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Disposable Diaper (including diapers/pads)

纸尿裤（含纸尿片/垫）

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Disposable Diaper (including diapers/pads)

1 Scope

This Standard stipulates the classification, technical requirements, test methods, inspection rules, marking, packaging, transportation and storage of disposable diapers and diapers/pads for infants and adults.

This Standard is applicable to structures with exclusive design, in other words, disposable diapers, and diapers/pads which are constituted of external cladding materials, built-in absorption layer and leakproof base film, and molded through exclusive packing machine; diapers/pads which are constituted of external cladding materials, built-in absorption layer and leakproof base film, and molded through non-exclusive packing machine.

2 Normative References

Through the reference in this Standard, clauses included in the following standards become clauses of this Standard. When this Standard is published, the indicated versions shall all be valid. All the standards will be amended, all parties adopting this Standard shall explore the possibility of using the latest version of the following standards.

GB/T 2677.2-1993 *Fibrous Raw Material - Determination of Moisture Content*

GB/T 2828-1987 *Sampling Procedures and Tables for Lot-by-lot Inspection by Attributes (apply to inspection of successive lots or batches)*

GB/T 10739-1989 *Paper, Board and Pulps - Conditioning of Samples and Testing Atmospheres*

GB 15979-1995 *Hygienic Standard for Disposable Sanitary Products*

3 Product Classification

3.1 In accordance with product structure, this Standard shall be divided into disposable diapers for infants, disposable diapers for adults, diapers/pads for infants, diapers/pads for adults. In accordance with specification, this Standard shall be divided into several different sizes, namely, Size-S, Size-M and Size-L.

3.2 Disposable diapers and diapers/pads shall be divided into three grades, namely, superior grade, first grade and qualified grade.

percentage of the average value in the 6 PCS as the measured result of full-width deviation of this specification of samples, accurate to 1%.

NOTE: in terms of samples with elastic band, firstly, use a splint or adhesive tape to fixate the longitudinal (or transversal) side of the sample; slightly exert strength to pull the sample to the original length (or original width), then, use a straight ruler to measure it.

5.2.3 Deviation of strip mass

Use a balance (division value: 0.01 g) to respectively weigh the net weight (accurate to 0.1 g) of 6 PCS of samples of the same specification. Respectively calculate the maximum value and the minimum value of strip mass, the difference of average value and the percentage of the average value in the 6 PCS as the measured result of strip mass deviation of this specification of samples, accurate to 1%.

5.2.4 Calculation of full length, full width and strip mass deviation

$$Upper\ Deviation\ (\%) = + \frac{\text{Maximum Value} - \text{Average Value}}{\text{Average Value}} \times 100 \quad \text{..... (1)}$$

$$Lower\ Deviation\ (\%) = - \frac{\text{Average Value} - \text{Minimum Value}}{\text{Average Value}} \times 100 \quad \text{..... (2)}$$

5.3 Permeability shall be determined in accordance with Appendix A (appendix of this Standard).

5.4 pH shall be determined in accordance with Appendix B (appendix of this Standard).

5.5 Delivery moisture shall be determined in accordance with GB/T 2677.2. Sampling method shall be: randomly take 2 PCS of samples from the same specification; cut off the elastic band on the edges of the samples, then, randomly take 2 g (accurate to 0.01 g) from each PCS for the determination; take the arithmetic mean value as the result of determination (matters needing attention: when samples are placed into a container, the leakproof base film shall not be close to container wall, which could prevent adhesion at a high temperature).

6 Inspection Rules

6.1 Acceptance Inspection

6.1.1 One delivery of the same type of products shall be considered as one batch. The unit of samples for acceptance inspection shall be per box. Randomly take a sufficient sampling size from the sample box as the samples of the box.

6.1.2 Manufacturers shall guarantee that product quality complies with the requirements of this Standard. When products pass the inspection and are attached

with the stipulations in this Standard or ordering contract, then, the objection shall be handled by the supply-side.

6.2 Type Inspection

Under one of the following circumstances, type inspection shall be conducted, Inspection items are all the technical requirements of this Standard.

a) In the finalization appraisal of trial production of new and old products being transferred to another factory for production;

b) In production, when production process is modified, or when new raw materials are put into production, which might affect product performance;

c) In normal production, type inspection shall be conducted in each quarter;

d) When production is suspended for over 2 months, and then, resumed;

e) When the exit-factory inspection result shows significant difference from the previous type inspection.

7 Marking, Packaging, Transportation and Storage

7.1 Sales Marking and Packaging of Products

7.1.1 On the sales package, the following content shall be indicated:

a) Product name, serial No. of implemented standard, serial No. of implemented hygienic standard, hygienic license No., trademark;

b) Name and address of manufacturer;

c) Product variety, product quantity and product grade;

d) Date of production or batch No.;

e) Disinfecting products shall also indicate disinfection method and time of validity; on the main surface of the package, the words “disinfection grade” shall also be indicated.

7.1.2 Products’ sales package shall be able to prevent products from being contaminated. Moisture-proof and seepage-proof materials with satisfying isolation performance and sealing performance, for example, polyethylene film, shall be selected, so as to guarantee that marking information can be distinctly printed and will not easily fade.

7.2 Transportation and Storage of Products

Appendix A

(Normative)
Determination of Permeability

A.1 Instruments and Test Solution

A.1.1 Instruments

A.1.1.1 Balance: division value: 0.01 g, 1 set.

A.1.1.2 Sanitary pad permeability tester (hereinafter referred to as “tester”; please refer to Figure A.1 for its sketch map), 1 set.

