Hydrogen Peroxide Permeability Test

Description	**See List**
Country of Origin	**Manufactured in India**
Date of Issue (yyyy-mm-dd)	**2023-06-19**

VWR Catalogue Number	Product Description
VWRI210-000043	VWR PETG SAMPLE BTTL 5ML ST CS100
VWRI210-000044	VWR PETG SAMPLE BTTL 10ML ST CS100
VWRI210-000045	VWR PETG SAMPLE BTTL 20ML ST CS100
VWRI210-000046	VWR PETG SAMPLE BTTL 5ML ST BULK CS500
VWRI210-000047	VWR PETG SAMPLE BTTL 10ML ST BULK CS500
VWRI210-000048	VWR PETG SAMPLE BTTL 20ML ST BULK CS500
VWRI210-000055	VWR PETG SQ BTTL 30ML ST CS96
VWRI210-000056	VWR PETG SQ BTTL 60ML ST CS96
VWRI210-000057	VWR PETG SQ BTTL 125ML ST CS48
VWRI210-000058	VWR PETG SQ BTTL 250ML ST CS48
VWRI210-000059	VWR PETG SQ BTTL 500ML ST CS24
VWRI210-000060	VWR PETG SQ BTTL 1L ST CS24
VWRI210-000061	VWR PETG SQ BTTL 2L ST CS12
VWRI210-000062	VWR PETG SQ BTTL 30ML NS CS96
VWRI210-000063	VWR PETG SQ BTTL 60ML NS CS96
VWRI210-000064	VWR PETG SQ BTTL 125ML NS CS48
VWRI210-000065	VWR PETG SQ BTTL 250ML NS CS48
VWRI210-000066	VWR PETG SQ BTTL 500ML NS CS24
VWRI210-000067	VWR PETG SQ BTTL 1L NS CS24
VWRI210-000068	VWR PETG SQ BTTL 2L NS CS12
VWRI210-000069	VWR PETG SQ BTTL 30ML ST BULK CS280
VWRI210-000070	VWR PETG SQ BTTL 60ML ST BULK CS200
VWRI210-000071	VWR PETG SQ BTTL 125ML ST BULK CS96

VWR Catalogue Number	Product Description
VWRI210-000072	VWR PETG SQ BTTL 250ML ST BULK CS60
VWRI210-000073	VWR PETG SQ BTTL 500ML ST BULK CS40
VWRI210-000074	VWR PETG SQ BTTL 30ML NS BULK CS280
VWRI210-000075	VWR PETG SQ BTTL 60ML NS BULK CS200
VWRI210-000076	VWR PETG SQ BTTL 125ML NS BULK CS96
VWRI210-000077	VWR PETG SQ BTTL 250ML NS BULK CS60
VWRI210-000078	VWR PETG SQ BTTL 500ML NS BULK CS40
VWRI210-000079	VWR PETG SQ BTTL ONLY 30ML ST BULK CS280
VWRI210-000080	VWR PETG SQ BTTL ONLY 60ML ST BULK CS200
VWRI210-000081	VWR PETG SQ BTTL ONLY 125ML ST BULK CS96
VWRI210-000082	VWR PETG SQ BTTL ONLY 250ML ST BULK CS60
VWRI210-000083	VWR PETG SQ BTTL ONLY 500ML ST BULK CS40
VWRI210-000084	VWR PETG SQ BTTL ONLY 1L ST BULK CS24

Test Method: Spray application of liquid hydrogen peroxide.

Materials:

1. PETG Media Bottles
2. Hydrogen Peroxide Solution (6%; Merck)
3. Indicator Strip (STERIS Life Sciences, USA)
4. Spraying Bottle

Procedure:

- Take five sets of samples covering all the size variants PETG square media bottles.
- Consider two samples from each size variant as test samples.
- Consider two samples from 60 ml and 1000 ml size variants to be used as negative control (non-reactive control; will not be exposed to H_2O_2).
- Consider two samples from 60 ml and 1000 ml size variants to be used as positive control (positive reaction control; must be exposed to H_2O_2).
- Label all the samples accordingly.

