

**Evaluation of  
53mm Child Resistant Closure  
as a poison prevention package for  
eBottles**

by

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January 4, 2017

eBottles Incorporated  
4286 West Main St,  
Jupiter, FL 33458.

Attention: Robert Lerman;

Below is Bitner Associates Final Report 53mm CRC as a Poison Protection Package.  
The test units were evaluated using the Consumer Product Safety Commission Protocol and Standards.  
Study indicates 53mm CRC fulfills requirements for a Poison Prevention Package as per current Code of Federal Regulations (C.F.R.) Title 16, Part 1700.20.

Sincerely,  
**BITNER ASSOCIATES, Inc.**

A handwritten signature in black ink, appearing to read "John Bitner".

John Bitner  
President

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## I. SUMMARY

Report to:  
E-Bottles Incorporated  
1521 Cades Bay  
Jupiter, Florida 33458

Samples of: 53mm CRC  
Contract No.: R. Lerman verbal - 12/16/2016  
Samples Received: December 24, 2016  
Submitted by: Robert Lerman

### Objective

eBottles submitted 53mm CRC to determine if the bottle/closure would be compliant with the Consumer Product Safety Commission's current protocol and standards for poison prevention packaging Code of Federal Regulations (C.F.R.) Title 16, Part 1700.20.

### Procedures

The protocol for evaluation of packaging for poison prevention (current C.F.R. Title 16, Part 1700.20) was strictly adhered to for this study.

### Panelists

During this study 100 children (42 to 51 months of age) and 100 seniors (50 to 70 years-old, 70% female) were employed.

### Results

Results of the study indicate that the 53mm CRC meets the standards for poison prevention packaging per current C.F.R. Title 16 Part 1700.20.

## II. INTRODUCTION

**eBottles** wished to determine if 53mm CRC fulfills Consumer Product Safety Commission's (CPSC) current standards and protocol for poison prevention packaging set forth in Code of Federal Regulations Title 16, Part 1700.20. Bitner Associates is recognized testing laboratory facility for testing child-resistant packaging according to CPSC protocol. They were requested to evaluate this package using the above-mentioned protocol.

Bitner Associates is an independent testing facility and has been evaluating child-resistant packaging for both industry and government for over twenty-five years. The company is recognized as a leader in the field by having employed hundreds of thousands of panelists and evaluated thousands of packaging concepts for child-resistance. Bitner Associates utilizes standard operating procedures (SOP's) along with quality assurance programs consistent with those acknowledged and supported by the Consumer Product Safety Commission and Environmental Protection Agency.

During this evaluation, the packaging was tested with panels consisting of 100 seniors (50 to 70 years old, 70% female) and 100 children (41 to 52 months of age, evenly distributed) obtained from nursery schools, day care centers and civic groups. Data derived from the study were assembled in a meaningful fashion and reviewed to determine whether the packaging met the cited standards for poison prevention packaging presented herein.

### **III. PROCEDURE**

The following standard and protocol was adhered to in this study.

#### **Protocol**

Code of Federal Regulations Title 16, Part 1700:

1700.20 Testing procedure for testing special packaging.

(a) Test protocols - (1) General requirements - (i) Requirements for packaging. As specified in §1700.15(b), special packaging is required to meet the child test requirements and the applicable adult test requirements of this §1700.20.

(ii) Condition of packages to be tested. (A) Tamper-resistant feature. Any tamper-resistant feature of the package to be tested shall be removed prior to testing unless it is part of the package's child-resistant design. Where a package is supplied to the consumer in an outer package that is not part of the package's child-resistant design, one of the following situations applies.

(1) In the child test, the package is removed from the outer package, and the outer package is not given to the child.

(2) In both the adult tests, if the outer package bears instructions for how to open or properly re-secure the package, the package shall be given to the test subject in the outer package. The time required to remove the package from the outer packages is not counted in the times allowed for attempting to open and, if appropriate, reclose the package.

(3) In both the adult tests, if the outer package does not bear any instructions relevant to the test, the package will be removed from the outer package, and the outer package is not given to the test subject.

(B) Re-closable packages - adult tests. In both the adult tests, re-closable packages, if assembled by the testing agency, shall be properly secured at least 72 hours prior to beginning the test to allow the materials (e.g., the closure liner) to "take a set." If assembled by the testing agency, torque-dependent closures shall be secured at the same on-torque as applied on the packaging line. Application torques must be recorded in the test report. All packages shall be handled so that no damage or jarring will occur during storage or transportation. The packages shall not be exposed to extreme conditions of heat or cold. The packages shall be tested at room temperature.

(2) Child test - (i) Test subjects. (A) Selection criteria. Use from 1 to 4 groups of 50 children, as required under the sequential testing criteria in Table 1. No more than 20 percent of the children in each group shall be tested at or obtained from any given site. Each group of children shall be randomly selected as to age, subject to the limitations set forth below. Thirty percent of the children in each group shall be of age 42-44 months, 40 percent of the children in each group shall be of age 45-48 months, and 30 percent of the children in each group shall be of age 49-51 months. The children's ages shall be calculated as follows:

(1) Arrange birth date and test date by numerical designations for month, day, and year.

(2) Subtract the month, day, and year numbers for the birth date from the respective numbers for the test date. This may result in negative numbers for the months or days.

