

SANITARY APPLIANCES**Technical document 017-13**

Operation of WC pans for children and babies

Technical document 017-13 rev. 00

21/12/2018

CSTB (Centre Scientifique et Technique du Bâtiment), a public establishment supporting innovation in construction, has four key activities—research, expertise, assessment and dissemination of knowledge—organised to meet the challenges of the ecological and energy transition in the construction sector. Its field of expertise includes construction materials, buildings and their integration into districts and towns.

With over 900 employees, its subsidiaries and networks of national, European and international partners, the CSTB group works for all the stakeholders in the construction sector to advance building quality and safety.

Any reproduction or representation, in whole or in part, by whatever means, of the pages published in this technical document and executed without the authorisation of CSTB is illegal and constitutes a counterfeit. The only authorised exceptions are 1) reproductions strictly reserved for the use of the typist and not intended for any collective use or 2) analyses and short quotations required due to the scientific or informational nature of the work in which they appear (article L.122-5 of the Intellectual Property Code). This document has been drawn up under the initiative and direction of CSTB, which has gathered the opinions of all interested parties

© CSTB

MODIFICATION HISTORY

Revision no.	Application date	Modifications
00	21/12/2018	Update to the document layout and reference

Contents

1	PURPOSE	5
2	DEFINITION (DIMENSIONAL CHARACTERISTICS)	5
2.1	CHILD WC PAN.....	5
2.2	BABY WC PAN	5
3	TEST METHODS AND SPECIFICATIONS.....	5
3.1	EFFICIENCY OF EVACUATION OF THE TEST SUBSTANCES	5
3.1.1	Principle.....	5
3.1.2	Equipment.....	5
3.1.3	Test specimen	6
3.1.4	Operating procedure.....	6
3.1.5	Operating procedure.....	7
3.2	EFFECTIVE EVACUATION OF TOILET PAPER	7
3.3	RENEWAL OF WATER IN THE TRAP	7
3.4	WALL RINSING QUALITY	7
3.5	PROJECTION OUTSIDE THE PAN	7

1 PURPOSE

The purpose of this document is to define the test method for checking the operation of WC pans for children and babies for which article 5.8.2.7 in Standard NF EN 997 is not applicable.

2 DEFINITION (DIMENSIONAL CHARACTERISTICS)

2.1 CHILD WC PAN

This term covers pans for which the height at the overflow plane (flange) is greater than or equal to 300 mm and less than 380 mm.

2.2 BABY WC PAN

This term covers pans for which the height at the overflow plane (flange) is less than or equal to 260 mm.

3 TEST METHODS AND SPECIFICATIONS

3.1 EFFICIENCY OF EVACUATION OF THE TEST SUBSTANCES

3.1.1 Principle

Determine the quantity of rinsing water flowing at the outlet from a WC pan using 5 litres of water after the evacuation of two test substances simulating faeces by flushing.

3.1.2 Equipment

Test device

Conforming with that in Standard NF EN 997.

Calibration

Calibration is done to cancel out any damping and electrical or hydraulic delays that might occur in the test device due to the nature of the equipment used.

Any equipment and any method may be used provided that they can precisely demonstrate these different parameters. Therefore, the measured magnitude will be corrected as a function of the calibration obtained.

In fact, two calibrations are necessary:

- Adjustment of a chosen or recommended water volume (5 ± 0.025 L) in the control cistern.
This adjustment may be obtained by means of two electrical sensors, one at the high level and one at the low level in the control cistern.
The water volume thus defined is checked by weighing.

- Measurement of the volume of rinsing water flowing at the outlet from a WC pan after passage of the 2nd test substance.

This measurement may be made by means of a pressure sensor placed at the bottom of the receptacle located under the connection sleeve. The rinsing water quantity flowing at the outlet from a WC pan is defined by the difference between the initial water volume and the volume measured after passage of the 2nd test substance.

In this case, the time between when water passes the outlet from the sleeve and when it is taken into account by the pressure sensor has to be defined.

3.1.3 Test specimen

A child or baby type WC pan satisfying the dimensional specifications defined in article 2.

