

Why did we conduct this study?

This study was conducted to gather objective data on our products' carbon footprint throughout their full life cycle. This will help customers, consumers and policy makers – as well as silicone producers – design carbon strategies according to their individual needs and ambitions.

What did the study measure?

The study looked at the greenhouse-gas emissions during the entire life cycle - manufacture, usage and disposal or end of life - of a wide range of important silicon-chemistry products and applications in the three regions covered by the GSC: North America, Europe and Japan.

How was the study conducted?

We commissioned the study from denkstatt, an experienced and internationally respected consultancy firm based in Vienna. Denkstatt was assisted by Dekra, a German testing and certification company. The results were reviewed independently by Professor Adisa Azapagic, a respected expert in sustainable chemical engineering who works at the University of Manchester in the UK.

What methodology was used?

The study is a life-cycle assessment, which is limited to greenhouse gas emissions. It is not really true that LCA is a relatively young area of research. Denkstatt has considerable experience in the field and its guidelines are based on ISO 14040/44, which spells out internationally recognized standards for such assessments. In addition, any extrapolations made have been done with restraint in order to avoid overestimating any benefits.

If anything, the researchers have chosen to be particularly conservative.

What did we find?

What we found is that the use of silicones and related silicon-chemistry products reduces the carbon footprint of many essential products and services. The use of silicones, siloxanes and silanes generates energy savings and greenhouse-gas emission reductions that outweigh the impacts of production and end-of-life disposal by a factor of 9. This is at the top of the range of previous estimates looking at chemistry products across the board.

The CO₂ emission cuts realized in the three regions covered amount to an estimated 54 million tons per year. This is equivalent to the emissions required to heat 10 million homes in the regions covered by the study – three times the number of households in the Greater London area.

How will the results be used?

We will share these results with our customers, to help them assess the GHG balance of their products and services. Our member companies are expected to conduct their own assessments independently.

