

## **BIO PRUF**

- BIO PRUF is a registered trademark by the company MORTON INTERNATIONAL in the USA and corresponds to a treatment product which is a US patent.

- WHAT IS THE BIO PRUF TREATMENT?

BIO PRUF is a powerful anti-germ, anti-fungus product impregnating the treated items (stretch ceilings NEWMAT BIO PRUF). Contrary to the running treatment in surface, that the action is limited in the time, BIO PRUF acts for the duration of life of the treated product in diffusing its active constituents.

- HOW DOES THE BIO PRUF TREATMENT WORK?

BIO PRUF repels fungus actinomycetes, GRAM + and GRAM - bacteria, the staphylococcus aureus and the klebsiella pneumoniae in particular (see the enclosed list). It prevents contamination and any risk of infection by creating an inhibition area (see tests).

- WHAT ARE THE OTHER ASSETS OF BIO PRUF TREATMENT?

### **ECONOMICAL**

Thanks to its continuous action, BIO PRUF makes the cleaning of the coated NEWMAT BIO PRUF ceilings easy. Simply wipe with a cloth soaked in disinfectant or germicide mixed in appropriate proportions. The NEWMAT BIO PRUF coated ceiling does the rest.

### **SELF DEODORANT**

The BIO PRUF treatment eliminates all source of unpleasant smells provoked by micro organisms.

### **LONG TERM ACTION**

In order to feed themselves, micro organisms destroy gradually the structure of the material. The BIO PRUF treatment stops this deterioration process by helping the material to preserve its original characteristics.

**CONTINUOUS ANTI-GERM PROTECTION,  
ECONOMICAL, AUTO DEODORANT,  
IT KEEPS THE NEWMAT BIO PRUF  
STRETCHED CEILING HEALTHY FRESH AND SMOOTH**

### A word about the BIO-PRUF Treatment

BIO-PRUF is a powerful anti-germ, anti-fungus product impregnating the items treated

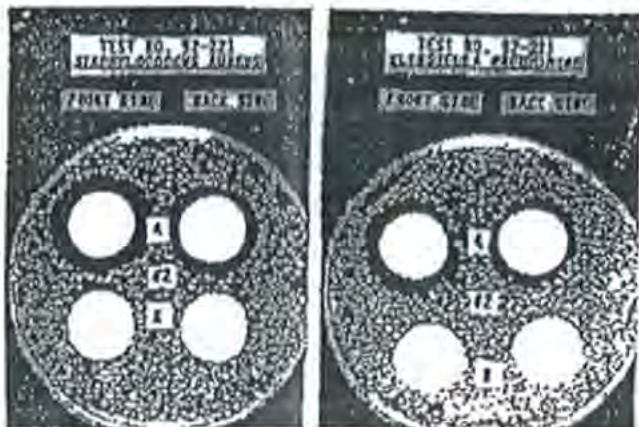
Unlike ordinary coatings whose action is short-lived, BIO-PRUF lasts as long as the product does, by constantly releasing its active principles.

How does the BIO-PRUF treatment work?

BIO-PRUF repels fungus, actinomycetes and gram + or - bacteria, the staphylococcus aureus and the Klebsiella pneumonia in particular (1).

It prevents contamination and any risks of infection by creating an inhibition area.

### Ex -Tests on the stan derm TREV (2)



- a - bio-stabilised BIO-PRUF sample
  - \* non growth area visible
- b - untreated sample
  - \* bacterial contamination

It is also a powerful fungus killer which actively protects from fungus and eliminates all sources of allergy and unpleasant smells.

- (1) Short list attached hereto
- (2) For test description see addendum

NEWMAT BIO-PRUF assets:

- \* Money-saving

Thanks to its continuous action, BIO-PRUF makes the cleaning of the coated NEWMAT BIO-PRUF ceilings easier. Simply wipe with a cloth soaked in disinfectant or germicide mixed in appropriate proportions. The NEWMAT BIO-PRUF coated ceiling does the rest

- \* Self deodorant

The BIO-PRUF treatment eliminates all sources of unpleasant smells provoked by micro-organisms.

- \* Long term action

In order to feed, micro-organisms gradually destroy the structure of the material  
The BIO-PRUF treatment stops this deterioration process by helping the material to preserve its original characteristics.

