

Technological Developments

2 Technical Notices of the CSTB for the Calpak solar panels:

Since the end of the year 2008, Calpak owns a CSTB Technical Notice for 2 ranges of solar thermal panels: the flat solar panels with high selective surface (200GS and 240GS) and the vacuum solar panels (12VTN, 14VTN and 16VTN).

Flat Selective Panels 200GS and 240GS: Technical Notice 14/08 - 1291

The collectors are available in 2 different surface versions:

- Giga Selective 200GS (2,20 m²).
- Giga Selective 240GS (2,51 m²).

Vacuum Panels 12VTN, 14VTN and 16VTN: Technical Notice 14/08 - 1290

The collectors are available in 3 versions, according to the number of tubes:

- Calpak Vacuum 12VTN: 12 tubes - aperture area 1,95 m².
- Calpak Vacuum 14VTN: 14 tubes - aperture area 2,26 m².
- Calpak Vacuum 16VTN: 16 tubes - aperture area 2,61 m².

Technical Notices available on <http://www.cstb.fr/evaluations/atec-et-dta/rechercher-un-atec-ou-un-dta.html>.

Real Quality: our competitive advantage



The use of polyurethane for the insulation of the flat plate collectors has 3 important benefits;

A) First of all it is an undisputed fact that polyurethane has a thermal conductivity twice better than the one of rock wool ($\lambda=0,02$ vs $\lambda=0,04$). This advantage is clearly depicted in the thermal loss measurements of our collectors that are among the very best in the market.

B) Polyurethane expands in specially preheated moulds and this way it covers all the space that it must protect, in the back of the collectors and in their sides. Moreover, it gives rigidity and robustness to the collector. Rock wool, on the other hand, unavoidably leaves air gaps that weaken the insulation and give a feeling of loose structure to the product.

C) The water absorption factor of polyurethane is 1.1% comparing to 20.15% of rock wool. Therefore it is evident that after an average use of 10 years, most rock wool collectors soak from humidity that penetrates from the back that is not equally well shielded as the front part. Consequently, wet insulation does not work at all and even worse the absorber gets rotten from the inside. Using polyurethane, this is prevented and collectors have a much larger expected life (20-25 years).

Needless to mention that the polyurethane is very well protected from getting burned by the absorber as there is an inner aluminum shield and a sufficient gap between the absorber and the insulation.

Calpak is using this insulation technique since its foundation from BP in 1976 and the great added value is proven throughout time. Nevertheless, most collector manufacturers avoid it and prefer the use of rock wool because of significantly lower cost (labor cost, raw material cost, cost of capital amortization) and convenience in production.

Calpak News

Calpak Cicero Hellas SA at ISH 2009 in Frankfurt (Germany)



Frankfurt am Main / Athens. A total of 202,000 visitors came to Frankfurt am Main for the international trade fair ISH, which took place between 10 and 14 March. ISH is considered as one of the most important fair concerning heating, air conditioning, architecture, new technologies and renewable energies.

At the ISH trade fair in Frankfurt Calpak Cicero Hellas SA presented the result of the company's more than 34 years experience in the solar thermal sector:

Calpak - GA selective collectors
selective full aluminium plate of 0,5mm
laser welding of 10 copper tubes
thick polyurethane insulation
low iron 3,2 mm Tempered glass
efficiency $\eta_0 = 79\%$
thermal loss factor $a_1 = 3,24$
Solar Keymark

Calpak - VTN vacuum tube collectors
vacuum tube Collector with Parabolic Reflector
inner copper U-pipes (D=9,52 mm
thickness 0,65mm)
inner Aluminum fin (thickness 0,80mm)
efficiency $\eta_0 = 66,5\%$
thermal loss factor $a_1 = 0,7$
Solar Keymark

Calpak - Thermosiphonic systems with the new designed tank

Calpak - Forced circulation systems

All these product innovations of Calpak Cicero Hellas SA met with considerable interest from trade visitors.

