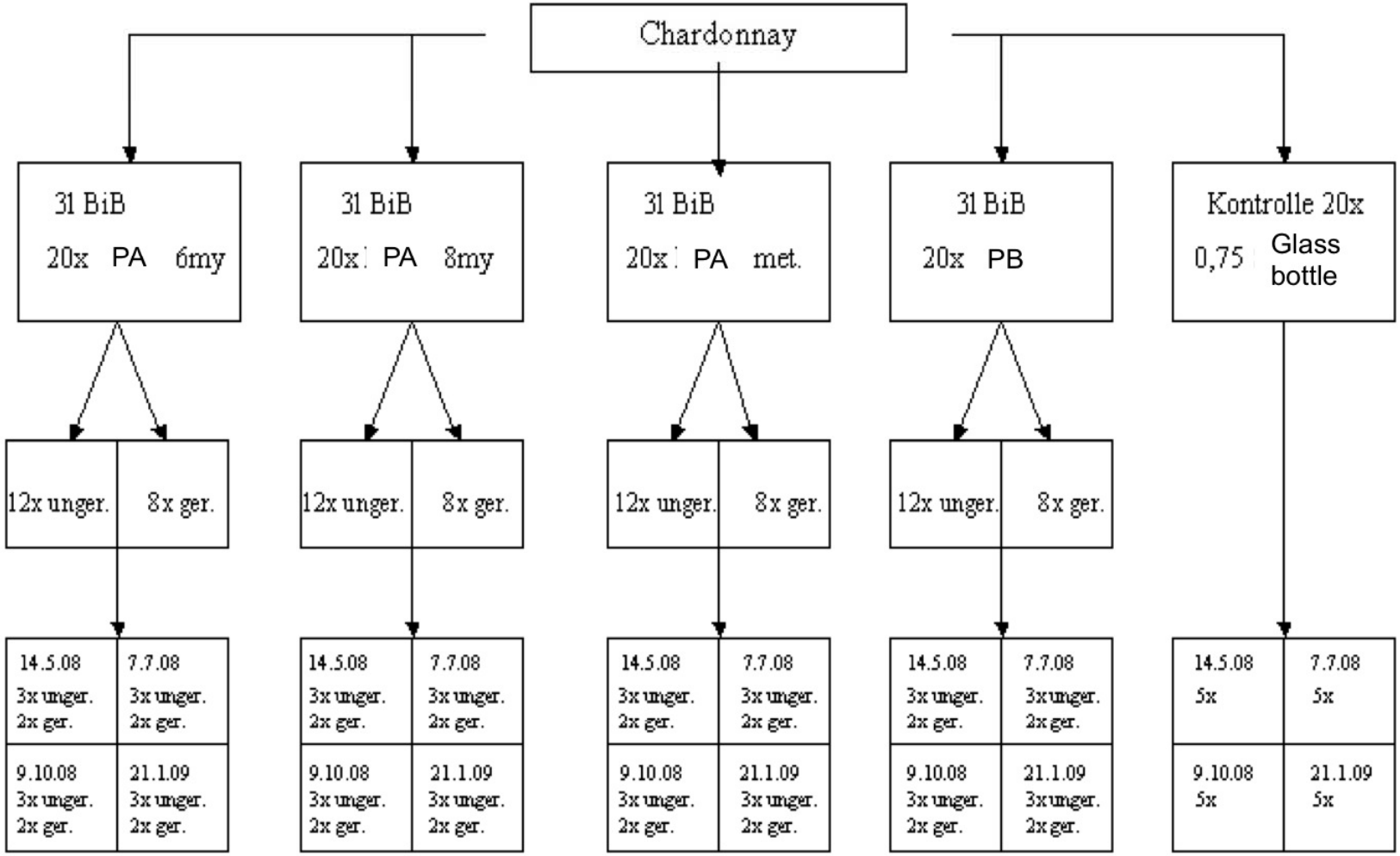
- Control - 0,75 L Glass bottle



- Mechanical stress (yes/no), (vibration 1 h, 100/min)

