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CSTBat CERTIFICATES

THERMAL SOLAR PRODUCTS

TECHNICAL REQUIREMENTS n°. 14

Approved by the Evaluation Committee on December the 3rd, 2015

Cancels and replaces the previous version *CSTBat* T.R. 14/09 of June 18, 2014

Reference documents:

CSTBat Mark general requirements dated on January 2014

CONTENTS

Foreword: Regulatory reference texts

These certification rules are consonant with the regulatory framework for the certification of products and services other than agricultural, forestry, alimentary or seafood products, as set out in Articles L.115-27 to L.115-33 and R.115-1 to R.115-3 of the Consumer Code, with consideration given to the judgment of the National Consumption Committee of 17 December 2007.

1. GENERAL

These "Technical Requirements" are produced pursuant to:

- ✓ "Certification Standard *CSTBat*: General Requirements", hereinafter referred to as "*CSTBat* General Requirements",
- ✓ The decision of Specialist Group no. 14 "Environmental Engineering Installations and Sanitary Installations" of the Committee Responsible for formulating Technical Assessments *("Avis technique" in French),* introducing the obligation of internal inspection of production monitoring for the "Thermal solar products" application.

This document and its appendices have been approved by the Evaluation Committee. They may be modified on EUROVENT CERTITA CERTIFICATION's suggestion. Any modification or revision shall be approved by the Evaluation Committee.

A summary of the reference documents is given in *Appendix 0.*

The purpose of the *CSTBat* certificate is to:

- ✓ state that the product in question complies with the provisions set out in these "Technical Requirements" and in the relevant Technical Assessment,
- ✓ certify that the characteristics given in the Technical Assessment are satisfactorily attained by the product(s) in question.

The purpose of this document is to specify the practical application procedures arising from the "*CSTBat* General Requirements" in the particular case of "Thermal solar products", together with the requirements to be met for such products to receive and retain a *CSTBat* certificate.

It defines both the requirements relating to the characteristics of "Thermal solar products" and the minimum content of the internal inspection and the conditions for its verification.

2. SCOPE

This certification covers the following "Thermal solar products":

- ✓ thermal solar collectors intended to produce HVAC engineering installations (flat-plate collectors and vacuum tubes collectors),
- ✓ domestic solar water heaters (DSWH) without circulator pump or transfer unit: thermosiphons and self-storing collectors.

  These are installations in which the circulation of the heat transfer fluid between the solar collector and the storage tank takes place solely through changes in the density of such fluid. In the context of self-storing collectors, the solar collector also stores heat by means of water.

This certification does not cover forced circulation domestic solar water heaters or combined solar systems (CSS).

3. CONTENTS OF THE CERTIFICATE

Certificates include:

- ✓ the name of the product(s) and the production plant,
- ✓ the following certified characteristics, determined according to the test procedures specified in *Appendix 3*:

- Thermal solar collectors:
  - The aperture area (Aa) and gross surface(A_G)
  - The thermal characteristics (η_0, a_1 and a_2) in relation to the aperture area and gross area of the solar collector.
- Domestic solar water heaters (thermosiphons and self-storing collectors):
  - The nominal volume of the storage tank (Vn),
  - The aperture area of the solar collector(s) in the system (Aa),
  - The thermal characteristics (identified parameters) (Ac*, Uc*, Us and Cs).

  Note: The thermal characteristics of the design variants of domestic solar water heaters are estimated by calculation. *Appendix 3* gives the empirical formulae applied to obtain such thermal characteristics compared with those of the basic model tested.
- Thermal solar collectors:
  - the table of power outputs supplied for three irradiances (400, 700 and 1,000 W/m^2) and three temperature differences (10, 30 and 50 K).
- Domestic solar water heaters (thermosiphons and self-storing collectors: the production (expressed as kWh/year) corresponding to a given "requirements value/nominal volume" pair. This production will be given for two meteorological stations: Gillot (La Réunion) for the French Overseas Departments and Communities (DOM COM) and Nice for mainland France.

4. MARKING OF CERTIFIED PRODUCTS

4.1 Marking

The marking of *CSTBat* certified products is compulsory.

Marking is produced in accordance with the template given in *Appendix 6*.

4.2 Removal of the mark

Any suspension or withdrawal of the right to use the *CSTBat* mark leads to the prohibition of use of the *CSTBat* mark and reference to it on products, packaging and sales documents. Similarly, the mark shall be removed from products that are accidentally non-compliant.

The labels of products for which the right to use the mark has been suspended or withdrawn shall be removed. When this is not possible, a sufficiently visible label specifying the suspension or withdrawal of the right to use the mark shall be affixed whenever necessary.

5. MARK MANAGEMENT

5.1 General organisation

The organisation is as set out in *Article 6* of the "*CSTBat* General Requirements".

EUROVENT CERTITA CERTIFICATION, a certification body under licence from the CSTB, owner of the *CSTBat* mark, performs the technical and administrative management of the mark. EUROVENT CERTITA CERTIFICATION is responsible for the application of this document.

Details are given below with regard to the composition of the Evaluation Committee, the audit bodies and the test laboratories.

5.2 Evaluation Committee *(see article 6.3 of the "CSTBat General Requirements")*

Its composition is given in *Appendix 1* of this document.

The members of the committee make a commitment to perform their function in any impartiality and to respect the confidentiality on the communicated information.

5.3 Audit bodies *(see article 6.4 of the "CSTBat General Requirements")*

The audit body performs the checks set out in *Article 8* of the "*CSTBat* General Requirements" and in *Appendix 4* of this document, together with the sampling, if applicable.

The audits performed as part of the acceptance of the application are carried out by EUROVENT CERTITA CERTIFICATION auditors or auditors from bodies bound to EUROVENT CERTITA CERTIFICATION by CERTITA contracts.

The manufacturer and distributor follow-up audits, if applicable, are performed by EUROVENT CERTITA CERTIFICATION auditors or auditors from bodies bound to EUROVENT CERTITA CERTIFICATION by EUROVENT CERTITA CERTIFICATION contracts.

5.4 Test laboratories *(see article 6.5 of the "CSTBat General Requirements")*

The laboratories perform the tests set out in *Appendix 3* of this document.

