ACTIS S.A
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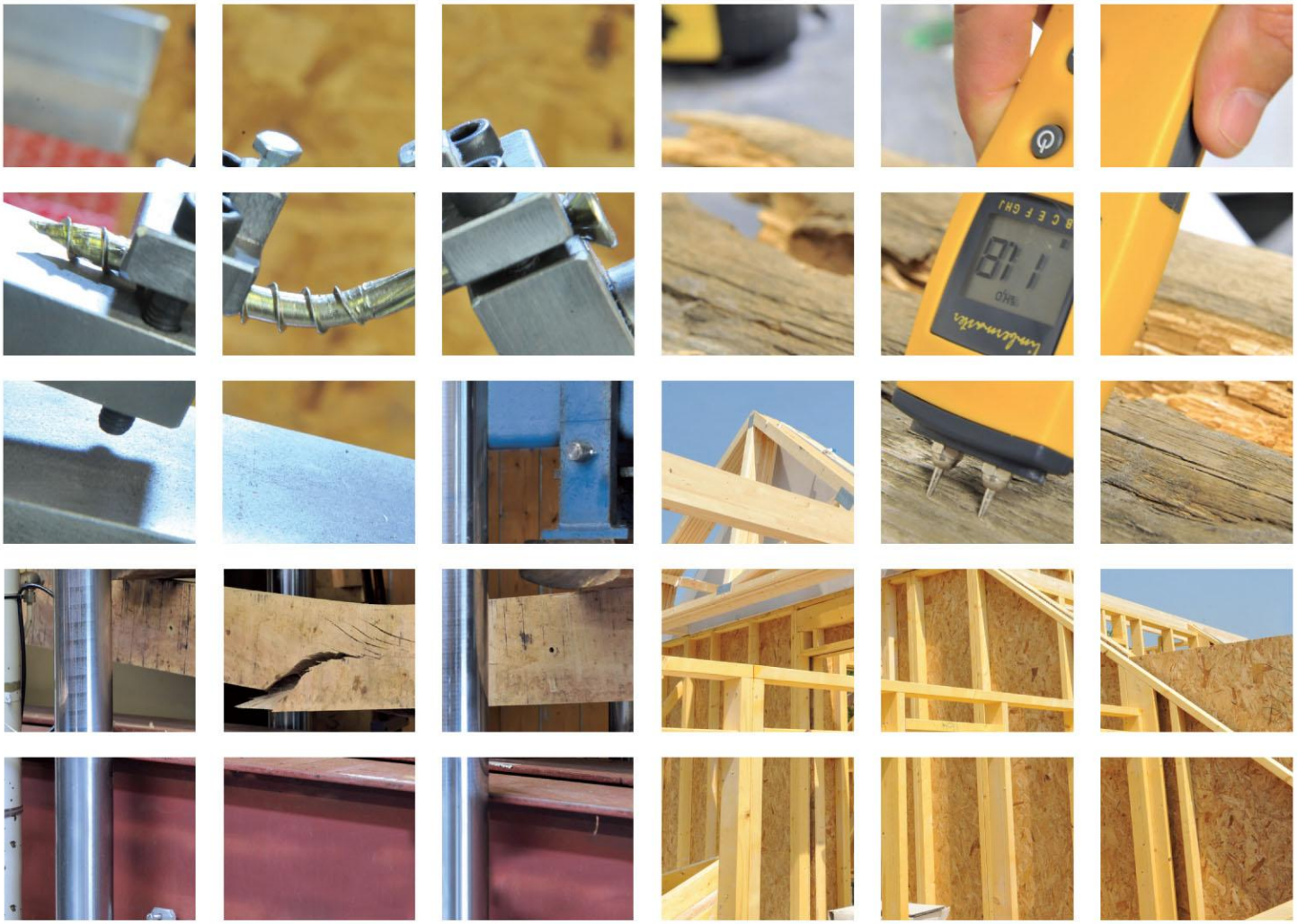
France

