TEST REPORT

Report No: AWRTCL/PRTR/ 17361/20-21 **Date: 04.06.2020**

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
Name & Address : **Mr.Umesh Agrawal** **Watch Water INDIA (Watch Water Treatment Pvt Ltd.)** **B-11 SHANKAR GARDEN** **VIKAS PURI,** **NEW DELHI - 110018, INDIA**	**Sample received: 26.05.2020**	**Method:** **As agreed between the Testing Laboratory and the customer**
	Sample code no: AWRTCL/17361/20-21	
	Sample Description: INSTA PROTEX	
	Sample Quantity for Testing: 1 Kg Powder	
	Date of Analysis started : 25.05.2020	
	Date of Analysis Completed: 04.06.2020	
	Subcontract : Not Applicable	
	Sample condition when received: Intact	

EXECUTIVE SUMMARY:

A project was taken up to assess Microbial decontamination on surfaces of different material like Plastic, Leather, Laminated Wood, Polished stone, Glass and Metal with induced microbial contamination using INSTA-PROTEX disinfectant solution. INSTA PROTEX disinfectant powder was tested at 1.0% solution (5.0 gr in 500 ml of Tap water) for its capability to reduce induced microbial contamination on surfaces with an exposure time of 1 minute duration. The tested disinfectant solution was found to be **effective in reducing 10 different microbial species (constituting 8 bacterial species one Mold and one Yeast species) to the tune of ≥99.9999% and ≥99.999% reduction for one Surrogate Virus of bacteriophage.**

METHODOLOGY:

Two similar surfaces were smeared for an area of 10 cm x 10 cm with 1 ml 24 hr old broth culture of a known microbial species. The contents were allowed to air dry for 10 minutes. One of the surfaces smear was swabbed and transferred to 10 ml of 0.9% physiological saline. Serial dilutions were made and 1 ml inoculum was plated out on selective agars. Incubation was done at 37 ^{0}C / 24-48 hr. Colonies were enumerated. **This is BEFORE TREATMENT**

The second surface smear was exposed to 1 ml INSTA PROTEX disinfectant solution by spreading. The contents were allowed for 1 minute treatment. The treated surfaces were swabbed and contents were transferred to 10 ml of 0.9% physiological saline. Serial dilutions were made and 1 ml inoculum was plated out on selective agars. Incubation was done at 37 ^{0}C / 24-48 hr. Colonies were enumerated. **This is AFTER TREATMENT**
Note: Yeast & Mold plates were incubated at 25^{0}C/3-5 days.

% Reduction was calculated by taking microbial counts Before Treatment as reference.

The Tap water used for preparing INSTA PROTEX Solution : TDS 413 mg/L, pH: 7.40, *Temperature: : 25 ^{0}C*

PICTURE SHOWING SWABBING PROCEDURE ON A POLISHED STONE SURFACE (WITH MICROBIAL CONTAMINATION AND INSTA PROTEX TREATMENT)

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GSTIN: 29AAHCAO185G1ZP

TEST DATA: Microbial reduction with Induced microorganisms on ABS PLASTIC SURFACE

Name of Microorganism	Microbial counts Before Treatment	Microbial counts After Treatment	% Reduction
	60 seconds Exposure		
BACTERIA			
E.coli MTCC 68	5.0x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Pseudomonas aeruginosa MTCC 424	8.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Enterococcus faecalis MTCC 439	5.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Vibrio Cholera MTCC 3906	6.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Salmonella typhimurium MTCC 98	6.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Shigella flexneri MTCC 1457	5.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Clostridium perfringens MTCC 450	7.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Staphylococcus aureus MTCC 87	8.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
VIRUS – Bacteriophage			
MS2 phage ATCC15597B1	7.0 x 10^5pfu/ Swab	NPFU/swab	≥99.999
MOLD			
Aspergillus niger MTCC282	6.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
YEAST			
Saccharomyces cerevisiae MTCC 2569	6.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999

TEST DATA: Microbial reduction with Induced microorganisms on LAMINATED WOOD

Name of Microorganism	Microbial counts BeforeTreatment	Microbial counts After Treatment	% Reduction
	60 seconds Exposure		
BACTERIA			
E.coli MTCC 68	7.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Pseudomonas aeruginosa MTCC 424	9.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Enterococcus faecalis MTCC 439	6.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Vibrio Cholera MTCC 3906	8.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Salmonella typhimurium MTCC 98	5.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Shigella flexneri MTCC 1457	6.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Clostridium perfringens MTCC 450	6.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Staphylococcus aureus MTCC87	7.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
VIRUS – Bacteriophage			
MS2 phage ATCC15597B1	6.0 x 10^5pfu/ Swab	NPFU/swab	≥99.999
MOLD			
Aspergillus niger MTCC282	6.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
YEAST			
Saccharomyces cerevisiae MTCC 2569	7.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999