The follow-up tests on samples picked-up by the auditors during audits are carried out on EUROVENT CERTITA CERTIFICATION's request in the laboratories below, as laboratories for CSTBat 14 certification :

CSTB - Centre Scientifique et Technique du Bâtiment
290 Route des Lucioles - BP 209
06904 Sophia-Antipolis

BELENOS
Parc scientifique et technique Georges Besse
190 Rue Georges Besse
30000 Nîmes

CESP – UPVD Laboratoire d'essais et d'étalonnages (1)
Rambla de la thermodynamique – Tecnosud
66100 Perpignan – France

(1)Only for collectors

6. QUALITY MANAGEMENT BY THE MANUFACTURER

The "*CSTBat* General Requirements" set out in *Appendix 1* the minimum provisions required for the granting and renewal of all *CSTBat* certificates.

In addition to these provisions, the applicant or holder of a certificate shall perform factory acceptance inspections on incoming goods, inspections during production and inspections on finished products. The minimum content of such inspections is set out in *Appendix 2* of this document.

7. CERTIFICATE APPLICATION

(see article 7 of the "CSTBat General Requirements")

Each application relates to a product designated by name, produced at a production centre also designated by name.

The application is produced on the company's letterhead. The application template and list of information to provide to support an application are given in *Appendix 5* of this document.

The certification can be made by:

- The holder of the Technical Assessment which manufactures the product itself,
- The holder of the Technical Assessment which subcontracts the production of its collector
- One or several distributors holding a commercial extension of a Technical Assessment

Certification can be made by one or several distributors mentioned in the Technical Assessment of a manufacturer. In this case, the application cannot be accepted only if the manufacturer, holder of the Technical Assessment, gives its formal agreement for each concerned distributor.

In this latter case, the brand name of the range has to be the same as the holder of the Technical Assessment. Moreover, the holder of the Technical Assessment has to have its own certificate.

The applicant, in support of his request, makes a commitment to comply with at least the following points:

- to accept and to respect the conditions fixed and defined in the certification rules and in particular to:
  - submit to the certification, products in accordance with the current regulation ,
  - implement the changes required by the evolutions of the certification rules which are communicated by the certification body,
  - use the certification mark in conditions defined in the certification rules and for the only certified products,
  - follow up the decisions taken by the certification body within the framework of the certification (in particular define and implement of corrective actions further a noticed non-compliance or apply one penalty decision);
- meet permanently the requirements of certification defined by the rules , including the implementation, the appropriate changes which are communicated by the certification body,
- make sure that the certified product continues to meet the requirements to the requirement of the certification rules, in particular:
  - To apply effectively the system of internal control of production set up to meet the requirements of the certification rules;
  - Exercise the controls which fall to him in order to allow the grant of the maintain the Right to use the certification mark:
- Take all the necessary measure:
  - The driving of the evaluation and the surveillance supervision, including the supply of evidences with the aim of their examination such as: the documentation and the recordings, the access to the equipment, to the sites, to the zones, to the staffs and the concerned subcontractors,
  - The instruction of the complaints,
  - Observers' participation, if necessary;
- Make declarations on the certification in accordance with the reach of the certification, in particular:
  - Do not submit to the certification products from the forgery;
  - Reserve the commercial denomination of the submitted product only for the certified products according to the current Certification Rules;
- Do not use the certification of its products with a way which can damage the certification body nor make declaration on the certification of its products which the certification body can consider as misleading or unauthorized, in particular:
  - do not use the certification mark in a misuse way or in non-compliance with the current certification rules,
  - do not use the logo of the certification body;
- In case of suspension, or withdrawal or at the term of the certification, stop using all the way of communication which makes a reference to it and comply with all the requirements foreseen by the certification program (for example the dismissal of the documents of certification) and to settle any other required measures;
- supply copies of documents of certification to others, reproduced in their entirety or such as specified in the rules;
- referring to the certification of its products in communication medium, such as documents, brochures or advertising , comply with the all requirements of the certification body and/or to the specifications of the certification program and to communicate with the certification body, based on his request, all the advertising brochures and the catalogs making a reference to the certification mark;
- to comply to all requirements which can be prescribed in the certification program of the product relative to the use of marks of conformity and to the information relative to the product;
- manage, record, and conserve a recording of all the complaints of which he has been warned with regarding the conformity with the requirements of certification and to provide these recordings to the certification body and auditors when requested,
  - end take any required action linked with these complaints and the imperfections

noticed in the products which have consequences on their conformity with the requirements of the certification;
- document the actions undertaken

- Inform, immediately, the certification body with the changes which can have consequences on its function to comply with the requirements of the certification rules, in particular:
  - to inform immediately the certification body of any modification brought at the initial file submitted during the request of right to t use the NF mark (in particular any modification brought on product (s) granted at the initial request request);
  - to inform the certification body of any definitive cessation, or temporary, of the production concerned by the certificate;
- make sure, for all the collaborators of the certification body or its qualified subcontractors, that all the safety measures relative to the condition of the work , sites and equipment are in accordance with the current regulations of the place.
- settle fees of certification (management, audit and possible tests) in accordance with the current price list.

8. EXAMINATION OF THE APPLICATION AND GRANTING OF THE CERTIFICATE

8.1 Examination of the application *(see article 7.3 of the "CSTBat General Requirements")*

The certificate application is examined by EUROVENT CERTITA CERTIFICATION.

This examination comprises:

- ✓ Exam of published Technical Assessment
- ✓ an audit of the production plant by a EUROVENT CERTITA CERTIFICATION auditor or auditors from bodies bound to EUROVENT CERTITA CERTIFICATION by EUROVENT CERTITA CERTIFICATION contracts

  The purpose of the audit is to check the internal inspection performed by the manufacturer. The audit may be carried out at the same time as the Technical Assessment examination visit.

  The manufacturer undertakes to declare to EUROVENT CERTITA CERTIFICATION any modification of a characteristic of the audited product(s) that might have an impact on the compliance of the product(s) with the "*CSTBat* General Requirements" and this document.

  An additional audit may then be carried out before acceptance in order to evaluate these modifications.
- ✓ The examination of the file provided in support of the application

The examination procedure may be simplified if the production of a new product is taking place at a plant that has already been granted a certificate. Insofar as the operation of the Quality Management System has already been checked, the plant audit is not systematically carried out again during the examination of a subsequent certificate application.

8.2 Granting decision *(see article 7.4 of the "CSTBat General Requirements")*

The Certificate is granted by EUROVENT CERTITA CERTIFICATION for one or more given product(s) manufactured at a specified production unit, after the Evaluation Committee has expressed an opinion, if applicable.

This certificate mentions as an expiry date the referenced technical assessment expiry date.