ANTI-GERM PROTECTION WORKS ALL THE TIME,  
SAVES MONEY, REMOVES UNPLEASANT SMELLS,  
KEEPS THE NEWMAT BIO-PRUF COATED CEILING  
HEALTHY FRESH AND SMOOTH.

#### FIELD OF APPLICATION

- \* Hospitals
- \* Clean rooms
- \* Pharmaceutical and foods Industry
- \* Laboratories
- \* Industrial and collective kitchens
- \* and any place likely to require protection against germs and fungus

## NEWMAT BIO-PRUF STRETCHED CEILINGS

### NON-EXHAUSTIVE LIST

#### I° - FUNGI

Alternaria tenuis  
Alternaria brassiciola  
Aspergillus clavatus  
A. flavus  
A. niger  
A. oryzae  
A. terreus  
A. ustus  
A. versicolor  
Aureobasidium (Pullularia) pullulans  
Candida guilliermondii  
C. lipolytica  
C. pelliculosa  
C. tropicalis  
Chaetomium globosum  
Cladosporium RESINAE  
Fusarium moniliforme  
Gliocladium virens (Trichoderma sp.)  
Helminthosporium gramineum  
Memnoniella echinata  
Mucor racemosus  
Myrothecium venucaria  
Penicillium citrinum  
P. expansum  
P. funiculosum  
P. lilacinum  
P. luteum  
P. piscarium  
P. variable  
Rhizopus nigricans  
Spicaria violacea  
Trichophyton mentagrophytes  
Penicillium islandicum

#### II° - BACTERIA

Aerobacter aerogenes  
Bacillus cereus  
Bacillus subtilis  
Desulfovibrio desulfuricans  
Escherichia coli  
Klebsiella pneumoniae  
Pseudomonas aeruginosa  
Salmonella choleraesuis  
S. typhimurium  
S. typhosa  
Staphylococcus aureus

#### III° - ACTINOMYCETES

Streptomyces ruberireticuli  
Streptomyces reticulum  
Thermoactinomyces vulgaris

## Report N° 92-221 on BACTERIOLOGICAL ACTIVITY tests

- 1) Quality - principles
- 2) Quantity assessments - principles
- 3) Samples results

Aim: to determine bacteriological activity on the plastic sheet surface

Strains tested:

- Staphylococcus aureus - ATCC N°6538
- Klebsiella pneumoniae - ATTCC N°4352

### 1) VISUAL TEST / QUALITATIVE METHOD

The samples are placed in a nutritive medium contaminated with

Staphylococcus aureus ATCC 6358  
Klebsiella pneumoniae ATCC 4352

After a 24 hour's incubation at a temperature of 37°C, anti-bacterial activity is rated by measuring (in mm) the size of the lighter coloured no growth area (Inhibition area around each sample)

Bacterial contamination is recorded on the following scale

- no contamination of the contact area:

the no growth contact area: it indicates an absence of bacterium proliferation on and underneath the sample.

- contamination of contact area..

the Growth contact area, bacteria have colonised the sample in contact with the nutritive substance.

2) TEST N° 1006-1977, STATE OF NEW YORK: quantity assessment:

0.2 ml of a diluted culture of bacteria (10 organisms) is placed in direct contact with the sterilised sample.

After a 24 hours' incubation period at 37°C and 100 % relative humidity ratio, the sample is placed in a sterile nutritive solution.

The number of germs left alive is assessed via a standard counting system

The percentage of bacteria surviving is calculated in relation to the number of bacteria obtained from the untreated reference sample.

