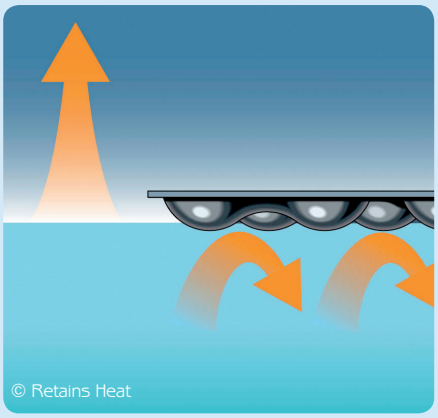
EnergyGuard™

TECHNICAL DOCUMENT

The EnergyGuard™ material includes the engineered GeoBubble™ design. The new bubble design reduces stress points in the material that exist in the conventional bubble material designs. The unique, engineered GeoBubble™ shape provides a more uniform thickness throughout the bubbles. GeoBubble™ technology combined with the careful development of the UV stabilizers and other additives selected for the EnergyGuard™ material, creates a sustainable and innovative high performance cover. www.geobubble.co.uk

The innovative EnergyGuard™ swimming pool cover with GeoBubble™ technology inhibits algae growth, absorbs the sun's energy and saves chemicals, water, energy, time and money. The material has a grey top surface that is designed to absorb and transfer the sun's heat into the water surface area directly under the cover increasing the pool temperature by up to 4°C. The material has a black underside that blocks light from entering the water, therefore stopping photosynthesis and inhibiting algae growth. The cover also prevents debris entering the pool.



The EnergyGuard™ material will also help to gain and retain up to 60% of energy within the swimming pool water. As well as reducing water evaporation by 98%+, chemical costs by up to 70% and pump / filtration time by up to 50%. The EnergyGuard™ and CoolGuard™ swimming pool covers are a great investment because they can be used all year round. Algae growth is eliminated when the EnergyGuard™ and CoolGuard™ materials are used as winter pool covers, without the use of chemicals. This means the pool owner can save many hours of preparation time having to filter, backwash and vacuum the pool, as well as saving money on chemicals and electricity usage.

The Method

Tests were carried out in the United Kingdom in early 2009 in collaboration with the University of Brighton and the London Metropolitan University. Each pool was tested against an uncovered control pool.

Energy Consumption

An EnergyGuard™ cover will reduce energy consumption by absorbing heat from the sun and prevent heat loss at night.

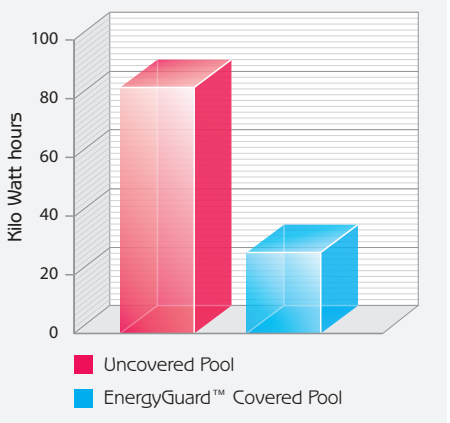
The graph below shows the considerable amount of energy that can be saved by covering your pool with our high performance swimming pool cover. By averaging the heat saving from using the EnergyGuard™ cover, over 50% of a pool heating bill can be reduced.

The experiment above was carried out using two 1m x 1.5m x 0.5m heated test tanks using a 500W heater set to a thermostat at 26°C. The amount of energy used to keep the pools at 26°C over an 8 day period, was measured on an uncovered and EnergyGuard™ covered tank.

An EnergyGuard™ cover is also designed to inhibit algae growth. Filtration will still be required to move the dirt and impurities from the pool and to circulate the water, but time can be cut by up to 50% with regular pool use/bathing loads. This will further reduce your electricity usage. If the pool is heavily used there will need to be more filtration.

EnergyGuard™ Products Abilities	
☑ Inhibits Algae Growth	☑ Winter Pool Cover
☑ Reduce energy consumption by over 60%	☑ Absorb the sun's energy. Up to 4°C warmer
☑ Reduce chemical consumption by up to 70%	☑ Reduce debris contamination
☑ Reduce filtration/pump time by up to 50%	☑ Save money
☑ Eliminate water evaporation by 98% +	☑ 6 year pro rata warranty