In the case of a certificate granted to a distributor of a holder of a Technical Assessment, the certificate will mention the number of the Technical Assessment and certificate of the holder of the Technical Assessment

Reminder: certificates attached to a Technical Assessment cannot be granted until such Technical Assessment has been registered.

9. CLAIMS AND APPEALS

The claim by an applicant/holder against a decision shall be sent to EUROVENT CERTITA CERTIFICATION. EUROVENT CERTITA CERTIFICATION, eventually after consultation of the concerned Evaluation comity, informs the applicant/holder of the claim outcome.
If the decision is confirmed, the applicant/holder can send an appeal to EUROVENT CERTITA CERTIFICATION within 15 days after the notification of confirmation of the decision.
Based on notice of Certification Programmes and Policy Commission (CPPC) of EUROVENT CERTITA CERTIFICATION, EUROVENT CERTITA CERTIFICATION's executive board gives a ruling on the action to be taken.
Claims and appeals are not suspensive.

10. CHECKS AFTER GRANTING OF THE CERTIFICATE

(see article 8 of the "CSTBat General Requirements")

The follow-up audits on the manufacturer are carried out by the audit bodies given in article 5.3 above, on the basis of an annual audit.

The follow-up audits on the distributor are carried out by the audit bodies given in article 5.3 above, on the basis of an audit every two years.

The checks are performed in accordance with *Article 8* of the "*CSTBat* General Requirements" and *Appendix 4* of this document.

The taking of samples, if applicable, is performed in accordance with *Appendix 4* of this document.

The follow-up tests are performed by the test laboratories set out in paragraph 5.4, in accordance with the procedures specified in *Appendix 3* of this document. The results shall meet the following conditions:

- ✓ Thermal solar collectors:
  - The aperture area and/or gross area surface determined during follow-up testing must not vary by -0,5%/+1% compared with the area obtained on acceptance. For vacuum tubes collectors, the allowed variation is ±3% compared with the variation obtained on acceptance.
  - Based on a calculation of power value supplied by the collector, stated in aperture and/or gross area for a value of irradiance set at G=1000 W/m², for a value tm-ta equal to 0, 10, 30 and 50, the comparison between acceptance and follow-up of the average relative deviation must lower or equal to ±10% AND the largest relative individual difference must be lower to 15%.
  - Glass breakage at the end of the follow up test must prove the glass type used to manufacture the collector is conform to the one used during the initial assessment.
- ✓ Domestic solar water heaters (thermosiphons and self-storing collectors):
  - the nominal volume determined during follow-up must not vary by -0/+1% compared with the value obtained on acceptance,
  - a variation of ± 10 % on the production calculation result (determined using the identified parameters - cf. *Appendix 3*) is permitted relative to the values determined on acceptance.

11. MODIFICATIONS TO THE CONDITIONS OF GRANTING OF THE CERTIFICATE

Any modifications to the conditions of granting of the certificate shall be notified in writing by the holder of the certificate.

11.1 Modification concerning the holder

The holder shall inform EUROVENT CERTITA CERTIFICATION in writing of any legal modification of its company or any modification in the company name.

In case of merger, bankruptcy or takeover of the holder, all the rights to use the mark from which the holder benefits, cease automatically.

11.2 Modification concerning the production site

Any transfer (in full or in part) of the production site of a *CSTBat* certified product to another production location shall lead to the immediate cessation of *CSTBat* marking by the holder on the product in question.

The holder shall declare this transfer in writing to EUROVENT CERTITA CERTIFICATION, which will organise an audit of the new production site and, if applicable, have tests carried out.

Modification of the production site do not lead to a modification of the applicant's technical assessment(s) to integrate the new production site(s) The production site(s) management is ensured by EUROVENT CERTITA CERTIFICATION as the CSTBat certification body.

11.3 Modifications concerning the quality management system

The holder shall declare in writing to EUROVENT CERTITA CERTIFICATION any modification relating to its quality management system that might have an impact on the compliance of production with the requirements of the Technical Assessment, the "*CSTBat* General Requirements" and this document.

This applies in particular to any modification concerning its facilities and quality plans.

It shall also declare all modification of certification of its Quality Management System.

Any temporary cessation of internal inspection of a *CSTBat* certified product shall be declared in writing to EUROVENT CERTITA CERTIFICATION and shall lead to the immediate cessation of *CSTBat* marking of the product by the holder. EUROVENT CERTITA CERTIFICATION then pronounces a decision to suspend the right to use the *CSTBat* mark for a specific period. If the right of use cannot be reinstated at the end of this period, it will be withdrawn.

11.4 Modification concerning the certified product(s)

Any modification of a characteristic of the certified product(s) that might have an impact on the compliance of the product(s) with the requirements of the Technical Assessment, the "*CSTBat* General Requirements" and this document shall be declared in writing to EUROVENT CERTITA CERTIFICATION.

Any permanent cessation of production of a *CSTBat* certified product or any waiver of a right to use the *CSTBat* mark shall also be declared in writing to EUROVENT CERTITA CERTIFICATION, with provision of an estimate of the remaining stock of *CSTBat* marked products and specification of the period necessary to sell such stock. At the end of this period, EUROVENT CERTITA CERTIFICATION pronounces the cancellation of the right to use the *CSTBat* mark.

Any temporary cessation of production of a range of *CSTBat* certified products, deemed excessively long by EUROVENT CERTITA CERTIFICATION, may be grounds, after investigation, for a measure to suspend or withdraw the right to use the *CSTBat* mark for such products.

12. FINANCIAL PROVISIONS

The financial provisions for certification are covered by a specific price schedule produced and revised annually. It includes the headings specified in *Appendix 8*.