A.1.1.3 Standard discharge funnel (hereinafter referred to as “funnel”)

---Exclusive standard discharge funnel for disposable diapers, diapers/pads for infants: 80 mL, 1 PCS.

---Exclusive standard discharge funnel for disposable diapers, diapers/pads for adults: 150 mL, 1 PCS.

A.1.1.4 Measuring cylinder: 250 mL, 1 PCS.

A.1.1.5 Measuring cylinder: 10 mL, 1 PCS.

A.1.1.6 Stainless-steel clip: chuck width: around 65 mm, 4 PCS.

A.1.1.7 Beaker: 500 mL, 1 PCS.

A.1.1.8 Medium-speed chemical qualitative analysis filter paper (GB/T 1914): several PCS, hereinafter referred to as “filter paper”.

A.1.1.9 Standard clamp plate, Φ 100 mm, weight: (1.2 ± 0.002) kg (capable of generating 1.5 kPa of pressure).

A.1.1.10 Stopwatch: accuracy: 0.01 s, 1 PCS.

A.1.2 Test solution

Add 9 g of sodium chloride to every 1,000 mL of distilled water; prepare a solution to replace urine. In arbitration inspection, under the standard atmospheric conditions, namely, (23 ± 1) °C, (50 ± 2) % r.h, handle samples and conduct tests.

through permeation.

A.2.1.3 Use the measuring cylinder to accurately measure-take the test solution. In terms of diapers/pads for infants, take 50 mL of the test solution. In terms of disposable diapers for infants, take 60 mL. Pour it into previously adjusted standard discharge funnel, which is exclusive for disposable diapers, diapers/pads for infants. In terms of disposable diapers, diapers/pads for adults, take 150 mL. Pour it into previously-adjusted standard discharge funnel, which is exclusive for disposable diapers, diapers/pads for adults. Then, promptly open the valve of the funnel to the maximum, so that the solution could freely flow to the surface of the sample and flow downwards into the beaker along the oblique plane. Wait till the flowing of the solution is completed, close the valve of the funnel; wipe the lower mouth of the funnel, so that there is no residual solution. Use the measuring cylinder to measure-take the solution (accurate to 1 mL) in the beaker; consider this as the test result. If the test solution flows away from the side face of the sample, then, this sample shall be abolished. Take another PCS of sample for re-test.

A.2.2 Calculation of test result of slippage quantity

Slippage quantity shall be expressed in the volume (mL) of test solution that the sample does not absorb. Test 7 PCS from each sample. Eliminate the maximum value and the minimum value in the test result. Take the arithmetic mean value of the remaining 5 PCS as the final test result, accurate to 1 Ml.

NOTE: if more than 2 PCS (excluding 2 PCS) in the 7 PCS manifest side flow, then, the result may be retained. However, this shall be indicated in the test report.

A.3 Determination of Back-seepage and Leakage Quantity

A.3.1 Determination of back-seepage quantity

A.3.1.1 Test procedure

Pour a proper amount of test solution into the funnel, so as to wet the funnel. Moreover, use the solution to rinse the funnel twice. Discharge the solution in the funnel; fixate it on a support and reserve it for later usage. The opening of the lower mouth of the funnel shall face to the operator.

Take 1 PCS of the test sample; spread it, then, under natural state, place it on a sufficiently large filter paper, whose mass is already known. In addition, place it underneath the funnel. The vertical distance from the projection of the central point of the lower mouth of the funnel to the central point of the built-in absorption layer of the sample is 5 mm ~ 10 mm.

Use the measuring cylinder to accurately measure-take the test solution. In terms of below Size-S (including Size-S) disposable diapers for infants, measure-take 40 mL of the test solution. In terms of Size-M disposable diapers for infants, measure-take 60

Appendix B

(Normative)
Determination of pH

B.1 Instruments and Reagents

B.1.1 Instruments

B.1.1.1 pH meter: 1 set.

B.1.1.2 Mercury thermometer: 1 PCS, 100 °C.

B.1.1.3 Beaker: 400 mL, 2 PCS.

B.1.1.4 Stainless-steel scissors: 1 PCS.

B.1.1.5 Volumetric flask: 1,000 mL, 1 PCS.

B.1.2 Reagents

B.1.2.1 Distilled water or deionized water, pH: 6.5 ~ 7.2.

B.1.2.2 Standard buffer solution: 25 °C, pH 6.86 buffer solution (mixed solution of potassium dihydrogen phosphate and disodium hydrogen phosphate). The reagents used to prepare buffer solution shall be pH benchmark reagents, which shall be re-prepared at least once per month. Method of preparation: weigh-take 3.39 g (analytically pure) of potassium dihydrogen phosphate (KH_2PO_4) and 3.54 g (analytically pure) of disodium hydrogen phosphate (Na_2HPO_4); place it in a 1,000 mL volumetric flask. Firstly, use a small amount of distilled water to dissolve it, then, dilute it to the scale; shake it up.

B.2 Test Procedure

Randomly take 2 PCS from the same specification of products. Cut off elastic band on the sides. Respectively and randomly take 1 g (accurate to 0.001 g) per PCS; place the sample into a 400 mL beaker. Add 100 mL of distilled water (B.1.2.1); use a glass rod to vigorously stir it. If free water is not seen, add a proper amount of water, till free water emerges. At this moment, start the timing; properly stir the sample. When the timing reaches 10 min, place it into electrode to test its pH.

B.3 Calculation of Test Result

Take the arithmetic mean value of the test value of 2 samples as the test result, accurate to 0.1 pH unit.

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