



# THE BOMBAY TEXTILE RESEARCH ASSOCIATION

(Approved Body of the Ministry of Textiles, Govt. of India)

Lal bahadur Shastri Marg, Ghatkopar (West), Mumbai - 400086.

Phones : 022 - 6202 3636 / 6202 3600

Fax : 91-22-2500 0459 Email : btloffice@btraIndia.com / info@btraIndia.com

Website: www.btraIndia.com

**BTRA TEST LABORATORIES**

**TEST REPORT**



Report Details : <b>BTL/TR/B2401757/MWO/1/A/2024</b>	ULR No : <b>TC694124000001757F</b>	Date : <b>12-04-2024</b>
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## Anant Polymers

Plot No.26,Vartej GIDC,Vartej,

Bhavnagar

Pincode : 364060

Contact Person : Anant Polymers

### THE FOLLOWING SAMPLE(S) WAS/WERE SUBMITTED AND IDENTIFIED BY/ON BEHALF OF THE CUSTOMER AS :

Sample No	: <b>B2401757-1</b>	Product Description	: <b>PVC Pipe</b>
Received on	: <b>18-03-2024</b>	Total Number of Samples in Order	: <b>3</b>
Testing Period	: <b>18.03.2024 To 08.04.2024</b>	Reference	: <b>Letter dtd.14.3.2024</b>
Despatched on	:	Sample Type	: <b>MWO</b>
Project Name	:	Page	: <b>1 / 6</b>

### TEST RESULTS

Test Material	:	PVC Pipe
Sample Modification	:	Pipe cut open to create flat surface.
Date Of Test	:	13/06/2023
Name Of Test	:	Test for antibacterial activity and efficacy of plastic, metal, ceramic products (control req.) JIS Z 2801
Media Used	:	Nutrient broth, SCDDL Broth, Plate Count Agar
Test Organism	:	<i>Staphylococcus aureus</i> ATCC 6538P <i>Escherichia coli</i> ATCC 8739
Incubation Conditions	:	37± 2°C for 24-48 hrs
Procedure	:	Diluents: Phosphate buffer solution, Phosphate buffered physiological saline Culture density: 2.5 - 10 x10 <sup>5</sup> CFU/ml Volume of test inoculum inoculated: 0.4 ml

## Copper Treated Anti Microbial Pipe

Ashwini Govekar  
Microbiology  
(Authorised Signatory)



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<b>Test organism: <i>Staphylococcus aureus</i> ATCC 6538P</b>			
No. of bacteria from Untreated sample at 0 hour: $N(U_0) = 1.41 \times 10^4$		Log $N(U_0) = 4.15$	
No. of bacteria from Untreated sample at <b>24 hr</b> : $N(U_t) = 1.32 \times 10^4$		Log $N(U_t) = 4.12$	
Sample Code	No. of bacteria from Treated Sample at <b>24 hr</b> $N(A_t)$	Log $N(A_t)$	Antimicrobial activity $R = U_t - A_t$
<b>B2401757-1</b> <b>(PVC Pipe)</b>	14.17	1.15	2.97

<b>Test organism: <i>Escherichia coli</i> ATCC 8739</b>			
No. of bacteria from Untreated sample at 0 hour: $N(U_0) = 1.07 \times 10^4$		Log $N(U_0) = 4.03$	
No. of bacteria from Untreated sample at <b>24 hr</b> : $N(U_t) = 1.04 \times 10^4$		Log $N(U_t) = 4.02$	
Sample Code	No. of bacteria from Treated Sample at <b>24 hr</b> $N(A_t)$	Log $N(A_t)$	Antimicrobial activity $R = U_t - A_t$
<b>B233572-1</b> <b>(PVC Pipe)</b>	16.67	1.22	2.80

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P.S. : The value of Antimicrobial activity (R) obtained by the testing methods of this standard shall not be less than 2.0 for the antimicrobial products.

