



Title of Work: Testing of Ohyo Bottles
Client: Ohyo
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Job Number: Ohyo/01
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Signature:

A handwritten signature in blue ink, appearing to be "AN", is written over a horizontal line.

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UNIVERSITY OF
Southampton
Research Institute for Industry

Date: 5th December 2012

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Title of Work: Testing of Aquatina Bottles

Job Number: Ohyo/01

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Security Class Commercial in Confidence

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1	First draft	Andrew New		25th March 2011
2	Final report	Andrew New	Brian Mellor	7th April 2011
3	Revised report	Andrew New		31 st October 2012
4	Revised report	Andrew New		5 th December 2012

PREVIOUS ISSUES SHOULD BE DESTROYED OR MARKED SUPERCEDED

Summary

NOTE: In this report, some reference is made to "Aquatina" bottles. Aquatina is the previous name for Ohyo collapsible bottles.

Aquatina has developed a reusable, collapsible drinking bottle. This report describes work to establish the burst load of the current bottle design (supplied 02/03/2011 and marked with various dates from 02/02/2011 to 25/02/2011), to determine the resistance of the current bottle to repeated wash cycles in a domestic dishwasher and to comment on the suitability of the plastics and additives used in the manufacture of the bottle for use in food applications. It also summarises cyclic testing used to establish the durability of the bottles under repeated collapse-expand cycles.

Statements and data sheets received from the manufacturers indicate compliance of the raw materials of the Aquatina (polymers and colourants) with the EU directives and regulations relevant for food use.

Examination of the datasheets shows that the Aquatina bottle is free of bisphenol-A (page 9) and does not contain either phthalates (small molecules used as plasticisers in some plastics), or polyethylene terephthalate (PET) - an alternative polymer used in drinks bottle manufacture.

Burst tests revealed that for compressive loads applied parallel to the axis of the bottle, loss of containment of the contents occurred at loads of around 0.32 kN, equivalent to about 43% of the body weight of a typical 75 kg person.

During durability testing, no visible damage to the Aquatina bottle could be detected after applying 10,000 collapse/expand cycles. Assuming 3 collapse/expand cycles per day, 10,000 collapse/expand cycles represents in excess of 9 years of use, suggesting that bottle life would be acceptable under reasonable use.

Dishwasher exposure caused some evidence of colour fade for the pink and blue bottles. There was also some evidence of minor shape changes of the bottle in the open state, possibly relating to relaxation of moulding stresses due to repeated exposure to elevated temperatures. Manual expand/collapse tests showed the bottles to still be functioning well, and, although not tested rigorously, the bottles did not leak when filled and subject to manual loads estimated to approach the peak loads measured in the burst tests.

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Introduction

Aquatina has developed a reusable, collapsible drinking bottle. Prior testing by Apogee Engineering Analysis Solutions Ltd (report dated 6th March 2010) established the burst load of the capped bottle and the durability of the bottle under repeated collapse-expand cycles. This report describes additional work to establish the burst load of the current bottle*, which features a revised cap design, to determine the resistance of the current bottle to repeated wash cycles in a domestic dishwasher and to comment on the suitability of the plastics and additives used in the manufacture of the current bottle for use in food applications.

* Bottles supplied 02/03/2011 and marked with various dates from 02/02/2011 to 25/02/2011.

Suitability of Raw Materials for Food Applications

The Aquatina bottle is manufactured from ELITE 5100G, a polyethylene copolymer produced by Dow Chemical (Dow Customer Information Group, Prins Boudewijnlaan 41, B-2650 Edegem, Belgium, Tel: +32-3-450-2240). The cap is made from a high-density polyethylene (ExxonMobil HDPE HMA 018, ExxonMobil, ExxonMobil House, Ermyn Way, Leatherhead, Surrey, KT22 8UX, Tel: +44 1372 222000). In addition, the cap contains the colouring agent 1204 RCD Deep Black (supplied by Rapid Colour Services Ltd, Moss Industrial Estate, Leigh, Lancashire, WN7 3PT), the blue bottle the colouring agent PE MB 66255 TÜRKIS TRL (Color-Service GmbH & Co. KG – Postfach 1109 – 63507 Hainburg, Germany), the pink bottle the colouring agent 7619 RCE Trans Pink (Rapid Colour Services Ltd) and the green bottle the colouring agent 882 BB Trans Green (Rapid Colour Services Ltd). Adhesive labels supplied for optional fixing to the external surface of the bottle cap are manufactured from a paper/PVC base layer covered in polyurethane elastomer and backed with a rubber-based adhesive.

Statements and data sheets from the manufacturers and suppliers of the various polymers and additives used in the manufacture of the current Aquatina bottle are reproduced in the Appendices (pages 27 - 40).

The "STATEMENT FOR PROSPECTIVE CUSTOMERS" supplied by ExxonMobil and dated 21st March 2011 (Appendix 3: Exxon Mobil HMA018 Data Sheet, page 29 *et seq.*) and the "Regulatory Data Sheet" supplied by Dow Chemical (available at <http://www.dow.com/polyethylene/eu/en/prod/elite.htm>, accessed 23/03/2011) (Appendix 4: Dow Chemical Elite 5100G Data Sheet, page 35 *et seq.*) indicate the compliance of the HMA018 and Elite 5100G polymers respectively with the requirements of the legislation of various European Union member states of polymers for food use.

With reference to the blue colourant, "No objection to the use of the product for the coloration of objects of use as defined in the Regulation (EC) 1935/2004 [1] exists, according to..... Resolution AP (89) I of the Council of Europe of 13.09.89" (Appendix 1: Blue colourant data sheet, page 27, paraphrased). With reference to the pink, green and black colourants, " [1204 RCD Deep Black, 7619 RCE Trans Pink, 882 BB Trans Green] meet[s] the following criteria: Eu Directive 2002/72 [2] and its amendments, including 2007/19/EC AP89 (1) [3] on the use of colourants in plastic materials coming into contact with food." (Appendix 2: Pink, black and green colourants statement of conformity, page 28, paraphrased).

With reference to the label, while it would not generally be anticipated to come into contact with the bottle contents, the label manufacturer asserts that the "adhesive

complies with the European food directives and legislations.....[and] can be used in direct contact with dry and moist, non fatty foodstuffs." The PVC component of the label is cadmium free.

Further information on regulations of the Council of Europe on food contact materials pre-1st January 2009 can be found at http://www.coe.int/t/e/social_cohesion/soc-sp/public_health/food_contact/presentation.asp. After this date, activities related to food packaging were transferred to the European Pharmacopoeia.

While the statements and data sheets received from the manufacturers and described above indicate compliance of the raw materials of the Aquatina with the EU directives and regulations relevant for food use, the general requirement that "colourants should be sufficiently integrated within plastic materials and articles so as to preclude any visible migration into foodstuffs under normal conditions of use, as determined by and appropriate method" requires testing of the finished article.

Specific Comments Regarding Presence of Bisphenol-A

Bisphenol-A (BPA) is the common name for 2,2-bis(4-hydroxyphenyl)propane. BPA is an organic compound used as a monomer in the manufacture of polycarbonate, epoxy resins, polysulfones and polyether ketones. It is also present as an antioxidant in some polymer plasticizers, and as a polymerization inhibitor in PVC. In general, it is very unlikely to be present in polyethylene terephthalate (recycle code 1), high or low-density polyethylene (recycle codes 2 and 4 respectively), polypropylene (recycle code 5) or polystyrene (recycle code 6) as it is not used in the manufacture of these plastics. Polymers containing BPA are prohibited for use in the manufacture of infant feeding bottles throughout the European Union from March 2011, and import and sale of bottles made from such materials will be prohibited from June 2011. [4]

Attention is drawn particularly to the statements by Exxon Mobil regarding the absence of BPA in HMA018 polymer (Appendix 3: Exxon Mobil HMA018 Data Sheet, page 34) and by Dow Chemical regarding the absence of BPA in Elite 5100G polymer (Appendix 4: Dow Chemical Elite 5100G Data Sheet, page 37).

Dishwasher Resistance

Methods and Materials

Dishwasher performance was established by subjecting samples of the Aquatina bottle (pink and blue variants) to 20 wash cycles over a period of 20 days in a domestic dishwasher (Hotpoint Aquarius DF61, 55°C wash cycle). Only qualitative assessment of the bottle (visual inspection and manual expand/collapse and sealing tests) was performed.

Results

Photographs of the pink and blue bottles before and after dishwasher exposure are shown in Figure 1.



Figure 1: Photographs of the translucent, pink and blue bottles before and after dishwasher exposure. Post-exposure bottles are shown on the right.

