Peer review evaluation questionnaire

Peer reviewer 1: Soren Ellebaek Laursen
Peer reviewer 2: Henrik Grüttner

REPORTING AND METHODS

1) Scope and Objectives. Does the report address all aspects of the objectives of the study stated in the agreed specification?

a) all of the stated objectives addressed satisfactorily
b) most of the stated objectives addressed satisfactorily.
c) few of the stated objectives addressed satisfactorily

Rating of peer reviewer 1: [a]
Rating of peer reviewer 2: [b]

Comments:

Peer reviewer 2:

Overall the report is relatively weak with respect to consumer (textile) product selection, the impacts of fibre composition on handling need (different laundering processes and drying needs), and the means and options to change consumer behaviour. Trends regarding fibre compositions and nano-treatment, etc, which might also have a significant impact on the future situation are also weakly covered. Also, the consumer behaviour with respect to selection of drying method and ways to impact that selection is relatively weakly covered. More specifically, things like for example the different impacts washing/ drying of polyester clothes and cotton clothes should be clearly visualised. Also energy labelling of tumble dryers and impacts of increased use of synthetic fibres should be covered in more details.

Also see further comments in table 1.
Table 1: Additional comments from peer reviewer 2 on extent that objectives of the study have been addressed:

<table>
<thead>
<tr>
<th>Status of existing cleaning methods and technologies.</th>
<th>Fairly well covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detailed identification and analysis of the best options to reduce the environmental impacts of clothes cleaning to include:-</td>
<td></td>
</tr>
<tr>
<td>a. fibres;</td>
<td></td>
</tr>
<tr>
<td>Considerations should include the numerous ways a fibre could impact clothes cleaning. One is the fibre type itself (e.g. propensity to absorb oils/stains, water absorbency/drying, etc), another is the shape of the fibre (some synthetic fibres claim shape that hide soiling whilst other have engineered shapes to enable fast drying) and another would be additives made to fibres to promote stay fresh properties (this being mostly antibacterial)</td>
<td>Not covered</td>
</tr>
<tr>
<td>b. laundry detergents and packaging;</td>
<td>Covered to some extent. The specific chemical formulation of the detergents not addressed.</td>
</tr>
<tr>
<td>c. coatings;</td>
<td>Covered to some extent. Specific coatings not addressed.</td>
</tr>
<tr>
<td>d. washing and drying appliances;</td>
<td></td>
</tr>
<tr>
<td>Aspects to consider include:-</td>
<td></td>
</tr>
<tr>
<td>technologies</td>
<td>Covered</td>
</tr>
<tr>
<td>Liquor ratio (goods to water), temperature options, spinning speeds v power use etc to be included</td>
<td>Liquor ratio not covered, which might be OK, since the washing machine producers have already squeezed this to the limit</td>
</tr>
<tr>
<td>Garment styles requiring different washing practices (innerwear vs. outwear etc...)</td>
<td>Not covered</td>
</tr>
<tr>
<td>Garment life spans</td>
<td>Covered to some extent</td>
</tr>
<tr>
<td>e. drying appliances;</td>
<td>Not covered sufficiently</td>
</tr>
<tr>
<td>f. low / non solvent dry cleaning;</td>
<td>Insufficiently covered.</td>
</tr>
<tr>
<td>g. other technologies;</td>
<td>Assessed on a superficial level.</td>
</tr>
<tr>
<td>h. sustainable building design;</td>
<td>Covered to some extent</td>
</tr>
<tr>
<td>i. ironing;</td>
<td>Covered to some extent</td>
</tr>
<tr>
<td>j. final assembly e.g. stitch/glue options.</td>
<td>Covered to some extent</td>
</tr>
<tr>
<td>Assessment of effectiveness of the above in practice, in particular for those requiring consumers to read and follow the instructions on care labels, separate clothes by fibre type for washing.</td>
<td>Covered OK</td>
</tr>
<tr>
<td>Assessment of trade-offs e.g</td>
<td></td>
</tr>
<tr>
<td>a. use of coatings for stain prevention vs. waste recovery implications;</td>
<td>Mentioned but not assessed in details.</td>
</tr>
<tr>
<td>b. number of washes a coating will remain functional, energy or effluent impacts of coating production/application;</td>
<td>Mentioned but not assessed in details.</td>
</tr>
<tr>
<td>c. an eco friendly cleaning route that shortens the life of the garment could negate the gains made.</td>
<td>Mentioned but not assessed in details.</td>
</tr>
<tr>
<td>Recommendations for consumer facing instruments and awareness campaigns e.g. Care Labels, “Wash at 30°C”, drying, etc.</td>
<td>Not provided</td>
</tr>
<tr>
<td>Determine likely/possible trends impacting clothes cleaning e.g</td>
<td></td>
</tr>
<tr>
<td>a. Societal changes over the next 10 years that will impact on textile types, the use of textiles, and the consequential environmental impact e.g. will home environments change away from tumble dryers (energy cost pressure / code for sustainable homes) towards air drying.</td>
<td>Not covered</td>
</tr>
<tr>
<td>b. Changes in clothing types and consumer behaviour around washing and drying.</td>
<td>Not sufficiently covered</td>
</tr>
<tr>
<td>Recommend possible regulatory/legislative interventions that could be made to encourage take up of textiles with improved SCP &amp; reduced overall impact.</td>
<td>Covered to some extent</td>
</tr>
</tbody>
</table>
2) Quality of Approach. Do the approach and methodology adequately address the objectives? Are there any weaknesses that could cast doubt on the conclusions?