- Place one indicator strip inside each of the bottles and tighten the closures properly with closure size specific recommended torques.
- Closures of the positive samples should be kept loosen for allowing passing of H_2O_2.
- Place all the bottles inside a bio safety cabinet chamber except the negative control bottles and keep the cabinet's white light off during the experiment.
- Now, spray 6% H_2O_2 solution heavily over the outside surfaces of the bottles with the help of the bottle sprayer.
- Repeat the process for three times at an interval of 1 hr.
- Close the cabinet door and keep all the bottles inside the cabinet for overnight (16 hrs).
- Don't apply hydrogen peroxide to the negative control bottes and keep these bottles outside the cabinet for overnight.
- Next day morning, check the color change of the indicators of each set of the experimental bottles carefully and note down the observations for result interpretation.
- Indicator strips of negative control bottles should show no color change (remains purple) while the indicator strips of positive bottles (where closures are not tightened properly) should show complete or partial colour change (turned into yellow or orange) following overnight exposure. These observations will prove the effectiveness of the experiment.
- Now, if the indictor strips of all the test sample bottles show no colour change, then we can conclude/validate PETG bottles passed the test and are impermeable to hydrogen peroxide when closures are properly tightened.

Results

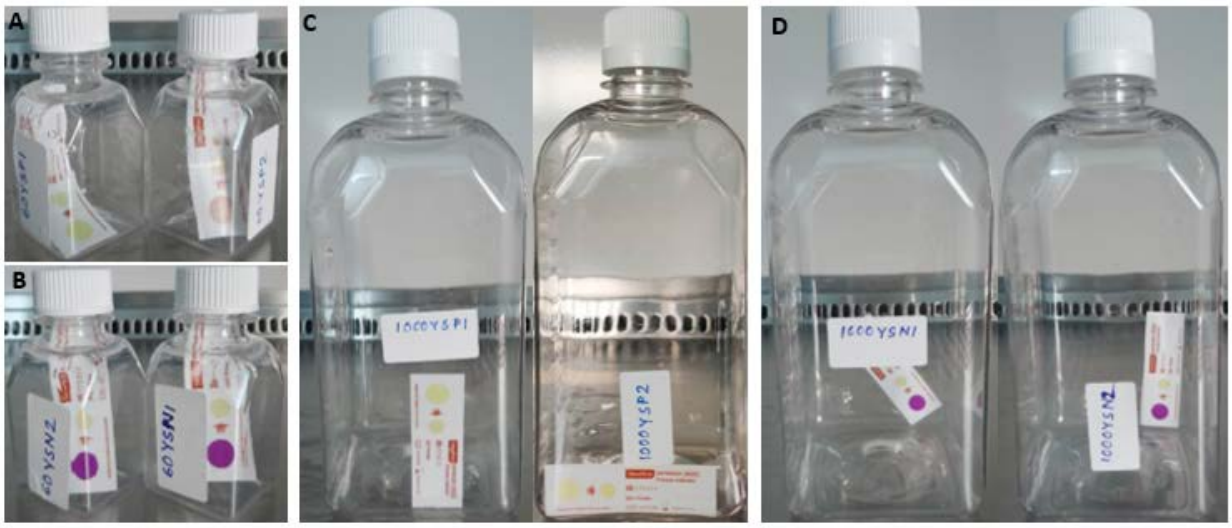
SL NO.	Sample ID	Sample Type	Sample Description	Test Observation	Result Interpretation
1.	60YSN1	Negative Control	60 ml PETG Media Bottle	No Colour Change	Negative (Control)
2.	60YSN2	Negative Control	60 ml PETG Media Bottle	No Colour Change	Negative (Control)
3.	60YSP1	Positive Control	60 ml PETG Media Bottle	Colour Change	Positive (Control)
4.	60YSP2	Positive Control	60 ml PETG Media Bottle	Colour Change	Positive (Control)
5.	1000YSN1	Negative Control	1000 ml PETG Media Bottle	No Colour Change	Negative (Control)
6.	1000YSN2	Negative Control	1000 ml PETG Media Bottle	No Colour Change	Negative (Control)

