

SANITARY APPLIANCES**Technical document 017-10**

Complementary specifications applicable to
baths and shower trays made of synthetic
materials other than co-extruded ABS/acrylic

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1 SPECIFICATIONS RELATED TO BATHS

Baths made of synthetic materials shall comply with Standards NF EN 14516, NF EN 232, document 08, sections 4.1, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.10, 4.11, 4.13, 4.14 and 4.15 in Standard NF EN 198 and Standard NF D11-121.

They shall also satisfy the complementary specifications defined in this document.

1.1 EXTERNAL APPEARANCE

The bath reinforcement shall not cause injury during handling.

1.2 ALLOWABLE DEVIATION

Requirements in Standard NF EN 198 related to allowable deviations are modified as follows:

The length and width dimensions shall not be different from those announced by the manufacturer by more than $\begin{matrix} +0 \\ -5 \end{matrix}$ mm.

1.3 DIMENSIONAL DEVIATIONS

Straightness of sides

Requirements in Standard NF EN 198 dealing with edge straightness deviations are modified as follows:

“Deviations from straightness of straight edges of baths measured in accordance with A.2.3 shall not exceed:

| Dimension | Allowable deviation |
|--------------------|---------------------|
| $\leq 1 \text{ m}$ | $\leq 3 \text{ mm}$ |
| $> 1 \text{ m}$ | $\leq 4 \text{ mm}$ |

in the concave or convex direction at any point whatsoever”.

1.4 DIMENSIONAL CHECK OF BATHS WITH A PROTECTIVE FILM

It is acceptable for the dimensional check to be made without removing the plastic protective film, since the protective film is thin (1/10 mm).

1.5 MASS

The variation in mass shall be less than $\pm 10\%$ of the reference value indicated in the admission application file sent to CSTB (bare bath, without accessory or stand).

1.6 CAPACITY

The variation in capacity shall be less than $\pm 10\%$ of the value given in the catalogue and sent to CSTB in the admission application file.

1.7 TESTS OF RESISTANCE TO TEMPERATURE VARIATIONS

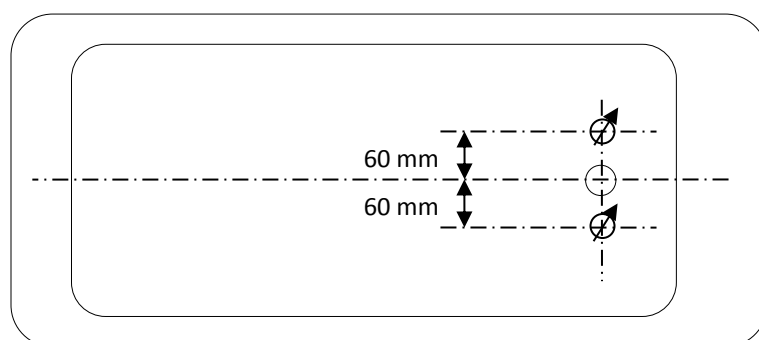
The operating procedure specified in Standard NF EN 14516 is modified as follows:

“After the first cycle at 90°C/12°C and after emptying the bath, put two gauges under the bottom of the bath, on each side of the plug hole, at 60 mm \pm 1 mm from the centre line passing through the plug hole (see diagram below). Continue the test in accordance with §5.3.2 of Standard NF EN 14516. **Observe whether the gauges indicate a deformation, until constant values are obtained and at least during the first 10 cycles, then record the maximum value.**

After the first ten 75°C/12°C cycles, perform a ball impact resistance test according to §A5 in Standard NF EN 198 and then continue the test within 14 days at the latest. After the last cycle, use a sponge or a brush to dab the bath with a 100 g/L eosin solution to which 1 cm³/L of liquid detergent has been added. Allow to stand for 5 minutes, and then use a damp cloth to wipe the eosin from the surface”.