(3) Multiply the difference in years by 12 to obtain the number of months in the difference in years, and add this value to the number of months that was obtained when the birth date was subtracted from the test date. This figure either will remain the same or be adjusted up or down by 1 month, depending on the number of days obtained in the subtraction of the birth date from the test date.

(4) If the number of days obtained by subtracting the days in the birth date from the days in the test date is +16 or more, 1 month is added to the number of months obtained above. If the number of days is -16 or less, subtract 1 month. If the number of days is between -15 and +15 inclusive, no change is made in the number of months.

(B) Gender distribution. The difference between the number of boys and the number of girls in each age range shall not exceed 10 percent of the number of children in that range. The children selected should have no obvious or overt physical or mental handicap. Each child's parent or guardian shall read and sign a consent form prior to the child's participation. (The Commission staff will not disregard the results of tests performed by other parties simply because informed consent for children is not obtained.)

(ii) Test failures. A test failure shall be any child who opens the special packaging or

**Table 1. Number of Openings: Acceptance (Pass), Continue Testing, and Rejection (Fail) Criteria for the First 5 minutes and the Full 10 minutes of the Children's Protocol Test**

Test Panel	Cumulative number of children	Package Openings					
		First 5 minutes			Full 10 minutes		
		Pass	Continue	Fail	Pass	Continue	Fail
1....	50	0 – 3	4 – 10	11+	0 – 5	6 – 14	15+
2....	100	4 – 10	11 – 18	19+	6 – 15	16 – 24	25+
3....	150	11 – 18	19 – 25	26+	16 – 25	26 – 34	35+
4....	200	19 – 30	.....	31+	26 – 40	.....	41+

gains access to its contents. In the case of unit packaging, however, a test failure shall be any child who opens or gains access to the number of individual units which constitute the amount that may produce serious personal injury or serious illness, or a child who opens or gains access to more than 8 individual units, whichever number is lower, during the full 10 minutes of testing. The number of units a child opens or gains access to is interpreted as the individual units from which the product has been or can be removed in whole or in part. The determination of the amount of substance that may produce serious personal injury or serious illness shall be based on a 25-pound child. Manufacturers or packagers intending to use unit packaging for a substance requiring special packaging are requested to submit such toxicological data to the Commission's Office of Compliance.

(iii) Sequential test. The sequential test is initially conducted using 50 children, and, depending on the results, the criteria in Table 1 determine whether the package is either child-resistant or not child-resistant or whether further testing is required. Further testing is required if the results are inconclusive and involves the use of one or more additional groups of 50 children each, up to a maximum of 200 children. No individual shall administer the test to more than 30 percent of the children tested in each group. Table 1 gives the acceptance (pass), continue

testing, and rejection (fail) criteria to be used for the first 5 minutes and the full 10 minutes of the children's test. If the test continues past the initial 50-child panel, the package openings shown in Table 1 are cumulative.

(iv) Test procedures. The children shall be divided into groups of two. The testing shall be done in a location that is familiar to the children; for example, their customary nursery school or regular kindergarten. No child shall test more than two special packages. When more than one special package is being tested, each package shall be of a different ASTM type and they shall be presented to the paired children in random order. This order shall be recorded. The children shall be tested by the procedure incorporated in the following test instructions:

### **Standardized Child Test Instructions**

1. Re-closable packages, if assembled by the testing agency, shall be properly secured at least 72 hours prior to the opening described in instruction number 3 to allow the materials, (e.g. the closure liner), to "take a set." Application torques must be recorded in the test report.

2. All packages shall be handled so that no damage or jarring will occur during storage or transportation. The packages shall not be exposed to extreme conditions of heat or cold. The packages shall be tested at room temperature.

3. Re-closable packages shall be opened and properly re-secured one time (or more if appropriate), by the testing agency or other adult prior to testing. The opening and re-securing shall not be done in the presence of the children. (In the adult-re-securing test, the tester must not open and re-secure the package prior to the test.) If multiple openings/re-securings are to be used, each of four (4) testers shall open and properly re-secure one fourth of the packages once and then shall open and properly re-secure each package a second, third, fourth, through tenth (or other specified number) time, in the same sequence as the first opening and re-securing. The packages shall not be opened and re-secured again prior to testing. The name of each tester and the package numbers that he/she opens and re-secures shall be recorded and reported. It is not necessary for the tester to protocol test the packages that they opened and re-secured.

4. The child shall have no overt physical or mental handicaps. No child with a permanent or temporary illness, injury, or handicap that would interfere with his/her effective participation shall be included in the test.

5. The testing shall take place in a well-lighted location that is familiar to the children and that is isolated from all distractions.

6. The tester, or another adult, shall escort a pair of children to the test area. The tester shall seat the two children so that there is no visual barrier between the children and the tester.

7. The tester shall talk to the children to make them feel at ease.

8. The children shall not be given the impression that they are in a race or contest. They are not to be told that the test is a game or that it is fun. They are not to be offered a reward.

9. The tester shall record all data prior to, or after, the test so that full attention can be on the children during the test period.

10. The tester shall use a stopwatch(s) or other timing device to time the number of seconds it takes the child to open the package and to time the 5-minute test periods.