The material is considered as resistant to the 2 following strains if:

- \* the content of *Staphylococcus aureus* still alive is less than 2 %
- \* the content of *Klebsiella pneumoniae* is less than 17 %

3) RESULTS REGARDING SAMPLES

- Reference samples

Standard Trev # 1

N°A BIO-PRUF treated

N°B BIO-PRUF treated

Hospital Sheet #2

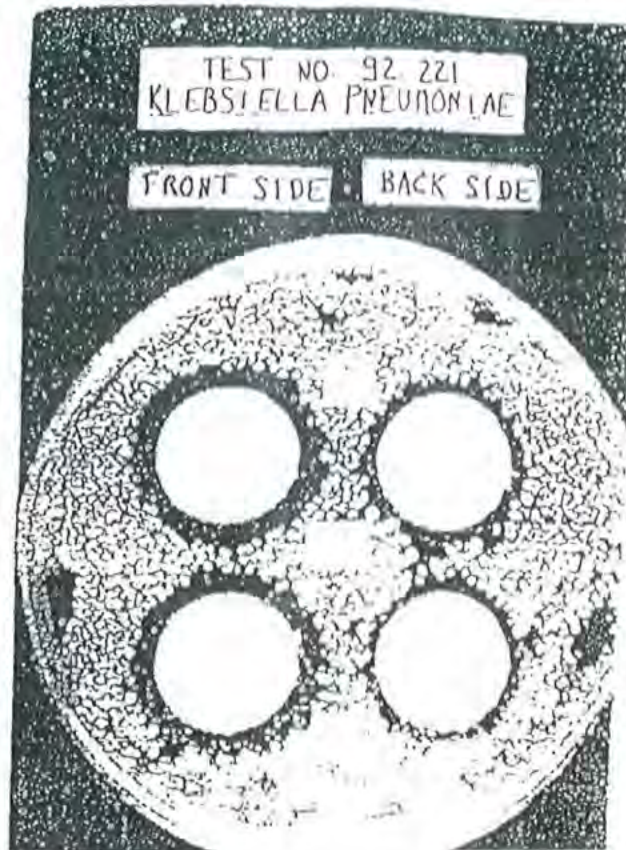
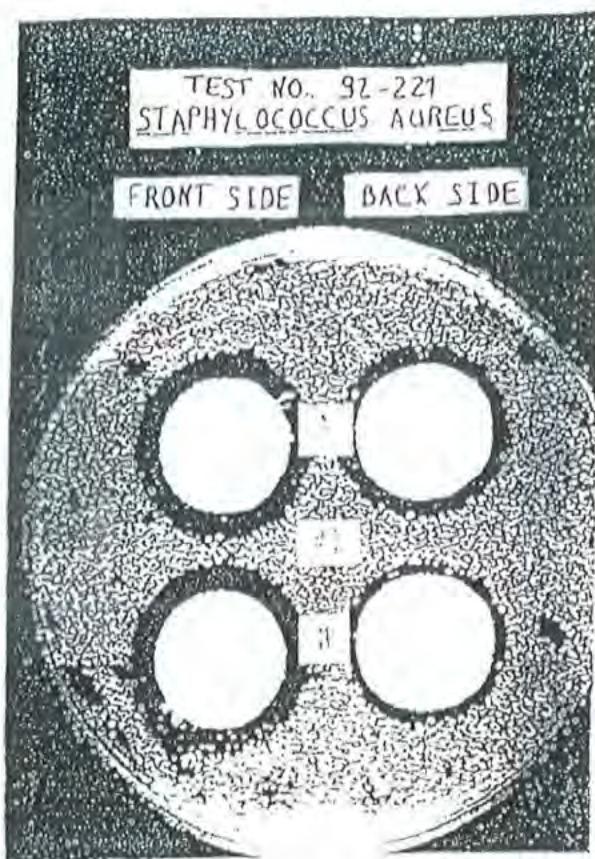
N°A: BIO-PRUF treated

N°B: untreated

Qualitative results

Resistance to bacteria

| Samples | No growth area (mm)/ contact surface contaminated |        |                       |        |
|---------|---------------------------------------------------|--------|-----------------------|--------|
|         | Staphylococcus aureus                             |        | Klebsiella pneumoniae |        |
|         | Side 1                                            | Side 2 | Side 1                | Side 2 |
| # 1 - A | 4/NGCA                                            | 3/NGCA | 4/NGCA                | 3/NGCA |
| # 1 - B | 4/NGCA                                            | 2/NGCA | 4/NGCA                | 2/NGCA |
| # 2 - A | 6/NGCA                                            | 4/NGCA | 5/NGCA                | 3/NGCA |
| # 2 - B | 0/GCA                                             | 0/GCA  | 0/GCA                 | 0/GCA  |