CSTBat CERTIFICATE

THERMAL SOLAR PRODUCTS

TECHNICAL REQUIREMENTS

APPENDIX 0

SUMMARY OF

REFERENCE DOCUMENTS

REFERENCE DOCUMENTS

Name	Date	Version
Technical Assessments in force relating to Thermal solar products (available on the CSTB web site)	/	/
Specialist Technical Guide no. 14 - "Thermal solar products"	15.10.2002	01
Certification standard *CSTBat*: General Requirements	01.01.2014	/
CSTBat mark user guide	/	/
Technical Requirements of the *CSTBat* - "Thermal solar products" Certificate	27.11.2015	10
-Appendix 0: Summary of reference documents	27.11.2015	10
-Appendix 1: Composition of the Evaluation Committee	27.11.2015	10
-Appendix 2: Inspections performed by the manufacturer	27.11.2015	10
-Appendix 3: Test and calculation procedures	27.11.2015	10
-Appendix 4: Checking by the auditors	27.11.2015	10
-Appendix 5: Application template - List of information to be provided	27.11.2015	10
-Appendix 6: Marking	27.11.2015	10
-Appendix 7: Certificate templates	27.11.2015	10
-Appendix 8: Financial provisions	27.11.2015	10
ISO 9001:2008 Quality management system: requirements	27 Novembre 2015	
NF EN 12975-2: December 2006 Thermal solar systems and components Solar collectors - Part 2: Test methods **NF ISO 9806 : 2013** Solar Energy – Sollar collectors – Test methods	Décembre 2006 Novembre 2013	10
NF EN 12976-2 Thermal solar systems and components Factory made systems – Part 2: Test methods	Avril 2006	
NF EN ISO 9488 Solar energy Vocabulary	01.01.2000	
ISO/DIS 9459-5 Solar heating - Domestic water heating systems System performance characterisation by means of whole-system tests and computer simulation	Mai 2007	

CSTBat CERTIFICATE

THERMAL SOLAR PRODUCTS

TECHNICAL REQUIREMENTS

APPENDIX 1

COMPOSITION OF THE

EVALUATION COMMITTEE

1 CHAIRMAN

Appointed by the members of the Committee

1 VICE CHAIRMAN

1 representative from the mandated body: EUROVENT CERTITA CERTIFICATION

MANUFACTURERS, DISTRIBUTORS (5 to 7 representatives)

Representatives of holders and applicants of the Mark

TECHNICAL BODIES, EXPERTS, LABORATORIES (4 to 7 representatives)

Representatives including:

- Representative of audit and testing bodies

USERS, CONSUMERS, PRESCRIBERS (4 to 7 representatives)

- Representative(s) of prescribers
- Representative of consumer associations
- Representative(s) of installers

CSTBat CERTIFICATE

THERMAL SOLAR PRODUCTS

TECHNICAL REQUIREMENTS

APPENDIX 2

INSPECTIONS PERFORMED BY

THE MANUFACTURER

1. GENERAL

This appendix sets out the basic rules for factory and external laboratory inspections relating to the production of "Thermal solar products" under Technical Assessment, covered by a *CSTBat* certificate.

The manufacturer is obliged to introduce a Quality Management System on its certified production, in accordance with the provisions set out in *Appendix 1* of the "*CSTBat* General Requirements", supplemented by the specific provisions for Thermal solar products described below.

The minimum conditions and procedures for the internal inspection specific to a given type of production, which depend on the design of the product, the nature of the components, the production organisation, the production control system and the quality assurance in place, shall be specified in the manufacturer's manuals and quality plans.

For companies whose Quality Management System is certified by a body accredited by a member of the EA (European Cooperation for Accreditation), the requirements set out in *Appendix 1* of the "*CSTBat* General Requirements" are considered as satisfied insofar as the company's Quality Management System is effectively applied to the products considered.

The holder of a *CSTBat* certificate is obliged to inform EUROVENT CERTITA CERTIFICATION of any modification made to the production of the certified product since the issuing of the Technical Assessment and the corresponding certificate. It is also obliged to inform EUROVENT CERTITA CERTIFICATION of any significant modification to the organisation of the internal inspection. Such modifications shall lead to the amendment of the quality plan for the product in question.

2. INTERNAL INSPECTIONS

Each internal inspection shall be performed in accordance with one of the following provisions (the manufacturer may apply two different provisions depending on the inspection to be performed):

- by the manufacturer directly on the production line or in a laboratory installed at the production site,
- by the manufacturer in an external laboratory, in accordance with provisions recognised by EUROVENT CERTITA CERTIFICATION,
- by an identified subcontractor.

The sampling method for raw materials, products in progress and finished products shall be described in detail in the quality plan. It shall not be left to the sole discretion of the operator.

Internal inspections shall comply with the provisions of chapter 5 and of *Appendix 1* of the "*CSTBat* General Requirements", together with the procedures set out in the paragraphs below.

The results of the inspections shall be recorded in "records" defined in *Appendix 1* of the "*CSTBat* General Requirements".

Note: The tests and inspections carried out during the design of the products are checked during the Technical Assessment examination process.

Paragraphs 2.1, 2.2 and 2.3 below set out the general provisions to be checked by the manufacturer at each stage of production. The table in paragraph 2.4 sets out the minimum specific inspections to be performed on specific components.

2.1 Inspections on incoming goods

On receipt and in any event before use, the manufacturer is obliged to check the quality of the raw materials or intermediate products manufactured by a subcontractor entering into the composition of its products (hereafter referred to as incoming goods).

This check, the content of which may vary depending on the manufacturer's internal inspection structure and the uniformity guarantees provided by its suppliers, generally comprises:

- ✓ acceptance inspections allowing for the delivery to be accepted,
- ✓ quality inspections used to assess compliance with expected characteristics (as specified in the order or specifications for subcontracted intermediate materials and products).

The manufacturer shall in particular keep records of the tests carried out on the supplier and/or subcontractor's premises in accordance with its specifications.

2.2 Inspections during production

The dimensional characteristics of the components of Thermal solar products shall comply with those given in the Technical Assessment and those given in the manufacturer's specifications. These inspections may be performed directly on a rig during certain production or assembly phases.

A leak test shall be performed on every solar collector and every storage tank leaving the production line. This test is performed at a fluid pressure equal to at least one and a half times the maximum service pressure value stated by the manufacturer. The test is carried out on the appliances equipped with their own hydraulic couplers.

Storage tanks equipped with an internal protective coating (such as enamelling) shall regularly be inspected to check the thickness and quality of such coating.

The density of the insulating materials manufactured is checked on each delivery. For insulation produced through the injection of products during production, the rise time and cream time are checked and a sample is weighed periodically and after any extended stoppage or change in the products injected.

As a general rule, each production process shall be monitored regularly in order to check whether the production conditions comply with the manufacturer's specifications and the provisions of the suppliers of incoming goods.

2.3 Inspections on finished products

A visual inspection is systematically carried out on each finished product before packaging. It relates in particular to:

- ✓ the checking of the performance of the inspections and tests carried out during production,
- ✓ the appearance of the finished product,
- ✓ the compliance of the marking to the specifications given in the Technical Assessment and required pursuant to *CSTBat* certification.