11. To begin the test, the tester shall hand the children identical packages and say, "PLEASE TRY TO OPEN THIS FOR ME."



12. If a child refuses to participate after the test has started, the tester shall reassure the child and gently encourage the child to try. If the child continues to refuse, the tester shall ask the child to hold the package in his/her lap until the other child is finished. This pair of children shall not be eliminated from the results unless the refusing child disrupts the participation of the other child.

13. Each child shall be given up to 5 minutes to open his/her package. The tester shall watch the children at all times during the test. The tester shall minimize conversations with the children as long as they continue to attempt to open their packages. The tester shall not discourage the children verbally or with facial expressions. If a child gets frustrated or bored and stops trying to open his/her package, the tester shall reassure the child and gently encourage the child to keep trying (e.g., "please try to open the package").

14. The children shall be allowed freedom of movement to work on their packages as long as the tester can watch both children (e.g., they can stand up, get down on the floor, or bang or pry the package).

15. If a child is endangering himself or others at any time, the test shall be stopped and the pair of children eliminated from the results.

16. The children shall be allowed to talk to each other about opening the packages and shall be allowed to watch each other try to open the packages.

17. A child shall not be allowed to try to open the other child's package.

18. If a child opens his/her package, the tester shall say, "THANK YOU," take the package from the child and put it out of the child's reach. The child shall not be asked to open the package a second time.

19. At the end of the 5-minute period, the tester shall demonstrate how to open the package if either child has not opened his or her package. A separate "demo" package shall be used for the demonstration.

20. Prior to beginning the demonstration, the tester shall ask the children to set their packages aside. The children shall not be allowed to continue to try to open their packages during the demonstration period.

21. The tester shall say, "WATCH ME OPEN MY PACKAGE."

22. Once the tester gets the children's full attention, the tester shall hold the demo package approximately two feet from the children and open the package at a normal speed as if the tester were going to use the contents. There shall be no exaggerated opening movements.

23. The tester shall not discuss or describe how to open the package.

24. To begin the second 5-minute period, the tester shall say, "NOW YOU TRY TO OPEN YOUR PACKAGES."

25. If one or both children have not used their teeth to try to open their packages during the first 5 minutes, the tester shall say immediately before beginning the second 5-minute period, "YOU CAN USE YOUR TEETH IF YOU WANT TO." This is the only statement that the tester shall make about using teeth.

26. The test shall continue for an additional 5 minutes or until both children have opened their packages, whichever comes first.

27. At the end of the test period, the tester shall say, "THANK YOU FOR HELPING." If children were told that they could use their teeth, the tester shall say, "I KNOW I TOLD YOU THAT YOU COULD USE YOUR TEETH TODAY, BUT YOU SHOULD NOT PUT THINGS LIKE THIS IN YOUR MOUTH

AGAIN." In addition, the tester shall say, "NEVER OPEN PACKAGES LIKE THIS WHEN YOU ARE BY YOURSELF. THIS KIND OF PACKAGE MIGHT HAVE SOMETHING IN IT THAT WOULD MAKE YOU SICK."

28. The children shall be escorted back to their classroom or other supervised area by the tester or another adult.

29. If the children are to participate in a second test, the tester shall have them stand up and stretch for a short time before beginning the second test. The tester shall take care that the children do not disrupt other tests in progress.

(3) Senior-adult panel - (i) Test subjects. Use a group of 100 senior adults. Not more than 24 percent of the senior adults tested shall be obtained from or tested at any one site. Each group of senior adults shall be randomly selected as to age, subject to the limitations set forth below. Twenty-five percent of the participants shall be 50-54 years of age, 25% of participants shall be 55-59 years of age, and 50% of the participants shall be 60-70 years old. Seventy percent of the participants of ages 50-59 and ages 60-70 shall be female (17 or 18 females shall be apportioned to the 50 - 54 years old age group). No individual tester shall administer the test to more than 35% of the senior adults tested. The adults selected should have no obvious or overt physical or mental disability.

(ii) Screening procedures. Participants who are unable to open the packaging being tested in the first 5-minute time period, are given a screening test. The screening tests for this purpose shall use two packages with conventional (not child-resistant (CR) or "special") closures. One closure shall be a plastic snap closure and the other a continuous threaded (CT) plastic closure. Each closure shall have a diameter of 28 mm  $\nabla$  18%, and the CT closures shall have been re-secured 72 hours before testing at 10 inch-pounds of torque. The containers for both the snap- and CT-type closures shall be round plastic containers, in sizes of 2 ounce  $\nabla$   $\frac{1}{2}$  ounce for the CT-type closure and 8 drams  $\nabla$  4 drams for the snap-type closure. Persons who cannot open and close both of the screening packages in 1-minute screening tests shall not be counted as participants in the senior-adult panel.

(iii) SAUE. The senior adult use effectiveness (SAUE) is the percentage of adults who both opened the package in the first (5-minute) test period and opened and (if appropriate) properly re-secured the package in the 1-minute test period.

(iv) Test procedures. The senior adults shall be tested individually, rather than in groups of two or more. The senior adults shall receive only such printed instructions on how to open and properly secure the special packaging as will appear on or accompany the package as it is delivered to the consumer. The senior-adult panel is tested according to the procedure incorporated in the following senior-adult panel test instructions:

### **Test Instructions for Senior Test**

The following test instructions are used for all senior tests. If non-re-closable packages are being tested, the commands to close the package are eliminated.