- Storage at 22-25°C to accelerate ageing

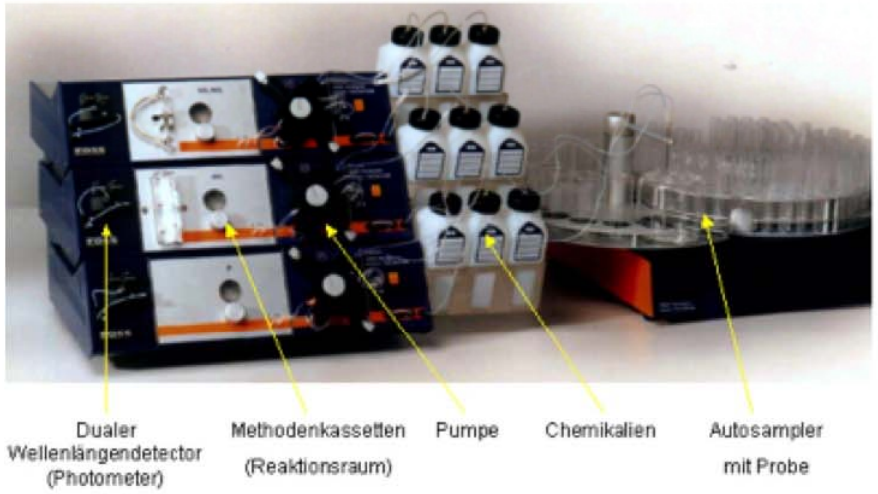
- Analytical and sensorial tests after 1, 3, 6 and 10 months storage of
  a) freshly opened BiBs *(3 with vibration, 2 without vibration)*
  b) already opened BiBs in former control points
  c) glass bottles (5 per control point)


Chardonnay
31 BiB
20x PA 6my
31 BiB
20x PA 8my
31 BiB
20x PA met.
31 BiB
20x PB
Kontrolle 20x
0,75 Glass bottle
12x unger. 8x ger.
12x unger. 8x ger.
12x unger. 8x ger.
12x unger. 8x ger.
14.5.08 3x unger. 2x ger.
7.7.08 3x unger. 2x ger.
9.10.08 3x unger. 2x ger.
21.1.09 3x unger. 2x ger.
14.5.08 5x
7.7.08 5x
9.10.08 5x
21.1.09 5x

Analytical Parameter			
Alcohol	total	100,3	[g/l]
		12,71	[%v/V]
	existing	96,5	[g/l]
		12,22	[%v/V]
Extract	total	34,4	[g/l]
	sugarfree	26,3	[g/l]
Sugar	before Inversion	8,1	[g/l]
	after Inversion	8,1	[g/l]
Total acidity		7,5	[g/l]
Sulfur dioxide	free	76	[mg/l]
	total	207	[mg/l]
Relative Dichte		0,9972	

