

# 2010 HIGHLIGHTS

## SHC Task 39

### Polymeric Materials for Solar Thermal Applications

#### THE ISSUE

One of the greatest challenges of the 21<sup>st</sup> century is to secure a sustainable, competitive and safe energy supply and to considerably reduce CO<sub>2</sub> emissions and the potential serious consequences of climate change. The aggressive energy targets being set by countries will only be achieved if solar thermal markets grow considerably. And, this will require large quantities of reliable, efficient and cost-competitive solar system components. Today, solar thermal collectors mainly consist of glass and metals. And, this will need to change as market prices for metals fluctuate significantly.

As new materials are considered in the manufacturing of solar system components, polymers have a strong advantage. They can be mass-produced, offer freedom in component design, and reduce component costs and weight.

#### OUR WORK

The objective of Task 39 is to assess the applicability and the cost reduction potential by using polymeric materials and polymer-based, novel designs of suitable solar thermal systems and to promote increased confidence in the use of these products by developing and applying appropriate methods for assessment of durability and reliability. These goals will be achieved by either less expensive materials or less expensive manufacturing processes.

SHC Task 39 was extended an additional four years and will be completed in September 2014.

#### PARTICIPATING COUNTRIES

Austria  
France  
Germany  
Norway  
Portugal  
Sweden  
Switzerland  
United States

14 Industries

**Task Date** 2006-2014  
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## Modular Solar Heat Storage With Polymeric Liner

As part of a German research project financed by the Ministry of Environment (BMU), a new concept for storing solar energy in residential buildings has been investigated. Since 2009, the product FLEXSAVE VARIO by FSAVE Solartechnik GmbH, a spin-off of Kassel University has been commercially available. The FLEXSAVE VARIO is a heat storage that is easily installed into existing buildings. An inner polymeric liner welded on-site to the PP-H is used (available storage volumes from 2-100 m<sup>3</sup>). At the INTERSOLAR exhibition in Munich this year, FSAVE Solartechnik won the INTERSOLAR AWARD 2010 in the category “solar thermal technology.”



FLEXSAVE VARIO: Modular buffer storage with polymeric liner for residential buildings

## Architecturally Appealing Solar Thermal Systems – A Great Marketing Tool In Order To Attract New Customers And Market Segments

As a contribution from SHC Task 39 to the challenge of making solar thermal systems more desirable, a database showcasing buildings where solar collectors have been successfully integrated into the architecture has been established. The idea is to make solar thermal more desirable by showing examples of visually appealing solar systems – something people really would want to put on their houses and something architects would want to implement in their design of new buildings. The database link is <http://www.iea-shc.org/task39/projects/default.aspx>.



## Solar Collectors For The Building Industry - Largest Nordic Housing Association OBOS Invests In Solar Thermal Energy

The production of the Aventa solar collector has started, and the first pilot and demonstration projects are in operation. The first solar collector model is designed as a modular building element, applicable as facade elements or roof covers. The absorber is an extruded twin wall sheet in high temperature resistant PPS delivered by Chevron Phillips Chemicals, closed by means of molded end caps that are welded to the sheet. Cooperation with the building industry recently received a major boost forward with the largest Norwegian housing company, OBOS, engaged as a significant shareholder in Aventa AS.



A key argument for the introduction of polymer materials in solar collectors is the potential for reducing processing and manufacturing costs compared to conventional flat plate collectors.

## Air Solar Collectors For Building Facades In Slovenia

Solar Thermo Systems – STS Inc. is aware of the developing trends in the use of solar in buildings and the company is collaborating with participants in Task 39. One concept is based on polycarbonate-structured sheets with aluminum absorbers coated with TISS paint coatings (NIC/Color-Helios) using air as the heat-carrying medium.



Tehnopolis building, Celje, Slovenia.