1. No adult with a permanent or temporary illness, injury, or disability which would interfere with his/her effective participation shall be included in the test.

2. Each adult shall read and sign a consent form prior to participating. Any appropriate language from the consent form may be used to recruit potential participants. The form shall include the basic elements of informed consent as defined in 16 CFR 1028.116. Before

beginning the test, the tester shall say, "PLEASE READ AND SIGN THIS CONSENT FORM." If an adult cannot read the consent form for any reason (forgot glasses, illiterate, etc.), he/she shall not participate in the test.

3. Each adult shall participate individually and not in the presence of other participants or onlookers.

4. The tests shall be conducted in well-lighted and distraction-free areas.

5. Records shall be filled in before or after the test, so that the tester's full attention is on the participant during the test period. Recording the test times to open and re-secure the packages are the only exceptions.

6. To begin the first 5-minute test period, the tester says, "I AM GOING TO ASK YOU TO OPEN AND PROPERLY CLOSE THESE TWO IDENTICAL PACKAGES ACCORDING TO THE INSTRUCTIONS FOUND ON THE CAP." (Specify other instruction locations if appropriate.)

7. The first package is handed to the participant by the tester, who says, "PLEASE OPEN THIS PACKAGE ACCORDING THE DIRECTIONS OF THE CAP." (Specify other instruction locations if appropriate.) If the package contains product, the tester shall say, "PLEASE EMPTY THE (PILLS, TABLETS, CONTENTS, ETC.) INTO THIS CONTAINER." After the participant opens the package, the tester says, "PLEASE CLOSE THE PACKAGE PROPERLY, ACCORDING TO THE INSTRUCTIONS OF THE CAP." (Specify other instruction locations if appropriate)

8. Participants are allowed up to 5 minutes to read the instructions and open and close the package. The tester uses a stopwatch(s) or other timing device to time the opening and re-securing times. The elapsed times in seconds to open the package and to close the package are recorded on the data sheet as two separate times.

9. After 5 minutes, or when the participant has opened and closed the package, whichever comes first, the tester shall take all test materials from the participant. The participant may remove and replace the closure more than once if the participant initiates these actions. If the participant does not open the package and stops trying to open it before the end of the 5-minute period, the tester shall say, "ARE YOU FINISHED WITH THAT PACKAGE, OR WOULD YOU LIKE TO TRY AGAIN?" If the participant indicates that he/she is finished or cannot open the package and does not wish to continue trying skip to Instruction 13.

10. To begin the second test period, the tester shall give the participant another, but identical, package and say, "THIS IS AN IDENTICAL PACKAGE. PLEASE OPEN IT ACCORDING TO THE INSTRUCTIONS ON THE CAP." (Specify other instruction locations if appropriate.) If the package contains product, the tester shall say, "PLEASE EMPTY THE (PILLS, TABLETS, CONTENTS, ETC.) INTO THIS CONTAINER." After the participant opens the package, the tester says, "PLEASE CLOSE THIS PACKAGE PROPERLY, ACCORDING TO THE INSTRUCTIONS ON THE CAP." (Specify other instruction locations if appropriate.)

11. The participants are allowed up to 1 minute (60 full seconds) to open and close the package. The elapsed times in seconds to open and to close the package are recorded on the data sheet as two separate times. The time that elapses between the opening of the package and the end of the instruction to close the package is not counted as part of the 1-minute test time.

12. After the 1-minute test, or when the participant has opened and closed the package, whichever comes first, the tester shall take all the test materials from the participant. The participant shall not be allowed to handle the package again. If the participant does not open the package and stops trying to open it before the end of the 1-minute period, the tester shall say, "ARE YOU FINISHED WITH THAT PACKAGE, OR WOULD YOU LIKE TO TRY AGAIN?" If the participant indicates that he/she is finished or cannot open the package and does not wish to continue trying, this shall be counted as a failure of the 1-minute test.

13. Participants who do not open the package in the first 5-minute test period are asked to open and close two non-child-resistant screening packages. The participants are given a 1-minute test period for each package. The tester shall give the participant a package and say, "PLEASE OPEN AND PROPERLY CLOSE THIS PACKAGE." The tester records the time for opening and closing, or 61 seconds, whichever is less, on the data sheet. The tester then gives the participant the second package and says, "PLEASE OPEN AND PROPERLY CLOSE THIS PACKAGE." The times to open and re-secure or 61 seconds, whichever is less, shall be recorded on the data sheet.

14. Participants who cannot open and re-secure both of the non-child-resistant screening packages are not counted as part of the 100-senior panel. Additional participants are selected and tested.

15. No adult may participate in more than two tests per sitting. If a person participates in two tests, the packages tested shall not be the same ASTM type of package.

16. If more adults in a sex or age group are tested than are necessary to determine SAUE, the last person(s) tested shall be eliminated from that group.

(4) Younger-adult panel. (i) One hundred adults, age 18 to 45 inclusive, with no overt physical or mental handicaps, and 70 percent of whom are female, shall comprise the test panel for younger adults. Not more than 35% of adults shall be obtained or tested at any one site. No individual tester shall administer the test to more than 35% of the adults tested. The adults shall be tested individually, rather than in groups of two or more. The adults shall receive only such printed instructions on how to open and properly re-secure the special packaging as will appear on the package as it is delivered to the consumer. Five minutes shall be allowed to complete the opening and, if appropriate, the re-securing process.