California Chardonnay 2006

Analysis directly after bottling, April 2008

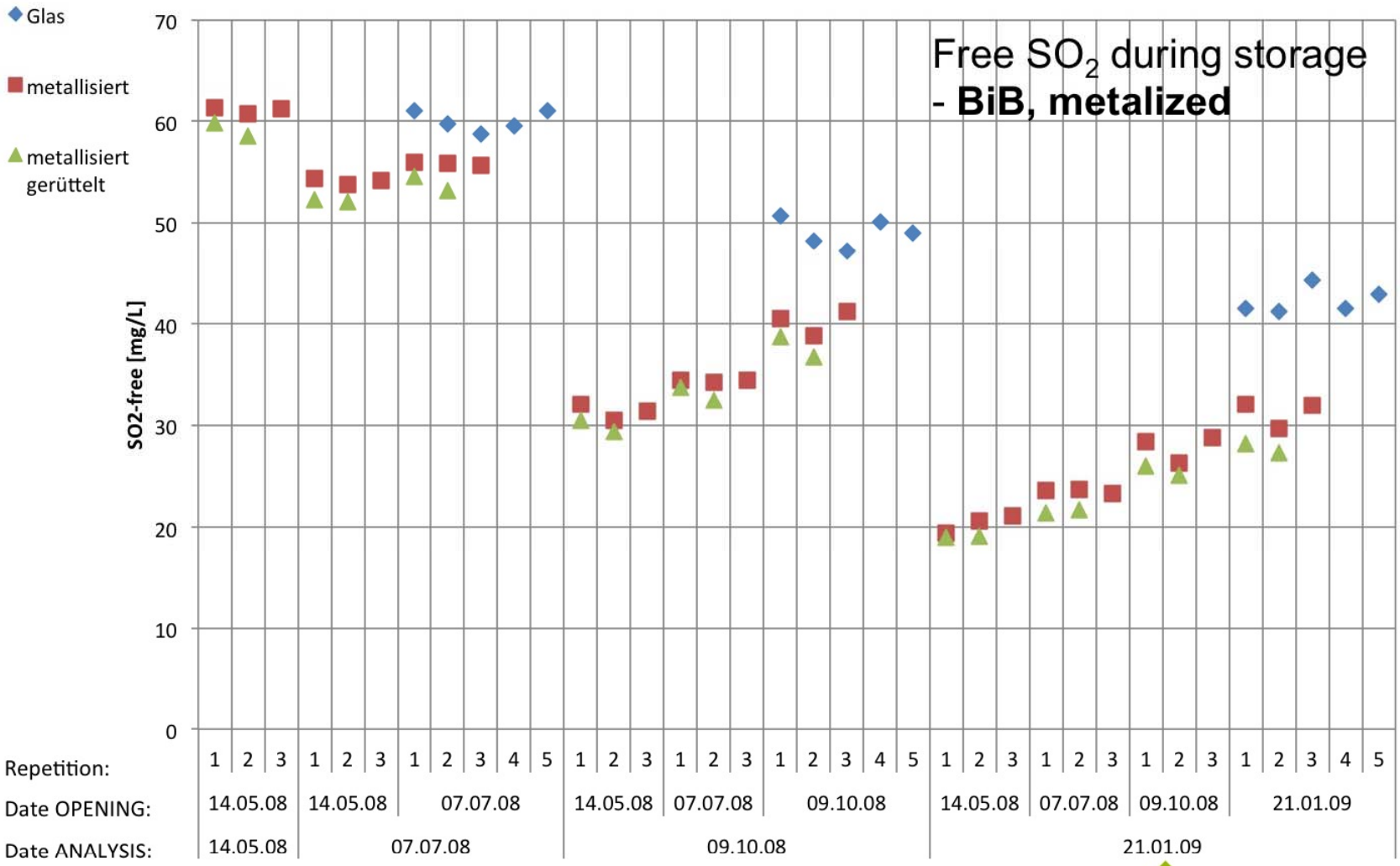


Sensorial Analysis

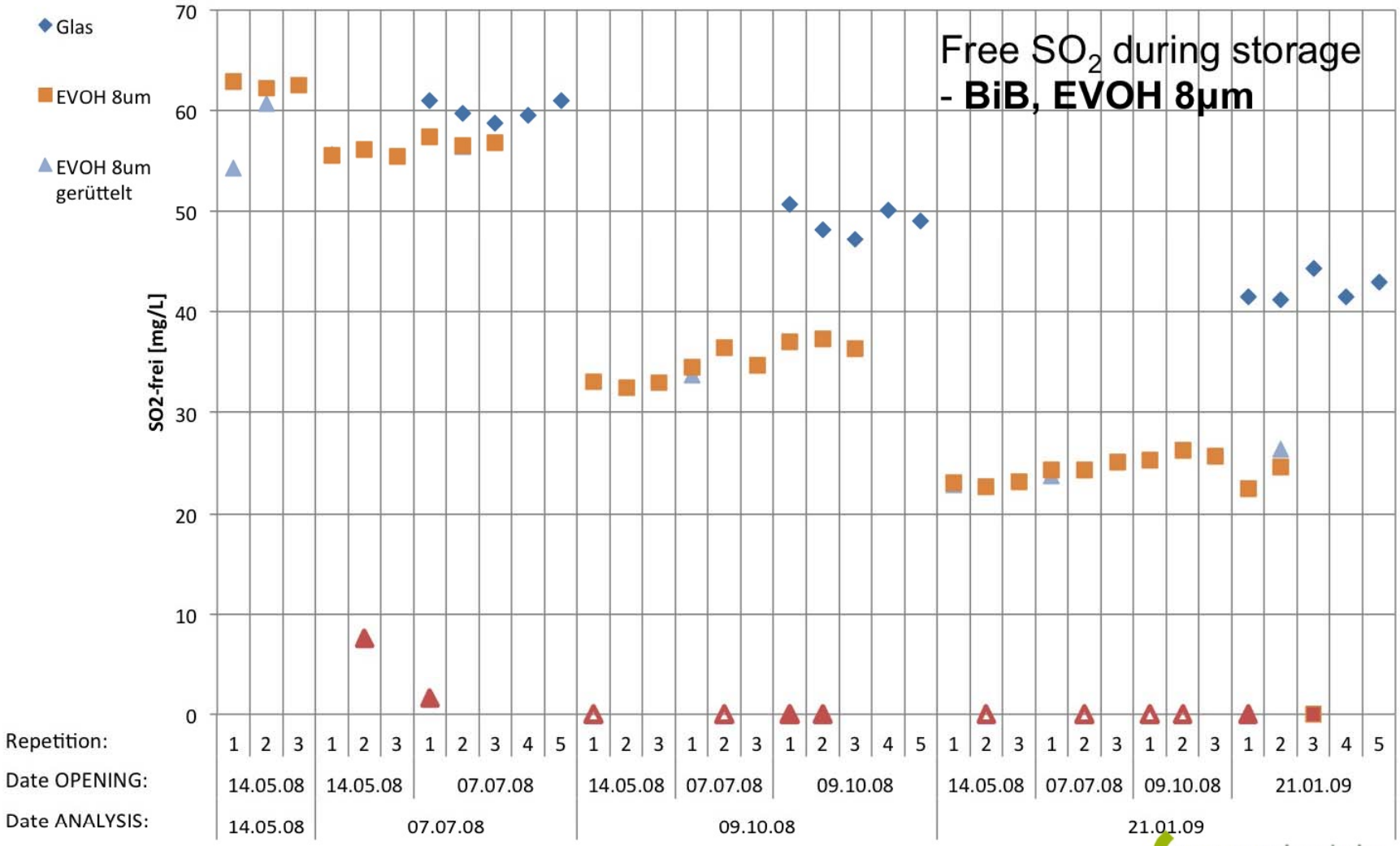
- **Triangle** tests acc. to:
  DIN 10951
  ISO 4120
  § 35 LMBG (method 00.90 4.)

