



**ECOS on behalf of European environmental NGOs
Comments on draft Tasks 5 & 6 of the preparatory study for Windows
(ENER 32)**

November 2014

We appreciate that the study team integrated some of our comments from April 2014, in particular, on power-operated windows and rooflights. However, we still believe that curtain walling should be at least discussed, and other environmental issues included into the BAT description.

Moreover, we believe it is absolutely fundamental that the study provides a solid evidence base on which the EC can rely to regulate windows, focusing on their energy performance as well as other environmental parameters.

Therefore, Tasks 5 and 6 should discuss further non-energy aspects, with a particular attention to:

- Windows recycling practices and potential improvements

Please note that the recycling rates of wooden windows to material recycling in the LCA of 40% is surprisingly high. In the revised Task 4, it is even stated that this assumption is invalid (see Task 4, p. 66 f.) and the wooden windows are often sent to thermal treatment.

- Presence of cadmium and lead in recycled materials

Information on PVC recycling is available. Cadmium is not used in fresh PVC today, but it is present in windows through recycling streams.

- Presence of hazardous substances

In rigid PVC, the potential use of lead and cadmium should be discussed. Although there is a Voluntary Commitment VinylPlus on the reduction of lead in window frames, there might still be windows on the market produced with lead containing stabilizers.

The study should include a discussion on the surface treatment of wooden frames and wood origin.

Furthermore, please see below a few additional remarks on Task 6:

- On page 6, double windows are described as *“Two complete windows installed in series, separated by a cavity of approx. 100 mm”*. Replacing the last part of the sentence by *“of about 0.1-0.2m”* would be more correct from a mathematical and physical perspective.

- On page 7, part 3.2, frame materials: *“The thermal transmittance of frames can vary approximately between $6,0 \text{ W}/(\text{m}^2\text{K}) \leq U_f \leq 0,8 \text{ W}/(\text{m}^2\text{K})$ ”*. We recommend replacing the upper value with 0.6, as frames with such a thermal transmittance already exist. Some roof lights can go as low as $0,29\text{W}/(\text{m}^2\text{K})$.¹

¹ Please see the following links for reference:

http://www.passiv.de/komponentendatenbank/files/pdf/zertifikate/zd_boerner_nauheimer-lichtkuppel_en.pdf

http://www.passiv.de/komponentendatenbank/files/pdf/zertifikate/zd_pazen_enersign-arctis++_en.pdf

- On page 7, part 3.3: *“The opening type has only little influence on the energy related performance that can be achieved for a window”*. Please note that sliding windows have much bigger difficulties to ensure air tightness.
- On page 8, part 3.4: warm edge spacer and vacuum glazing should be described in this section.
- On page 10, table 2: the air tightness scale should be extended to 5 or 6 for this purpose, as 4 is not enough for passive houses.