Cutlery and
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Research
Association

Research and Development Consultancy Services

Special Purpose Machines Quality Testing

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Boaties Products (UK)
13 Ferndale
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For the Attention of Mr R. Stead

Report No: 965914B

Cookware Assessment

Sample Details

Samples of pre production cookware identified as "Boaties Fry Pan" were received for testing, one of which is illustrated in Figure 1.

Where a retest of any clause is recorded, a production sample has been tested.

Procedure

Testing was carried out in accordance with the relevant clauses of BS EN 12983-1:2000, and BS 7069:1988.

Results

BS EN 12983-1: 2000 - Cookware – Domestic Cookware for use on top of a stove, cooker or hob

Clause 4.0 – Materials

The composition of the pan substrate was determined using ICP OES techniques. The following results were recorded.

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Element	Mass%
Silicon	0.09
Iron	0.57
Copper	<0.02
Manganese	0.81
Magnesium	<0.02
Chromium	<0.02
Nickel	<0.02
Zinc	<0.02
Titanium	0.04
Tin	<0.02
Lead	<0.02
Aluminium	Balance

Under normal conditions of use, no toxic hazard should be presented to the food prepared in it.

Non Stick Surface -Toxic Element Release

The pans internal non stick surface was tested in accordance with the procedure given in BS 6748: 1986 - Limits of metal release from ceramicware, glassware, glass ceramicware and vitreous enamelware.

Volume of Acetic Acid Solution (ml)	Detectable Lead (mg/l)	Detectable Cadmium (mg/l)
800	<0.1	<0.03

The sample released no detectable amount of lead or cadmium and should not therefore pose a toxic hazard by the release of these elements.

Clause 6.1.1 – Stability

The pan was tested and was found to be stable when placed on a 5º inclined surface therefore meeting the necessary requirements.

Clause 6.1.2 Selection of Handles

The pan was tested and was found to meet the test requirements.

Clause 6.1.3 – Hygiene

The pan was examined and was found to meet the test requirements, being easily cleaned under normal circumstances.

Clause 6.1.4 – Mechanical Hazard

The pan was examined and was found to have sharp edges in evidence on the metal handle attachment therefore failing to meet the test requirements.

A production sample of the pan was provided for a retest and no burrs, splinters or sharp edges were evident, the sample therefore met the test requirements.

Clause 6.1.5 – Handle Position with Respect to Cookware

The pan was examined and found to meet the test requirements having a clearance of more than 30mm between the designated area of the handle and a horizontal projection of the base.

Clause 6.2.3 Dimensions

The claimed dimensions of 25cm x 20cm x 4.5cm were confirmed to be the maximum dimensions of the pan.

Clause 6.2.5 – Base Form

The pan was tested and was found to have a convex base therefore failing to meet the test requirements.

A production sample of the pan was provided for a retest and was found to have a concave base. The pan therefore met the requirements of the clause.

Clause 7.2 –Resistance to Burning

The plastic handle was tested and found to meet the test requirements.

Clause 7.3 – Heat Resistance

The pan was subjected to a temperature of 150°C for a period of 1 hour as a prerequisite to further testing. Upon completion no detrimental effects were observed therefore meeting the test requirements.

Clause 7.4 – Torque Resistance

The pan handle was subjected to a 5Nm torque and the angle of displacement measured. The sample was found to meet the test requirements with no movement of the handle in excess of the 10º permitted in either direction.

Clause 7.5 – Bending Strength

The handle of the pan was tested with the application of a 100N load and met the test requirements suffering no failure of the securing system.

Clause 7.6 – Fatigue Resistance

The pan was subjected to 15,000 raising and lowering cycles whilst loaded to the equivalent of 1.5 times the mass of water at the capacity of the pan. Upon completion no detrimental effects were observed therefore meeting the test requirements.

Clause 7.7 – Thermal Hazards

The pan was tested. A temperature of 39°C was recorded on the pan handle at the designated area. The pan therefore met the test requirement.

Clause 8.4.1 Cross Cut Adhesion Test –External Coatings

The pans external coating was tested and found to meet the test requirements.

Clause 8.4.2 Pencil Hardness Test–External Coatings

The pans external coating was tested and found to meet the test requirements, the pan coating having a hardness of 2H, the minimum requirement of the standard.

Clause 9.2 – Base Stability Under Shock Conditions

One pan was tested despite the base being convex in the as received condition.
It was found that upon placing the pan on to a hob at a temperature of 350ºC and bringing the internal base up to a temperature of 200ºC, the pan base became relatively flat and lost the "rock" which was evident when the pan was placed on a flat surface in the cold state.

An additional pan, a production sample with a concave base, was provided for testing. This pan met the test requirements remaining concave in testing.

Conclusion

Following testing, and the provision of the further sample for retesting of select clauses, the Boaties Frying Pan was found to fully comply with the performance tests of the standard.

Brigid Galbraith BEng (Hons)
Materials Technologist

Figure 1