a) Quality of the approach is sound and robust. It is optimal for the scope and nature of the project.

b) Quality of approach generally sound. Some parts weaker than others.

c) Weaknesses in approach could draw doubt on some of the conclusions.

d) Approach is such that conclusions could be flawed.

e) Not applicable.

Rating of peer reviewer 1: [a]

Rating of peer reviewer 2: [b]

Comments:

Peer reviewer 2:
Some quite important conclusions / assessments are ‘hidden’ in tables and not further justified.

3) Assumptions. Are any assumptions made in the report sound and clearly identifiable?

a) Assumptions are clearly identified and sound.

b) Assumptions are identifiable and broadly in line with current thinking and/or are justifiable in the circumstances.

c) Assumptions are hard to identify and/or could lead to conclusions being incorrect.

d) Assumptions are not identified and/or are not based on sound judgement.

e) Not applicable.

Rating of peer reviewer 1: [a]

Rating of peer reviewer 2: [b]

Comments:
DATA AND ANALYSIS

4) Evidence Base. Does the evidence on which the analysis is based draw on appropriate, recent and relevant studies in this field? Is the evidence considered representative of the evidence that exists?

a) Evidence for the analysis is drawn from appropriate, recent and relevant studies in the field.

b) Evidence for the analysis mostly draws on appropriate, recent and relevant studies in the field.

c) Evidence for the analysis is frequently drawn from inappropriate, dated and/or irrelevant sources.

d) Evidence for the analysis is not representative of the evidence that exists.

e) Not applicable.

Rating of peer reviewer 1: b

Rating of peer reviewer 2: b

Peer reviewer 2:

For example, it is incorrectly assumed that line drying is only possible in ‘warm’ weather. This is simply not correct.
Comments (If peer reviewer’s view is that there is a paucity of evidence in the field and this has limited the success of the research project, please make this clear):

Peer reviewer 1:

_Not always easy to evaluate the references / lack of transparency (e.g. ref. no. 1 on page 16 (just link to large web-site - MTP) and ref. no 3 on page 17 (“source: textile expert”) - name of expert?)_

Peer reviewer 2:

_Correct dosing is very important – both under and overdosing might give a poor washing result. In areas where you have ‘hard water’ it can further be recommended to apply additional water softeners since there is normally a surplus of surfactants in the powders. So it is difficult to judge the environmental impacts of compact powder versus ‘normal’ powders. You have to look into the actual composition as it is done by the EU flower labelling system, for example. But generally, the concentrated are not worse than the normal powders. At least, I have seen no evidence of the opposite._

_I feel the study does not cover in sufficient details aspects of chemical composition of the detergents. It is a quite complex topic: I can mention for example phosphorus versus zeolites/silicates, or the issue of anaerobic degradation of the surfactants. Both topics have been an issue in several parts of Europe._

_In depth assessment of dry cleaning options without PERC exist and some of those alternatives are in use in Europe. The intensive focus on detergent dosing form covers for the fact that the specific chemical formulation will have a much more significant impact. A consideration of that topic would possibly lead to the recommendation of using eco-labelled detergents._

5) Analysis. Is the analysis sound, clear and appropriate for the report?

_a) Analysis is logical and robust. The most appropriate techniques / analyses have been used throughout._

_b) Analysis is generally sound although more up to date / appropriate techniques could have been used._

_c) Analysis is frequently inappropriate._

_d) Analysis is incomplete or flawed. It may have led to incorrect conclusions being made._

_e) Not applicable._

_Rating of peer reviewer 1: [ ]

_Rating of peer reviewer 2: [ ]
Comments:

None.

