KOMO® quality declaration

Semi-manufacture

SKH
Visiting address:
'Het Cambium', Nieuwe Kanaal 9c, 6709 PA Wageningen, The Netherlands
Postal address:
PO Box 159, 6700 AD Wageningen, the Netherlands
Telephone: +31 (0)317 45 34 25 Email: mail@skh.org
Fax: +31 (0)317 41 26 10 Website: http://www.skh.org

SUSPENDED CEILINGS

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Manufacturer

Faay Vianen B.V.
Mijlweg 3
4131 PJ VIANEN
PO Box 116
4130 EC VIANEN
Tel.: +31 (0)347 37 66 24
Fax: +31 (0)347 37 79 40
Email: info@faay.nl
Website: http://www.faay.nl

Declaration by SKH
This quality declaration for product certification is issued based on AD 4511 'Suspended ceilings' dated 15.08.2003, including amendment sheet dated 07.09.2015, issued in accordance with the SKH Regulations for Certification.

The quality system and product characteristics associated with suspended ceilings are checked periodically.

Based on this, SKH declares that:
- there is legitimate confidence that the suspended ceilings made by the manufacturer meet the product requirements stipulated in the AD, provided that the suspended ceilings carry the KOMO® mark in a manner as indicated in this quality declaration;
- the essential characteristics, as stipulated in the applicable European standard, form no part of this quality declaration.

On behalf of SKH H.J.O. van Doorn, Director

Furthermore, this quality declaration is included in the overview on the website of the KOMO Foundation: http://www.komo.nl.

Users of this quality declaration are advised to check whether this certificate is still valid;
please consult the SKH website for this: http://www.skh.org.

This quality declaration consists of 10 pages.

The following has been assessed:
quality system
product

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7 PRODUCT SPECIFICATION

7.1 Subject

This quality declaration concerns the product certification of suspended ceilings. The suspended ceilings are composed of rectangular elements that are connected to each other by means of I-profiles, intended for use in:
- new development residential units;
- new development non-residential buildings;
- renovated residential units;
- renovated non-residential buildings.

7.2 Marking

The packaging is clearly marked with:
- word mark KOMO® or logo;
- quality declaration number **20785**;
- manufacturer's trade mark or name;
- production code or production date.

2 PRODUCT PROPERTIES

2.1 Product properties

The product meets the product requirements stipulated in the AD 4511 ‘Suspended ceilings’.

2.2 Properties in the application

For the performance of using suspended ceilings reference is made to the attest, number **20785**.

3 OTHER PROPERTIES IN THE APPLICATION

3.1 Resistance to wind load, paragraph 5.3 of the AD 4511

If ceiling systems are used in buildings with large open spaces, such as factories, warehouses, agricultural buildings and special buildings with large windows and doors that can be opened, calculations must be done in this regard in accordance with the material standards.

4 APPLICATION CONDITIONS

4.1 Form and composition

4.1.1 General description of the building unit

Ceiling system type GP22 VO and FR19 VO, with concealed hanging system made of rectangular elements. The elements are connected to each other using I-profiles.

4.1.2 Building unit data

a) Type GP22 VO (closed ceiling)
Ceiling type GP 22VO, composed of GP22 elements and a hanging system consisting of side laths, blocks and steel I-profiles. The rectangular 400 and 600 mm wideGP22 elements are composed of a 2.5 mm thick chipboard sheet to which 9.5 mm thick plasterboard sheets are glued.
The long sides of the elements are fitted with a rebate that is slid over the lower flange of a steel I-profile, of height 100 mm.
Total thickness GP22 element 22 mm, total height GP22 VO ceiling from top of steel I-profile to bottom of GP22 element 112 mm.

b) Type FR19 VO (concealed detachable ceiling)
Ceiling type FR19 VO, composed of FR19 elements, 600 x 600 mm and a hanging system consisting of side laths, blocks and steel I-profiles. The concealed detachable, rectangular 600 mm wide FR19 elements are composed of cement-bonded mineral fibres. The long sides of the elements are fitted with a rebate that bears on the lower flange of a steel I-profile, of height 100 mm.
The FR19 elements have fine perforation for sound absorption and are finished with a white grain structure.
Total thickness FR19 element 19 mm, total height FR19 VO ceiling from top of steel I-profile to bottom of FR19 element 112 mm.