The specifications are modified as follows:

“There shall be no visible defect in the bath after the test (all modifications shall be verified visually and by the presence of eosin traces) and there shall be no functional defect. Any change to operation shall be verified by checking that the bath satisfies §4.2.2 in Standard NF EN 14516, that there is no individual deformation value more than 4 mm and that there is no deformation or any other defect in the bath that would be prejudicial to its correct operation, at the shock impact points”.



1.8 HANDLES

1.8.1 Salt spray resistance

A salt spray resistance test is carried out in accordance with Standard NF EN ISO 9227, on a handle coated with each type of finish (except for gold plating).

The manufacturer is free to choose either the 200h neutral salt spray (NSS) test, or the 24h acetic acid salt spray (AASS) test.

There shall be no defect on visible surfaces after the test.

1.8.2 Resistance to chemicals and stains

A test on the resistance to chemicals and stains is carried out in accordance with Standard NF EN 263 on a handle coated with each type of finish (except for gold plating).

There shall be no visible permanent stain and no sign of deterioration on the handle after the test.

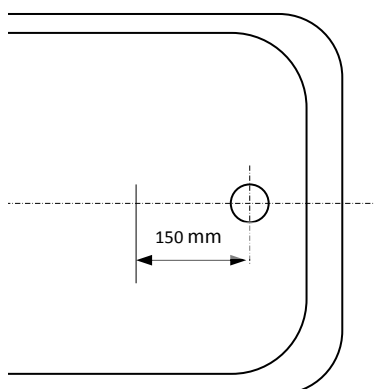
1.9 SERVICE

The manufacturer shall include the contact information for their after sales service in accompanying documents (installation instructions, catalogue, etc.).

1.10 COMPLEMENTARY SPECIFICATIONS APPLICABLE TO CAST CROSS LINKED ACRYLIC BATHS

Minimum bottom thickness

The minimum thickness of the top layer of the bottom of the bath is measured as shown in the sketch below. It shall be ≥ 0.8 mm at 150 mm from the plug hole.



2 SPECIFICATIONS RELATED TO SHOWER TRAYS

Shower trays made of synthetic materials shall comply with Standards NF EN 249, NF EN 251 and NF EN 14527. They shall also satisfy the complementary specifications defined in this document.

2.1 DIMENSIONAL DEVIATIONS

The requirements in §4.7 in Standard NF EN 249 dealing with dimensional deviations are modified as follows:

“The dimensions of shower trays shall not differ from the dimensions given by the manufacturer by more than
 $+0$
 -5 mm”.

2.2 GEOMETRIC VARIATIONS

2.2.1 Straightness of sides

Differences in the straightness of shower tray sides (§4.8.3 in Standard NF EN 249) shall not exceed the values given in table 1 in the concave or convex direction at any point whatsoever. If the shower tray contains an integrated panel, the dimensions shall be measured at the bottom of the sides.

Table 1

| Dimension | Allowable deviation |
|------------|---------------------|
| ≤ 1 m | ≤ 3 mm |
| > 1 m | ≤ 4 mm |

2.2.2 Straightness of the rim edge drop

Deviations in the straightness of the rim edge drop (§4.8.4 in Standard NF EN 249) shall not exceed the values given in table 2 in the concave or convex direction at any point whatsoever.

Table 2

| Dimension | Allowable deviation |
|------------|---------------------|
| ≤ 1 m | ≤ 3 mm |
| > 1 m | ≤ 4 mm |

2.2.3 Planeness

The warp, measured in accordance with Standard NF D 14-510, shall be ≤ 5 mm.

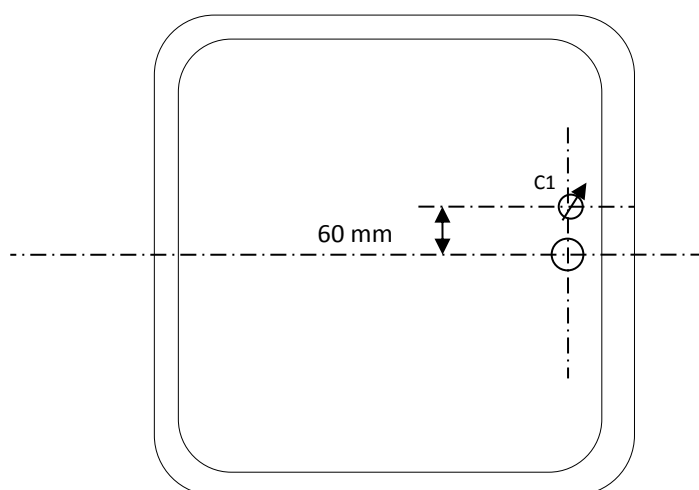
2.3 RESISTANCE TO TEMPERATURE VARIATIONS