Q-Mark Registration Schedule

Multi Layer Insulation

TRISO SUPER 10+



Q-Mark Registration Schedule

Holder of Q-Mark	ACTIS S.A
UK Distributor	ACTIS Insulation Limited Unit 1, Cornbrash Park Bumpers Way Bumpers Farm Industrial Estate Chippenham Wiltshire SN14 6RA
Product Name	TRISO SUPER 10+
Type and Use of Product	Multi Layer Insulation Product
Validity: From	25/10/14
Validity: To	24/10/17
Date of This Issue	25/10/14
Issue Number	2
This Issue Replaces	Revision 25/01/2012
Relates to Certificate Number	BIPS-0104
Manufacturing Address/s	ACTIS S.A Val d'Aude Avenue de Catalogne 11300 Limoux France
This Schedule Contains	12 Pages, including 1 Annex

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1 INTRODUCTION

The Q-Mark Building Insulation Product Scheme is a UKAS Accredited Third Party Product Certification Scheme operated by BM TRADA Certification Ltd.

The Scheme is based on the principles of ISO 9001, EN 45011, EN ISO IEC 17021, EN ISO IEC 17025, ISO Guide 62/65 and confirms compliance with EN 13162 – EN 13171 or BIP Test Protocol 001, together with a specific set of performance criteria set by BM TRADA (as defined in Clause 4 of this document) in order to attain a design which performs to a high standard. The relevant standards listed above are to be read in conjunction with this document.

The Scheme covers factory production control, documentation and test/assessment evidence, and the resultant certification is specific to clearly defined products and their constituent components.

The objectives of the scheme are:

- To improve the quality and performance of Building Insulation Products.
- To provide unambiguous evidence of compliance with the standards or methods listed.
- To provide specifiers, regulators and inspection authorities with the appropriate information for them to identify suitable products.

2 DEFINITIONS & ABBREVIATIONS

The following definitions and abbreviations are used throughout the document. Other definitions are as given in the relevant standards.

Assessment	A considered judgement to consider whether products meet the criteria laid down in the relevant Technical Specification.
Audit	Visit by BM TRADA or other certification body to examine the quality management system and production processes of a manufacturer or supplier, usually to determine appropriate compliance to ISO 9001, with specific emphasis on the factory production control elements.
Member	Company holding membership of the Q-Mark Scheme
QMS	Quality Management System (e.g. one meeting BS EN ISO 9001)
Schedule	The certification schedule, which identifies the scope and range of products covered by the membership certificate.
Scheme	The BM TRADA Q-Mark Building Insulation Products Scheme.

3 SCOPE

The Scheme is applicable to building insulation products which fall within the scopes of the product standards referenced in clause 1 of this document, and applies to products as manufactured and supplied, and before being installed into the works.

3.1 Product Description

TRISO SUPER 10+ (TS10+) is a multi layer insulation material which consists of 19 alternating layers of foam, wadding and silver coloured reflective films, bonded together by glue or glue and weld processes, and having a total uncompressed thickness of approximately 35 mm. The product is supplied in bulk or palletized in units of 16 m^2 (1.60m x 10.0m). The product is manufactured with straight edges only.

3.2 Intended Use

TRISO SUPER 10+ has been assessed for use in roof construction (which includes pitched roofs and associated dwarf, gable and dormer walls). The product is considered to contribute to the minimum requirements of the building regulations in the UK, only when used in accordance with the guidelines detailed in this document.

4 BUILDING REGULATIONS

TRISO SUPER 10+ is certified under the BM TRADA Q-Mark Building Insulation Products Scheme. It is the opinion of BM TRADA that if used in accordance with the requirements of this scheme and in accordance with the installation manual, then the product will contribute to satisfying the relevant requirements of the following Regulations:

- The Building Regulations 2010 (England and Wales)
- The Building (Scotland) Regulations 2004
- The Building Regulations (Northern Ireland) 2000.

5 SCHEME REQUIREMENTS

BM TRADA has determined that the Member conforms with the requirements within these clauses by auditing and/or other forms of verification where appropriate.

5.1 Quality Management System (QMS)

The manufacture of the products has been conducted under the control of an appropriate QMS. Actis SA also have certification to ISO 9001 and ISO 14001.

The QMS shall be subject to periodic audit (not less than once per year).

All new Members are subject to an Initial Inspection.