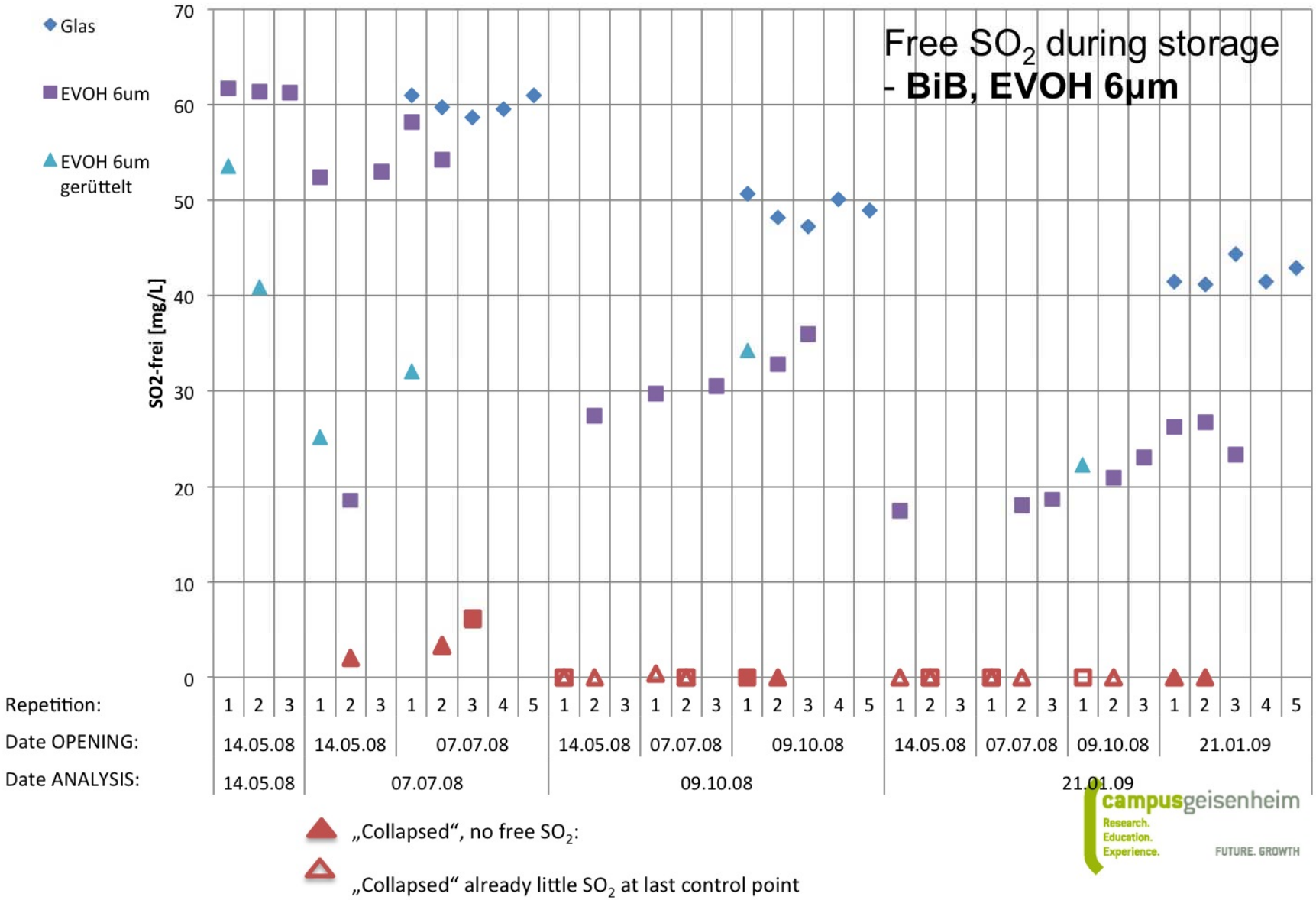
- **Ranking** tests acc. to:
  DIN 10963
  ISO 8587
  § 35 LMBG (method 00.90 7.)