6) **Presentation of Evidence.** Are the figures and tables clear, adequate, not actually or potentially misleading, and do they support the inferences drawn from them?

a) Figures and tables add value to the report and aid interpretation of the results.

b) Figures and tables are broadly sound and assist the reader. They could be improved to add clarity.

c) Figures and tables do not add value and in some cases may mislead the reader.

d) Figures and tables are misleading and do not support the inferences made from them.

e) Not applicable.

Rating of peer reviewer 1:  

Rating of peer reviewer 2: 

Comments:

Peer reviewer 2:  

*Some quite interesting considerations are presented in a very condensed form in the tables.*

**CONCLUSIONS**

7) **Use of Evidence.** Is effective use made of relevant subject matter and evidence - is any evidence ignored or under-represented? (Include evidence from within or outside the report – please give details).

a) All relevant evidence is considered and given due weight

b) Generally most evidence is given appropriate consideration with one or two minor exceptions

c) There are some gaps in the evidence given and some evidence is given inappropriate weight

d) The report ignores or significantly under-represents pertinent subject matter or evidence
e) Not applicable.

Rating of peer reviewer 1: b
Rating of peer reviewer 2: b

Comments:

Peer reviewer 1:

It is stated (e.g. p 55) that “there is evidence that temperature reduction below 30°C might not be feasible”. It is not clear to me where this evidence can be found in the report? Washing at 20 °C could have been studied / analysed in more details.

Peer reviewer 2:

Comments as above

8) Conclusions and Recommendations. Are the conclusions, policy implications, and recommendations clearly set out, based on the evidence gathered and logically argued? Are there any gaps or omissions?

a) Conclusions, policy implications and recommendations are well presented, evidence based, logically argued and comprehensive

b) Conclusions, policy implications and recommendations are generally well presented, logically argued, evidence based and comprehensive with some minor exceptions

c) Conclusions, policy implications and recommendations are frequently not well presented, logically argued, evidence based or comprehensive

d) Conclusions, policy implications and recommendations are very poorly presented, and are not logically argued, evidence based or comprehensive

e) Not applicable

Rating of peer reviewer 1: a
Rating of peer reviewer 2: b
Comments:

**Peer reviewer 2:**

*Conclusions regarding consumer behaviour are inconsistent and the possibilities to impact consumer behaviour are underrated e.g. campaigns to impact wash frequency.*

9) **Reasoning.** Are conclusions based on judgement rather than evidence clearly recognisable?

a) Yes there is a clear distinction between the two

b) Broadly it is possible to distinguish between judgement and evidence based conclusions

c) It is not clear whether conclusions are based on judgement or evidence

Rating of peer reviewer 1: 

Rating of peer reviewer 2: 

**Comments:**

**Peer reviewer 1:**

*See section 7 – Comment referring to washing at 20°C.*

**Peer reviewer 2:**

*For some of the reasoning presented in the tables it should be stressed that this is the judgement of the authors.*

**OVERALL**

10) **Rigour and Robustness.** Does the work represent sound and robust science and are the conclusions supported by the evidence and analysis presented?

a) Sound and robust science. Conclusions are wholly supported by the evidence and analysis presented

b) Sound science. Conclusions largely supported by the evidence. Some improvements in the approach, analysis and interpretation would improve confidence in the conclusions

c) The evidence provided does not fully support the conclusions
d) The evidence is of poor quality. It is not a sufficient base from which to draw the conclusions made

Rating of peer reviewer 1: \( b \)
Rating of peer reviewer 2: \( b \)
Comments:

Peer reviewer 1:
Again – washing at 20\(^\circ\)c could have been covered in more details. In addition the consumer health issues related to “easy-care” chemicals e.g. formaldehyde could have been analysed / addressed in more details.

Peer reviewer 2:
The many environmental aspects of washing and drying are covered to some extent, but the clear picture of the causes / possible measures and tools to impact the different aspect is not provided.

Overall I get the impression that the authors have an extended knowledge about environmental aspects, etc. but a limited understanding of the laundering/cleaning processes. This has the consequence that the conclusions and recommendations regarding reducing the impacts can only be detailed to a certain level. Despite that they manage to bring forward some fairly relevant conclusion and recommendations.

Over all, I do miss a suggestion for a campaign to inform consumers that they don’t need to wash so frequent. Studies indicate that in particular young people tend to wash after each wearing at that will mean increased washing in the future if they keep that habit…

The recommendation regarding detergent dosing should be extended to selection of the products with the least environmental impacts – e.g. eco-labelled product.

The idea to participate in the ISO 3758 work – and work to place the label more visible etc. – is to me questionable since the likeliness to succeed is very limited and the time span to achieve anything is probably long.