5.2 Documentation

The following documents are controlled under the requirements of this scheme:

- Manufacturing documentation (e.g. Quality Manual, procedures)
- Product specification/range documentation and Assessment
- Installation instructions
- Test reports and Sampling
- Q-Mark certificate and schedule(s)

5.2.1 Manufacturing Documentation

The Member has supplied details of his manufacturing documentation to BM TRADA for review. This comprised of the Quality Manual, Procedures, Work Instructions and Test Data.

5.3 Minimum QMS Requirements

5.3.1 Factory Production Control

As part of the documented process control procedures the company has:

- Demonstrated that the product is being fabricated in accordance with documented manufacturing procedures from purchase of raw material to the production of the finished product.
- These procedures control all critical aspects of the production.

- Target limits are defined at each one of these areas.
- All performance characteristics claimed are controlled in order to remain consistent by including appropriate checks or testing in the QMS to ensure a consistent and similar product is produced.

5.3.2 Management Responsibility

The management of the company carries out regular reviews of the system, which include production records and any complaints that have been received. Notes are kept of any topics discussed and decisions made.

5.3.3 Company Representative

A member of the management team is responsible for the QMS.

5.3.4 Internal Audits

Routine internal audits are carried out to ensure compliance with the requirements of the scheme is met.

5.3.5 Documentation

Inspection and test records are kept in a format that is acceptable to BM TRADA Certification for a minimum of 5 years.

5.3.6 Work Instructions

Work instructions and target values are placed at the critical production points throughout the manufacturing process.

5.3.7 Procedures for Non Conforming Product

Where factory production control/target values are out of specification there is a procedure for identifying and correcting these deficiencies. The factory production control system has been assessed and found to be able to detect non-conforming product quickly enough so that affected product can be quarantined.

5.3.8 Traceability

There are procedures, which enable appropriate traceability of production runs through to dispatch.

5.3.9 Training

The company maintains records to show that staff has been satisfactorily trained to undertake the manufacturing and inspection tasks that they have been assigned. Records are kept of this training and the personnel's job description shall be clearly defined.

5.3.10 Complaints

The company maintains a register of all complaints received on the quality of their product, which should show the steps they have taken to deal with the problem and their analysis of the causes. These records shall be kept for a minimum of 5 years.

5.3.11 Document Control

There are procedures in place for effectively controlling the quality of documentation issued to the relevant personnel, so that they have up-to-date procedures.

5.3.12 Machinery Maintenance and Calibration

All machinery and measuring / testing equipment that could affect the quality of the product is properly maintained and calibrated so that a consistent product can be produced and tested. There is a maintenance and calibration schedule. A record is kept of the maintenance and calibration carried out.

5.4 Other Requirements of the Scheme

5.4.1 Product Specification/Range Documentation and Assessment

The member has supplied BM TRADA with product details for review. These included material specifications, dimensions, tolerances and components. This product specification forms part of the manufacturing procedure.

Should the product specification of the certified product/s change, the member shall inform BM TRADA of the changes. A decision on the way forward shall be made to ensure continuation of certification.

5.4.2 Transport and Storage Instructions

This must be carried out in accordance with the manufacturer's instructions. The member shall ensure that adequate installation, storage and transport instructions are supplied with each pack or consignment of product. Any alterations to the instructions shall only be made following consultation with BM TRADA.

5.4.3 Installation

All installations of TRISO SUPER 10+ in roof spaces or room in roof applications shall be carried out in accordance with the manufacturers installation instructions (Technical data sheet Ref: PZ440).

Minimum installation instruction shall be carried as follows:

- A minimum air gap of 25mm either side of the multifoil insulation (TS10+) is maintained
- The multifoil (TS10+) shall be pulled tight and stapled at every 50mm to the timber support/batten
- Overlap the multifoil insulation 50-100mm at each joint and staple every 50mm to the timber support
- Cover all joints with reflective tape to provide an airtight finish
- Fold all finishing edges by a minimum of 50mm, staple to the structure and secure with the final batten.
- A suitable under-tile membrane should be fitted in accordance with the manufacturer’s recommendations and shall comply with local building regulations. This may be either:
    - A non-permeable roofing felt with adequate ventilation beneath, or
    - A breathable membrane with ventilation between the membrane and the tiles
- The interior face shall be finished with foil-backed plasterboard lining.