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4.2 Dimensions of components

- standard length : 600 mm FR19 element
  2400, 2600, 2800, 3000, 3200 and 3600 mm GP22 element.
- width : 600 mm FR19 element
  600 mm GP 22 element
- total element thickness : 19 mm FR19 element
  22 mm GP22 element
- total ceiling height : 112 mm from top of steel I-profile to bottom of ceiling element.

4.3 Permissible variations in dimensions and shape:

- length ± 3 mm
- width ± 2 mm
- thickness ± 1 mm
- rectangularity ± 1 mm
- flatness ± 1 mm
- straightness of edges ± 1 mm
- parallelism of sides ± 1 mm
- hygric length variation max. 0.5 mm/m[1]

4.4 Mass

Ceiling type	**Mass [kg/m²]**
	(± 1.5 kg/m²)
GP22 VO	18
FR19 VO	8

4.5 Materials

4.5.1 Chipboard

Flaxboard, chipboard in accordance with AD 1101.

- type GP22 thickness 2.5 ± 0.5 mm, density 500 kg/m[3].
  Width: 600 ± 2 mm and 1250 ± 2 mm.

4.5.2 Plasterboard sheet

Plasterboard sheet in accordance with AD 1009, type A or H
Long side finish FK (facet side)
Thickness: 9.5 mm
Width: 602 +0 to -4 mm and 1250 +0 to -4 mm

Long side finish AK (chamfered side)
Thickness: 9.5 mm
Width: 596 +0 to -4 mm

4.5.3 Cement-bonded mineral fibre

- type FR19 cement-bonded mineral fibres.
  Thickness: 19 mm
  Width: 600 +0 to -2 mm
  Length: 600 +0 to -2 mm

4.5.4 Adhesive

- Adhesive on the basis of esterified starch.
- Installation foam: single component aerosol polyurethane foam.
- FAAYFIX: thixotropic single component aerosol polyurethane construction adhesive.

4.5.5 Mineral wool

Rock wool:

- thickness 65 mm, density ca. 45 kg/m[3].

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4.5.6 **Temporary laths, cavity wall laths and shoes**

Pine side lathes and blocks, minimum quality class C 18.

Dimensions:

Ceiling type	Side lath	Block
GP22 VO	20 x 67 mm	56 x 56 mm
FR19 VO	20 x 69 mm	56 x 56 mm

4.5.7 **Skirting boards**

Meranti	MDF
9 mm x 45 mm	9 mm x 45 mm
13 mm x 56 mm	

4.5.8 **Foam tape**

PVC foam tape with closed cell structure, density ca. 100 kg/m^3.
Dimensions: 2 mm x 19 mm.

4.5.9 **Steel I-profiles:**

Steel I-shape profile, Sendzimir galvanised.
Dimensions: 50 x 100 mm thickness flange 2.5 mm, thickness body 2 mm.

5 **PROCESSING INSTRUCTIONS**

The details referred to in the processing instructions, are included in the technical documentation (no. 5, edition from January 2003) from Faay Vianen B.V.

5.1 **Transport and storage**

The GP22 VO elements are covered by Faay Vianen B.V. with a plastic cover,
the FR19 VO elements are packed in a cardboard box. The carrier is responsible for ensuring that this packaging remains undamaged during transport. The remaining components of the ceiling are not packed in plastic. The carrier must ensure a good and moisture-free covering.
The elements and accessories should be stored on site at a relative humidity between 40% and max. 70 %, moisture-free, flat and protected from rising damp.
Storage on at least 3 beams 100 mm x 100 mm (these are not supplied).
Three packs may be stacked on top of each other.

Store fibre reinforced grouting and FAAYFIX adhesive dry and frost-free. Fibre reinforced grouting and FAAYFIX are suitable only for interior use, see packaging for shelf-life expiry date.

If the elements need to be moved by hand, preferably use a cart on pneumatic tyres (do not slide the elements over each other to prevent damage to the plasterboard sheet).