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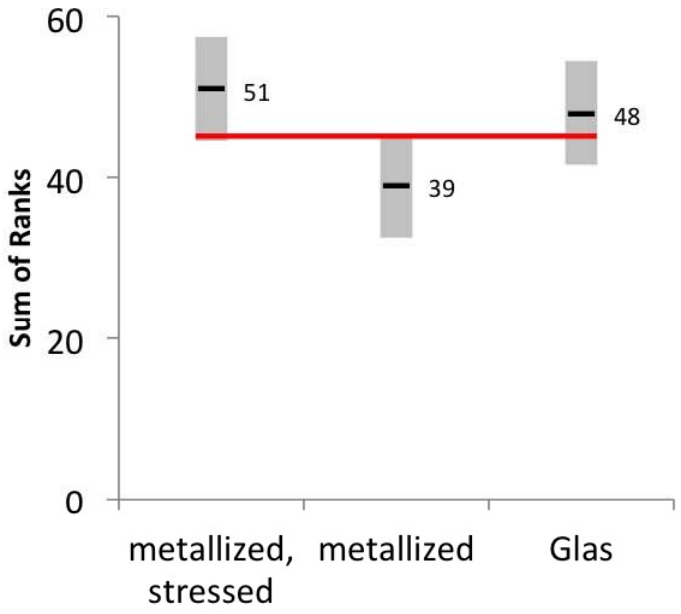

Free SO_2 during storage
- **BiB, EVOH 8µm**
Glas
EVOH 8um
EVOH 8um gerüttelt
SO2-frei [mg/L]
0
10
20
30
40
50
60
70
Repetition:
Date OPENING:
Date ANALYSIS:
14.05.08
07.07.08
09.10.08
21.01.09
„Collapsed", no free SO_2:
„Collapsed" already little SO_2 at last control point



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Results Sensorial Analysis

- **Ranking** tests („freshness“) after 10months of storage, 22-25°C, n = 23 judges)



Variants: Metallized Bags
- stressed by vibration
- not stressed

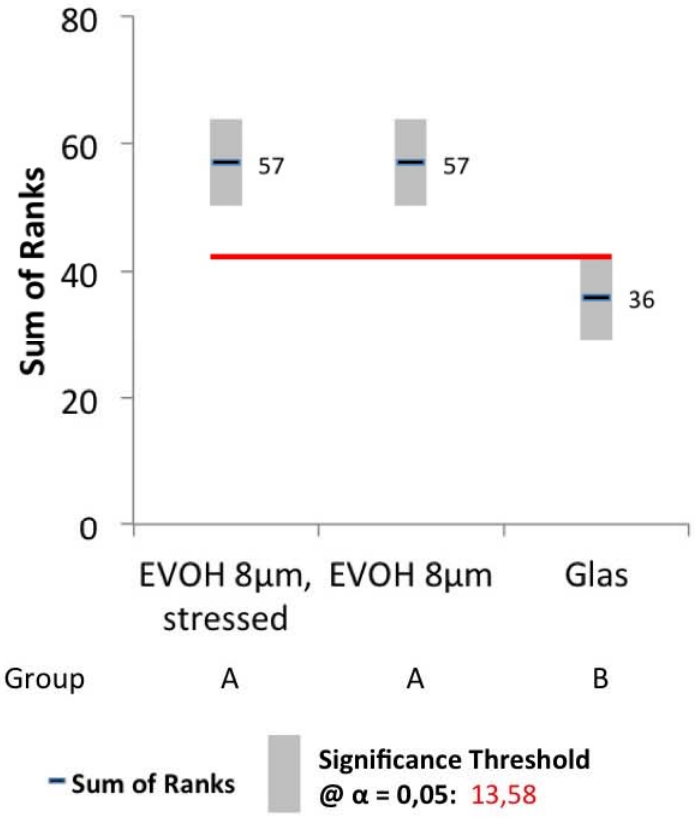
Glas bottles

- No significant differences between Glass and BiBs
- No significant differences between mechanical stress / not

