PINGHU ZHANG'S SANITARYWARE FACTORY
NO.3 XUJIA WEIR, TEAM 3 .SHUGUANG VILLAGE, ZHONGDAI TOWN, PINGHU CITY, ZHEJIANG PROVINCE, CHINA

The following sample(s) was/were submitted and identified by the client as:

Sample Description	: SHOWER ENCLOSURE
Style/ Item No.	: ZS-7230, ZS-7183, ZS-7185, ZS-7187, ZS-7188, ZS-7209, ZS-7225, ZS-7203, ZS-9182
Sample Receiving Date	: MAY.17,2013
Testing Period	: MAY.17,2013 TO JUL.16,2013
Test Performed	: SELECTED TEST(S) AS REQUESTED BY APPLICANT
Test Requested	: EN 14428:2004+ A1:2008 SHOWER ENCLOSURES-FUNCTIONAL REQUIREMENTS AND TEST METHODS
	: EN 14527:2006+A1:2010 SHOWER TRAYS FOR DOMESTIC PURPOSES
Test Result(s)	: FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)
Conclusion	: THE SUBMITTED SAMPLE MET THE TEST REQUIREMENT.

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Signed for and on behalf of
SGS-CSTC Ltd.

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Oliva Kou
Operation Manager

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Test Conducted:

1. EN 14428:2004+ A1:2008 Shower enclosures-Functional requirements and test methods

2. EN 14527:2006+A1:2010 Shower trays for domestic purposes

Sample Size: 1 piece
Test Sample ： ZS-7230

Clause	Test Method/ Requirement	Test Result	Rating
1.EN 14428:2004+A1:2008			
4.1 General	The manufacturer shall provide with each shower enclosure detailed instructions and use to include at least the following information: ➢ Description of installation with special consideration of building construction and necessary tools and sealant; ➢ Instructions for appropriate maintenance and care.	Not provided	/
4.2 Clean ability	When tested visually, the surfaces of the components of the shower enclosures which are accessible during use and cleaning shall be free from sharp corners, edges and burrs. When using recommended cleaning agents in accordance with the manufacture's installation and care instructions, there shall be no reduction in safety or function of the shower enclosure.	/	Pass
4.3 Impact resistance/shatter properties			
4.3.1 General	Shower enclosures may be glazed with various materials. Where glass is used, this shall meet the requirements of 4.3.2 and where plastics materials are used, they shall meet the requirements of 4.3.3.	Thermally toughened safety glass	Pass
4.3.2 Thermally Toughened Safety Glass	Thermally toughened safety glass shall meet the requirements of EN 12150-1:2000, except in respect of Clause 8 which is replaced by 5.1 of this standard. The test specimen shall be impacted, using a pointed steel tool, at a position 13 mm from the longest edge of the specimen at the mid-point of that edge, until breakage occurs. Examples of steel tools are a hammer of approximately 75 g mass, a spring loaded center punch, or other similar appliance with a hardened point. The radius of curvature of the point should be approximately 0.2 mm. The particle count shall be made in the region of coarsest fracture. The particle count shall be made by placing a mask of (50±1) mm * (50±1) mm on the test piece. The number of crack-free particles within the mask shall be counted. A particle is 'crack-free', if it does not contain any cracks which run from one edge to another. When tested, the minimum particle count shall be 40.	EN12150-1:2000 test report was provided. See Remark 1 The particle count: 4mm: 95	Pass