5.2 **Climatological construction site conditions on the work floor**

- The building should be wind and water tight and tidy;
- During installation and grouting of the ceilings, the temperature should be above +5 °C and the relative humidity before, during and after processing the elements should be between 40% and max. 70%. However, it is recommended during grouting of the ceilings to keep the temperature above +10 °C. Wet work, such as plasterers and floor covering work, cause a large increase in relative humidity. This work should preferably be carried out before installing the ceilings.
- Before the elements may be processed, they should first be properly acclimatised, so that the elements can take on the same humidity as the relative humidity of the interior climate of the building as prevails when in use;
- Ensure good ventilation of the room;
- Heat the room evenly during cold periods. Rapid heating may lead to tension in the elements resulting in deformation and/or cracking. Grouting the seams may be carried out only if no further major changes in shape of the sheets is to be expected.
  Avoid site heaters that use fossil fuels, because they generate a lot of moisture in the air.
  Do not blow warm or hot air directly onto the ceilings.

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5.3 Installation

Gluing (only for ceiling type GP22 VO):
If the GP22 VO ceiling is finished seamlessly and also in wet rooms, all joints should be glued with FAAYFIX adhesive. If there are butt seams in the GP22 VO ceiling, glue them with FAAYFIX adhesive.
For this, follow the processing instructions as shown on the sheet 'FAAYFIX' included in our technical documentation.
Expansion joints (only for ceiling type GP22 VO):
Expansion joints should be included in the ceiling:
- if there are expansion joints in the building shell;
- at the transition between two or more different building shell structures;
- in wet rooms one expansion joint centre-to-centre max. 4 m^1;
- with ceilings of length > 10 m^1, one expansion joint centre-to-centre max. 10 m^1 (do not slide the elements right up to each other, but leave a space of 2-3 mm; do not glue the element joint, and fill the space with sealant that retains its elasticity) or install an expansion profile (see supplier's processing instructions for expansion profile).
  The expansion joint should be continued into the final finishing layer.

5.3.1 Element distribution

- the GP22 elements are installed symmetrically positioned in the room if the seams remain visible. If the ceiling is finished completely without seams, symmetric positioning is unnecessary;
- the FR19 elements are installed in 'stretcher bond' style and symmetrically positioned in the room.

5.3.2 Wall connection

A pine side lath is installed against the walls around the room. The side lath is attached using nails, screws or hammer-in plugs. The centre-to-centre distance between the fixing materials may be at most 600 mm. If the ceiling has to meet certain sound and/or fire requirements, two strips of foam tape should be installed behind the side lath. The side lath has a rebate at the top. On the span side of the ceiling, the direction in which the steel I-profiles are installed, a wooden block is hooked over the rebate of the side lath. (See details in technical documentation no. 5, from January 2003 edition.) Once the ceiling elements have been installed, if the ceiling has to meet certain sound and/or fire requirements, the edge joints along the walls should be sealed with a sealant that retains its elasticity.

5.3.3 Element joints

The GP22 and FR19 elements have a rebate in the long sides. With the GP22 VO system, steel I-profiles with a height of 100 mm are slid into these rebates to join the elements together and in addition provide the unsupported span of the ceiling system. If the ceiling is finished seamlessly or with use in wet rooms, all joints should be glued with FAAYFIX adhesive, see also Point 3 'Installation'. If there are butt seams in the GP22 VO ceiling, a left over piece at least 20 cm wide of GP22 should be installed at the rear of the GP22 element and glued with FAAYFIX adhesive. Plane the heads of the GP22 elements at the butt seam on the construction site, depending on the finishing, to a slight bevel, or fit with a facet side. For this use, a plane with a blade with an adjustable angle, e.g. a vario rebate plane. With the concealed detachable FR19 VO system, the FR19 elements on the long side rest on the lower flange of steel I-profiles with a height of 100 mm, which link the elements together and also provide the unsupported span of the ceiling system. The heads of the FR19 elements butt against each other without further joining. The special profiling means that the FR19 elements are detachable at any position desired.

The steel I-profiles have an upper flange 50 mm wide and a lower flange 35 mm wide.
The I-profiles, with the 50 mm wide upper flange, rest on the wooden blocks without further attachment.
The length of the I-profiles is determined by the fixed measurement between the walls minus 50 mm.
The heads of the I-profiles should be shortened at an angle of 70° (see details in technical documentation no. 5, from January 2003 edition).