Cfu:Colony forming units, Pfu:Plaque forming units, <10 cfu: NVC/Swab:No viable colony/Swab , <10 pfu = NPFU/Swab: No plaque forming unit /Swab

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Note:

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GSTIN: 29AAHCAO185G1ZP

TEST DATA: Microbial reduction with Induced microorganisms on POLISHED STONE

Name of Microorganism	Microbial counts BeforeTreatment	Microbial counts After Treatment	% Reduction
	60 seconds Exposure		
BACTERIA			
E.coli MTCC 68	7.0x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Pseudomonas aeruginosa MTCC 424	5.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Enterococcus faecalis MTCC 439	8.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Vibrio Cholera MTCC 3906	7.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Salmonella typhimurium MTCC 98	9.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Shigella flexneri MTCC 1457	9.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
Clostridium perfringens MTCC 450	8x10^6 cfu/ Swab	NVC/swab	≥99.9999
Staphylococcus aureus MTCC 87	8.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
VIRUS – Bacteriophage			
MS2 phage ATCC15597B1	7.0 x 10^5pfu/ Swab	NPFU/ Swab	≥99.999
MOLD			
Aspergillus niger MTCC282	5.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999
YEAST			
Saccharomyces cerevisiae MTCC 2569	7.0 x 10^6 cfu/ Swab	NVC/swab	≥99.9999

TEST DATA: Microbial reduction with Induced microorganisms on LEATHER

Name of Microorganism	Microbial counts BeforeTreatment	Microbial counts After Treatment	% Reduction
	60 seconds Exposure		
BACTERIA			
E.coli MTCC 68	8.0x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Pseudomonas aeruginosa MTCC 424	6.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Enterococcus faecalis MTCC 439	7.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Vibrio Cholera MTCC 3906	8.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Salmonella typhimurium MTCC 98	5.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Shigella flexneri MTCC 1457	7.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Clostridium perfringens MTCC 450	6x10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Staphylococcus aureus MTCC 87	7.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
VIRUS – Bacteriophage			
MS2 phage ATCC15597B1	9.0 x 10^6pfu/ Swab	NPFU/ Swab	≥99.999
MOLD			
Aspergillus niger MTCC282	6.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
YEAST			
Saccharomyces cerevisiae MTCC 2569	7.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999

Cfu:Colony forming units, Pfu:Plaque forming units, <10 cfu: NVC/Swab:No viable colony/Swab , <10 pfu = NPFU/Swab: No plaque forming unit /Swab

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TEST DATA: Microbial reduction with Induced microorganisms on GLASS SURFACE

Name of Microorganism	Microbial counts BeforeTreatment	Microbial counts After Treatment	% Reduction
	60 seconds Exposure		
BACTERIA			
E.coli MTCC 68	5.0x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Pseudomonas aeruginosa MTCC 424	6.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Enterococcus faecalis MTCC 439	7.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Vibrio Cholera MTCC 3906	6.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Salmonella typhimurium MTCC 98	7.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Shigella flexneri MTCC 1457	8.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Clostridium perfringens MTCC 450	8 x10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Staphylococcus aureus MTCC 87	8.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
VIRUS – Bacteriophage			
MS2 phage ATCC15597B1	8.0 x 10^5pfu/ Swab	NPFU/ Swab	≥99.999
MOLD			
Aspergillus niger MTCC282	7.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
YEAST			
Saccharomyces cerevisiae MTCC 2569	7.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999

TEST DATA: Microbial reduction with Induced microorganisms on METAL SURFACE

Name of Microorganism	Microbial counts BeforeTreatment	Microbial counts After Treatment	% Reduction
	60 seconds Exposure		
BACTERIA			
E.coli MTCC 68	9.0x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Pseudomonas aeruginosa MTCC 424	8.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Enterococcus faecalis MTCC 439	8.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Vibrio Cholera MTCC 3906	5.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Salmonella typhimuriumMTCC 98	5.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Shigella flexneri MTCC 1457	8.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Clostridium perfringens MTCC 450	7x10^6 cfu/ Swab	NVC/ Swab	≥99.9999
Staphylococcus aureus MTCC 87	7.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
VIRUS – Bacteriophage			
MS2 phage ATCC15597B1	7.0 x 10^5pfu/ Swab	NPFU/ Swab	≥99.999
MOLD			
Aspergillus niger MTCC282	6.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999
YEAST			
Saccharomyces cerevisiae MTCC 2569	7.0 x 10^6 cfu/ Swab	NVC/ Swab	≥99.9999

