



umber	15706 Rev.0	Replaces	-
Issued	09/05/2018	First edition	09/05/2018
Report number	PKC0002092	Expiry date	08/05/2023
Page	1 of 1	Contract number	PKC0002751

## Product Certificate Solar Thermal Products

Kiwa Cermet Italia hereby declares that the **solar thermal collector**, type

**BLUh+**

supplied by **Sunerg Solar S.r.l.**  
**Via Donino Donini 51 - 06012 Cinquemiglia - Città di Castello (PG), Italy**

Is entitled to use the Solar Keymark label.

The compliance is based on examination to:  
ISO 9806:2013 and the  
Specific Keymark Scheme Rules for Solar Thermal Products V31.00

A description of the test results is given in the appendix to this certificate.

*This certificate is issued in accordance with the Kiwa Cermet Italia regulations.  
Publication of the certificate is allowed.  
The validity of this certificate is subject to the positive result of periodic surveillance visits.*

Chief Operating Officer  
Giampiero Belcredi



Kiwa Cermet Italia S.p.A.

Società con socio unico, soggetta all'attività di direzione e coordinamento di Kiwa Italia Holding Srl

Via Cadriano, 23

40057 Granarolo dell'Emilia (BO)

Unità secondaria

Via Treviso 32/34

31020 San Vendemiano (TV)

Tel +39. 0438 411755

Fax +39.0438 22428

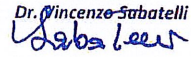
E-mail: [info@kiwacermet.it](mailto:info@kiwacermet.it)

[www.kiwa.it](http://www.kiwa.it)

[www.kiwacermet.it](http://www.kiwacermet.it)



SGQ N° 007A  
SGA N° 010D  
PRD N° 069B  
FSM N° 004I  
PRS N° 089C

Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results						Licence Number		15706 Rev.0						
						Date issued		2018-05-09						
						Issued by		Kiwa Cermet Italia S.p.A.						
Licence holder			Sunerg Solar S.r.l.			Country								
Brand (optional)						Web		http://www.sunergsolar.com						
Street, Number			Via Donino Donini 51			E-mail		info@sunergsolar.com						
Postcode, City			06012 Città di Castello (PG)			Tel		+39 0758540018						
Collector Type						Flat plate collector, glazed								
Collector name					Gross area (A <sub>G</sub> ) m <sup>2</sup>	Gross length mm	Gross width mm	Gross height mm	Power output per collector G <sub>b</sub> = 850 W/m <sup>2</sup> ; G <sub>d</sub> = 150 W/m <sup>2</sup> θ <sub>m</sub> - θ <sub>a</sub>					
									0 K W	10 K W	30 K W	50 K W	70 K W	64 K W
BLUh+					1.96	1,987	984	100	1,484	1,413	1,259	1,090	905	962
Power output per m <sup>2</sup> gross area					759	723	644	558	463	492				
Performance parameters test method				Steady state - outdoor										
Performance parameters (related to A <sub>G</sub> )				η <sub>0</sub> , hem	a <sub>1</sub>	a <sub>2</sub>								
Units				-	W/(m <sup>2</sup> K)	W/(m <sup>2</sup> K <sup>2</sup> )								
Test results				0.759	3.530	0.010								
Incidence angle modifier test method				Steady state - outdoor										
Bi-directional incidence angle modifiers				No										
Incidence angle modifier				Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°	
Transversal				K <sub>GT, coll</sub>					0.95					
Longitudinal				K <sub>GL, coll</sub>					0.95					
Heat transfer medium for testing						Water								
Flow rate for testing (per gross area, A <sub>G</sub> )						dm/dt	0.019	kg/(sm <sup>2</sup> )						
Maximum temperature difference for thermal performance calculations						(θ <sub>m</sub> -θ <sub>a</sub> ) <sub>max</sub>	64	K						
Standard stagnation temperature (G = 1000 W/m <sup>2</sup> ; θ <sub>a</sub> = 30 °C)						θ <sub>stg</sub>	224	°C						
Effective thermal capacity, incl. fluid (per gross area, A <sub>G</sub> )						C/m <sup>2</sup>	10.2	kJ/(Km <sup>2</sup> )						
Maximum operating temperature						θ <sub>max, op</sub>	185	°C						
Maximum operating pressure						p <sub>max, op</sub>	600	kPa						
Testing laboratory			ENEA - Centro Ricerche Trisaia			http://www.trisaia.enea.it								
Test report(s)			RP.2018.COL.198.1 RP.2018.COL.198a.1			Dated		09/05/2018 09/05/2018						
Comments of testing laboratory						Datasheet version: 5.01, 2016-03-01								
						ENEA DTE-STT Dr. Vincenzo Sabatelli 								
Kiwa Cermet Italia S.p.A. • Via Cadriano, 23 • 40057 Granarolo dell'Emilia (BO) • Italy Tel: +39 0514593111 • Fax: +39 051763382 • E-Mail: info@kiwacermet.it • www.kiwacermet.it														

Annex to Solar Keymark Certificate Supplementary Information	Licence Number	15706 Rev.0
	Issued	2018-05-09

Annual collector output in kWh/collector at mean fluid temperature $\vartheta_m$ , based on ISO 9806:2013 test results													
Collector name	Standard Locations $\vartheta_m$	Athens			Davos			Stockholm			Würzburg		
		25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
BLUh+		2,393	1,730	1,163	1,826	1,285	836	1,345	894	558	1,461	968	594
Annual output per m <sup>2</sup> gross area		1,224	885	595	934	657	428	688	457	286	747	495	304
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m <sup>2</sup>			1714 kWh/m <sup>2</sup>			1166 kWh/m <sup>2</sup>			1244 kWh/m <sup>2</sup>		
Mean annual ambient air temperature		18.5°C			3.2°C			7.5°C			9.0°C		
Collector orientation or tracking mode		South, 25°			South, 30°			South, 45°			South, 35°		

The collector is operated at constant temperature  $\vartheta_m$  (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 5.01 (March 2016). A detailed description of the calculations is available at [www.solarkeymark.org/scenocalc](http://www.solarkeymark.org/scenocalc)

### Additional Information

Collector heat transfer medium	Water-Glycole
Hybrid Thermal and Photo Voltaic collector	No
The collector is deemed to be suitable for roof integration	Yes
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:	
Climate class (A, B or C)	A
Maximum tested positive load	2410 Pa
Maximum tested negative load	2006 Pa
Hail resistance using steel ball (maximum drop height)	2 m

### Energy Labelling Information

	Reference Area, $A_{sol}$ (m <sup>2</sup> )	Data required for CDR (EU) No 811/2013 - Reference Area $A_{sol}$	
BLUh+	1.96	Collector efficiency ( $\eta_{col}$ )	60 %
		Remark: Collector efficiency ( $\eta_{col}$ ) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m <sup>2</sup> , expressed in % and rounded to the nearest integer. Deviating from the regulation $\eta_{col}$ is based on reference area ( $A_{sol}$ ) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2013.	
		Data required for CDR (EU) No 812/2013 - Reference Area $A_{sol}$	
		Zero-loss efficiency ( $\eta_0$ )	0.759
		First-order coefficient ( $a_1$ )	3.53 W/(m <sup>2</sup> K)
		Second-order coefficient ( $a_2$ )	0.010 W/(m <sup>2</sup> K <sup>2</sup> )
		Incidence angle modifier IAM (50°)	0.95
		Remark: The data given in this section are related to collector reference area ( $A_{sol}$ ) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.	