(ii) Records shall be kept of the number of adults unable to open and of the number of the other adults tested who fail to properly re-secure the special packaging. The number of adults who successfully open the special packaging and then properly re-secure the special packaging (if re-securing is appropriate) is the percent of adult-use effectiveness of the special packaging. In the case of unit packaging, the percent of adult-use effectiveness shall be the number of adults who successfully open a single (unit) package.

(iii) Adult-use effectiveness of not less than 90 percent.

## **IV. TEST PARAMETERS**

### The Package

Test packages were 53mm CRC. For purposes of this evaluation, all units tested were tested empty.

**Opening Directions:**  $\implies$  TO OPEN PUSH AND TURN  $\longleftarrow$  CLOSE TIGHTLY

### Panelists

In the child testing phase of this study, 100 children between the ages of 42 - 51 months distributed into three age groups (42-44, 45-48, and 49-51 months, distributed proportioned by age and gender) were employed. The 100 Bottles used for child testing were previously tested by seniors as required by CFR Title 16 Part 1700.20.

Seniors (100) employed in the study also satisfied the requirements of the protocol, with ages ranging from 50 to 70 years of age divided into three age groups (50-54, 55-59, and 60-70 years old with 70% female).

### Test supervisor(s)

Test supervisor(s) were instructed to conduct the evaluation of the packaging in strict accordance with the current C.F.R. Title 16, Part 1700.20. To ensure these procedures were adhered to, our complete quality system was followed, including periodic observations throughout the package evaluation.

### **SPECIFICATIONS:**

**Closure:** 53mm Polypropylene (PP)

**Inner Cap:** Polypropylene, clear

**Outer Cap:** Polypropylene, black

## **V. RESULTS AND DISCUSSION**

Results of this study appear in the tables section of the report. These tables represent a compilation of all data obtained during the study. For clarity in presentation and discussion of this information, the following features will be used as the major points of discussion:

- Child-resistant effectiveness for children 42-51 months.
- Senior-use effectiveness – Senior Re-securing
- Adult Re-securing Test
- Meeting current Code of Federal Regulations Title 16, Part 1700.20

### Child-resistant effectiveness

Results of the package evaluation by the 100 child panelists aged 42-51 months appear in Table 1 of the report. From Table 1 it will be noted that none of the children opened the package before demonstration and none of the children could remove the closure following demonstration for a total of 0 successful child panelists. This represents a child-resistant effectiveness of **100%**.

### Senior Adult Use Effectiveness

Senior panel consisted of 70 females and 30 males. Results of the senior test appear in Table 2 of this report. A total of 25 of the 25 seniors in the 50 to 54-year-old age group were successful in opening the first package and opening and properly closing the second package, 25 of the 25 seniors in the 55 to 59-year-old age group were successful, and 50 of the 50 seniors were successful in the 60 to 70-year-old age group. The SAUE was calculated at **100%**.

### Meeting current C.F.R. Title 16, Part 1700.20.

eBottles 53mm CRC Consumer Product Safety Report meets standards for poison prevention packaging evaluation per current C.F.R. Title 16, Part 1700.02.

## **CONCLUSION**

The data presented in report demonstrates that the 53mm CRC meets requirements for poison prevention packaging according to current Code of Federal Regulations Title 16, Part 1700.20. Package performed well for senior adults, and no children could defeat it.

EVALUATION OF 53mm CRC AS A CHILD-RESISTANT PACKAGE

Table 1. Evaluated by children 42 to 51 months of age for child resistant effectiveness

Age in Months	Males	Females	Total	Successful Panelists				
				Before Demonstration		After Demonstration		Total
				Males	Females	Males	Females	
42-44	14	16	30	0	0	0	0	0
45-48	20	20	40	0	0	0	0	0
49-51	14	16	30	0	0	0	0	0
<b>TOTAL</b>	<b>48</b>	<b>52</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**CHILD-RESISTANT EFFECTIVENESS = 100%**

CHILD DATA: 42 – 44 months							
	PKG#	AGE	M/F	DoB	Tester	location	COMMENTS
1.	02	42	M	6/18/2013	JF	AC	Rolls the bottle on table
2.	04	44	M	4/21/2013	JF	AC	Shakes bottle
3.	06	43	M	5/16/2013	JF	AC	Twist cap
4.	08	43	M	5/23/2016	JF	AC	Rolls the bottle on table
5.	10	44	M	4/19/2013	JF	AC	
6.	12	43	M	5/19/2013	JF	AC	Rolls in hands
7.	14	42	M	6/23/2013	JF	AC	
8.	16	44	M	4/29/2013	JF	AC	Twist cap
9.	18	42	M	6/26/2016	JF	AC	“This is hard”
10.	20	43	M	6/01/2016	JF	AC	“Can u do it for me”
11.	22	44	M	4/20/2013	JF	PA	
12.	24	44	M	4/26/2013	JF	PA	Rolls the bottle on table
13.	26	43	M	5/14/2013	JF	PA	Twist cap
14.	28	42	M	6/30/2013	JF	PA	
15.	30	44	F	4/22/2016	JF	PA	Put in mouth