Following dishwasher exposure, there was some evidence of colour fade for the pink and blue bottles. There was also some evidence of minor shape changes of the bottle in the open state, possibly relating to relaxation of moulding stresses due to repeated exposure to relatively high temperatures. Manual expand/collapse tests showed the bottles to still

be functioning well, and, although not tested rigorously, the bottles did not leak when filled and subject to manual loads estimated to approach the peak loads measured in the burst tests.

Burst Load

Methods and Materials

To determine the burst load of the Aquatina bottle, the bottle was first filled as fully as possible with tap water at room temperature (minimising trapped air) and then the lid fitted to moderate hand-tightness. The filled bottle was then placed under the actuator of an Instron 5569 servo-mechanical materials testing machine and compressed at a rate of 5 mm/sec between flat platens until failure occurred. A flat bottomed plastic bowl was placed underneath the Aquatina bottle to contain water release after bottle failure. A photograph of the bottle ready for burst testing is shown in Figure 2. Load and displacement of the testing machine actuator were recorded at a sample rate of 500 Hz throughout the test.

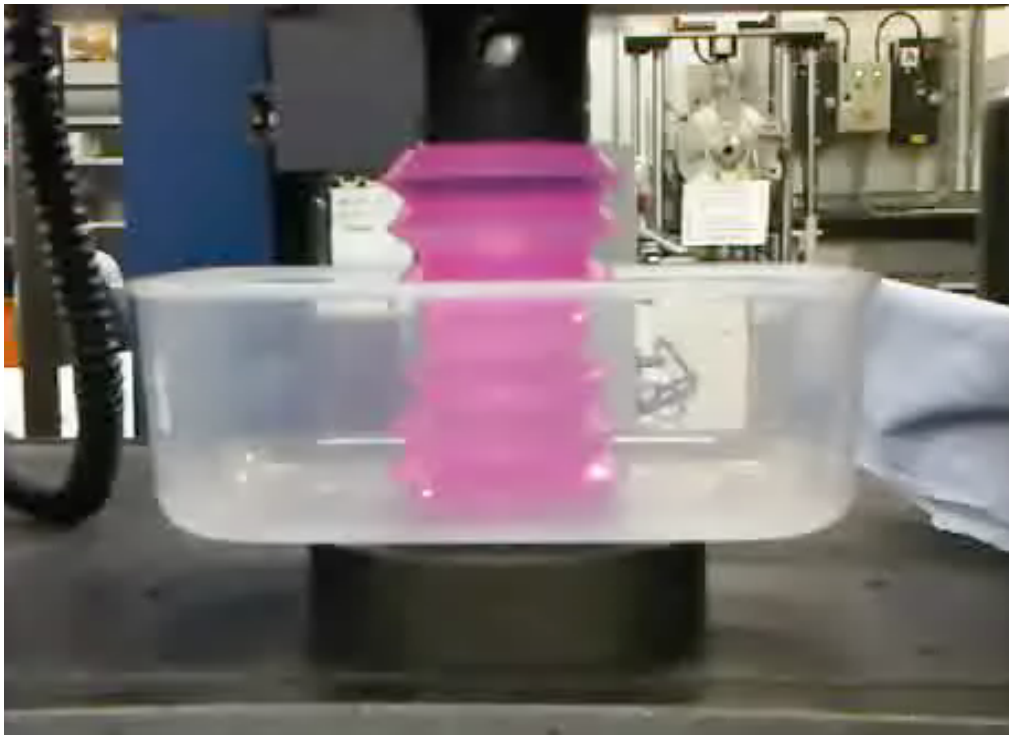
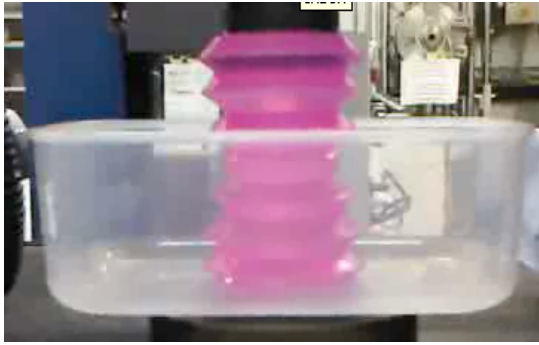


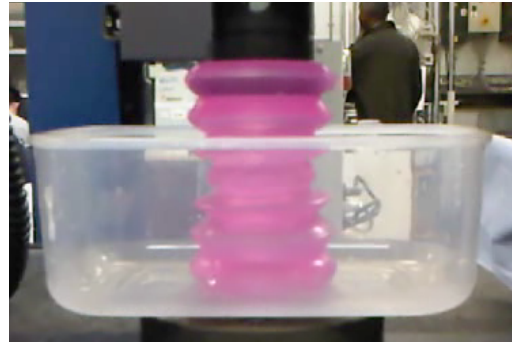
Figure 2: Aquatina bottle ready for burst testing.

Results

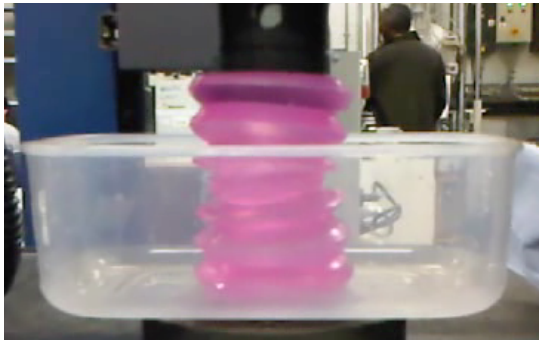
Still images of a typical burst test as the test progressed are shown in Figure 3. A typical load displacement curve recorded from the testing machine actuator during the test is shown in Figure 4.



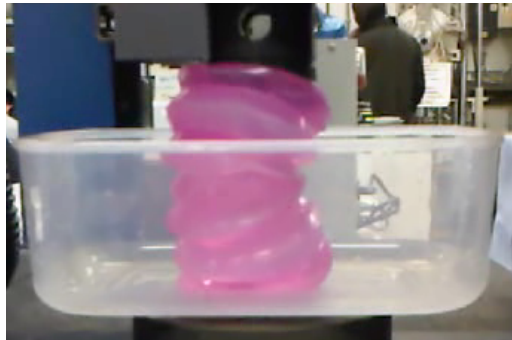
a



b



c



d



e

Figure 3: Still images of the Aquatina burst test.

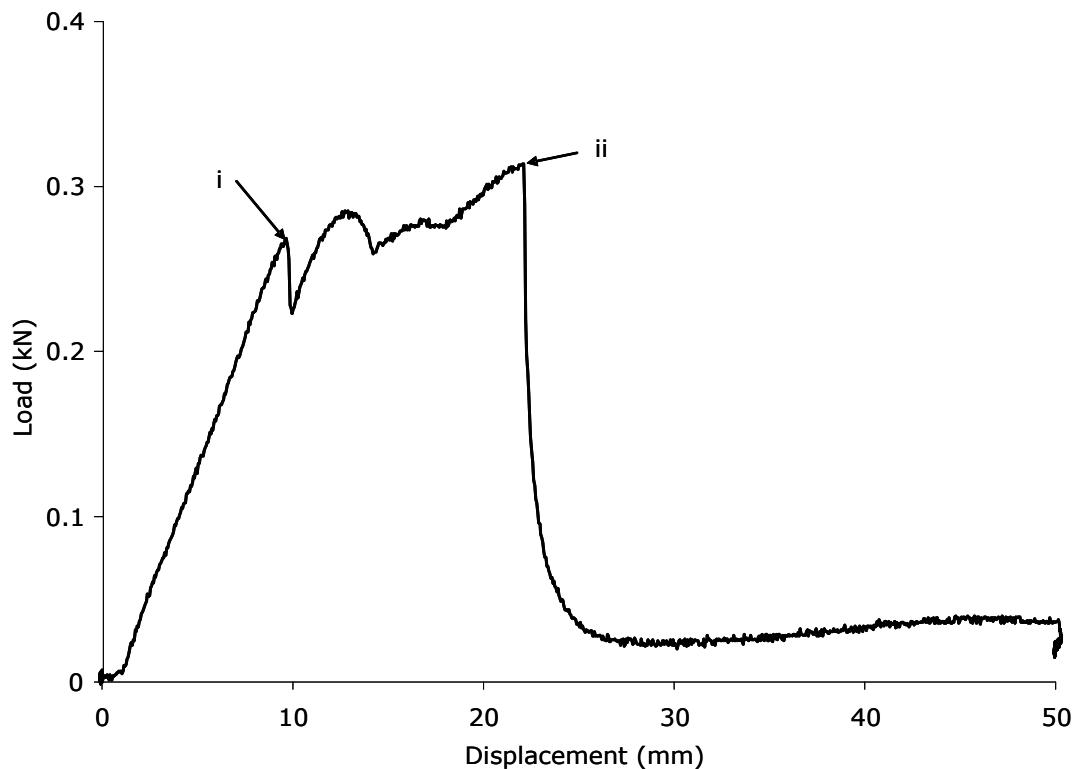


Figure 4: Load displacement curve from the Aquatina burst test.