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5.3.4 Maximum permissible unsupported span

The steel I-profiles with a height of 100 mm, with both the GP22 VO and the FR19 VO suspended ceilings in combination with the weight of a rock wool sheet, 65 mm thick, are suitable for an unsupported span of max. 4.20 m. With this unsupported span, a max. load is permitted in the middle of the I-profile of 7 kg, or 14 kg spread over two I-profiles. If, with the FR19 VO ceiling system heavy light fittings, etc (> 7 kg/I-profile or 14 kg spread over two I-profiles) are used, or the ceiling does not have to meet certain fire and/or sound requirements, so that rock wool does not have to be installed, an unsupported span of max. 6.3 m is permitted.

With spans greater than 4.2 m (GP22 VO and FR19 VO in combination with rock wool),
or spans larger than 6.3 m (FR19 VO without rock wool) additional hanging points should be installed, with a maximum centre-to-centre distance of 2.1 m. These additional hanging points consist of a steel connection clip attached to the top flange of the steel I-profiles, a Nonius hanger and a vibration damping bracket. The vibration damping brackets are attached with chipboard screws of adequate length in the case of wooden floors (the chipboard screws must be screwed in at least 60 mm into the floor joists, etc in order to guarantee structural strength in the event of fire). A steel washer should be installed between the vibration damping bracket and the chipboard screw. With stone-type floors, the vibration damping brackets are attached with a steel pin (see details in technical documentation no. 5, from January 2003 edition).

The above-mentioned centre-to-centre distance of 2.1 m is based on:
- the dead weight of the ceiling system, incl. 65 mm rock wool (pressing 45 kg/m^3);
- a load in the middle of the steel I-profiles of max. 7 kg, or 14 kg spread over two I-profiles.

If rock wool thicker than 65 mm is used, or if a heavier weight is hung from the ceiling, such as e.g. very heavy light fittings, air conditioning systems, a second ceiling system, etc, the centre-to-centre distance should be adjusted in consultation with Faay Vianen B.V.

5.3.5 Duct openings

Small openings, for example for distribution boxes and built-in spots, may be made from 100 mm from the edge of the element.

For central heating pipes, etc running close to the wall, the side lath can be interrupted and the ceiling element cut into.

5.3.6 Insulation material

In order to comply with fire requirements in accordance with the attest such as are set for floors that separate residential units, it is necessary to install a 65 mm thick rock wool layer on the suspended ceiling.

A residential unit separating structure can be made with:
- Wooden floor composed of floor joists and wooden floor sections:
* GP22 VO ceiling system in combination with 65 mm rock wool.

- Wooden floor composed of floor joists, wooden floor sections and an existing (plaster) ceiling or suspended screed floor (total mass of existing structure $\geq$ 250 kg/m^2):
  * GP22 VO ceiling system in combination with 65 mm rock wool;
  * FR19 VO ceiling system in combination with 65 mm rock wool.

- Stone type floor:
  * GP22 VO ceiling system in combination with 65 mm rock wool;
  * FR19 VO ceiling system in combination with 65 mm rock wool

5.3.7 Provisions for completion and finishing

* The FR19 VO ceiling system consists of ready to use, completely finished elements with white grain structure. Further finishing is unnecessary.
* GP22 VO ceiling system:

Gluing

If the GP22 VO ceiling is finished seamlessly and also in wet rooms, all joints must be glued with FAAYFIX adhesive. If there are butt seams in the GP22 VO ceiling, glue them with FAAYFIX adhesive.
For this, follow the processing instructions as shown on the sheet ‘FAAYFIX’ included in the technical documentation.

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Finishing seams with AK (chamfered side) or FK side (facet side):

1) Start of grouting:
- During and after grouting of the ceilings, the temperature should be above +10 °C and the relative humidity before, during and after processing the elements should be between 40% and max. 70%. However, the best result with the least risk of shrinkage or expansion is achieved if the temperature and the relative humidity (RH) on grouting corresponds to the climate that will pertain in the room (ca. 20 °C and RH 60%);
- A start can be made with grouting the sheets only after all wet work, such as plastering and screed flooring have been completed;
- Furthermore, major changes in length should no longer be expected;
- The ceiling system, all glued joints, tiling adhesive and sheet surface should be fully dry;
- The room should be heated gently and gradually (ensure adequate ventilation).