<b>CHILD DATA: 42 – 44 months continued</b>							
	<b>PKG#</b>	<b>AGE</b>	<b>M/F</b>	<b>DoB</b>	<b>Tester</b>	<b>Location</b>	<b>COMMENTS</b>
16.	32	42	F	6/29/2013	JBU	PA	Put in mouth
17.	34	44	F	4/23/2013	JBU	PA	Shakes bottle
18.	36	43	F	5/19/2013	JBU	PA	Twist cap
19.	38	43	F	5/26/2013	JBU	PA	Rolls bottle on hand
20.	40	44	F	4/30/2013	JBU	PA	
21.	42	43	F	5/22/2013	JBU	PLM	Rolls in hands
22.	44	42	F	6/19/2013	JBU	PLM	
23.	46	44	F	4/29/2013	JBU	PLM	Twist cap
24.	48	42	F	6/16/2013	JBU	PLM	Shakes bottle
25.	50	43	F	5/17/2013	JBU	PLM	Shakes bottle
26.	52	44	F	4/28/2013	JBU	PLM	
27.	54	44	F	4/16/2013	JBU	PLM	Put in mouth
28.	56	43	F	5/17/2013	JBU	PLM	Twist cap
29.	58	42	F	6/23/2013	JBU	PLM	
30.	60	44	F	4/28/2013	JBU	PLM	Rolls bottle on table

<b>CHILD DATA: 45 – 48 months</b>							
	<b>PKG#</b>	<b>AGE</b>	<b>M/F</b>	<b>DoB</b>	<b>Tester</b>	<b>Location</b>	<b>COMMENTS</b>
1.	62	45	M	3/23/2013	JF	TRM	Put in mouth
2.	64	45	M	3/22/2013	JF	TRM	Shakes bottle
3.	66	46	M	2/19/2013	JF	TRM	Twist cap
4.	68	46	M	2/22/2013	JF	TRM	Rolls bottle on table
5.	70	45	M	3/17/2013	JF	TRM	
6.	72	45	M	3/26/2013	JF	TRM	Rolls in hands
7.	74	47	M	1/30/2013	JF	TRM	
8.	76	47	M	1/23/2013	JF	TRM	Twist cap
9.	78	45	M	3/29/2013	JF	TRM	“This is hard”
10.	80	46	M	2/27/2013	JF	TRM	Rolls bottle on table
11.	82	45	M	3/21/2013	JF	FNM	
12.	84	45	M	3/19/2013	JF	FNM	Put in mouth
13.	86	47	M	1/25/2013	JF	FNM	Twist cap
14.	88	46	M	2/20/2013	JF	FNM	
15.	90	48	M	12/21/2012	JF	FNM	Put in mouth
16.	92	48	M	12/28/2012	JBU	FNM	Put in mouth
17.	94	45	M	3/11/2013	JBU	FNM	“I don’t want to try”
18.	96	45	M	3/17/2013	JBU	FNM	Twist cap
19.	98	47	M	1/19/2013	JBU	FNM	Rolls bottle on table
20.	100	47	M	1/27/2013	JBU	FNM	
21.	102	46	F	2/23/2013	JBU	LT	Rolls in hands
22.	104	46	F	2/17/2013	JBU	LT	
23.	106	45	F	3/25/2013	JBU	LT	Twist cap



CHILD DATA: 45 – 48 months - continued							
	PKG#	AGE	M/F	DoB	Tester	Location	COMMENTS
24.	108	45	F	3/16/2013	JBU	LT	“This is hard”
25.	110	46	F	2/20/2013	JBU	LT	“Mine is broke”
26.	112	45	F	3/22/2013	JBU	LT	
27.	114	47	F	1/25/2013	JBU	LT	Put in mouth
28.	116	47	F	1/23/2013	JBU	LT	Twist cap
29.	118	46	F	2/12/2013	JBU	LT	
30.	120	46	F	2/23/2013	JBU	LT	Put in mouth
31.	122	48	F	12/21/2012	RB	FMP	Put in mouth
32.	124	48	F	12/26/2012	RB	FMP	Shakes bottle
33.	126	48	F	12/11/2012	RB	FMP	Twist cap
34.	128	45	F	3/26/2013	RB	FMP	Rolls bottle on table
35.	130	45	F	3/12/2013	RB	FMP	
36.	132	45	F	3/19/2013	RB	FMP	Rolls in hands
27.	134	47	F	1/18/2013	RB	FMP	
38.	136	47	F	1/31/2013	RB	FMP	Twist cap
39.	138	47	F	1/28/2013	RB	FMP	“This is hard”
40.	140	45	F	3/24/2013	RB	FMP	Rolls bottle on table