In the early part of the burst test (Figure 3a - Figure 3b), the dominant deformation of the bottle was dilation ("bulging") as a result of the applied load and the incompressibility of the contained water. During this phase, the concertina sections of the bottle remained parallel to each other and the test platens. At approximately 10 mm of displacement of the upper test platen, buckling, which appeared to initiate close to the narrowest point of the bottle near the centre, occurred (Figure 3c). Buckling coincided with a rapid but relatively small drop in the load (point "i" of Figure 4). Further combined deformation, a combination of buckling and bulging, then occurred (Figure 3d), with the upper concertina eventually making contact with the upper test platen. Loss of containment of the water occurred at a load of $0.32 \pm 0.023 \text{ kN}^\dagger$ (average for 5 bottles each tested 3 times) (Figure 3e, point "ii" of Figure 4), whereupon the load rapidly dropped to a baseline load of around 0.05 kN, effectively the load necessary to collapse the empty bottle. Loss of containment was initiated by separation of the threaded portion of the bottle from the cap. Although the separation of the threads allowed the contents to escape, and the bottle suffered some deformation of the threaded portion during the test, after removing the cap and allowing the bottle to recover the deformation induced

[†] 1 kN is approximately equal to 100 kilograms-force, \pm figure indicates 1 standard deviation of the mean.

by the test, the bottle recovered to nearly its pre-test shape. Further repeats of the burst test showed that the bottle had not suffered significant permanent impairment of its capacity to contain water, with loss of water containment continuing to occur at repeatable loads in the range 0.30 to 0.34 kN.

Durability

Materials and Methods

The durability of the Aquatina bottle under repeated collapse/expand cycles was evaluated using an Instron 8874 servo-hydraulic materials testing machine and a specially manufactured test fixture. The test fixture securely fixed the base of the bottle to the base of the testing machine and the upper portion of the bottle (via the bottle "shoulder") to the moving actuator. Photographs of the bottle and test fixture and the bottle and test fixture mounted and ready for durability testing are shown in Figure 5.

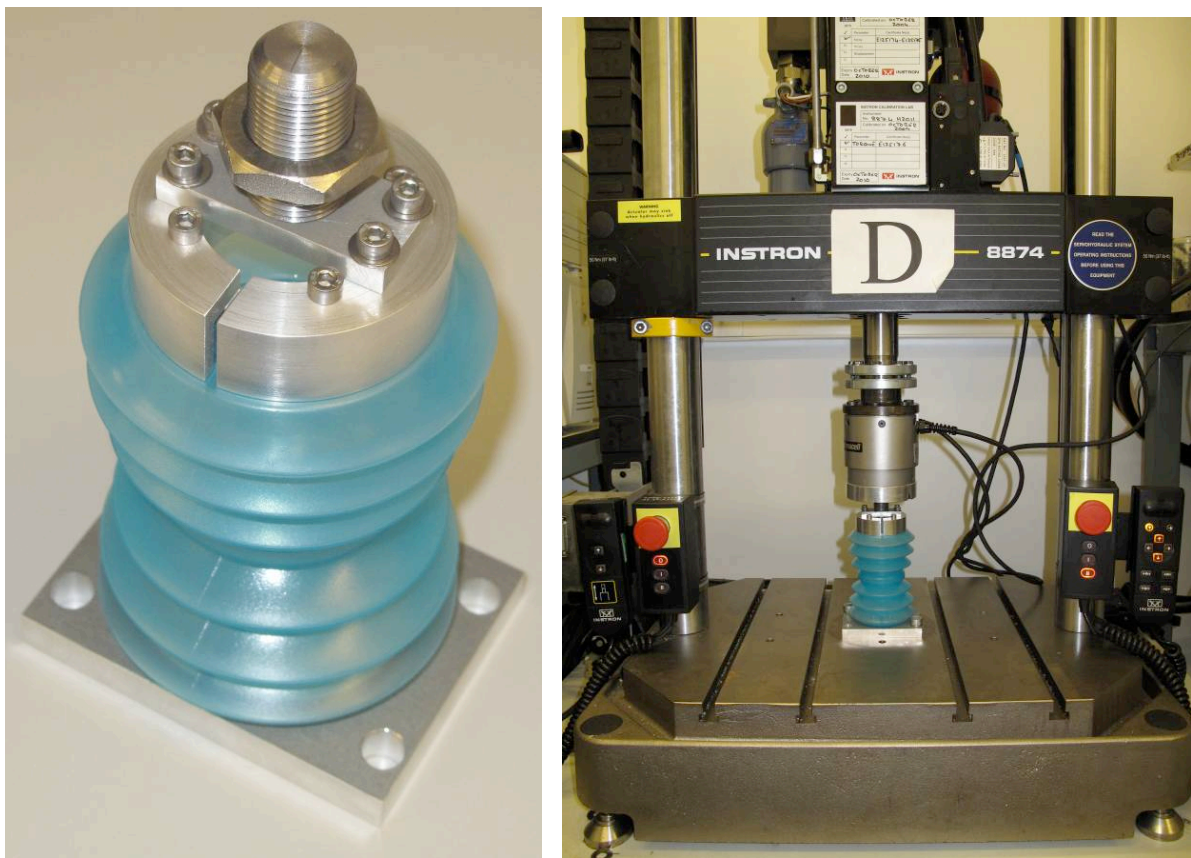


Figure 5: Aquatina bottle and test fixture (left), and bottle and fixture mounted and ready for durability testing.

The actuator stroke to completely collapse and expand the bottle was set at 70 mm. Durability tests were carried out by repeatedly collapsing and expanding the empty bottle at a frequency of 0.5 Hz under displacement control using a triangle waveform (amplitude = $70 \text{ mm} / 2 = 35 \text{ mm}$.) The condition of the bottle was checked visually after every 1,000 cycles. All tests were carried out in a temperature and humidity controlled laboratory at 21°C and 53% relative humidity.

Results

A video clip of the durability test can be found at <http://www.youtube.com/watch?v=ATiW9s60zEg>. Still images of the test at the fully collapsed, intermediate and fully expanded positions are shown in Figure 6.

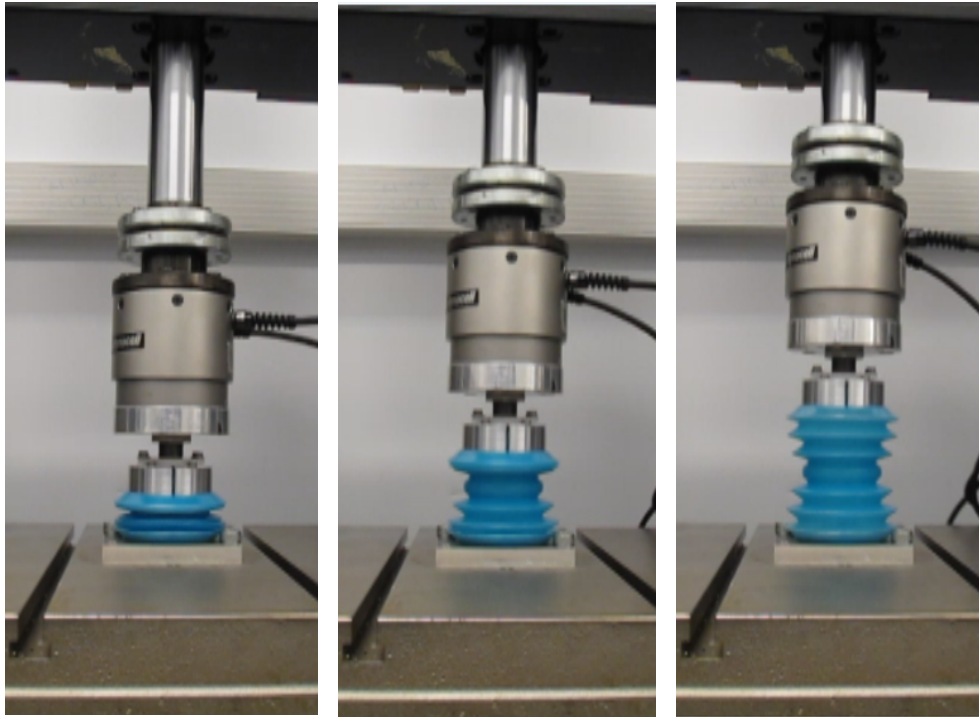


Figure 6: Still images of the Aquatina durability test at the fully collapsed, intermediate and fully expanded positions.