3.1.4 Operating procedure

The pan to be tested is fixed onto the test device.

The recommended water quantity that will be released either into the WC suite or directly into the WC pan (for an independent pan), is added into the control cistern.

For checking deep water WC pans, the 2 test substances are released vertically from the height of the flange, one after the other, in the centre of the water surface in the trap.

For checking flat-bottomed WC pans, the test substances are placed on the level part of the pan as indicated in figure 1. The cistern drain device is activated, evacuating the test substances to the trap.

After the 2nd test substance has passed, the quantity of rinsing water flowing at the outlet from the WC pan is determined. The manoeuvre is repeated 10 times.

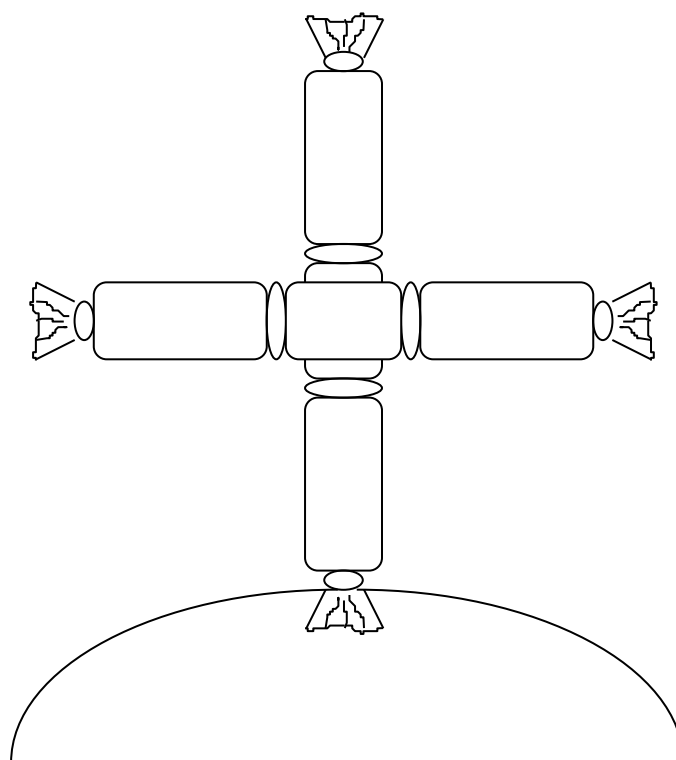


Figure 1 – Arrangement of specimens for testing flat-bottomed pans.

3.1.5 Operating procedure

It is considered that the test is satisfactory if:

- the 2 test substances are evacuated in at least 8 out of 10 manoeuvres.
- the rinsing water volume is:
 - $V_n \geq 2.5$ L for positive manoeuvres (evacuation of the 2 test substances),

or

- when the arithmetic mean of the rinsing water volume for 10 manoeuvres is:
 $V_{nm} \geq 2.8$ L.

Flush tests without evacuation or with incomplete evacuation of the 2 test substances are evaluated at zero for determination of the mean rinsing water.

If these conditions are not satisfied, the same operating procedure shall be repeated for another 20 flush actions.

In this case, it will be considered that the test is satisfactory if:

- the test substances are evacuated for at least 16 out of the 20 manoeuvres made.
- the rinsing water volume is:
 - $V_n \geq 2.5$ L for all positive manoeuvres.

or

- when the arithmetic mean of the rinsing water volume for 20 manoeuvres is $V_{nm} \geq 2.8$ L.

3.2 EFFECTIVE EVACUATION OF TOILET PAPER

The test is conducted in accordance with chapter 5.2.3 in Standard NF EN 997, using 6 sheets of toilet paper instead of 12.

All 6 sheets of toilet paper shall be completely evacuated out of the pan at least 4 times out of 5 tests.

3.3 RENEWAL OF WATER IN THE TRAP

In accordance with section 2 in document 12.

3.4 WALL RINSING QUALITY

In accordance with article 5.2.2 in Standard NF EN 997.

3.5 PROJECTION OUTSIDE THE PAN

In accordance with article 5.2.5 in Standard NF EN 997.