6 TEST AND VERIFICATION REQUIREMENTS

6.1 TEST REPORTS & SAMPLING

BM TRADA has assessed the results of any testing and sampling, and/or calculation that has been carried out in accordance with the scheme rules.

6.2 INITIAL TYPE TESTING

6.2.1 Mechanical Resistance and Stability

Mechanical Resistance and Stability has not been evaluated as there is no contribution by the products to the structural integrity of the building.

6.2.2 Safety in Case of Fire

6.2.2.1 Reaction to Fire

TRISO SUPER 10+ is classified as Euroclass F with regards to its reaction to fire performance as it has not been tested to EN 13501-1.

6.2.2.2 Resistance to Fire

Resistance to fire, if required, shall be determined for the building element with associated detailing and finishes as a whole. Typically this will rely on the use of suitable plasterboard to protect the product from exposure to fire. No fire retardants are used in the manufacturing process.

6.2.3 Hygiene, Health and Environment

The BM TRADA Building Insulation Products Scheme has no assessment requirement in regards release of dangerous substances from insulation products, as there are no specific UK requirements. However the manufacturer has submitted data demonstrating that TRISO SUPER 10+ obtained A+ classification (the lowest class) when tested in accordance with AFSSET (2006) Test Protocol. The test results are summarised for information below:

Volatile Organic Compound	Concentration after 28 days, µg/m^3
Formaldehyde	<3
Acetaldehyde	<3
Toluene	<2
Tetrachloroethylene	<2
Ethyl Benzene	<2
Xylene	<2
Styrene	<2
2-Butoxyethanol	<2
Trimethylbenzene	<2
1,4 – Dichlorobenzene	<2
TVOC	18

6.2.4 Safety in Use

Not relevant.

6.2.5 Protection against Noise

Protection against noise has not been evaluated.

6.2.6 Energy Economy and Heat Retention

The insulating material TRISO SUPER 10+ was tested at the ACTIS SA research and development site in France and at the TRADA Technology site in the United Kingdom. The purpose of the testing was to compare the relative energy consumption of TRISO SUPER 10+ with mineral wool in full scale roof test rigs and real internal/external conditions, following the building methods representative of good practice in the UK.

Following testing for a 3 month period in accordance with BIP 001 and assessment undertaken at both France and the United Kingdom, the following conclusions were made:

- The construction of the test chalets, the instruments used for measuring and recording physical values, the trial methodology and rigour of the testing and calibration procedures on both sites were suitable for comparative testing of the product and mineral wool.
- A mathematical model was used to make the results of tests independent of the ambient weather conditions during the testing period. Data from both the French and UK sites was used to calibrate the model for the specific test conditions. As part of the model validation the model was able to reliably predict the power consumption of each chalet under different weather conditions from which the model was calibrated. The model was also used to predict the power consumption of test chalets under weather conditions from a number of sites around the UK using winter weather data originating from the UK Met Office. These sites were selected to be representative of the UK as a whole, the large amount of data used ensured that any local variations in weather conditions are averaged out and the final result is independent of local weather conditions, and as such representative of the UK as a whole.
- An assessment was conducted based on the results of the modelling to assess the relative performance of TRISO SUPER 10+ with mineral wool.
- When the power consumption figures of the test chalets are compared, under a range of typical UK winter weather conditions, the energy consumption of a timber framed roof structure similar to that tested and insulated with TRISO SUPER 10+ is equivalent to that of a similar roof structure insulated with 210mm of Mineral Wool installed between timber studs/rafters (*).
- The reference mineral wool used conforms to the product standard EN 13162 and has a declared thermal conductivity λ_D = 0.04W/m.K. Based on a hotplate test according to EN 12667, 210 mm of Mineral Wool with a lambda value of 0.04W/m.K has a declared R-value of 5.25m^2K/W (*).
- TRISO SUPER 10+ may be used in conjunction with other materials to achieve more demanding thermal performance requirements. It is important that an air gap is maintained on both sides of the TRISO SUPER 10+ in accordance with the installation instructions.