Visual inspection of the bottle at the end of each group of 1,000 collapse/ expand cycles revealed no damage. The test was terminated after 10,000 cycles owing to time constraints. At the end of the test no damage to the bottle could be detected visually and the bottle remained completely intact. A photograph of the bottle after durability testing is shown in Figure 7.



Figure 7: Aquatina bottle after durability testing.

Leak Resistance

Materials and Methods

The ability of the Ohyo nozzle cap to retain water under static, “unpressurised” conditions was tested by filling brand-new bottles with cold tap water, inverting for thirty seconds and then disassembling (with the bottle returned upright) to inspect for leaks. Having completed the inspection, the bottles were then re-assembled and stood on tissue paper for 1 hour. At the end of the 1 hour period the tissue paper was inspected for signs of leakage from the junction of the nozzle and cap, and the cap removed to inspect for leakage around the cap thread. Care was taken to ensure that the threads and nozzle area were thoroughly dried before each assembly. A total of four bottles selected randomly from a full carton (fifteen bottles) were tested.

The same tests were then repeated having unscrewed and refitted the caps and operated the nozzles of the same bottles ten times.

All tests were carried out at a room temperature of 18.5°C.

Results

No leaks were detected for either the brand-new or the disassembled-reassembled bottles immediately after filling. After 1 hour, one brand-new bottle showed a single drop of water in the thread of the cap (estimated to be about one-tenth of a millilitre, by comparison of drop size to drops of known volume deposited on a separate cap). This bottle exhibited the same behaviour after the disassembly-reassembly cycle. The amount of water that passed the thread was so small as to not be considered a leak for any practical purpose, an image of the amount of water in question in the cap thread is shown in Figure 8.



Figure 8: Liquid found in the cap thread of one bottle after leak testing.

Pressure Resistance

Materials and Methods

Four brand-new Ohyo bottles were tested for leaks under pressure using the apparatus shown in Figure 9.

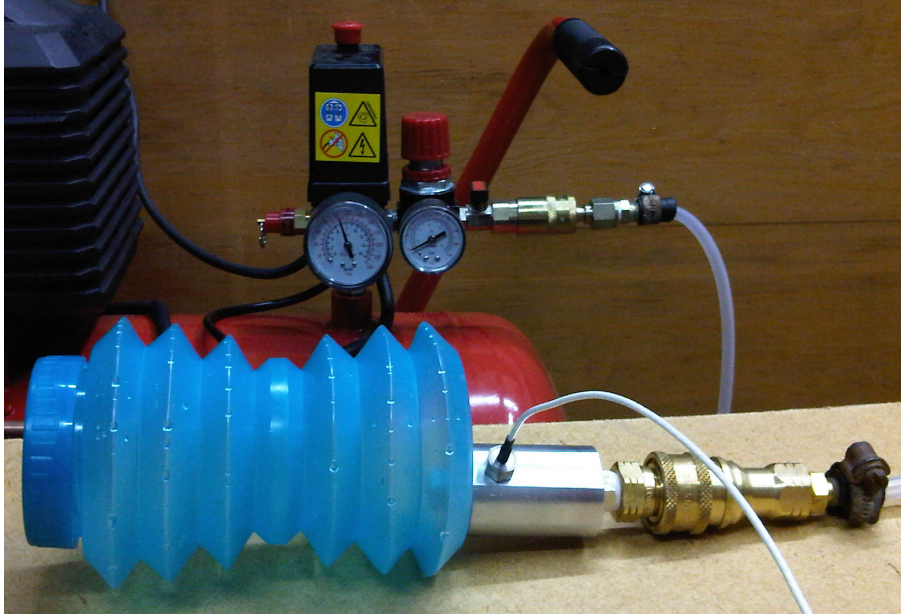


Figure 9: Pressure testing apparatus.

Pressure was slowly increased manually using the pressure control valve until leaks were first observed from the bottle, and the pressure at which this occurred was determined.

Results

The recorded pressures at the onset of first observed leakage for the four bottles tested are shown in Table 1.

Bottle	Pressure at first-observed leakage (bar)
1	0.68
2	0.61
3	0.65
4	0.56
Average	0.63
Standard deviation	0.05

Table 1: Ohyo pressure testing results.

Leakage always occurred around the cap thread, which correlates well with the burst load test results presented earlier. Only under extremely high compressed-air delivery rates was it possible to cause the cap to detach from the bottle, so a “leak before burst” bottle failure would always be expected under realistic loading conditions.

Nozzle Pull-Off Tests

Nozzle pull-off tests (tests to measure the load required to detach the nozzle from the cap) were performed using a Hounsfield Tensometer with a special jig to hold the cap fixed. A small hole was drilled in the nozzle near the drinking aperture end to allow load to be transmitted from the cross-head to the nozzle through a loading pin. For each test the nozzle was opened at approximately 90° to the cap.

A typical load-time curve recorded during the test is shown in Figure 10.

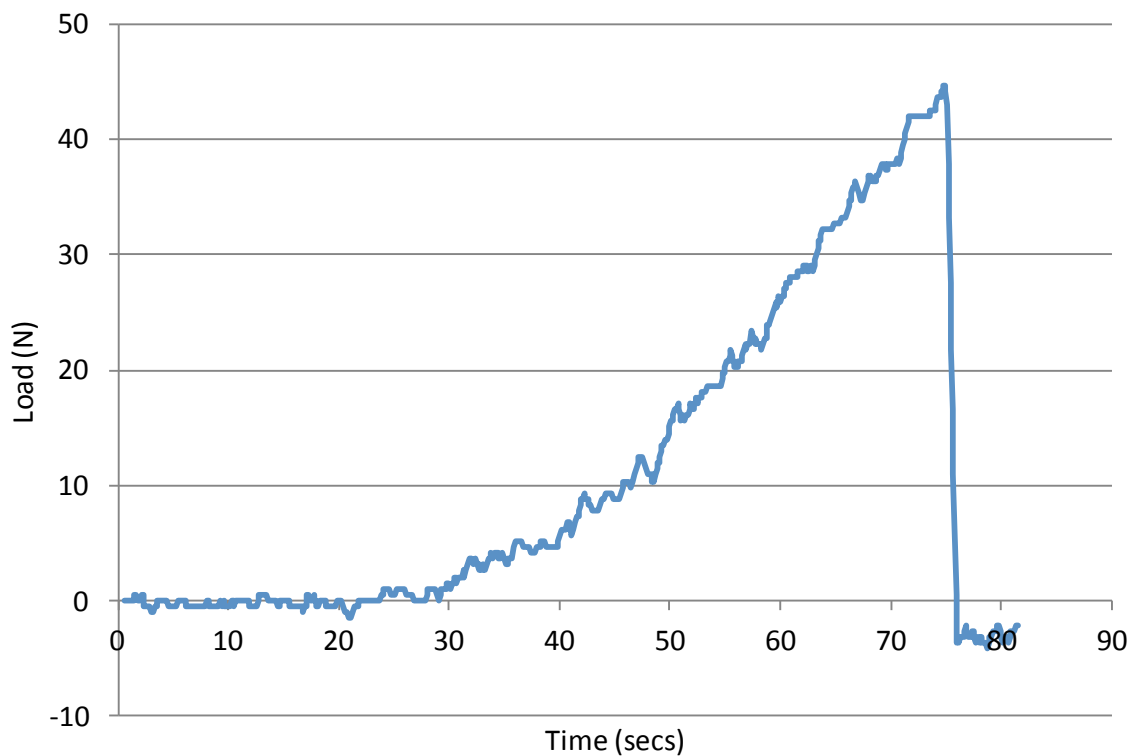


Figure 10: Typical load-time curve for nozzle pull-off test.

A total of eight caps were tested. The average load at nozzle pull-off for the eight tests was 49 Newton (range 27 – 62 Newton), with a standard deviation of 13 Newton.

Conclusions

Review of the materials data sheets supplied by the manufacturers of the materials used in the production of the bottle showed that the raw materials comply with the EU directives and regulations relevant for food use. In particular, that the Aquatina bottle is expected to be free of bisphenol-A (page 9) and does not contain either phthalates (small molecules used as plasticisers in some plastics), or polyethylene terephthalate (PET) - an alternative polymer used in drinks bottle manufacture.