Up to 60% Savings



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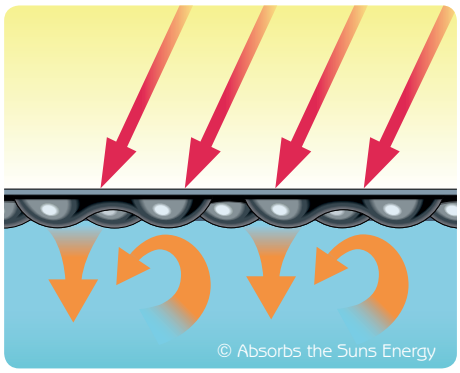
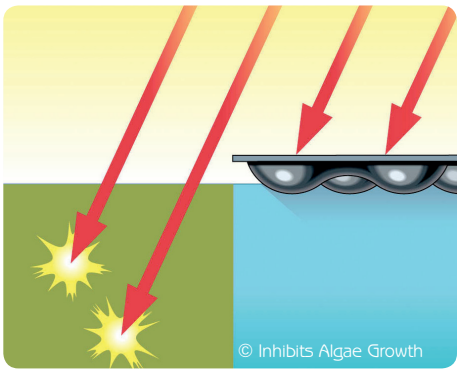
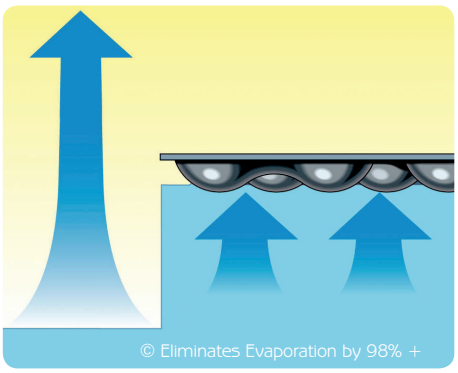






Pool Temperature

The experiment indicated a temperature increase of up to 3°C. In a warmer climate the cover would provide even higher benefits up to 4°C. This shows an EnergyGuard™ cover will extend your swimming pool season 2 months and it also works effectively as a winter cover by preventing algae growth.

The experiment used two unheated outdoor pools 3.66m diameter with a water depth of 0.565m, in August 2009 in the United Kingdom. The temperature measurements were taken at 3 set depths throughout the pools, to gain an understanding of the covers effects throughout the water in the test tank.

Chlorine Consumption

An EnergyGuard™ cover will save up to 70% of chemical consumption in a swimming pool, by stopping chemical loss through water evaporation and debris entering the pool inhibiting algae growth. This is indicated by overall drop in required chemicals with 2 days where no chemicals needed to be added to balance the pool over the 8 day test period.

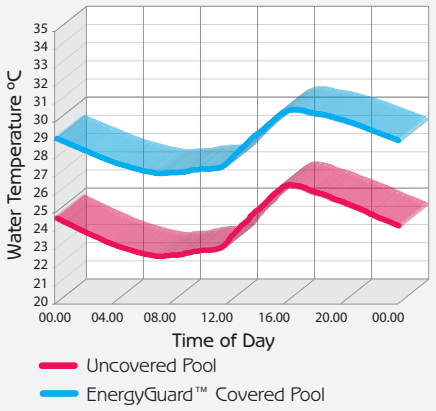
The experiment was conducted using two unheated outdoor pools 3.66m diameter with a water depth of 0.565m, in July 2009 in the United Kingdom and was carried out by taking daily pool water samples and adjusting chlorine balance to within industry standards, between 2-4 (ppm) parts per million of free chlorine.

Evaporation Reduction

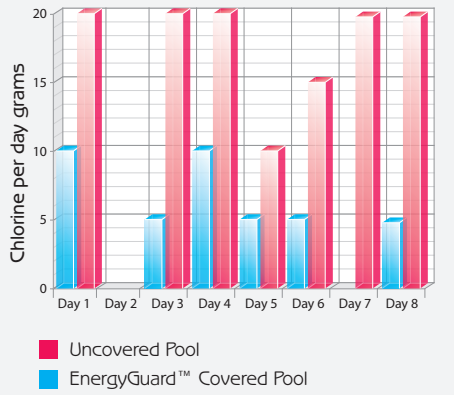
An EnergyGuard™ cover will reduce water evaporation by over 98%; the reason for this is because by covering the pool the material works as a barrier, preventing the water escaping into the atmosphere.

The experiment was conducted using two 1 x 1.5 x 0.435m unheated outdoor tanks, in July 2009 in the United Kingdom. The test indicates United Kingdom for an average sized pool, 4m x 8m, is approximately 32,000 litres per year. This figure is considerable higher for hotter climates and in high wind conditions.

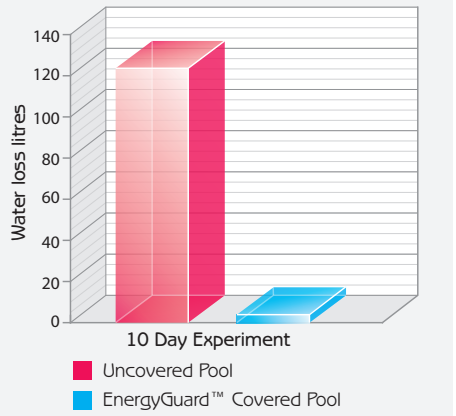
Up to 3°C Warmer



Up to 70% Savings



98%+ Reduction



4 LDPE

GeoBubble™

MOODY INTERNATIONAL CERTIFICATION

UKAS QUALITY MANAGEMENT 014

Smart Approved WaterMark

EnergyGuard™ material uses scientifically proven techniques and new innovations like the GeoBubble™ to make the product a resource saving material. All testing was carried out using strict scientific methods, to ensure the findings of this report are accurate. To see more information about EnergyGuard™ covers please visit

www.plastipack.co.uk/trans-ENGLISH/energyguard.html