2.4 Control of the documentation delivered with the certified products

Study documentation used to select the equipment have to clearly precise what is covered by the Technical assessment (Installation guidelines have to clearly precise what is covered by the Technical assessment).

Installation and use guidelines must be delivered at least with the delivery and in paper.

2.5 Specific inspections

Collectors					
Components	**Inspections**	**Characteristics**	**Frequency**	**Comments**	**Position**
Absorber	General appearance	In accordance with specifications	On each batch delivery or during production by sampling	When the absorber is delivered in reels, inspection takes place during production. Inspection performed by the supplier or subcontractor if the manufacturer does not have the necessary measuring equipment	Incoming goods / Production
	Dimensional				
	Optical characteristics *(the optical characteristics shall comply with)*	α absorption coefficient Minimum Technical assessment value – 2%			
		ε emissivity coefficient Maximum technical assessment value + 2 %			
Transparent cover	General appearance	In accordance with specifications	On each unit	/	Production
	Dimensional				
	Optical characteristics *(the optical characteristics shall comply minimum with the value in the technical assessment – 2 %)*	τ Transmission coefficient	On each batch delivery by sampling or according to specifications	Inspection performed by the supplier or subcontractor if the manufacturer does not have the necessary measuring equipment	Incoming goods
Hydraulic connection	Dimensional	In accordance with specifications	On each batch delivery by sampling On rig during production	/	Incoming goods / Production
	Tightness (Hydraulic connection with brasing or welding)	- Using water :1.5 times the stated service pressure - Using air : 1,3	On each unit		Production

		times the stated service pressure			
Collectors (continued)					
Components	**Inspections**	**Characteristics**	**Frequency**	**Comments**	**Position**
Manufactured insulation	General appearance	In accordance with specifications	On each unit	Test is performed by the supplier if the manufacturer do not have the right equipment	Production
	Dimensional				
	Density or thermal conductivity	In accordance with specifications	On each batch delivery by sampling		Incoming goods
Insulation produced by injection	Injection time	In accordance with specifications	By periodic sampling, after prolonged stoppage and change of injection products	The storage conditions of Isocyanate and Polyol components shall comply with the supplier's instructions.	Production
	Temperature/Hygrometry				
	General appearance				
	Dimensional				
	Density				
Vacuum tubes	General appearance	In accordance with specifications	On each unit	/	Incoming goods
	Dimensional		On each batch delivery by sampling		
	Optical characteristics of glass *(the optical characteristics shall comply minimum with the value in the technical assessment – 2 %)*	τ Transmission coefficient	On each batch delivery by sampling	Inspections performed by the supplier or subcontractor	Incoming goods
	Optical characteristics of the absorber *(the optical characteristics shall comply with technical assessment value ±2%)*	α absorption coefficient		Inspections performed by the manufacturer, supplier or subcontractor	Incoming goods / Production
		ε emissivity coefficient			
	Vacuum value	In accordance with specifications	On each batch delivery, on each unit		Production
Heat pipe	Dimensional	In accordance with specifications	On each batch delivery by sampling		Incoming goods / Production
	Temperature release		On each unit		

	Minimum deviation release		On each batch delivery by sampling	Inspections performed by the manufacturer, supplier or subcontractor	

Storage tank						
Components		**Inspections**	**Characteristics**	**Frequency**	**Comments**	**Position**
Storage tank	All types	General appearance Dimensional	In accordance with specifications	On each unit for the manufacturer On each batch delivery in case of subcontracting	The subcontractor shall provide a record of the checks performed on the tanks	Incoming goods / Production
		Tightness	Using water : 1.3 times the stated service pressure - Using air : Pressure according to manufacturer specification	On each unit On each unit		
	Stainless steel type	Anticorrosion treatment of welds	In accordance with specifications	On each unit		
	Internal protective coating by enamelling type	Monitoring of oven temperature		Continuous		
		Monitoring of oven temperature Homogeneity Or Destructive control to check enamel quality		Continuous Weekly		
		Monitoring of oven time		Continuous		
		Coating thickness		By sampling		
		General appearance		On each unit		
		Coating thickness		By sampling		

	Other type of protective coating	General appearance	In accordance with specifications			

Storage tank (continued)					
Components	**Inspections**	**Characteristics**	**Frequency**	**Comments**	**Position**
Manufactured insulation	General appearance	In accordance with specifications	On each unit		Production
	Dimensional				
	Density or thermal conductivity		On each batch delivery by sampling	Test is performed by the supplier if the manufacturer do not have the right equipment	Incoming goods
Insulation produced by injection	Injection time	In accordance with specifications	By periodic sampling, after prolonged stoppage and change of injection products	The storage conditions of Isocyanate and Polyol components shall comply with the supplier's instructions.	Production
	Temperature/Hygrometry				
	General appearance				
	Dimensional				
	Density				
Storage tank *(Subcontracted intermediate product)*	General appearance	In accordance with specifications	On each batch delivery	The subcontractor shall provide a record of the checks performed on the cylinders	Incoming goods
	Dimensional				
	Leaktightness	Using water : 1.3 times the stated service pressure - Using air : according to manufacturer specification	On each unit On each unit		

3. INSPECTION EQUIPMENT

The manufacturer shall keep its range of measurement and inspection equipment up to date; this includes the following points in particular:

- ✓ Measurement and inspection apparatus record procedure and record sheet.
- ✓ Capability(1) of the measuring equipment
- ✓ Follow-up procedure and sheet for maintenance operations on apparatus.
- ✓ Metrological monitoring of apparatus.
- ✓ *In situ* identification of measurement and inspection apparatus.

(1) Technical term denoting the ability of a piece of equipment to have the characteristics that meet the planned use. Capability shall take into account: the measurand, the instrument, the method, the measurement uncertainty, the operating conditions, the cost, etc.

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APPENDIX 3

TEST AND CALCULATION

PROCEDURES

1. GENERAL

This appendix sets out the test procedures used to obtain the certified characteristics of "Thermal solar products". It specifies in particular the design rules used to obtain the certified characteristics of a range of domestic solar water heaters on the basis of a tested model.

Note: The composition of a range of Thermal solar products, domestic solar water heaters or thermal solar collectors is defined in the Technical Assessments.

These characteristics are obtained during the Technical Assessment examination process and then checked periodically as part of *CSTBat* certification.