Dishwasher exposure caused some evidence of colour fade for the pink and blue bottles. There was also some evidence of minor shape changes of the bottles in the open state. However, manual expand/collapse tests showed the bottles to still be functioning well, and, although not tested rigorously, the bottles did not leak when filled and subject to manual loads estimated to approach the peak loads measured in the burst tests.

Burst tests revealed that for compressive loads applied parallel to the axis of the bottle, loss of containment of the contents occurred at loads of around 0.32 kN. This load is equivalent to about 43% of the body weight of a typical 75 kg person.

During durability testing, no visible damage to the Aquatina bottle could be detected after applying 10,000 collapse/expand cycles. Assuming 3 collapse/expand cycles per day, 10,000 collapse/expand cycles represents in excess of 9 years of use, suggesting that bottle life would be acceptable under reasonable use.

References

¹ REGULATION (EC) No 1935/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 October 2004 on materials and articles intended to come into contact with food and repealing Directives 80/590/EEC and 89/109/EEC. Official Journal of the European Union L338/4, 13.11.2004.

² COMMISSION DIRECTIVE 2002/72/EC of 6 August 2002 relating to plastic materials and articles intended to come into contact with foodstuffs. Official Journal of the European Communities L220/18, 15.8.2002.

³ Resolution AP(89) 1 On the use of colourants in plastic materials coming into contact with food.

⁴ Commission Directive 2011/8/EU, Official Journal of the European Union L26/11, 29.1.2011.

Appendix 1: Blue colourant data sheet

Masterbatch
(Colour concentrates)
For all thermoplastic polymers

Color-Service GmbH & Co. KG – Postfach 1109 – 63507 Hainburg/Germany



PRODUCT INFORMATION PE MB 66255 TÜRKIS TRL

No objection to the use of the product for the coloration of objects of use as defined in the Regulation (EC) 1935/2004 and in §§ 30 and 31 of the LFGB (German law on Food, Objects of use and Feed) exists, according to recommendations IX and XLVII of the Federal Institute for Risk Assessment BfR (former BgVV) of the Federal Republic of Germany, published 15.03.89 and Resolution AP (89) I of the Council of Europe of 13.09.89, if the colorants do not migrate, not even in traces, when the articles are used for the purpose, for which they are intended. Since the manufacturer of the colorants has no influence on subsequent processing, the processor himself is required, in accordance with recommendation IX to test for "fastness to bleeding" in the finished article under conditions approximating to those in practice.

The monomers, starting substances and additives in this masterbatch are listed in the temporary lists of authorized additives in Directive 2002/72/EC as amended by Directives 2004/1/EC, 2004/19/EC, 2005/79/EC, 2007/19/EC and 2008/39/EC. The content of Benzo(a)pyren is < 0,25 mg/kg.

The product complies with the norm EN 71, part 3, part 9 "Safety of toys".

The product complies with the Directive 94/62 EC (also CONEG-regulation), which limits the content of the heavy metals Lead, Cadmium, Mercury and Chromium-VI to max. 100 ppm .

The product complies with the Directives 2000/53/EC (Directive on end of life vehicles), 2002/95/EC (RoHS), 2003/11/EC (Directive on restrictions on the marketing and use of pentaBDE and octaBDE), 2002/96/EC (WEEE) and does not contain any substances which are forbidden according to the GADSL-list (2008 Version 1.0) .

The product complies with the criteria of the Directive 76/769/EEC (incl. amendments 2003/11/EC, 2005/84/EC and 2005/90/EC) and of the Directive 2002/16 and the Regulations (EC) 1895/2005 and (EC) 2023/2006.

The product is not classified as dangerous according to the Directive 1999/45/EC.

The various colouring agents for the colouring of polymers which come in direct contact with food are approved in the USA by the FDA (Food and Drug Administration) in the CFR (Code of Federal Regulations) § 178.3297 (Colorants for Polymers).The colouring agents included in the product are **all listed in the CFR of the FDA**. Colouring agents which are not listed there can however be used for this area of application and also for the colouring of consumer items and toys as long as the „Non Migration Principle“ corresponding to the FDA guidelines is complied with.

The substances listed below are neither used as raw materials nor expected to be generated in the manufacturing process and therefore not expected to be contained. Regular checks do not take place :

PBT- substances (persistent, bioaccumulative, toxic), CMR - substances of the categories 1 or 2 (carcinogenic, mutagenic, reprotoxic), phthalates, diarylide pigments, latex, bisphenol A , acryl amide, nonyl phenol, nickel dihydroxide, nickel(II)sulphate, dinickel trioxide, antimony compounds, cobalt(II)oxide, beryllium(II)oxide, vanadium pentoxide, divanadium pentoxide, silicone, deca-bromo-diphenylether (deca-BDE).

Color - Service GmbH & Co. KG
Hainburg / Hessen

i.A. Dr. Wald
Manager regulatory affairs

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Vers. 3.1 / Jul-08

Appendix 2: Pink, black and green colourants statement of conformity

7th April 2011.

For the attention of Richard Bradley
Wm. Beckett Plastics
Unit 5A Tinsley Industrial Park
Shepcote Lane
Sheffield
S9 1TH

Re: - Food Contact Suitability Statement

Dear Richard,

Further to your recent enquiry, I would like to confirm the following information: -

The products listed below, based on information taken from our suppliers published technical data and to the best of our knowledge, are manufactured utilizing materials that meet the following criteria: -

Eu Directive 2002/72 and its amendments, including 2007/19/EC along with the recommendations / legislation relating to food contact materials in Italy, France, Germany, Holland, Belgium and Spain.

AP89 (1) on the use of colourants in plastic materials coming into contact with food.

Do not contain any materials based on the following heavy metals: - Mercury, Cadmium, Lead and Chromium VI.

Manufactured from materials listed in EINECS/TSCA Inventory.

As with all food contact related applications / legislation the testing is final article based, it is the responsibility of the end user to ensure non migration and therefore its ultimate compliance, as factors out of our control may alter its performance in use.

Product: -

1204 RCD Deep Black
7619 RCE Trans Pink
882 BB Trans Green

I trust this information is acceptable.

Yours Sincerely,

Martin Kirkham
Technical & Operations Director
martin@rapidcolour.co.uk

This information is to the best of our knowledge correct, based on available Data from our supplier's tests. It does not guarantee product performance due to parameters outside of our control and we recommend sampling / production trials and testing of the customers finished product are undertaken to determine suitability.



Appendix 3: Exxon Mobil HMA018 Data Sheet

STATEMENT FOR PROSPECTIVE CUSTOMERS

Issue Date: 21 MAR 2011
Product Name(s): EXXONMOBIL HMA018
Material Code(s): 5072677

With regard to the compliance status of the ExxonMobil Chemical product referenced above with the regulation(s) identified below the following can be declared:

EC LEGISLATION

- * The composition of the base polymeric component(s) in the above polymer grade complies with the positive lists for allowed monomers in Annex II of EC Directive 2002/72/EC - as amended up to EC Directive 2008/39/EC and Commission Regulation (EC) No 975/2009 relating to plastics materials and articles intended to come in contact with foodstuffs.
- * The additives that may be present in the above polymer grade are authorized according to Annex III of EC Directive 2002/72/EC- as amended up to EC Directive 2008/39/EC and Commission Regulation (EC) No 975/2009.
- * The above polymer grade complies with the relevant requirements of Regulation (EC) No 1935/2004 in as far as:
 - the grade is produced using Good Manufacturing Practice as required in article 3.1 of Regulation (EC) No 1935/2004 and meets the guidelines for Good Manufacturing Practice as specified in Regulation (EC) No 2023/2006 (on good manufacturing practice for materials and articles intended to come in contact with food).
 - the production of the above grade ensures traceability as required in article 17.1 of Regulation (EC) No 1935/2004.

EC MEMBER STATES LEGISLATIONS

The composition of the base polymeric components in this polymer grade complies with the positive lists of allowed monomers in the legislations referenced below.

The additives and/or polymerisation production aids* (if applicable in the specific legislation) are permitted for food contact use in the specific countries.

- * Solvents are excluded from the "polymerisation production aids" definition.