Conclusion : The Sample **B2401757-1 (PVC Pipe)** showed Antibacterial activity Value of **2.97** against *Staphylococcus aureus* ATCC 6538P, **2.80** against *Escherichia coli* ATCC 8739 at given time intervals, when tested by JIS Z 2801: 2010 Method.

-- End of the Report --

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**BTRA TEST LABORATORIES**

**TEST REPORT**



Report Details : <b>BTL/TR/B2401757/MWO/3/A/2024</b>	ULR No : <b>TC694124000001757F</b>	Date : <b>12-04-2024</b>
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## Anant Polymers

Plot No.26, Vartej GIDC, Vartej,

Bhavnagar

Pincode : 364060

Contact Person : Anant Polymers

### THE FOLLOWING SAMPLE(S) WAS/WERE SUBMITTED AND IDENTIFIED BY/ON BEHALF OF THE CUSTOMER AS :

Sample No : <b>B2401757-3</b>	Product Description : <b>Pipe</b>
Received on : <b>18-03-2024</b>	Total Number of Samples in Order : <b>3</b>
Testing Period : <b>18.03.2024 To 08.04.2024</b>	Reference : <b>Letter dtd.14.3.2024</b>
Despatched on :	Sample Type : <b>MWO</b>
Project Name :	Page : <b>4 / 6</b>

### TEST RESULTS

Test Material	: PVC Pipe
Sample Modification	: Pipe cut open to create flat surface.
Date Of Test	: 13/06/2023
Name Of Test	: Test for antibacterial activity and efficacy of plastic, metal, ceramic products (control req.) JIS Z 2801
Media Used	: Nutrient broth, SCDLP Broth, Plate Count Agar
Test Organism	: <i>Staphylococcus aureus</i> ATCC 6538P <i>Escherichia coli</i> ATCC 8739
Incubation Conditions	: 37± 2°C for 24-48 hrs
Procedure	: Diluents: Phosphate buffer solution, Phosphate buffered physiological saline Culture density: 2.5 - 10 x10 <sup>5</sup> CFU/ml Volume of test inoculum inoculated: 0.4 ml

## Ordinary Pipe

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<b>Test organism: <i>Staphylococcus aureus</i> ATCC 6538P</b>			
No. of bacteria from Untreated sample at 0 hour: $N(U_0) = 1.41 \times 10^4$		Log $N(U_0) = 4.15$	
No. of bacteria from Untreated sample at <b>24 hr</b> : $N(U_t) = 1.32 \times 10^4$		Log $N(U_t) = 4.12$	
Sample Code	No. of bacteria from Treated Sample at <b>24 hr</b> $N(A_t)$	Log $N(A_t)$	Antimicrobial activity $R = U_t - A_t$
<b>B2401757-3</b> <b>(Pipe)</b>	1462.5	3.17	0.95

<b>Test organism: <i>Escherichia coli</i> ATCC 8739</b>			
No. of bacteria from Untreated sample at 0 hour: $N(U_0) = 1.07 \times 10^4$		Log $N(U_0) = 4.03$	
No. of bacteria from Untreated sample at <b>24 hr</b> : $N(U_t) = 1.04 \times 10^4$		Log $N(U_t) = 4.02$	
Sample Code	No. of bacteria from Treated Sample at <b>24 hr</b> $N(A_t)$	Log $N(A_t)$	Antimicrobial activity $R = U_t - A_t$
<b>B233572-3</b> <b>(Pipe)</b>	1460.44	3.16	0.86

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P.S. : The value of Antimicrobial activity (R) obtained by the testing methods of this standard shall not be less than 2.0 for the antimicrobial products.

Conclusion : The Sample **B2401757-3 (Pipe)** showed Antibacterial activity Value of **0.95** against *Staphylococcus aureus* ATCC 6538P, **0.86** against *Escherichia coli* ATCC 8739 at given time intervals, when tested by JIS Z 2801: 2010 Method.

-- End of the Report --

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