2) Preparation:
- Make grouting surfaces dry, dust and grease free;
- Protect surfaces not allowed to come into contact with the grouting products using plastic sheeting, adhesive tape, etc.

3) Grout finishing:
- Apply gauze tape to plasterboard sheets with AK side (chamfered side);
- Fill the joint between the sheets with JointFiller Vario, using a broad spatula;
- Sand down the uneven places in the layer of JointFiller Vario after it has hardened properly;
- Finish the joint with a thin layer of JointFinisher Premium, (see processing instructions for fibre-reinforced grouting).

4) Flatness:
The flatness assessment is done according to Table 1 below. This table, taken from the STABU Standard Technical Stipulations, shows the flatness classes for a wall or ceiling in six levels. Requirements are drawn up per flatness level that the surface must meet without final finishing. If exceptional requirements are set for the flatness of the foundation, the entire surface needs to be jointed or plastered. The processes necessary depend on the flatness class prescribed or desired and the finishing. In addition, for an optimal final result the correct products should be used to finish the wall; for this, follow the processing instructions of the finishing product chosen and apply the pretreatments that the manufacturer stipulates for this.

Plasterboard to be used:

- finishing level - **A**- :
  - with AK side (chamfered side), apply gauze tape to the seams and plaster in accordance with the instructions of the supplier of the plastering material;
  - with FK side (facet side). Plaster seams 1x in accordance with instructions, follow processing instructions for fibre-reinforced grouting. Then coat the entire wall surface with a max. 1 mm thick layer of Joint Finisher Mix, follow processing instructions for Joint Finisher Mix.
- finishing level - **B**- :
  - with AK side, apply gauze tape to the seams and plaster in accordance with the instructions of the supplier of the plastering material;
  - with FK side. Plaster seams 2x in accordance with instructions and sand down 1x, follow processing instructions for fibre-reinforced grouting.
- finishing level - **C**- :
  - with FK side. Plaster seams in accordance with instructions, follow processing instructions for fibre-reinforced grouting.
- finishing level - **D**- :
  - with FK side. Plaster seams in accordance with instructions, follow processing instructions for fibre-reinforced grouting.
- finishing level - **E**- :
  - with FK side. Plaster seams in accordance with instructions, follow processing instructions for fibre-reinforced grouting.
- finishing level - **F**- :
  - with FK side. Follow processing instructions from supplier of finishing material.

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Table 1: Finishing levels for plasterboard sheets on partition walls.
source: STABU

Level		**A**	**E**	**C**	**D**	**E**	**F**
Application		Smooth surface, high visual requirements. Suitable for high gloss or semi-gloss paint systems. Remark: uneven patches smaller than 1 mm are unavoidable and are visible under glancing light.	Smooth surface, normal visual requirements. Suitable for matte paints or thin and light-coloured finishes such as wall paper, textile or finely structured finishes.	Even surface suitable for heavy wall coverings or medium-coarse structured finish.	Even surface suitable for coarsely structured finish.	Surface suitable for exclusively functional use. No aesthetic requirements.	Unfinished surface suitable for tiles, plastering, panelling or if no final finish has been determined, or with temporary structures.
Surface Requirements		The surface must be smooth and free of work scratches and uneven patches and completely finished with a thin layer of film.	The surface must be free of work scratches and uneven patches.	Small uneven patches and work scratches ≤1 mm are acceptable.	Small uneven patches and work scratches ≤2 mm are acceptable.	Uneven patches are acceptable.	N/A
Flatness tolerances with a distance between the measuring points of:	**0.4 m**	< 1 mm	< 1 mm	< 2 mm	< 3 mm	N/A	N/A
	1 m	1.5 mm	2 mm	4 mm	5 mm	N/A	N/A
	2 m	2 mm	3 mm	4 mm	6 mm	N/A	N/A
Flatness tolerances of a corner with a distance between the measuring points of:	**0.4 m**	2 mm	3 mm		4 mm	4 mm	N/A
Examples of finishing		Multi-colour paint and wall paint in high gloss and semi gloss. Thin (vinyl) wall paper. Wall paint products and conventional paint products.	Multi-colour paint without glancing light. Wall paint and structured paint without glancing light. Thin (vinyl) wall paper and glass fibre wall paper with fine structure.	Glass fibre film with coarse structure. Foam vinyl wall paper. Spray plaster with grain size ≤3 mm.	Spray plaster with grain size ≥ mm.	N/A	Tiling Panelling plaster