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Results Sensorial Analysis

- **Ranking** tests („freshness“) after 10months of storage, 22-25°C, n = 25 judges)



Variants: Bags with 8µm EVOH-Barrier
- stressed by vibration
- not stressed

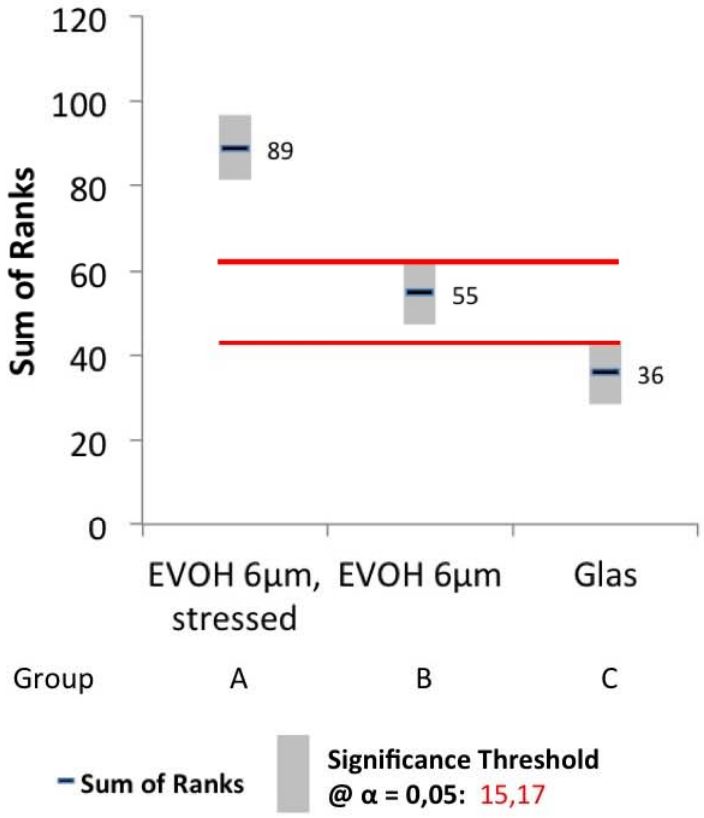
Glas bottles

- Glass significant different from EVOH 8µm Bags
- No significant difference between mechanically stressed and not stressed 8 µm EVOH Bags

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Results Sensorial Analysis

- **Ranking** („freshness“) tests after 10months of storage, 22-25°C, n = 30 judges)



Variants: Bags with 6µm EVOH-Barrier
- stressed by vibration
- not stressed

Glas bottles

- Glass significant different from EVOH 6µm Bag
- Significant differences also between stressed / not stressed EVOH 6µm

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Summary

- SET: -Tests with Chardonnay bottled in BiBs with different types and thickness of oxygen barrier
  - BiBs were stressed / not stressed mechanically by vibration

- **Influence of packaging, type of BiB, thickness of barrier** could be shown analytically and sensorically

- **Metallized bags** showed **good properties also under mechanical stress** and high storage temperatures

- Bags with **EVOH 8 µm** seemed to be **more robust** regarding mechanical stress **compared to EVOH 6 µm**

- Also **opened BiBs** could **conserve wine** for a long storage period

Thank you for your attention!



Actual publications „Wine packaging“ (Geisenheim)

Jung, R.; Schüßler, C.: Sauerstofftransfer beim Einsatz von PET-Flaschen für Wein, Deutsches Weinbaujahrbuch 2012, S. 86 – 94, Verlag Eugen Ulmer, 2011

Jung, R. et al: Oxygen transfer into wines through alternative packaging materials, Mitteilungen Klosterneuburg 61, 2011, S. 82 - 90

Schüßler, C.; Jung, R.: KTBL Heft Sauerstoffmessung (coming soon)

Jung, R.; C. Schüßler: ATW-Bericht Nr. 168, Alternative Verpackungen für Wein (09/12)