2. THERMAL SOLAR COLLECTORS

The certified characteristics are obtained by a test performed according to the procedure set out in NF EN 12975-2 and/or ISO 9806 and are defined by the following characteristics:

- ✓ The aperture area $\mathbf{A_a}$ (m^2).
- ✓ Gross area $\mathbf{A_G}$ (m^2).
- ✓ The optical efficiency η_0 (dimensionless) according to EN 12975 and/or ISO 9806.
- ✓ The loss coefficient **a1** ($W/m^2.K$) according to EN 12975 and/or ISO 9806.
- ✓ The loss coefficient **a2** ($W/m^2.K^2$) according to EN 12975 and/or ISO 9806.

These characteristics are used to calculate the efficiency as defined in NF EN 12975-2 and/or *SO 9806.*

Note : Definition of aperture area for solar collectors is given in vocabulary standard NF EN ISO 9488.

When the laboratory is performing follow up test, glass is broken in order to check the conformity of this one compared to the declaration.

3. DOMESTIC SOLAR WATER HEATERS: THERMOSIPHONS AND SELF-STORING COLLECTORS

The certified characteristics of domestic solar water heaters are as follows:

- ✓ Nominal volume of storage tank (Vn in litres).
- ✓ Aperture area of the solar collector(s) in the system (Aa in m^2).
- ✓ Thermal characteristics (identified parameters) (Ac*, Uc*, Us and Cs).

3.1 Nominal volume (Vn) of the storage tank

The nominal value of the storage tank corresponds to the volume stated by the manufacturer. It is obtained by calculation during the design of the tank. The calculation method shall be provided during the Technical Assessment and certificate application examination process, for checking purposes.

3.2 Thermal characteristics

The thermal characteristics are obtained by a test performed in accordance with the procedure set out in NF EN 12976-2 and the test method set out in ISO/DIS 9459-5.

This test is used to obtain the following identified parameters:

Identified parameters	Symbols	Units
Equivalent collector area	Ac*	m^2
Heat loss coefficient of the collector	Uc*	$W/m^2.K$
Heat loss coefficient of the storage tank	Us	$W.K^{-1}$
Heat capacity of the storage tank	Cs	$MJ.K^{-1}$

These identified parameters are used to carry out a predicted production calculation (in kWh/yr) for the domestic solar water heater in accordance with NF EN 12976-2 with the following parameters:

- Calculation method: NF-EN 12976-2 (DST method)
- Draw-off volume: volume corresponding to the nominal volume
- Draw-off profile: CEN Mandate - TREN D1 D(2002) M/324 EU No. 2
- Meteorological sites: Gillot (La Réunion) for DOM COM and Nice for mainland France

The thermal characteristics of design variants (variation in the nominal volume and/or collector area) in a range defined in the Technical Assessment are estimated by calculation based on the thermal characteristics of the model tested and with the following proportionality rules:

- the equivalent collector area is proportional to the aperture area of the collector,
- the heat loss coefficient of the collector is constant,
- the heat loss coefficient of the storage tank is proportional to the volume of the tank,
- the heat capacity of the storage tank is proportional to the volume of the tank.

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APPENDIX 4

CHECKS BY THE AUDITORS

1. FOREWORD

The checks are carried out before and after acceptance as mentioned in paragraphs 8 and 10 of this document. They consist of an audit:

- of the fabrication plant object of the certification,

It consists to ensure that the provisions implemented in the fabrication plant continuously comply with to the requirements of the CSTBat General Requirements, the Technical Assessment and the present document

- the distributor of the collectors, object of the certification

The aim of the audit is to ensure that the provisions implemented in the distribution network continuously comply with the provisions of the CSTBat General Requirements, the Technical Assessment and this document.

Audits are performed by an audit body defined in article 5.3 of this document. Their aim to ensure that a production control system has been set up in accordance with the provisions of *Appendix 1* of the "*CSTBat* General Requirements", the Technical Assessment and these Technical Requirements.

An observer, who is committing to confidentiality, might take part of the audit. This observer can be imposed on EUROVENT CERTITA CERTIFICATION by standards or agreement which he is a signatory. The attendance of an observer is always notified to the holder before the audit.

EUROVENT CERTITA CERTIFICATION can also ask the applicant the involvement of another observer.

2. AUDIT OF THE FABRICATION PLANT, OBJECT OF THE CERTIFICATION

The checks take place on the production site of the finished product or the semi-finished products (intermediate products) when these are delivered directly to site in order to be assembled with the other components to form the finished product.

If the manufacturer subcontracts part of its production, EUROVENT CERTITA CERTIFICATION reserves the right to send an auditor to audit the subcontractor on the basis of the same standard.

The inspection procedures apply to all subcontracted products for which the supplier is liable, and are checked during every audit.

The checks are performed:

- ✓ **Before acceptance,** by means of an audit of the production site generally combined with the Technical Assessment examination visit.
- ✓ **After acceptance,** by means of a follow-up audit performed annually under the same conditions as the acceptance audit, supplemented by sampling if applicable (cf. § 2.5 below) for the performance of characterisation tests *(cf. Appendix 3)* at an external laboratory.

A reduction in the checks performed during audits may be envisaged if the manufacturer's Quality Management System is certified compliant with EN ISO 9001 by a body accredited by a member of the EA (European Cooperation for Accreditation). The production unit shall be within the scope of such certification.

An observations sheet is produced after each audit and signed by the auditor and the manufacturer or its representative. The report is sent subsequently or optionally left on site when the auditor is the manager of the application. The manufacturer has a period set during the audit closing meeting to rectify any failings found during the audit.

A summary of the report may be presented to the mark Evaluation Committee.

2.1 Checking of the quality management system

The purpose of checking the quality management system is to determine its compliance with certain specifications of ISO 9001 and *Appendix 1* of the "*CSTBat* General Requirements" on the following points:

- ✓ Liability,
- ✓ Document control,
- ✓ Inspection operations,

- ✓ Personnel, facilities and equipment,
- ✓ Tests,
- ✓ Recording of inspection results,
- ✓ Handling of non-compliant products,
- ✓ Traceability,
- ✓ Claims.

This check is based mainly on an examination of documents. If the manufacturer's Quality Management System is ISO 9001 certified, the auditor checks the validity of the certificate issued and takes a copy of such certificate.

2.2 Checks on incoming goods

The auditor carries out a check on stock of the characteristics of the various components (make, type, reference number, examination of marking) and examines the acceptance inspection records.

The aim of this examination is to check that the incoming goods comply with the manufacturer's specifications and the Technical Assessment.