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Clause	Test Method/ Requirement	Test Result	Rating
4.3.3 Plastics Materials	Carry out the test on four test pieces. For curved sheets a sample of an unformed flat sheet of the same material shall be used. Place the test piece in the frame and clamp it. When the impactor is hanging at rest, suspended from the overhead support, check that it is, at its greatest diameter, not more than 13 mm from the surface of the surface of the test piece and within 51 mm radically from the center of the test piece. Raise the impactor to a drop height of 305 mm and steady it. Releases the impactors so that it swings in a pendulum are and strike the test piece. Inspect the test piece after impact and report whether it has remained unbroken or it has broken safety. Sheets shall not break or they shall break safely.	/	N/A
4.4 Durability			
4.4.1 General	Products conforming to the requirements of 4.2 and 4.3 and the following are deemed to be durable.	/	Pass
4.4.2 Corrosion Resistance	All components shall consist of corrosion –proof materials or shall be corrosion-protected. All corrosion protection shall conform to the relevant requirements specified in European and International Standards.	/	Pass
4.4.3 Resistance to Chemicals and Stains	Use a separate test area of test specimen for each reagent test. On each test specimen deposit a drop of the test solution. Allow to act for a time of (2±0.25) h, at (23±5) ℃. Thoroughly rinse the test specimen with deionized water and check for adverse changes in appearance by visual examination. If deterioration exists, dip the foam disc of the cleaning device in to deionized water and place it on the surface to be cleaned. Clean for 30 revolutions. Rinse with deionized water and visually examine the test area. If deterioration persists repeat the cleaning with the 12 h-alumina and reexamine the test specimen. When tested, the glazing materials shall not show permanent staining or deterioration.	No permanent staining and deterioration	Pass
4.4.4 Resistance to Wet and Dry Cycling	Place a minimum of three test specimens, (100±2) mm square, vertically in a suitable carrier and place the carrier in a suitable open container. Pour 2 l of (85±1) ℃ water into the container to completely immerse the specimens and leave them for (8±0.25) h. Remove the test specimens from the water to an oven, (50±2) ℃, for (16±0.5) h. Repeat this cycle 20 times using the same test specimens. When tested, the glazing materials shall not show any cracks, crazing or discoloration.	/	Pass

<table>
<tr><th>Clause</th><th>Test Method/ Requirement</th><th>Test Result</th><th>Rating</th></tr>
<tr><td>4.4.5 Endurance</td><td>After installing the shower enclosure, use a means of automatically opening and closing the door at a velocity of (15±5) cycles/min while maintaining with the door being opened/closed over a distance of (70±10) % of the opening range of the door.
Subject the door to 20000 opening/closing cycles.
When tested, shower enclosure shall not show any functional deterioration after 20000 closing-opening cycles.</td><td>Not show any functional deterioration</td><td>Pass</td></tr>
<tr><td>4.4.6 Stability</td><td>After installing the shower enclosure, carry out the test as described in ISO 7892:1988, 4.5 with the impact body falling inside the shower enclosure with an energy specified in Table 2. The impact body shall drop on each panel and/or door on its geometric centre. If dimensions of shower enclosures do not allow the necessary drop height to reach the maximum energy given in Table 2, perform the test with the maximum drop height excursion angle of 65°.
<table>
<tr><th>Distance to opposite wall/panel mm</th><th>Energy to applied J</th><th>Falling height of impact body h cm</th></tr>
<tr><td>≤600</td><td>63</td><td>13</td></tr>
<tr><td>≤700</td><td>94</td><td>19</td></tr>
<tr><td>≤800</td><td>125</td><td>25</td></tr>
<tr><td>>800</td><td>135</td><td>28</td></tr>
</table>
Table 2- Energy for stability test
When tested shower enclosure shall withstand an energy representing the impact of a human body on a large impact area without any functional deterioration which could result in injury to the user.</td><td>No functional deterioration</td><td>Pass</td></tr>
<tr><td>4.4.7 Water retention</td><td>After installation, Test A and B shall be run consecutively using the test shower head in accordance with Figures18 and water at a temperature not exceeding 38℃. Adjust the flow rate to (11±1) l/min.
● Test A:
Spray for 1 min across the width and height of all door/panel of the shower enclosure at 90°to their surface from a distance of 30 cm using the test shower head. Restrict the spray to the area within 30 cm below the top of the door/panel.
● Test B
After installation on a raised 50 mm×50 mm wall or shower tray with a minimum bowl depth of 50 mm.
Mount the test shower head at a height of 1900 mm and set back at a distance of 300 mm from the centre of the door opening.
Direct the shower head vertically downwards and with the door closed spray the shower place floor for a period of 3 min.</td><td>No leakage</td><td>Pass</td></tr>
</table>