- Austria
Kunststoff-Verordnung (KVO) BGBl. II Nr. 476/2003, as amended up to BGBl. II Nr. 140/2009:2009

PAGE 1 of 6

- Belgium

Arrêté royal du 3 juillet 2005 relatif aux matériaux et aux objets en matière plastique destinés à entrer en contact avec les denrées alimentaires, as amended up to Arrêté royal du 8 Mars 2009

- Denmark

Bekendtgørelse om materialer og genstande bestemt til kontakt med fødevarer
BEK nr 167 af 03/03/2009

- Finland

Kauppa- ja teollisuusministeriön asetus elintarvikkeen kanssa kosketukseen joutuvista muovisista tarvikkeista 953/2003, 141/2005, 181/2005, 762/2006, 1065/2007
Maa- ja metsätalousministeriön asetus elintarvikkeen kanssa kosketukseen joutuvista muovisista tarvikkeista 107/2009

- France

Arrêté du 2 janvier 2003 relatif aux matériaux et objets en matière plastique mis ou destinés à être mis au contact des denrées, produits et boissons alimentaires, as amended up to Arrêté du 19 novembre 2008

- Germany

* Bedarfsgegenständeverordnung in der Fassung der Bekanntmachung vom 23. Dezember 1997 (BGBl. 1998 I S. 5), amended up to Verordnung vom 23. September 2009 (BGBl. I S. 3130)

* BfR Empfehlung III "Polyethylen" from the Bundesinstitut fuer Risikobewertung "BfR".

- Ireland

Statutory Instrument S.I. No 587 of 2007, as amended by S.I. No 88 of 2009

- Italy

Decreto 21 marzo 1973, concernente la disciplina igienica degli imballaggi, recipienti, utensili destinati a venire in contatto con le sostanze alimentari o con sostanze d'uso personale., as amended up to Decreto 23 Aprile 2009 (GU n0 144 del 24-6-2009)

- Portugal

Decreto-Lei nº 62/2008 de 31.03.2008 as amended by Decreto lei Decreto-Lei n.º 29/2009, de 02 de Fevereiro de 2009

- Spain

Real Decreto 866/2008, de 23 de mayo, por el que se aprueba la lista de sustancias permitidas para la fabricación de materiales y objetos plásticos destinados a entrar en contacto con los alimentos y se regulan determinadas condiciones de ensayo, as amended by Real Decreto 103/2009, de 6 de febrero.

- The Netherlands

Regeling Verpakkingen- en gebruiksartikelen (Warenwet) last amended by Regeling Verpakkingen- en gebruiksartikelen Staatscourant N 240, 10 december 2008 -
Hoofdstuk 1 - Kunststof

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- Sweden

Livsmedelsverkets föreskrifter (LIVSFS 2003:2) om material och produkter avsedda att komma i kontakt med livsmedel. Last amended by LIVSFS 2009:2 on January 26, 2009

- UK

England: The Plastic Materials and Articles in Contact with Food (England) Regulations 2009 - Statutory Instrument 2009 No. 205
Scotland: The Plastic Materials and Articles in Contact with Food (Scotland) Regulations 2009 - Statutory Instrument 2009 No. 30
Wales: The Plastic Materials and Articles in Contact with Food (Wales) Regulations 2009 - Statutory Instrument 2009 No. 481 (W 49)
Northern Ireland: The Plastic Materials and Articles in Contact with Food (Northern Ireland) Regulations 2009 - Statutory Rule 2009 No. 56

Monomer restrictions:

- None of the monomers present in this polymer is subject to a Specific Migration Limit (SML).

Presence of additives with SML

- None of the additives present in this polymer grade is subject to a Specific Migration Limit (SML).

Presence of dual use additives

- The above polymer grade does contain a/some additive(s) that is/are subject to a restriction in food as referred to in Article 1 point 7 (a) 1.(b) of EC Directive 2004/19/EC.

Note

For information purpose only

This note contains information relative to the presence of additives subject to a restriction according to Directive 2002/72/EC -as amended-, as described in this Statement.

Additive : Calcium Stearate
EC Ref. No : Salt of 89040
Max. conc.* : 900 ppm
Restriction : Dual use additive

* This information is provided for general guidance purposes only and ExxonMobil Chemical provides no guarantees or warranties in respect of this information and has no responsibility or liability for any use by any third party of this information.

Note on Overall Migration Limit ("OML") and on Specific Migration Limits ("SML's"), where applicable

In all EU countries, finished plastics food-contact materials or articles, made from or containing this product, need to comply with

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Overall Migration Limit ("OML") requirements and Specific Migration Limits ("SML"), where applicable - as specified in EC Directive 2002/72/EC, as amended - when tested on the food-contact surface with the appropriate food simulants and time/temperature test conditions. This is part of the responsibility of the user of this polymer product.

Indeed, - and in addition to the above compositional compliance status certification -, appropriate overall migration ("OML") and specific migration ("SML") tests on the final material or article determine the regulatory suitability for contact with different food-types (aqueous, fat/oil, alcoholic, ...) and various end-use conditions (material or article thickness, pure or in blends, volume, contact time of packaging, temperature of use, etc....), which are beyond control of the polymer manufacturer.

General note

The manufacturer of food-contact materials and articles - made from or containing this polymer grade - must ascertain that these finished materials or articles meet the general regulatory requirement that they do not bring about an unacceptable change in the composition of the foodstuffs or a deterioration in the organoleptic characteristics thereof.

In addition, the finished food-contact material or article must be technically suitable for the intended use.

VALIDITY DATE: This document is valid until the next relevant legislative and/or regulatory change with a maximum of one year as of the date of issue of the statement.

DISCLAIMER: This STATEMENT FOR PROSPECTIVE CUSTOMERS is only accurate and valid on the date of issuance and may be different from actual STATEMENT requested at time of sale due to change in status and/or products purchased.

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Statement Generated by: DLHEAVE

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STATEMENT FOR PROSPECTIVE CUSTOMERS

Issue Date: 21 MAR 2011
Product Name(s): EXXONMOBIL HMA018
Material Code(s): 5072677

With regard to the compliance status of the ExxonMobil Chemical product referenced above with the regulation(s) identified below the following can be declared:

This product complies with FDA regulation 21 CFR 177.1520 (Olefin polymers), paragraphs (c)3.1a and (c)3.2a, and may be used as articles or components of articles intended for use in contact with food, including use in articles used for packing or holding food during cooking. Finished articles may contact all food types identified in Table 1 of 21 CFR 176.170(c) under Conditions of Use A through H as described in Table 2 of 21 CFR 176.170(c).

This product is produced under conditions of good manufacturing practice as required by 21 CFR 174.5(a) and is of a purity suitable for its intended use in food contact applications as allowed by the regulatory citations identified above. The manufacturer of any food contact article containing this product has the responsibility to ensure that the finished article complies with any food contact regulations applicable to the specific end-use for which it is manufactured and is technically suitable for the intended use.

VALIDITY DATE: This document is valid until the next relevant legislative and/or regulatory change with a maximum of one year as of the date of issue of the statement.

DISCLAIMER: This STATEMENT FOR PROSPECTIVE CUSTOMERS is only accurate and valid on the date of issuance and may be different from actual STATEMENT requested at time of sale due to change in status and/or products purchased.

Reference Number: 0063529
Statement Generated by: DLHEAVE

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STATEMENT FOR PROSPECTIVE CUSTOMERS

Issue Date: 21 MAR 2011
Product Name(s): EXXONMOBIL HMA018
Material Code(s): 5072677

We are pleased to provide the following information concerning the absence or presence of certain substances in the ExxonMobil Chemical product referenced above:

Bisphenol A is not intentionally used by ExxonMobil in this product. Although this product is not routinely tested for its presence, based on product composition knowledge this substance is not expected to be present. However, the fact that this substance is not intentionally used by ExxonMobil in this product does not exclude that trace levels of this substance may be present as a result of the specific characteristics of the raw materials and/or of the manufacturing process.

VALIDITY DATE: This document is valid for a maximum of one year as of the date of issue of the statement.

DISCLAIMER: This STATEMENT FOR PROSPECTIVE CUSTOMERS is only accurate and valid on the date of issuance and may be different from actual STATEMENT requested at time of sale due to change in status and/or products purchased.

Reference Number: 0063529
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Appendix 4: Dow Chemical Elite 5100G Data Sheet

Regulatory Data Sheet



ELITE™ 5100G Enhanced Polyethylene Resin

Global Chemical Inventory Compliance

This product is a mixture; all of the ingredients are listed or not required to be listed as per the following Global Inventories table:

Country	Inventory	Y/N
Europe	EINECS	Y
Europe	ELINCS	-
Canada	DSL	Y
Canada	NDSL	-
United States	TSCA	Y

Country	Inventory	Y/N
Australia	AICS	Y
China	IECS	Y
Japan	ENCS	Y
Korea	KECI	Y
New Zealand	NZIoC	Y
Philippines	PICCS	Y

US FDA Food Contact Status

When used unmodified and processed in accordance with good manufacturing practices for food contact applications, this resin will comply with the U.S. Food and Drug Administration's food additive regulation at 21 CFR 177.1520(c), paragraph 3.2a, under the Federal Food, Drug, and Cosmetic Act. This product may be used to produce articles or components of articles used in contact with food to all food types described in Table 1 and Conditions of Use A-H described in Table 2 of U.S. FDA's regulation at 21 CFR § 176.170(c).