CHILD DATA: 49 – 51 months							
	PKG#	AGE	M/F	DoB	Tester	Location	COMMENTS
1.	142	49	M	11/19/2012	RB	TRT	Put in mouth
2.	144	49	M	11/27/2012	RB	TRT	Rolls bottle on table
3.	146	49	M	11/24/2012	RB	TRT	Rolls bottle on table
4.	148	50	M	10/21/2012	RB	TRT	Shakes bottle
5.	150	50	M	10/30/2012	RB	TRT	
6.	152	51	M	9/22/2012	DB	TRT	Rolls in hands
7.	154	49	M	11/20/2012	DB	TRT	
8.	156	51	M	9/18/2012	DB	TRT	Twist cap
9.	158	51	M	9/17/2012	DB	TRT	“This is hard”
10.	160	51	M	9/23/2012	DB	TRT	Rolls bottle on table
11.	162	49	M	11/17/2012	DB	TRTP	Rolls bottle on table
12.	164	49	M	11/23/2012	DB	TRTP	Put in mouth
13.	166	49	M	11/26/2012	DB	TRTP	Twist cap
14.	168	50	M	10/23/2012	DB	TRTP	
15.	170	50	F	10/15/2012	DB	TRTP	Put in mouth
16.	172	49	F	11/12/2012	DB	TRTP	“I don’t want to try”
17.	174	49	F	11/28/2012	DB	TRTP	Twist cap
18.	176	49	F	11/28/2012	DB	TRTP	Bites the bottle
19.	178	50	F	10/17/2012	DB	TRTP	
20.	180	51	F	9/21/2012	DB	TRTP	Rolls bottle on table
21.	182	51	F	9/19/2012	DB	CC	

CHILD DATA: 49 – 51 months continued							
	PKG#	AGE	M/F	DoB	Tester	Location	COMMENTS
22.	184	51	F	9/30/2012	DB	CC	
23.	186	50	F	10/29/2012	DB	CC	Rolls bottle on table
24.	188	49	F	11/23/2012	DB	CC	Rolls bottle on table
25.	190	50	F	10/31/2012	DB	CC	Rolls bottle on table
26.	192	49	F	11/18/2012	DB	CC	
27.	194	49	F	11/16/2012	DB	CC	“Can you do it”
28.	196	51	F	9/23/2012	DB	CC	
29.	198	51	F	9/17/2012	DB	CC	Plays with top
30.	200	49	F	11/19/2012	DB	CC	Shakes bottle

**EVALUATION OF 53mm CRC FOR SENIOR EFFECTIVENESS**

**Table 2. Package opening test evaluated by adults 50 to 70 years of age**

	Panelists Tested	Successful Panelists		TOTAL FAILURES
		First Opening	Second Opening and Second Closing	
50-54 years old:				
Females	17	17	17	0
Males	8	8	8	0
<b>Subtotal</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>0</b>
55-59 years old:				
Females	17	17	17	0
Males	8	8	8	0
<b>Subtotal</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>0</b>
60-70 years old:				
Females	35	35	35	0
Males	15	15	15	0
<b>Subtotal</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>0</b>
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>0</b>

**SENIOR-USE EFFECTIVENESS (SAUE) = 100%**

**ADULT RESECURING 100%**

<b>SENIOR ADULT: 50 – 54 YEARS</b>						
	<b>PKG#s</b>	<b>AGE</b>	<b>M/F</b>	<b>P/F</b>	<b>Times to Open</b>	<b>Tester</b>
1.	01/02	51	M	PASS	:04/:06 seconds	JR
2.	03/04	52	M	PASS	:08/:04	JBR
3.	05/06	52	M	PASS	:06/:04	JBU
4.	07/08	53	M	PASS	:05/:06	JBU
5.	09/10	53	M	PASS	:07/:08	JBU
6.	11/12	50	M	PASS	:09/:10	JR
7.	13/14	51	M	PASS	07/:08	JBR
8.	15/16	50	M	PASS	:06/:07	JBU
9.	17/18	51	F	PASS	:05/:06	JBU
10.	19/20	52	F	PASS	:06/:04	JR
11.	21/22	52	F	PASS	:08/:09	JBU
12.	23/24	50	F	PASS	:05/:04	JBR
13.	25/26	52	F	PASS	:04/:10	JBR
14.	27/28	51	F	PASS	:08/:09	JBR
15.	29/30	50	F	PASS	:07/:06	JBU
16.	31/32	51	F	PASS	:09/:09	JBU
17.	33/34	51	F	PASS	:06/:07	JR
18.	35/36	50	F	PASS	:07/:08	DB
19.	37/38	50	F	PASS	:08/:09	DB
20.	39/40	52	F	PASS	:10/:09	JR
21.	41/42	52	F	PASS	:08/:09	JBR
22.	43/44	53	F	PASS	:07/:09	JBR
23.	45/46	53	F	PASS	:06/:04	JBR
24.	47/48	54	F	PASS	:07/:05	DB
25.	49/50	50	F	PASS	:06/:06	JR

<b>SENIOR ADULT: 55 – 59 YEARS</b>						
	<b>PKG#s</b>	<b>AGE</b>	<b>M/F</b>	<b>P/F</b>	<b>Times to Open</b>	<b>Tester</b>
1.	51/52	55	M	PASS	:06/:05	JBU
2.	53/54	55	M	PASS	:04/:06	JR
3.	55/56	57	M	PASS	:09/:05	JBR
4.	57/58	56	M	PASS	:04/:03	JBU