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Clause	Test Method/ Requirement	Test Result	Rating
	When tested, shower enclosures shall retain water. A few small drops of water on the outside of the water retaining area are acceptable.		
4.5 Dangerous substances	See ZA.1 and ZA.3 of standard.	/	N/A
2.EN 14527:2006+A1:2010			
4 Classification	Class 1: Products complying with the requirements of Clause 5 Class 2: Products complying with the requirements of Clause 6	Class1+Class 2	Pass
5 Requirements for class 1 products			
5.1 General	The manufacturer shall provide instructions with each shower tray covering installation and care.	Not provided	/
5.2 Clean ability			
5.2.1 Appearance of surface	When a shower tray is inspected under strong and oblique illumination, the surfaces intended to come into contact with water shall be visibly smooth, non-absorbent and free from inaccessible corners that would impair clean ability.	/	Pass
5.2.2 Drainage of water	Shower trays shall have at least one waste outlet hole. The dimensions of the waste outlet hole shall comply with the requirements of EN 251. Other dimensions are permissible, if the manufacturer provides or recommends a suitable waste fitting. All water shall empty from the shower tray unless prevented by surface tension.	See Result 1	Pass
5.3 Durability			
5.3.1 General	Conformance with the requirements of 4.3.2 to 4.3.4 gives an assurance of durability of clean ability.	/	Pass
5.3.2 Stability of bottom	There shall be no permanent distortion or other defects, e.g. cracks, such that the requirements of 4.2.2 are not satisfied.	/	Pass
5.3.3 Resistance to chemicals and staining agents			
5.3.3.1 General	When shower trays, other than those made from the materials specified in 5.3.3.2, are tested in accordance with 8.2, the surface finish shall be unaffected by the chemicals and staining agents specified in Table 1 except for superficial surface changes which are removable with water or with water and the specified abrasive agent.	/	Pass

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<table>
<tr><th>Clause</th><th>Test Method/ Requirement</th><th>Test Result</th><th>Rating</th></tr>
<tr><td>5.3.3.2 Particular requirements for shower trays made of enameled steel and enameled cast iron</td><td>Shower trays made from enameled steel and enameled cast iron shall comply with the requirements given in Table 2.
Table 2 — Requirements for shower trays made of enamelled steel and enamelled cast iron<table><tr><th>Requirement</th><th>Parameter</th><th>Test method</th></tr><tr><td>Resistance to boiling water</td><td>< 10 g/m²</td><td>ISO 2744</td></tr><tr><td>Resistance to cold citric acid</td><td>Class 2</td><td>ISO 2722</td></tr><tr><td>Resistance to boiling citric acid</td><td>< 5 g/m²</td><td>ISO 2742</td></tr><tr><td>Resistance to cold sulphuric acid</td><td>Class 2</td><td>EN 14483-1</td></tr><tr><td>Resistance to alkali solutions</td><td>< 8 g/m²</td><td>Test apparatus according to ISO 2742
Test solution according to ISO 4533
Duration of test: 2,5 h</td></tr></table></td><td>/
(Plastic Tray)</td><td>N/A</td></tr>
<tr><td>5.3.4 Resistance to temperature changes</td><td>When tested in accordance with 8.3, all shower trays shall show no evidence of distortion or other defects, e.g. crazing, which will impair their clean ability.
Experience has shown that shower trays manufactured from the stainless steel grades listed in annex, enameled steel, enameled cast iron and glazed ceramics comply with this requirement.</td><td>/</td><td>Pass</td></tr>
<tr><td colspan="4">6 Requirements for class 2 products</td></tr>
<tr><td>6.1 General</td><td>The manufacturer shall provide instructions with each shower tray covering installation and care.</td><td>/</td><td>Pass</td></tr>
<tr><td colspan="4">6.2 Clean ability</td></tr>
<tr><td>6.2.1 Appearance of surface</td><td>When a shower tray is inspected under strong and oblique illumination, the surfaces intended to come into contact with water shall be visibly smooth, non-absorbent and free from inaccessible corners that would impair the clean ability.</td><td>/</td><td>Pass</td></tr>
<tr><td>6.2.2 Drainage of water</td><td>Shower trays shall have at least one waste outlet hole. The dimensions of the waste outlet hole shall comply with the requirements of EN 251. Other dimensions are permissible, if the manufacturer provides or
Recommends a suitable waste fitting.
All water shall empty from the shower tray unless prevented by surface tension.</td><td>See Result 1</td><td>Pass</td></tr>
<tr><td colspan="4">6.3 Durability</td></tr>
<tr><td>6.3.1 General</td><td>Shower trays shall be readily cleanable for their anticipated working life when normal cleaning and maintenance is carried out.</td><td>/</td><td>Pass</td></tr>
<tr><td>6.3.2 Materials</td><td>Experience has shown that shower trays made from plastics materials, enameled steel, enameled cast iron, stainless steel, glazed ceramics or glass and their surfaces intended to come into contact with water have the properties described in 6.3.1.</td><td>/</td><td>Pass</td></tr>
</table>