TRISO SUPER 10+ was also tested for Air Permeability in accordance with Test Method EN 12114 – "*Thermal performance of buildings. Air permeability of Building Components and Building Elements. Laboratory Test Methods".*

The product achieved an Air Permeability of 0 m^3/Pa.m^2.s at pressures of up to 200 Pa. However this does not relate to the air tightness performance of the structure as a whole.

Notes:

* *The thermal performance equivalence is between the two tested roof structures, and includes all the associated heat losses, such as the thermal properties of the materials, air leakage and thermal bridging, the structures being designed with a realistic and identical level of air tightness (n_{50} = 5 ± 0.5 ach^{-1}, which equates approximately to I_4 = 0.4 – 0.5 $m^3/m^2.h$) and fractional timber surface area to ensure that the results of the test are representative of commonly used roof structures.*

6.2.7 Aspects of Durability

Long term durability of TRISO SUPER 10+ can be demonstrated by examination of this insulation product and similar reflective insulation products produced by ACTIS S.A in existing installations in roofs in France. The assessment was carried out by TRADA Technology and included visual inspection of the insulation product and the associated timber roof structural members and ancillary components. The installations assessed were part of the building for approximately 18 years.

All products assessed were confirmed to be fabricated of similar components to TRISO SUPER 10+. All insulation products and associated components were found to be in good condition after up to 18 years in service in roof spaces.

Based on this evidence, TRISO SUPER 10+ should remain in good condition for the design life of the building.

6.3 Performance Verification

An ongoing performance program based on in-situ testing of Thermal Performance has been agreed with the client to confirm maintenance of stated product performance.

7 IDENTIFICATION AND USE OF THE BM TRADA AND Q-MARK LOGOS

Correct identification of approved Building Insulation products is vital in order that purchasers and controlling authorities clearly understand the status of products presented to them. It is therefore a requirement that all products or at least the packaging of the products, covered under the Scheme are identified as “BM TRADA Q-Mark Assessed” or other similar wording, and/or display the Q-Mark badges. This will assist subsequent inspection authorities to recognise acceptable products. For similar reasons, Members are encouraged to make use of the Marks on marketing and technical documentation.

8 GUARANTEES

The Scheme makes no requirement on its Members to give a minimum guarantee. This is entirely up to the discretion of the Member.

9 ANNEX 1 – NORMATIVE DOCUMENTS

Standard	Title
BS EN ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
BS EN 45011	General requirements for bodies operating product certification systems
BS EN 17021:	General requirements for bodies operating assessment and certification/registration of quality systems.
ISO 9001:2000	Quality Management Systems. Requirements
Guide 65	General requirements for bodies operating product certification systems
Guide 62	General requirements for bodies operating assessment and certification/registration of quality systems
EN 13162	Thermal insulation products for buildings – Factory made mineral wool (MW) products – Specification.
EN 13163	Thermal insulation products for buildings – Factory made products of expanded polystyrene (EPS) products – Specification.
EN 13164	Thermal insulation products for buildings – Factory made products of extruded polystyrene foam (XPS) products – Specification.
EN 13165	Thermal insulation products for buildings – Factory made rigid polyurethane foam (PUR) products – Specification.
EN 13166	Thermal insulation products for buildings – Factory made products of phenolic foam (PF) products – Specification.
EN 13167	Thermal insulation products for buildings – Factory made cellular glass (CG) products – Specification.
EN 13168	Thermal insulation products for buildings – Factory made wood wool (WW) products – Specification.
EN 13169	Thermal insulation products for buildings – Factory made products of expanded perlite (EPB) – Specification.
EN 13170	Thermal insulation products for buildings – Factory made products of expanded cork (ICB) – Specification.
EN 13171	Thermal insulation products for buildings – Factory made wood fibre (WF) products – Specification.
EN 12114	Thermal performance of buildings. Air permeability of Building components and building elements. Laboratory test methods‘
BIP Test Protocol 001	Thermal Insulation Products – Evaluation of thin multi-layer reflective insulation products by in-situ testing.