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5) Finishing:

- Preparation of the foundation:
  Before starting with the finishing, the following points should be considered:
  * the foundation as well as the joints must be flat, dry, firm, and free of frost, dust, dirt and cracking;
  * remove oil and grease patches or insulate in accordance with the regulations of the manufacturer of the finishing material;
  * remove mortar splashes, grout residue, etc from the foundation and carry out any repairs to damage;
  * when sanding, care should be taken that the cardboard is not damaged or roughed up;
  * the joints should be allowed to harden and dry completely.

- Observe the pretreatments that the manufacturer of the finishing material stipulates and follow the processing instructions for the finishing material selected. If no specific primer sealer is prescribed by the manufacturer of the finishing material, apply a primer sealer suitable for plasterboard to the entire ceiling surface before starting to apply any finishing layers. This primer sealer ensures:
  * removing any difference in porosity and texture between plasterboard sheet and grouting plaster;
  * bonding any dust particles still present.

For further product information / processing instructions, you are referred to the information / processing instructions of the manufacturer of the primer sealer.

- finishing;

* Paints
  Most commercially available paints are suitable, e.g. latex. Paint on a mineral base (lime, water glass and silicate paint) is not suitable. For further product information / processing instructions, you are referred to the manufacturer of the paint.

  Untreated plasterboard sheets may yellow as a result of the effect of long and intensive light.
  In this event, using a special primer that prevents the bleeding of yellow substances is recommended.

* Spray plaster
  All recognised spray plasters are suitable. An adhesive layer recommended by the manufacturer of the plaster system is necessary. For further product information / processing instructions, you are referred to the manufacturer of the spray plaster.

* Plaster
  All recognised plaster mortars are suitable. An adhesive layer stipulated by the manufacturer of the plaster system is necessary. For further product information / processing instructions, you are referred to the manufacturer of the plaster mortar.

5.3.8 Finishing wet rooms

The FR19 VO ceiling is not suitable for use in rooms with high humidity
(relative humidity > 70%) such as bathrooms, saunas, etc.
For these rooms, the GP22 VO ceiling system should be used.

1) The GP22 VO ceiling system can be used in wet rooms if elements with A plasterboard (recognisable from the green-coloured cardboard) are used and all joints are glued with FAAYFIX adhesive, see also Section 3.3.
2) Apply self-adhesive gauze tape to all seams and plaster with JointFiller Vario.
   Follow processing instructions for fibre-reinforced grouting.
3) All (piping) conduits must be sealed off durably and thoroughly with sealant that retains its elasticity.
4) For expansion joints, see Section 3.3 ‘Installation’.

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6 TIPS FOR THE USER

6.1 General

- In the context of this quality declaration, no check takes place on the correctness of the performance of the essential properties.
- The statements in this quality declaration may not be used as replacement for the CE marking and/or the associated mandatory Performance Declaration.

6.2 On delivery of suspended ceilings, check that:

- what was ordered has been supplied;
- the marks and method of marking are correct;
- the products do not show any visible defects as a result of transportation, etc;
- processing and/or maintenance instructions are available.

If the products are rejected on the grounds of any of the above, please contact:

Faay Vianen B.V.

and, if necessary:

the certification body SKH
Office building 'Het Cambium',
Nieuwe Kanaal 9c, 6709 PA Wageningen, the Netherlands
PO Box 159, 6700 AD Wageningen, The Netherlands

Telephone:	+31 (0)317 45 34 25	Email:	mail@skh.org
Fax:	+31 (0)317 41 26 10	Website:	http://www.skh.org

6.3 Quality declaration

The manufacturer is required to ensure that the purchaser has a copy of the complete quality declaration at its disposal at the workplace.

6.4 Application and use

Transport, storage and processing are to be carried out in accordance with the processing instructions included in this quality declaration.

6.5 Validity check

Check whether the quality declaration is still valid; consult the SKH website: http://www.skh.org.