### SAMPLE #1

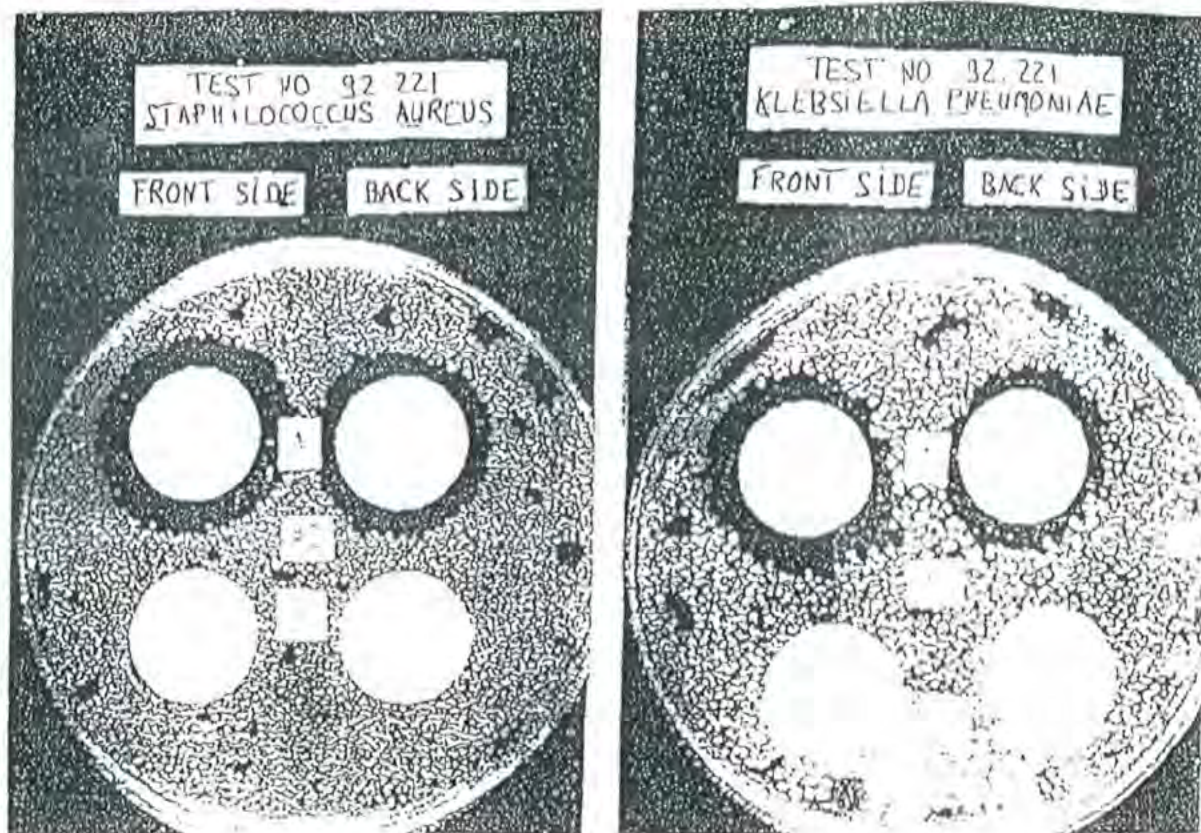
Stan Derm Trev

N°A and B BIO-PRUF treated

No growth and the inhibited area

(lighter coloured ring around the sample)

is large irrespective of the face in contact with  
the bacterium or its nature.



### SAMPLE #2

Hospital sheet N°A treated with BIO-PRUF

N°B untreated

Regarding the two bacterial strains

sample A showed a sound reduction in bacterial activity  
(wide no growth area)

| Samples | No growth area (mm)/ contact surface contaminated |                       |
|---------|---------------------------------------------------|-----------------------|
|         | Staphylococcus aureus                             | Klebsiella pneumoniac |
| # 1 - A | < 1%                                              | < 1%                  |
| # 1 - B | < 1%                                              | < 1%                  |
| # 2 - A | < 1%                                              | 16,4 %                |
| # 2 - B | 10 %                                              | 31,2%                 |

### Conclusions:

# 1-A: meets standards

# 1-B: meets standards

# 2-A: meets standards

# 2-B: failed standards