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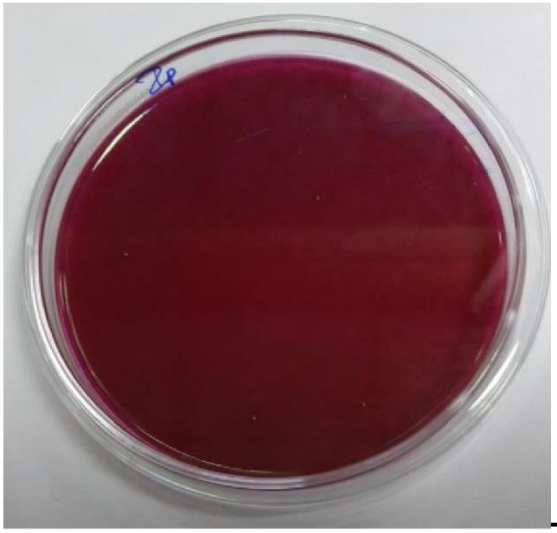
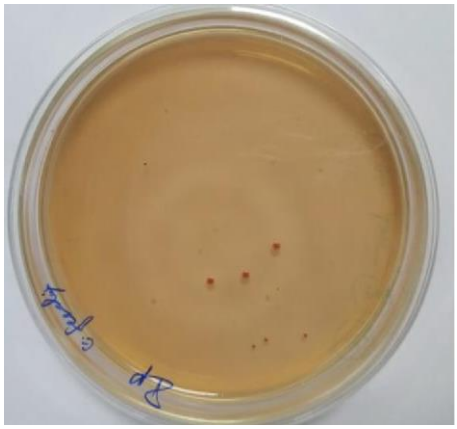
COLONY CHARACTERISTICS OF MICROROGANISMS USED FOR THE STUDIES

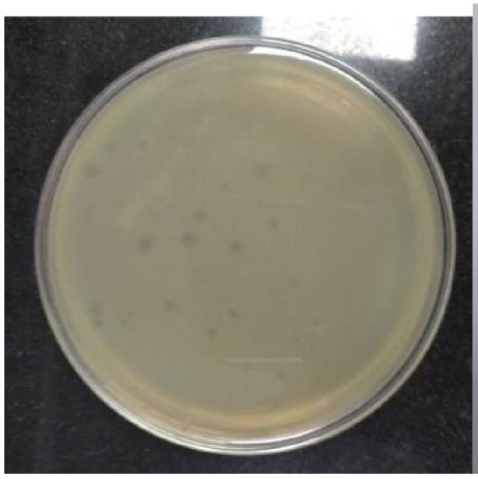
E.coli



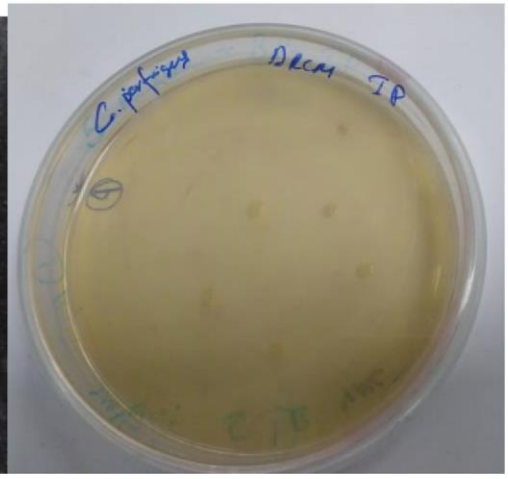
Enterococcus faecalis



MS2 phage



Clostridium perfringens



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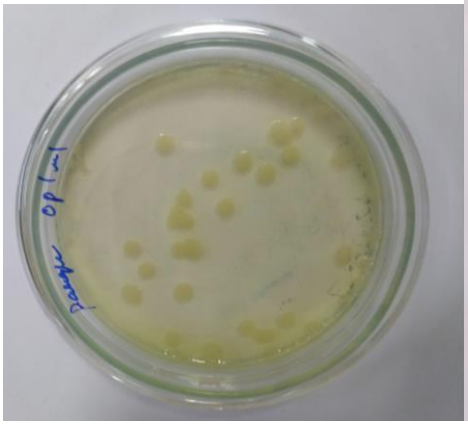
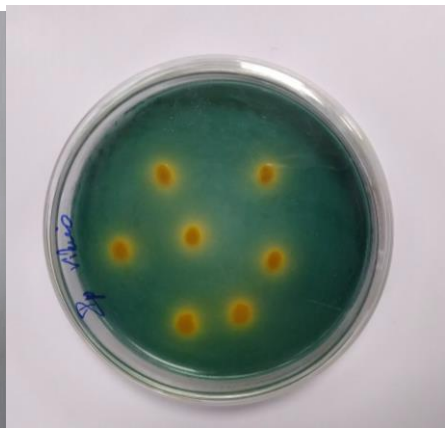
COLONY CHARACTERISTICS OF MICROROGANISMS USED FOR THE STUDIES