2.3 Checking of the production process

The auditor performs a check on the production process that covers the following points:

- ✓ Examination of the inspections and tests performed on the product,
- ✓ Examination of the "records" in which the results of the inspections and tests are logged,
- ✓ Examination of the measurement and inspection equipment: identification, metrological monitoring and maintenance.

2.4 Checks on finished products

The auditor performs a check on the finished products that covers the following points:

- ✓ Visual examination of the finished product, taking into account the acceptance criteria stated by the manufacturer,
- ✓ Examination of compliance with the Technical Assessment,
- ✓ Examination of compliance of marking with the specifications set out pursuant to *CSTBat* certification.

2.5 Sampling for tests at the mark laboratory

Every 2 years, a sampling is made for each holder of a certificate, for each type of products (flat collector, vacuum collector, ICS system, thermosiphon.). For the sites producing both thermosiphons and collectors, the products will be sampled at the same time. These tests are performed in compliance with the procedure given in Appendix 3 of this document.

They are marked with a distinctive sign by the auditor and sent by the mark manufacturer, on his responsibility, within a period set at the time of sampling. A sheet listing the samples taken is established on site and submitted to the manufacturer.

The sampling and identification of the samples are recorded in the audit report with the following information:

- ✓ Serial number,
- ✓ Reference,
- ✓ Type,
- ✓ Characteristics (aperture area of the collector(s) and volume of the tank (if applicable)).

In addition, EUROVENT CERTITA CERTIFICATION reserves the right to take any further samples that it deems necessary:

- ✓ at any other time following claims, disputes or litigations that it is aware of relating to products covered by a *CSTBat* certificate,
- ✓ during the audit on other samples in the range if a fault was found; either through non-compliant production detected during quality monitoring, excessive product returns, non-compliance with the Technical Assessment or any other external event showing regular malfunction of the product.
- ✓ Product can also been sent directly from a manufacturer's logistic warehouse if he has in stock products which have been produced maximum 6 months before audit date..

3. AUDIT OF THE HOLDER OF A TECHNICAL ASSESSMENT COMMERCIAL EXTENSION

The aim of the audit is to ensure that the provisions defined and implemented by the distributor in its distribution network continuously comply with the provisions of the *Appendix 6* of this document.

The audit takes place in the distributor facility or in the certification holder facility.

The auditor shall have at his/her disposal at no cost all the resources necessary (offices, facilities, equipment) to perform the assignment, together with the people competent to operate them.

In the event of refusal on site, another point of sale will be selected and the holder/distributor will be charged for the additional expense.

The auditor:

- ✓ Checks the application of the marking procedures set out in *Appendix 6* by consulting the catalogues and/or sales documentation available,
- ✓ Examines the traceability of the processes,
- ✓ Examines the handling of customer claims.

An audit report is produced and sent to the holder/distributor. If a detected deviation is specific to one of the holder's documents, a copy of it will also be sent to the manufacturer in question for a response.

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APPENDIX 5

APPLICATION TEMPLATE

LIST OF INFORMATION

TO BE PROVIDED

CSTBat CERTIFICATE APPLICATION

THERMAL SOLAR PRODUCTS

(Application to be completed for each production centre on the manufacturer's letterhead)

1 I the undersigned (1) Mr/Mrs/Miss.....

representing (2) .....

manufacturer of the product(s) named below (3)

Technical Assessment reference number (if published)	Name of process

request that EUROVENT CERTITA CERTIFICATION issue a *CSTBat* certificate for such product(s).

2 The product(s) are manufactured at the following plant:

.....

.....

(address of plant)

.....

3 I declare that I have acquainted myself with the "Certification standard *CSTBat*: General Requirements" and with the "Technical Requirements" specific to Thermal solar products.

4 I undertake:

- to comply with the provisions of these documents, and with the existing or future decisions taken pursuant to said provisions by EUROVENT CERTITA CERTIFICATION,
- to use the trade name of the products submitted solely for the certified products,
- to apply the quality management system put in place,
- to perform the inspections required to maintain certification,
- to inform EUROVENT CERTITA CERTIFICATION of any modification made to the basic file submitted on application,
- to inform EUROVENT CERTITA CERTIFICATION of any permanent or temporary cessation of production to which the certificate relates,
- to send EUROVENT CERTITA CERTIFICATION, at its request, all printed advertisements and catalogues that refer to the certificate,
- to facilitate checking operations by representatives of the audit body,
- to settle all subsequent payments requested in accordance with these "Technical Requirements".

5 I appoint (4) Mr/Mrs/Miss.....
as my representative for all matters relating to the examination of my application.

LIST OF INFORMATION TO BE PROVIDED

GENERAL INFORMATION CONCERNING THE APPLICANT
PRODUCTION UNIT

- Company name: .....
- Address: .....

  .....

  .....
- Country: ..... Telephone: ..... Fax: .....
- SIRET No.: ..... APE Code: .....
- Intracommunity VAT number: .....
- Name and position of legal representative .....

MANUFACTURER AND/OR DISTRIBUTOR, APPLICANT (PLEASE SPECIFY IF DIFFERENT FROM THE PRODUCTION UNIT)

- Company name: .....
- Address: .....

  .....

  .....
- Country: ..... Telephone: ..... Fax: .....
- SIRET No.: ..... APE Code: .....
- Intracommunity VAT number: .....
- Name and position of legal representative .....
- Name and position of contact (if different): .....

*Note**:** The information relating to production and the characteristics of the processes are given during the Technical Assessment examination.*

(1) Surname, first name, address, telephone number
(2) Company name and address, telephone number
(3) Type and trade name of the product
(4) Surname, name, title and position within the Company, telephone number, fax number.

Signed in .....

On .....

Signature
preceded by the handwritten phrase "Read and approved"

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APPENDIX 6

MARKING

Information concerning certified products is available on the website www.certita.fr. It includes:

- ✓ Identification of the product
- ✓ The present certification rules
- ✓ Identification of the holder
- ✓ Certified characteristics

Eurovent Certita Certification provides on demand information concerning the validity of a given certification.
When the holder gives copies of certification documents to someone, he has to reproduce it entirely.

1. MARKING ON THE CERTIFIED PRODUCT

1.1 Compulsory marking

The following information shall be shown indelibly and permanently:

- ✓ Manufacturer's and/or distributor's name and address (1),
- ✓ Commercial reference of the product,
- ✓ *CSTBat* mark as specified below,

- 00 -0000
≠ ≠
plant identification no. last 4 digits of the Technical Assessment number
CSTBat Procédés solaires – www.certita.fr

The *CSTBat* mark shall be reproduced in accordance with the CSTB style guide (refer to the document entitled "*CSTBat* mark user guide").