The operating procedure specified in Standard NF EN 14527 is modified as follows:

Firstly, using the shower head held 1 m above the bottom of the shower tray and oriented such that the jet is directed towards the rim of the shower tray and sprays at least half of the bottom of the shower tray, allow (90 ± 1) L of water to flow at a temperature of $(90 \pm 2)^{\circ}\text{C}$ at a flow rate of (0.15 ± 0.015) L/s, the drain orifice being open. Immediately afterwards, allow the same quantity of cold water at $(12 \pm 3)^{\circ}\text{C}$ to flow at the same rate, the drain orifice being open. Put a dial gauge into position on the lower face of the shower tray, at 60 mm from the centre line of the plug hole, on either side of this hole, along a line perpendicular to the centre line of the internal part of the shower in the shower tray (see diagram below).

Continue the test according to the Standard NF EN 14527.

Observe whether the gauge indicates a deformation, until constant values are obtained and at least during the first 10 cycles, then record the maximum value. After the first ten $75^{\circ}\text{C}/12^{\circ}\text{C}$ cycles, perform a ball impact resistance test according to §A4 in Standard NF EN 249 and then continue the test within 14 days at the latest.



The specifications are modified as follows:

There shall be no visible defect in the shower tray after the test (all modifications will be verified visually and by the presence of eosin traces) and there shall be no functional defect. Any change in operation shall be verified by checking that the shower tray satisfies §5.3.4 in Standard NF EN 14527, that there is no individual deformation value more than 4 mm and that there is no deformation or any other defect in the shower tray at the shock impact points that would be prejudicial to its correct operation.

2.4 SERVICE

The manufacturer shall include the contact information for their after sales service in accompanying documents (installation instructions, catalogue, website, etc.).

3 SPECIFICATIONS RELATED TO MATERIALS

3.1 Specifications applicable to baths and shower trays made of crosslinked cast acrylic

Crosslinked cast acrylic sheets used in manufacturing of baths and shower trays shall have received the NF mark – Acrylic Sheets (NF116).

3.2 Specifications applicable to synthetic materials other than crosslinked cast acrylic

The specifications selected for these tests are defined below.

3.2.1 Water absorption

NF EN ISO 62, square specimen (50 ± 1) mm

Specification: ≤ 40 mg

3.2.2 Colour fastness under hot water

NF EN 263

Specification: Index ≥ 3 (colour degradation according to NF EN 20105-A02)

3.2.3 Colour fastness under light

NF EN ISO 4892-2 Method B – 50%RH

Temperature with standard black thermometer 65°C

Lighting with energy 0.5 GJ/m², within the wavelength range between 290 nm and 800 nm.

Specification: Index ≥ 3 (colour degradation according to NF EN 20105-A02)

3.2.4 Chemicals and stains

NF EN 263

Specification: No alteration.

The test to determine the resistance to chemicals and stains described in Standard NF EN 263 (§4.4), is extended as follows:

“If the stain is not eliminated after the test described in the standard, then check the stain again after 48 hours. The test will be considered to be satisfactory if the stain has disappeared after 48 h”.

3.2.5 Abrasion (loss of mass)

NF EN 14688

Specification: After the test done in accordance with §5.7 in Standard NF EN 14688, the surface layer of the specimen shall not be perforated (for multi-layer materials) or the mass loss of the specimen after 750 rotations shall be less than 0.8 g (for single layer materials).

3.2.6 Scratching

NF EN 14688 (test §5.6, specification §4.5)