STUDY REPORT

TITLE: TESTING OF ANTI-VIRAL EFFICACY OF PAINT

efrac
Edward Food Research & Analysis Centre Limited

EDWARD FOOD RESEARCH AND ANALYSIS CENTRE LIMITED
BARASAT, KOLKATA, WEST BENGAL
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REPORT APPROVAL

This report is prepared for Berger Paints India Limited based on Tests conducted at Edward Food Research & Analysis Centre Limited, Subhas Nagar, Nilgunj Bazaar, Kolkata -700121.

Approval -

This Report is Prepared, Reviewed and Authorized by the following Personnel-

Prepared By:

NAME	DESIGNATION	DEPARTMENT	SIGNATURE	DATE
Abhranil Chakraborty	Microbiologist	Microbiology		20/04/2020

Reviewed by:

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Dr. Biswapriya Das	GROUP LEADER	Microbiology		20/04/2020

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NAME	DESIGNATION	DEPARTMENT	SIGNATURE	DATE
Sandeep Saykar	Manager-QA	Quality Assurance		20/04/2020

Authorised Signatory

- **Study Number** : One
- **Name/Method of Test** : Client shared method (ISO 21702:2019) & USEPA 1602:2001
- **Number of Samples** : TWO
- **Sample Description** : Silk Breath Easy
- **Period of Analysis** : 13/04/2020 **to** 18/04/2020
- **Date of Report Making** : 20/04/ 2020
- **Name of the customer** : Berger Paints India Limited,
- **Address of the customer** : 129 Park Street,Kolkata-700117,

Table: 1. Details of the samples

S.No	Sample Receive Date	Name of the Sample	Registration Number of the Sample	Internal Code Allotted
1.	10-04-2020	Silk Breath Easy	EFRAC/2020/FDS/02797	Sample-1
2.	10-04-2020	Silk Breath Easy	EFRAC/2020/FDS/02798	Sample-2

1. OBJECTIVE:-

The objective of the study was to evaluate the antiviral efficacy of Berger Paints against **MS2 Phage** in terms of log reduction.

2. MATERIALS AND METHOD:-

MATERIALS

Media/Reagents:-

1. Soyabean Casein Digest Agar (SCDA):- Dehydrated media from Himedia was used for the study.
2. Soyabean Casein Digest Medium (SCDM):- Dehydrated media from Himedia was used for the study.
3. Sterile purified water.
4. Ampicillin Sodium Salt (HiMedia)
5. 0.1 % Peptone Water.

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Table: 2. Test Organisms Used: The following standard organisms were used in the study.

S.No.	Test Virus	Culture Reference No	Host Bacteria	Culture Reference No
1.	MS2 Coliphage	ATCC 15597-B1	E.coli F_{amp}	ATCC 700891

METHOD

Preparation of test cultures:-

- Reference stock culture of MS2 Phage ATCC 15597-B1 & E.coli F_{amp} ATCC 700891 was preserved as glycerol stock at -20°C.
- From reference stock culture E.coli F_{amp} a loopful culture was streaked and inoculated in Soyabean Casein Digest Medium (SCDM) and Soyabean Casein Digest Agar (SCDA) respectively and incubated at 37±1°C for 24 hr. The cultures were at passage level 2.
- The MS2 Phage stock was serially diluted and plated with host E.coli F_{amp} on SCDA Plate to determine the viral titer (PFU/ ml).
- The dilution which gave viral titer of about 10^6PFU/ ml was used for the study.

Preparation of test sample:-

- 140 gm of paint sample was mixed with 40 ml of water.
- The paint suspension was used for analysis.

Test procedure:-

- The analysis was carried out at room temp. 25±2 °C
- The diluted paint sample was applied on the test surface and allowed to dry for 4 to 6 hrs.
- Once the film was dried, a second coat was applied and allowed it to cure for 24 hours.
- A similar surface without paint was taken as control.
- Viral suspension (10^6 PFU/ ml) was applied on the control and painted surfaces and allowed for 24 hr contact.

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- After contact time, the virus particles from the test surfaces were recovered by frequent washing.
- The viral titer was determined by plaque assay.
- The reduction in viral titer was determined by calculating PFU/ ml of painted surface as compared to control sample (without paint)
- The anti viral activity of paint samples was expressed as Log reduction in viral titer.

3. INTERPRETATION/RESULTS:-

Table: 3. Summary of Log Reduction for Sample-1 and Sample-2 after 24 hr. contact time

Internal Code	Test Virus	Name of the Sample	Control (PFU/ml)	Log Nc*	Product PFU/ml (Nt)**	Log Nt**	Log Reduction (Log Nc-Log Nt)	Percentage reduction
Sample-1	MS2 Phage	Silk Breath Easy	5×10^6	6.69	2.8×10^4	4.45	2.24	99.44%
Sample-2	MS2 Phage	Silk Breath Easy	5×10^6	6.69	2.1×10^4	4.32	2.37	99.58%

***Nc= Viral titer of Control (PFU/ml); **Nt = Viral titer of Sample (PFU/ml)**

4. CONCLUSION:-

The paint Sample -1 and Sample -2 was found to reduce the viral titer by 2 Log reductions.

5. REFERENCES:-

1. Client shared method; ISO 21702:2019, Measurement of antiviral activity on plastics and other non-porous surfaces.
2. USEPA Method 1602: Male-specific (F+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure, April 2001.

Authorised Signatory

END OF REPORT