- ✓ Maximum service pressure,
- ✓ Gross area
- ✓ Manufacturing date (month/year), only if serial number is not a unique one,
- ✓ Serial number,
- ✓ Technical Assessment number,
- ✓ Storage capacity for domestic solar water heaters.

(1) The name and address marked shall match those given in the Technical Assessment. For commercial extensions of the Technical Assessment, reference to the manufacturer or manufacturing site is not compulsory.

For domestic solar water heaters, this marking shall be affixed:

- ✓ to the storage tank if the collector is CSTBat certified itself with its own marking,
- ✓ on the storage tank and on the collector if the collector is not CSTBat certified itself.

1.2 Optional marking

The compulsory marking may be supplemented by optional marking comprising the certified characteristics. They shall be identical to the certified characteristics shown on the certificate.

Note: Any incorrect statement of the certified characteristics exposes the holder to action for fraud and/or misleading advertising.

Further information may also be shown, such as:

- ✓ pressure drop,
- ✓ collector stagnation temperature.

2. MARKING ON THE PACKAGING OF THE CERTIFIED PRODUCT

Marking on packaging shall clearly identify the certified product. The type of marking used, together with its content, shall ensure the traceability of the product from packing to the point of delivery at which the certified product is to be used.

3. REPRODUCTION OF THE *CSTBAT* MARK ON DOCUMENTATION

In sales documents relating to the certified products and only such products, references to the Technical Assessment and the *CSTBat* certificate shall appear in the following form:

Technical Assessment no. XX/YY - ZZZZ

(XX no. of Specialist Group) (YY Year produced) (ZZZZ serial number)

CSTBat certificate

CSTBat Procédés solaires – www.certita.fr

The holder shall only use the *CSTBat* mark in documents to distinguish certified products and where there is no risk of confusion.

Reproduction of the *CSTBat* mark on the holder's letterhead is prohibited, unless the holder has been granted the *CSTBat* mark for all of its products.

If there is any doubt, it is recommended that the holder submit all documents showing the *CSTBat* mark to EUROVENT CERTITA CERTIFICATION beforehand.

The consumer code: focus on transparency

Communication of information concerning product and service certification is governed by regulations which seek to make the meaning of labels, certification marks and so on apparent to users.

Accordingly, article R 115-2 of the French Consumer Code stipulates that:

"When reference is made to certification in advertising, labelling or presentation of any product or in associated commercial documents of any kind, the following information must always be brought to the consumer's or user's attention:

"Where reference is made to certification in advertising, on labelling or the presentation of any product or service, and in commercial documents of any kind relating thereto, the following mandatory information shall be provided to the consumer or user:

the designation or company name of the certifying body or the collective certification mark,

the name of the certification standard used,

the manner in which the certification standard can be consulted or obtained."

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APPENDIX 7

FINANCIAL PROVISIONS

FINANCIAL PROVISIONS

The financial provisions applied to the *CSTBat* certification procedure for "Thermal solar products" splits the costs incurred into the following headings:

On application:

- registration costs,
- application examination costs,
- audit costs,
- test costs (if any).

Following certification:

- costs of the right to use the mark,
- quality follow-up management costs,
- audit costs,
- test costs (if any).

The holder of the certificate(s) shall regularly pay the annual certification costs in a timely manner.

If the sums due are not paid in full within a period of 2 months after sending of the reminder, the certifying body will be unable to carry out the checks specified in this document; this leads to the automatic suspension of the certificate(s), the maintenance criteria of which are no longer met. The Evaluation Committee is informed.

The chapters below provide details on the content of the various headings. The price schedule is updated, published and circulated annually.

1. APPLICATION COSTS

1.1 Registration costs

The amount is intended to cover the costs incurred for the creation and updating of the various documents necessary for the operation of the certification.

On the first application for a *CSTBat* certificate covered by this document, the applicant pays a registration fee. It is paid once only per company, whatever the number of certificates.

It is charged when the *CSTBat* "Thermal solar products" certificate is issued for the first product.

1.2 Application examination costs

Payment of these costs will not be reimbursed, even if the right to use the *CSTBat* mark is not granted or if the application is abandoned during the application process.

This income is intended to cover the costs linked to the examination of applications, relationships with applicants, laboratories and auditors, and the evaluation of the inspection results.

1.3 Application audit costs

Payment of these costs will not be reimbursed, even if the right to use the *CSTBat* mark is not granted or renewed.

This amount includes the preparation for the audit, the audit itself and the drafting of the report.

1.4 Test costs (if any)

These costs are usually counted during the Technical Assessment examination. However, additional costs may be justified during the examination relating to the certificate(s) for further tests.

2. COSTS FOLLOWING CERTIFICATION

These costs are payable in advance each year and will not be reimbursed if the certificate is suspended or cancelled.

2.1 Costs of the right to use the *CSTBat mark*

After certification of a product, the holder is charged an annual fee for the right to use the *CSTBat* certificate.

This fee is intended to cover:

- the general operating costs of certification,
- defence of the *CSTBat* mark,
- a contribution to the promotion of the *CSTBat* mark.

2.2 Quality follow-up management costs

This income is intended to cover the costs of managing and maintaining the file.

Note: A sliding scale of charges is in place for plants/holders that have been granted CSTBat certificates for several products. This sliding scale is described in the current price schedule.

2.3 Extensions

This service applies to applications for new certificates for production sites or distributors that are already certified under the CSTBat Thermal solar products mark.

It covers the management of the application, the printing and sending of the new certificate, and the right to use the CSTBat mark.

2.4 Audit costs

This income is intended to cover the audit costs. They are valued at a flat rate and include:

- preparation for audits,
- the audits themselves,
- the audit reports.

Travel costs are invoiced separately in addition and include:

- accommodation costs, invoiced at actual cost,
- transport costs, invoiced at actual cost.

Note: When the audit schedule allows for a round of visits to several manufacturing sites, the accommodation and transport costs may be shared between the representatives of the different sites.

2.5 Annual test costs

The cost of follow-up tests on the certified characteristics corresponds to the prices charged by the test laboratory.

2.6 Additional costs

Additional costs may be envisaged, particularly in the event of inadequacies or anomalies detected during an audit or through test results leading to the performance of further audits or further tests.