2002/72/EC Food Contact

The composition of this product complies with the requirements for use in contact with food of EU-Directive 2002/72/EC. Contact the Dow Customer Information Group (e-mail: CUSTINFOGRP1@dow.com) to obtain a detailed food contact compliance letter for the individual European Countries and information about the imposed migration requirements.

Animal Derived Components

This product contains an additive synthesized from animal extracts, i.e., hydrolysis, etc. of animal fats and oils into fatty acids. The supplier states the animal extract comes from animals in the United States, Canada or Mexico. The additive manufacturing process includes a multi-step chemical treatment involving high temperatures, high pressures, and long residence time. These conditions greatly exceed the requirements as specified in EU 99/534/EC amending EU 97/735/EC, and Section 3.5 of the "CPMP-CVMP Note for Guidance on Minimizing the Risks of Transmitting Animal Spongiform Encephalopathy Agents via Humans and Veterinary Medicinal Products", issued by the European Agency for the Evaluation of Medicinal Products (EMA/410/01 rev. 2) dated October 2003.

Food Allergens

To the best of our knowledge, there are no raw materials, including additives, that have their origin in peanuts, soybeans, milk, eggs, fish, shellfish, tree nuts and/or wheat or gluten. No sulfates or sulfites are used in the synthesis of this material. This evaluation is based on information provided by our raw material and additive suppliers for the presence of the allergen-stimulating substances shown above. Therefore, although we believe this product to be free of the specified known allergy stimulating food substances, we cannot guarantee this.

RDS - ELITE™ 5100G Enhanced Polyethylene Resin

Materials from Genetically Modified Organisms

To the best of our knowledge, there are no raw materials, including additives, that have been derived from genetically modified organisms (GMO). This is based on information from our additive suppliers. Therefore, although we believe this product to be GMO free, we cannot guarantee it at this time.

Kosher

One or more of the raw materials used in the manufacture of this product originated in whole or in part from animal sources. The animal sourced raw material(s) have been chemically altered from their original structure and have undergone significant chemical processing, and is/are therefore considered synthetic. Because of this modification and processing, kosher compliance is claimed for the above product containing the raw material(s) of animal origin.

REACH

For information on Dow and the European Union regulation for Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), visit our website, www.reach.dow.com.

This product is not manufactured or formulated with any of the Substances of Very High Concern (SVHC) as per the candidate list that was current as of the effective date of this regulatory datasheet. Current information can be found at the ECHA website. http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp. Please contact Dow's Customer Information Group for more information (CIGEUROPE@Dow.com).

EU Directive 2002/95/EC (RoHS) as amended by 2008/385/EC

This product complies with the requirements of Article 4.1 of EU Directive 2002/95/EC (RoHS), as amended; it is not intentionally manufactured or formulated with cadmium, hexavalent chromium, lead, mercury, polybrominated biphenyls, or polybrominated diphenyl ethers.

EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE)

EU Directive 2002/96/EC on WEEE: Selective treatment of the waste (Article 6.1 and Annex II). None of the substances listed in Annex II are intentionally added or used in the formulation of this product.

Heavy Metals, EU 94/62/EC and Coalition of Northeastern Governors (CONEG)

This product conforms to the Coalition of Northeastern Governors (CONEG) and the European Directive 94/62/EC, as amended, on Packaging and Packaging Waste, Article 11. Any incidental levels of lead, cadmium, hexavalent chromium, and mercury do not exceed 100 ppm total.

ASTM F963 - Standard Consumer Safety for Toy Safety

This product is not formulated with antimony, arsenic, barium, cadmium, chromium, mercury, lead or selenium. To the best of our knowledge, it does not contain these substances above the limits set in ASTM F 963-95, Section 4.3.5.2., Table 1.

Consumer Product Safety Improvement Act of 2008 (CPSIA)

This product is not manufactured or formulated with lead, di-(2-ethylhexyl)phthalate (DEHP), dibutyl phthalate (DBP), or benzyl butyl phthalate (BBP). To the best of our knowledge, it does not contain these materials above the limits set in the Consumer Product Safety Improvement Act of 2008, Title 1, Sections 101 and 108.



RDS - ELITE™ 5100G Enhanced Polyethylene Resin

Canadian Environmental Protection Act Challenge Substances

This product is not intentionally manufactured or formulated with the Batch Lists of Canadian Environmental Protection Agency (CEPA) Challenge Substances released as of the effective date of this document. However, we do not analyze for these specific substances.

(http://www.chemicalsubstanceschimiques.gc.ca/challenge-defi/index_e.html)

Bisphenol A

This product is not manufactured or formulated with Bisphenol A (CAS# 80-05-7).

Natural Rubber or Latex

This product is not intentionally manufactured or formulated with natural rubber or natural latex; however, we do not analyze for these specific substances or compounds.

Phthalate Esters

The above mentioned products are not intentionally manufactured or formulated with phthalate esters; however, we do not analyze for these specific substances or compounds.

Halogenated Flame Retardants

This product is not intentionally manufactured or formulated with halogenated or phosphorous based flame retardants; however, we do not analyze for these specific substances or compounds.

Fluorotelomers, Perfluorooctanoic acid (PFOA) and Derivatives

This product is not intentionally manufactured or formulated with Fluorotelomers, Perfluorooctanoic acid (PFOA), or Perfluorooctane sulfonate (PFOS); however, we do not analyze for these specific substances or compounds.

Residual Volatile Organic Compounds (VOC)

The residual volatiles in this product are a maximum of 1500 ppm of straight chain aliphatic hydrocarbons. Limited laboratory data has indicated that approximately 50% of the residual volatiles are emitted during film processing.

Clean Air Act

This product is not manufactured or formulated with Class I or II substances as defined under 40 CFR part 82 of the Clean Air Act of 1993, as amended (58 FR 8136).

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.



RDS - ELITE™ 5100G Enhanced Polyethylene Resin

Product Stewardship

The Dow Chemical Company and its subsidiaries ("Dow") has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take the appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products—from the initial concept and research, to manufacture, use, sale, disposal and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Medical Applications Policy

NOTICE REGARDING MEDICAL APPLICATION RESTRICTIONS: Dow will not knowingly sell or sample any product or service ("Product") into any commercial or developmental application that is intended for:

- a. long-term or permanent contact with internal bodily fluids or tissues. "Long-term" is contact which exceeds 72 continuous hours;
- b. use in cardiac prosthetic devices regardless of the length of time involved ("cardiac prosthetic devices" include, but are not limited to, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems, and ventricular bypass-assisted devices);
- c. use as a critical component in medical devices that support or sustain human life; or
- d. use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

Dow requests that customers considering use of Dow products in medical applications notify Dow so that appropriate assessments may be conducted. Dow does not endorse or claim suitability of its products for specific medical applications. It is the responsibility of the medical device or pharmaceutical manufacturer to determine that the Dow product is safe, lawful, and technically suitable for the intended use. **DOW MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE SUITABILITY OF ANY DOW PRODUCT FOR USE IN MEDICAL APPLICATIONS.**

Disclaimer

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, the Customer is responsible for determining whether products and the information in this document are appropriate for the Customer's use and for ensuring that the Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Dow assumes no obligation or liability for the information in this document. **NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.**

For additional information, not covered by the content of this document, contact us via our web site http://www.dow.com/products_services/.



Appendix 5: Label data sheet.



Product Data: Matt PVC/S277/BG45 – Polyurethane Dome Labels

FaceStock

A matt white monomeric, plasticised, cadmium free PVC film.

Basis Weight 113g/m² ISO 536
Caliper 0.086mm ISO 534

Adhesive performance

S277 is a permanent rubber based adhesive with excellent tack and adhesion to a wide variety of substrates including apolar surfaces.

The adhesive complies with the European food directives and legislations, FDA 175.105 and the German recommendations XIV as published by BfR. BfR (Bundesinstitut für Risikobewertung) is the German Federal Institute for Risk Assessment. The adhesive can be used in direct contact with dry and moist, non fatty foodstuffs.

Applications and use

Due to its good weatherability and excellent adhesion performance on apolar surfaces the product is suitable for a wide variety of in- and outdoor applications.

Applied to plastic bottles the products show good squeezability performance.

Products pass the seawater exposure test of BS5609 part II.

Adhesive

A special purpose permanent, rubber based adhesive.

Liner

BG45 white, a super calendered glassine paper.