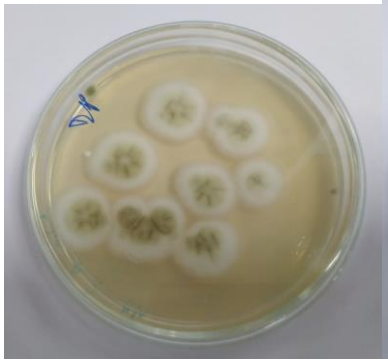
Pseudomonas aeruginosa



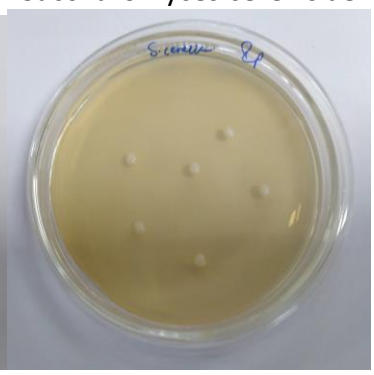
Vibrio cholera



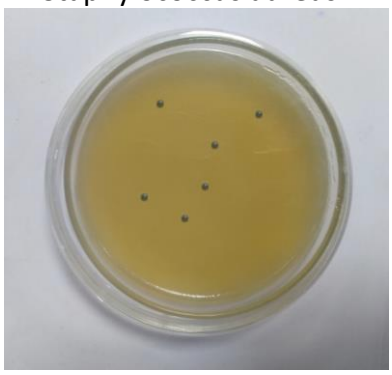
Aspergillus niger



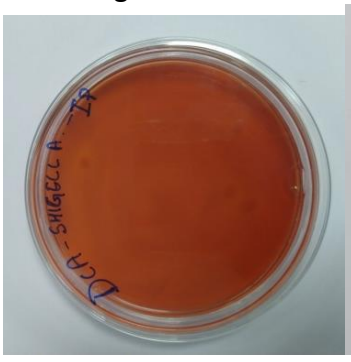
Saccharomyces cerevisiae



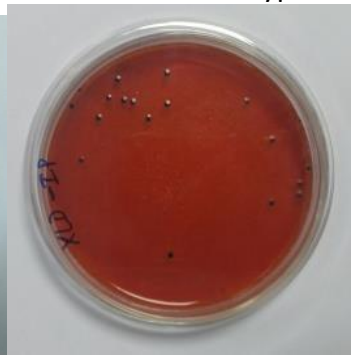
Staphylococcus aureus



Shigella flexneri



Salmonella typhimurium



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RESULTS & CONCLUSION:

The test data obtained from various tests conducted using 1.0% solution of INSTA PROTEX disinfectant to decontaminate the different surfaces having contamination of know microbial cultures reveals that INSTA PROTEX is effective in 60 seconds exposure to bring about at least 99.999% reduction of MS2 phage surrogate virus and at least 99.9999% reduction of bacteria, Yeast and Mold species.

MICROBIOLOGICAL MEDIA USED

Name of Microorganism	Growth Media used
BACTERIA	
E.coli MTCC 68	M Endo agar medium
Pseudomonas aeruginosa MTCC 424	Cetrimide agar medium
Enterococcus faecalis MTCC 439	Slanetz Bartely agar medium
Vibrio Cholera MTCC 3906	Thiosulphate Citrate Bile slats sucrose agar medium
Salmonella typhimurium MTCC 98	Xylose Lysine Dextrose agar medium
Shigella flexneri MTCC 1457	Deoxycholate Citrate agar
Clostridium perfringens MTCC 450	Differential reinforced clostridial agar
Staphylococcus aureus MTCC 87	Baired parker agar
VIRUS – Bacteriophage	
MS2 phage ATCC15597B1	Tryptone Soya agar
MOLD	
Aspergillus niger MTCC282	Chloramphenicol Yeast Glucose agar
YEAST	
Saccharomyces cerevisiae MTCC 2569	Chloramphenicol Yeast Glucose agar

IMPORTANT

ANALYTICAL METHODS: Standard Methods from IS, APHA and USEPA published documents.
CHEMICALS: All chemicals used are Analytical grade.
LAB EQIPMENT: All equipment used, as applicable, are calibrated by NABL accredited laboratories
WATER: Reagent grade water
MICROBIAL CULTURES: MTCC and ATCC standard cultures

Dr S.MURALIDHARA RAO
Head – Laboratory

00--------End of the Test Report ------- 00