SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH

(A unit of Shriram Scientific and Industrial Research Foundation)

An ISO - 9001:2008 Certified Institute

TEST CERTIFICATE

000157740

Issued to :
DESICCANT ROTORS INTERNATIONAL
100-101,
UDYOG VIHAR
PHASE- IV
GURGAON - 122015,HARYANA
Kind Attn: MR. ANIL KUMAR CHOUDHARY , AVP (R&D)

J.O.No. 912-111-1112
Reg.No. 1197282
Date 03-02-2010
GC-01 (REV-04)
Your Ref.No. -
Date 07.12.2009

Sample Particulars :
One sample of Laminated sheet marked as 'A' coated with ECO SORB-300 (3 A Molecular Sieve) was received.
"The sampling was not carried out by Shriram Institute for Industrial Research. The sample details provided in test certificate are based on declaration by the party."

TEST RESULTS

Test Methods/Protocol:- As per guidelines of **DIN EN ISO 846-1997**

Test Fungi used:-

Aspergillus niger	ATCC-9642
Penicillium funiculosum	ATCC-11797
Aureobasidium pullulans	ATCC-9348
Gliocladium virens	ATCC-9645
Chaetomium globosum	ATCC-6205

Test Bacteria used:-

Pseudomonas aeruginosa	ATCC-25668

Test conditions :-

Incubation temperature	Fungus: 24±1^{0}C , Bacteria: 29±1^{0}C
Relative humidity	Fungus: >95% , Bacteria: >90%
Incubation period	4 weeks

Microbicidal Solutions used:-
Ethanol-water mixture (70:30)
o-phenylphenol

Results of the investigation (Visual Assessment)
The results of the investigation was carried out from the reference protocol, are summarized below-

Material for investigation	Intensity of fungal growth	Observation for bacterial growth
Laminated sheet marked as 'A' coated with ECO SORB-300 (3 A Molecular Sieve)	0 (No growth apparent under microscope)	No bacterial growth was observed.

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Test Procedure:-
Sample preparation- Test specimens for method A and C were dipped into ethanol-water mixture (70:30) for 1 min. and further dried at 45^0C for 4 hours.

Method A (Resistance to fungus):

For determination of resistance of the test specimen against fungus, incomplete agar medium without a carbon source was used.

Arrangement and identification of specimens-
Batch I (Inoculated test specimens)
Incomplete agar medium i.e. without a carbon source, was poured into sterile petri plates and after solidification of the medium, test specimens were placed onto the agar surface. Test specimens and the media were sprayed with a spore suspension of the test fungal strains at a concentration of about 10^6 spores/ml.

Batch S (Sterile test specimens)
Test specimens were disinfected by dipping them into o-phenylphenol solution and were placed over the surface of incomplete agar medium and incubated at recommended temperature and moisture conditions.

Method C (Resistance to bacteria):

For determination of resistance of the test specimen against bacteria, mineral salt agar without a carbon source was used.

Arrangement and identification of test specimen-
Batch I (Inoculated test specimens)
The media was mixed with bacterial cell suspension to achieve approximately 50,000 cells/ml of agar and poured into sterile petri plates. After the agar solidified, test specimens were placed onto the agar surface and covered with a layer of inoculated agar.
Batch S (Sterile test specimens)
Uninoculated mineral salt agar was poured into sterile petri plates.
Test specimens were disinfected by dipping them into o-phenylphenol solution and were placed on the solidified agar. The test specimens were covered with a layer of uninoculated agar disinfected with o-phenylphenol solution.

The test specimens were incubated for a period of 4 weeks for both fungus and bacteria. After incubation the test specimens were examined visually (after 2 and 4 weeks for growth) with naked eye as well as by using a stereo microscope having a magnification of x50.

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Interpretation of Results:-

The interpretation of results was carried out according to the reference protocol-
As done by method A, the intensity of fungal growth was found to be'0', hence the test specimen is not a nutritive medium for fungus.
Crude sample A, that is without any cleaning and disinfection, when placed on the agar surface and incubated, no fungal growth was observed on it.

As done by method C, no bacterial growth was observed, hence the test specimen is not a nutritive medium for bacteria.

Concluding Remarks:-
The test specimen is not a nutritive medium for microorganisms (it is inert or fungistatic and bacteristatic.)

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DOR: 07-12-2009
DOC: 02-02-2010

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