7.	1000YSP1	Positive Control	1000 ml PETG Media Bottle	Colour Change	Positive (Control)
8.	1000YSP2	Positive Control	1000 ml PETG Media Bottle	Colour Change	Positive (Control)
9.	60YST1	Test Sample	60 ml PETG Media Bottle	No Colour Change	Pass
10.	60YST2	Test Sample	60 ml PETG Media Bottle	No Colour Change	Pass
11.	250YST1	Test Sample	250 ml PETG Media Bottle	No Colour Change	Pass
12.	250YST2	Test Sample	250 ml PETG Media Bottle	No Colour Change	Pass
13.	500YST1	Test Sample	500 ml PETG Media Bottle	No Colour Change	Pass
14.	500YST2	Test Sample	500 ml PETG Media Bottle	No Colour Change	Pass
15.	1000YST1	Test Sample	1000 ml PETG Media Bottle	No Colour Change	Pass
16.	1000YST2	Test Sample	1000 ml PETG Media Bottle	No Colour Change	Pass
17.	2000YST1	Test Sample	2000 ml PETG Media Bottle	No Colour Change	Pass
18.	2000YST2	Test Sample	2000 ml PETG Media Bottle	No Colour Change	Pass

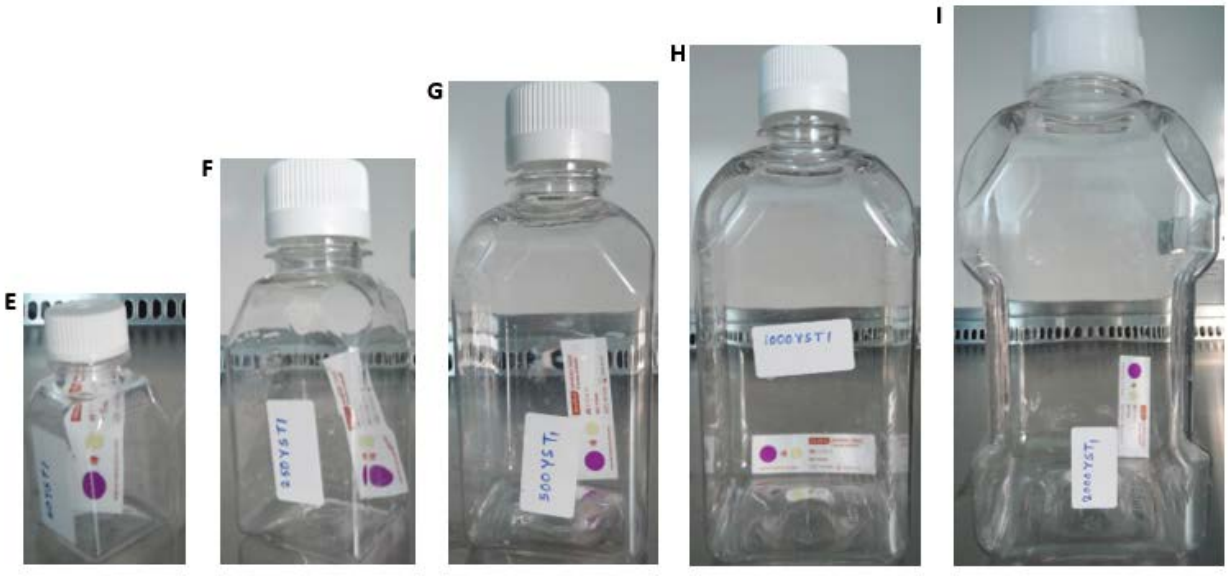
Conclusion: Based on the Confirmation from the Manufacturer PETG Square Media Bottles are impermeable (resistant) to hydrogen peroxide (6%) if capped properly. Therefore, PETG Square Bottles can be surface sterilized safely by hydrogen peroxide solution.

Annex

Results Illustrative Snapshots



A: 60 ml Bottles-Positive Control (Reactive), B: 60 ml Bottles-Negative Control (Non-reactive), C: 1000 ml Bottles-Positive Control, D: 1000 ml Bottles-Negative Control.



E: 60 ml Bottle-Test Sample, F: 250 ml Bottle-Test Sample, G: 500 ml Bottle-Test Sample, H: 1000 ml Bottle-Test Sample, I: 2000 ml Bottle- Test Sample

Test Samples:

Disclaimer: VWR states that this declaration will not discharge the user from their obligation to ensure the product is suitable for the intended use. The purpose of the product is for use in laboratory only.
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