<b>SENIOR ADULT: 55 -59 YEARS - continued</b>						
	<b>PKG#s</b>	<b>AGE</b>	<b>M/F</b>	<b>P/F</b>	<b>Times to Open</b>	<b>Tester</b>
5.	59/60	55	M	PASS	:05/:06 seconds	JR
6.	61/62	56	M	PASS	:07/:05	JBR
7.	63/64	57	M	PASS	:06/:04	JBR
8.	65/66	57	M	PASS	:05/:06	JBR
9.	67/68	58	F	PASS	:08/:04	JBR
10.	69/70	58	F	PASS	:06/:09	JBR
11.	71/72	58	F	PASS	:06/:09	DB
12.	73/74	57	F	PASS	:10/:08	JR
13.	75/76	55	F	PASS	:08/:06	JR
14.	77/78	55	F	PASS	:07/:06	JBU
15.	70/80	56	F	PASS	:06/:08	JBU
16.	81/82	58	F	PASS	:10/:08	JBU
17.	83/84	55	F	PASS	:08/:09	DB
18.	85/86	55	F	PASS	:08/:09	JBU
19.	87/88	57	F	PASS	:09/:06	JR
20.	89/90	58	F	PASS	:07/:06	DB
21.	91/92	56	F	PASS	:09/:05	JBR
22.	93/94	57	F	PASS	:08/:09	JBR
23.	95/96	56	F	PASS	:07/:10	JBU
24.	97/98	55	F	PASS	:06/:09	DB
25.	99/100	58	F	PASS	:06/:05	DB

<b>SENIOR ADULT: 60 - 70 YEARS</b>						
	<b>PKG#s</b>	<b>AGE</b>	<b>M/F</b>	<b>P/F</b>	<b>Times to Open</b>	<b>Tester</b>
1.	101/102	69	M	PASS	:07/:06 seconds	JBR
2.	103/104	65	M	PASS	:08/:08	JR
3.	105/106	67	M	PASS	:05/:06	JBU
4.	107/108	60	M	PASS	:05/:09	JBU
5.	109/110	60	M	PASS	:06/:09	JBU
6.	111/112	62	M	PASS	:08/:06	JR
7.	113/114	63	M	PASS	:14/:08	DB
8.	115/116	60	M	PASS	:08/:11	DB
9.	117/118	60	M	PASS	:09/:08	JR
10.	119/120	65	M	PASS	:08/:09	JBR
11.	121/122	63	M	PASS	:06/:09	JBR
12.	123/124	64	M	PASS	:07/:09	DB
13.	125/126	64	M	PASS	:07/:08	JBU

<b>SENIOR ADULT: 60 - 70 YEARS continued</b>						
	<b>PKG#s</b>	<b>AGE</b>	<b>M/F</b>	<b>P/F</b>	<b>Times to Open</b>	<b>Tester</b>
14.	127/128	67	M	PASS	:07/:09 seconds	JR
15.	129/130	66	M	PASS	:07/:05	JBR
16.	131/132	67	F	PASS	:08/:05	JR
17.	133/134	60	F	PASS	:08/:07	JBR
18.	135/136	67	F	PASS	:06/:08	JBU
19.	137/138	65	F	PASS	:08/:09	DB
20.	139/140	64	F	PASS	:10/:08	DB
21.	141/142	68	F	PASS	:09/:07	JBR
22.	143/144	64	F	PASS	:08/:06	JBU
23.	145/146	63	F	PASS	:09/:05	JBU
24.	147/148	64	F	PASS	:12/:03	JBU
25.	149/150	63	F	PASS	:08/:04	JBR
26.	151/152	69	F	PASS	:06/:11	DB
27.	153/154	69	F	PASS	:07/:09	JBR
28.	155/156	63	F	PASS	:08/:10	DB
29.	157/158	61	F	PASS	:07/:09	JBU
30.	159/160	61	F	PASS	:10/:09	DB
31.	161/162	61	F	PASS	:12/:09	JBR
32.	163/164	69	F	PASS	:11/:08	DB
33.	165/166	64	F	PASS	:10/:09	JBU
34.	167/168	61	F	PASS	:12/:07	DB
35.	169/170	61	F	PASS	:09/:08	JBR
36.	171/172	61	F	PASS	:05/:09	DB
37.	173/174	60	F	PASS	:06/:11	JBR
38.	175/176	61	F	PASS	:08/:09	JBR
39.	177/178	60	F	PASS	:08/:10	DB
40.	179/180	61	F	PASS	:07/:09	JBU
41.	181/182	61	F	PASS	:08/:13	DB
42.	183/184	63	F	PASS	:11/:09	JBU
43.	185/186	62	F	PASS	:06/:08	JBR
44.	187/188	60	F	PASS	:05/:09	DB
45.	189/190	63	F	PASS	:08/:08	JBU
46.	191/192	60	F	PASS	:11/:07	JBU
47.	193/194	61	F	PASS	:08/:09	DB
48.	195/196	61	F	PASS	:08/:06	JBR
49.	197/198	60	F	PASS	:07/:06	DB
50.	199/200	62	F	PASS	:08/:09	JBU

## **GENERAL OBSERVATIONS:**

### **SENIORS**

The senior adults had no trouble opening and re-securing the closure. They made comments that similar structures have been around for a while. Testing was conducted between December 27, 2016 through December 29, 2016.

### **CHILDREN**

The children loved to roll this bottle in their hands and on the table. Almost instantly they asked for help opening the bottle. They had no concept of push down and turn. The children almost thought it was magic when the tester demonstrated how to open, and then could not achieve the same results. The children were tested from December 27 through December 29, 2016.

### **Test Supervisors**

- Jen Burton
- Jeremy Brooks
- Julie Ford
- Debra Brooks
- Jamie Rakowski
- Rae Buckner