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Clause	Test Method/ Requirement	Test Result	Rating
7 Dangerous substances	See Clauses ZA.1 and ZA.3 of standard.	See Result 2	Pass

Remark:

1. The test report GZ12111513-1 for 4mm transparent tempered glass, issued by Intertek lab on DEC.21,2012 was provided for review;
2. N/A= Not applicable.

Result 1: Dimension for Waste outlet hole (EN251-2012)

1) Waste outlet hole

Designation	Symbol	Requirement	Result (mm)
Diameter of the waste outlet hole	D_2	52^{+3}_{-2}	50
		62^{+3}_{-2}	
		90^{+3}_{-2}	
Distance between the contact diameter of the control gauge and the bottom of the bath around the waste outlet hole	e	≥2	13
Contact diameter of the control gauge	D_3	70	70
		85	
		115	
Contact cone angle	a	≤ 120°	105°
Height between the contact diameter of the control gauge and the plane of the waste outlet hole	h_2	6 to 16	6
		6 to 25	
Sealing surface for waste fitting	s	≥3	5

2) Clearance around the waste outlet hole:

Designation	Symbol	Values (mm)	Result
Radius of the circular area which shall remain free for installation of the waste fitting	R	≥ 60	79
		≥ 65	
		≥ 80	
Thickness of reinforcing material around the waste outlet hole	f	≤15	12

Result 2: Dangerous substances
Test Part Description :

Specimen No.	Description
1	White solid sheet

Remarks :

(1) 1 mg/kg = 0.0001%
(2) MDL = Method Detection Limit
(3) ND = Not Detected (< MDL)
(4) "-" = Not Regulated

Entry 23 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006
(previously restricted under Directive 91/338/EEC)

Test Method : With reference to EN 1122: 2001, Method B, analysis was performed by ICP-OES.

Test Item(s)	Limit	Unit	MDL	*001*
Cadmium (Cd)	100	mg/kg	5	ND

Conclusion PASS

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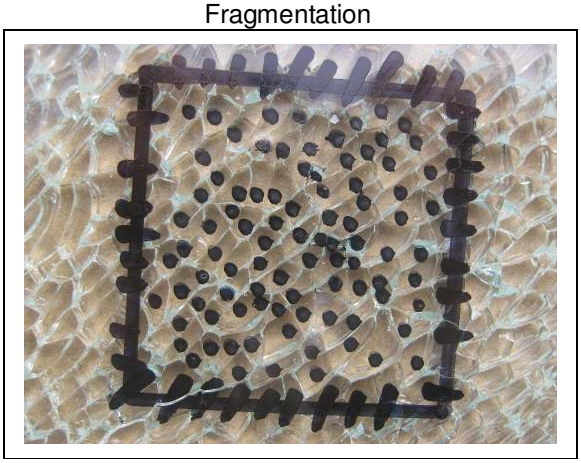
Sample Photo:

Test sample（ZS-7230）

Thickness of glass

Fragmentation



End of Report

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