Basis Weight 72g/m² ISO 536
Caliper 0.063mm ISO 534
Transparency 44% DIN 53147

Laminate

Total Caliper 0.165

PERFORMANCE DATA

Initial Tack	680N/m	FTM 9 glass
Peel Adhes. 90°	480N/m	FTM 2 st.st.

Min. appl. temp. +5 °C

N.B. : All data to be considered as typical values.

Polyurethane Dome

The resin dome is a two part polyurethane material, which when dispensed onto a surface with a defining edge to it, will flow out and by the action of surface tension will stop at the edge giving a lens type shape with a lens height of between 1.5mm and 1.9mm.

The two part resin cures by exothermic action of the material and only requires drying by ambient air temperature.

When cured fully after 24 hours the resin dome is inert and presents no hazard to individuals or the environment.

The quality of the finished dome is dependent on its application and the condition in which it is applied

Doming resin is of automotive grade and has been tested in conditions which give it a 3 to 5 year life and will not yellow when exposed to UV light

Alan Northrop Ltd Issue: 1 (Mar 2011)

Appendix 6: Ohyo User Experience Survey October 2012.

Q 01 Note: Question 1 is the name of the responder and is not shown here (there were a total of 18 fully completed questionnaire / surveys).						
Q 02 Gender						
	M / F	No. of	Percentage	Notes:		
i]	Male	9	50%	Equality in all things!		
ii]	Female	9	50%			
Q 03 Age						
	Age slots:	No. of	Percentage	Notes:		
i]	15 – 24	4	22.22%	A reasonable split in age differentials.		
ii]	25 – 44	6	33.33%			
iii]	45 – 64	5	27.78%			
iv]	65 plus	3	16.67%			
Q 04 First impressions of Ohyo in the shop						
	Question:	Agree Strongly	Agree	Disagree	Disagree Strongly	Notes:
i]	It was very clearly a collapsible water bottle.	9 (52.94%)	5 (29.41%)	3 (17.65%)	0 (0.00%)	Only 17 responses
ii]	The display was neat and appealing.	8 (50.00%)	7 (43.75%)	0 (0.00%)	1 (6.25%)	Only 16 responses
iii]	I was attracted to the product because it looked useful.	4 (23.53%)	9 (52.94%)	4 (23.53%)	0 (0.00%)	Only 17 responses
iv]	I was attracted to the product because it looked eco-friendly.	1 (5.88%)	7 (41.18%)	7 (41.18%)	2 (11.76%)	Only 17 responses
v]	<i>Give us your general impressions about the presentation in the shop:</i>	Please note: for Q 04 v] we have included every response as an individual, "stand alone" statement item! Only 1 person didn't respond and there are 40 such items or suggestions.				
Positive observations						
	" cool, modern, clean, simple, appealing, neat "	8	27 in total (67.50%)	" intriguing "		6
	" liked the colours "	5		" caught my eye "		3
	" liked the design / logo "	2		" was immediately interested "		1
	" space saving "	1		" my child wanted one "		1
Neutral observations						
	" did not collect from the shop "	3	27 in total (17.50%)	" it was a new product / amongst other goods "		2
	" initially thought it was a baby product "	1		" near to the till "		1
Negative observations						
	" doubted collapsibility "	2	6 in total (15.00%)	" would prefer a clear colour with coloured top "		1
	" product is old fashioned "	1		" anti-plastic statement "		1
	" no explanation "	1				
Q 05 Tell us about the first time you used the Ohyo						

	Question:	Agree Strongly	Agree	Disagree	Disagree Strongly	Notes:
i]	I struggled to open the Ohyo initially as I did not realise I needed to let air in to open the bottle.	4 (22.22%)	5 (27.78%)	7 (38.89%)	2 (11.11%)	All 18 responded
ii]	Despite the instruction under the nozzle, I spilled water when I drank for the first time as I did not realise the nozzle needs to be clicked in past the vertical position to seal ready for drinking.	5 (27.78%)	5 (27.78%)	7 (38.89%)	1 (5.56%)	All 18 responded
iii]	I spilled water in my bag as I did not realise the nozzle needed to be clicked back down into place to seal the bottle.	1 (5.56%)	0 (0.00%)	9 (50.00%)	8 (44.44%)	All 18 responded
iv]	I think clearer instructions are needed to inform the user how to use the Ohyo.	2 (11.11%)	6 (33.33%)	9 (50.00%)	1 (5.56%)	All 18 responded
v]	I don't think instructions are needed at all.	0 (0.00%)	4 (25.00%)	7 (43.75%)	5 (31.25%)	Only 16 responses
vi]	<i>Tell us a bit more about the first time you used the Ohyo:</i>	Please note: for Q 05 vi] we have included every response as an individual, "stand alone" statement item! 4 people didn't respond and there are 26 such items or suggestions.				
Positive observations						
	" good, fun, easy, user friendly "	6	12 in total (46.15%)	" no spillage or leaks "		3
	" bottle is a good size "	1		" likes the colour "		1
	" liked the spout "	1				
Neutral observations						
	" had a play "	1	1 in total (3.85%)			
Negative observations						
	" poor water flow / poor suction "	6	13 in total (50.00%)	" struggled to expand the bottle "		2
	" funny noises "	2		" no instructions "		1
	" threw it away "	1		" a strange drinking experience "		1

Q 06 Tell us about the first 4 days when you stored the Ohyo upright in your bag.						
	Question:	Agree Strongly	Agree	Disagree	Disagree Strongly	Notes:
i]	The Ohyo worked well and did not leak.	8 (44.44%)	10 (55.56%)	0 (0.00%)	0 (0.00%)	All 18 responded
ii]	I felt confident storing it in my bag with other items.	5 (27.78%)	7 (38.89%)	5 (27.78%)	1 (5.56%)	All 18 responded
iii]	<i>Please tell us if you had any problems:</i>	Please note: for Q 06 iii] we have included every response as an individual, "stand alone" statement item! 9 people didn't respond and there are 10 such items or suggestions.				
Positive observations						
	" there were no problems "	6	6 in total (60.00%)			
Neutral observations						
	THERE WERE NO COMMENTS	0	0 in total (0.00%)			
Negative observations						
	" what about sharp objects in my bag? "	1	4 in total (40.00%)	" anti-plastic statement "		1
	" not that much bottle capacity "	1		" not confident regarding items such as i-pod, mobile in bag "		1

Q 07 Tell us about the last 3 days when you stored the Ohyo upside down in your bag.							
	Question:	Agree Strongly	Agree	Disagree	Disagree Strongly	Notes:	
i]	The Ohyo worked well and did not leak.	10 (55.56%)	8 (44.44%)	0 (0.00%)	0 (0.00%)	All 18 responded	
ii]	I felt confident storing it in my bag with other items.	5 (27.78%)	9 (50.00%)	3 (16.67%)	1 (5.56%)	All 18 responded	
iii]	<i>Please tell us if you had any problems:</i>	Please note: for Q 07 iii] we have included every response as an individual, "stand alone" statement item! 11 people didn't respond and there are 8 such items or suggestions.					
Positive observations							
	" there were no problems "	<u>7</u>	7 in total (87.50%)				
Neutral observations							
	THERE WERE NO COMMENTS	<u>0</u>	0 in total (0.00%)				
Negative observations							
	" was worried that the nozzle could become dislodged "	<u>1</u>	1 in total (12.50%)				
Q 08 Is there anything else you would like to tell us about your experience with the Ohyo.							
i]	Please note: for Q 08 i] we have included every response as an individual, "stand alone" statement item! 7 people didn't respond and there are 28 such items or suggestions.						
Positive observations							
	" very impressed, fun / enjoyed, good concept etc., will continue to use.... "	<u>9</u>	11 in total (39.29%)	" saw benefit whilst hiking or camping "	<u>1</u>		
	" liked the colours "	<u>1</u>					
Neutral observations							
	" perhaps another catch to secure the nozzle? "	<u>1</u>	3 in total (10.71%)	" could the BPA issues be better advertised? "	<u>1</u>		
	" perhaps more colours? "	<u>1</u>					
Negative observations							
	" prefer metal / anti-plastic "	<u>2</u>	14 in total (50.00%)	" concerns over "the bends" (corrugated portion) "	<u>1</u>		
	" not for urban use "	<u>1</u>			" will not continue to use "	<u>1</u>	
	" would prefer a clear colour base with a coloured top "	<u>1</u>			" not so attractive for adults "	<u>1</u>	
	" expensive "	<u>1</u>			" not so eco-friendly "	<u>1</u>	
	" suggest better instructions "	<u>1</u>			" difficulty in drying after washing "	<u>1</u>	
	" the lid scratched easily "	<u>1</u>			" difficult to open "	<u>1</u>	
	" not a standard fit for bike / car "	<u>1</u>					