


TEST CERTIFICATE

Evaluation of Solar Water Heater	
CPT Project No.:	CPT3241
Client:	Coronatech cc
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Attention:	Robert Milne
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Contract No.:	S4916
Date of Issue:	17-08-2015
Sample Identification:	<div style="text-align: center;">  </div> <p style="text-align: center;">Figure 1 – Solar Water Heater</p>
Sample ID:	CPTI – 712
Receive Date:	06-07-2015
Subcontracting:	NONE

RESULTS

Table 1: table of results

TEST	METHOD DESCRIPTION	RESULTS	
QUV	ASTM G154	No colour changes during test, nor after completion of duration	
Tensile Properties	ISO 527, dumbbells were pressed from the original samples and exposed to UV for a total of 500hours. Tensile properties was determined on the original sample, after 200 and after 500 hours UV	Strength: Elongation: <i>Original</i>	24.96MPa 135%
		Strength: Elongation: <i>200hours UV</i>	24.98MPa 33%
		Strength: Elongation: <i>500hours UV</i>	24.85MPa 48%
Impact Strength	ISO 179-1/eA, specimens 80x10xT has been pressed from the original samples and exposed to UV for duration of 500hours. Tests were performed with original samples and after 200 and 500hours UV	<i>Original</i>	88kJ/m ²
		<i>200hours UV</i>	79kJ/m ²
		<i>500hours UV</i>	85kJ/m ²

Table 1: Continued

TEST	METHOD DESCRIPTION	RESULTS
Compression Set	ISO 815	0.97%
Thermal Cycling	5cycles of 4hours 90°C followed by 4hours ambient.	Front cover: 0.36% shrinkage
		Black Holder: 0.26% shrinkage
		Top inlet: 1.56% shrinkage
		Bottom Inlet: 1.03% shrinkage

CONCLUSION

The solar water heater performed well after 500hours UV exposure. The only concern at this stage is the embrittlement of the samples which affected the elongation of the tensile specimens. Prolonged exposure to ultraviolet light will eventually affect the strength of the material. Thermal cycling indicated that the acrylic top cover warps when exposed to thermal cycling.

CPT OFFICE USE

Analyst	S. Botha 	Date	17-08-2015
Authorized by:	F. Prinsloo 	Date	17-08-2015

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Reg No.: 2006/012857/07 VAT No.: 488 022 8178