# Review of: "Cooling Beer With a Wet Paper Towel"

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Potential competing interests: No potential competing interests to declare.

Review on paper: AARDLP

This paper is well written, well organised and of interest.

I have the following remarks:

1. The authors refer to sec II and III etc., but it would be better to refer to **chapter** IIA, IIB, III and IV. Section I is not refer to, so one wonders wat sec II etc is. In scientific paper this is a common use in referring to chapters rather than to sections.
2. Page 5: bottom lines:

- sentence start with: “condition in Table I.” => this sentence part is not clear or unfinished, please adapt.

- one should be more specific in: “For the no- and low- advection environments, wrapping a beer in a wet paper towel reduces the time to cool the beer by about 25%.”

Proposal: => “For the no- and low- advection environments, wrapping a beer in a wet paper towel reduces the time to cool the beer by about 23.1% and 26.7%, respectively. For a high- advection environments, wrapping a beer in a wet paper towel reduces the time to cool the beer only with 1.3%, proving that the impact of wrapping with a wet towel is rather negligible.”

**Indeed**, in their abstract the authors explicitly mention that: “the wet paper towel had a negligible impact”. And wrote at page 5 that: “the most effective way to cool a bottle of beer was to increase the amount of air advection near the beer.”

1. Page 6: top lines: “When a beer was not wrapped in a wet paper towel, adding high levels of

air advection reduced the cooling time by 69% compared to a non-wrapped beer in a bin.

Similarly, placing a paper-towel-wrapped beer in high levels of air advection reduced the

cooling time by 60% compared to a paper-towel-wrapped beer in a bin.”

=> these are rather misleading figures and not all relevant. The authors should rather compare the beer wrapped in paper at advection conditions of no, low and high, concluding it is 60.1% faster at high advection compared to no convection and 39.1% faster at high advection compared to low advection! This should be written instead of higher cited top lines

- Also, in the abstract section: “We found increasing advection by placing beers near the freezer fan reduced the cooling time (70◦F (21.1◦C) to 45◦F (7.2◦C)) by 60%-70%;” should be adapted accordingly!
- As in the conclusion section: “However, air advection reduces the cooling time by 60% to 70%.” this should be adapted!

1. Figure 2: the lines of 35 should be visible over the whole time and radial distance in figures 2a and 2b!
2. Figure 4: the authors should add vertical lines denoting the glass region in the left and right figures! => added value and conform with figure 2.
3. Page 10: treating paper as wood dealing with the thermodynamics properties is of course not correct. The authors should add immediately that it is found that the towel has almost no impact on the total thermodynamic properties as these are dominated by the one of water. Then this sounds much better.
4. Has it any impact that the composition data of the beer is not fixed at 95% water and 5% ethanol, but at 90% water, 5% ethanol and 5% of soluble compounds? Beer is different from water with some alcohol in it.
5. Page 11 and capture to figure 4: I noticed some difference in describing the figure content: page 11: “the right panels show the no-advection environment with natural convection.” ó capture to figure 4: “the right panels show results in the no- advection environment with a convective boundary condition at the edge of the last solid material.” => please match!
6. In the conclusions the authors noted an extra important factor: “it stands to reason that

occasionally rotating the bottle to induce mixing within it would speed cooling further.”. This conclusion should be implemented in the discussion dealing with figure 3, starting at page 7. The figures, 3b and 3c, clearly highlight the importance of rotating the bottle in an advection environment, speeding up the cooling process. In the abstract, this can be added