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TRA/012-22.04.2020

## Quantitative Assessment of Four Samples

**3607355**

Four PE coating samples, three of which were treated with Ultra-Fresh CA-16, were received from Decoral System s.r.l. on May 01, 2020. At Thomson Research Associates, Inc., the samples were tested for antibacterial activity using a quantitative test method.

## PROCEDURE

### Quantitative Antibacterial Assessment:

ISO 22196:2011 was used to quantitatively test the specimen for antibacterial activity. In brief:

1. The sample was placed into a container with a lid.
2. A 0.3 mL inoculum of *Escherichia coli* (ATCC #8739) or *Staphylococcus aureus* (ATCC #6538) was placed, in microdroplets, on the surface of the samples.
3. The specimen was incubated 24 hours at 37C.
4. 20 mL of Letheen broth was added to the container and shook. The liquid was plated using dilution techniques.
5. The "Value of Antimicrobial Activity" was carried out using the formula

   R = [log (B/C)]
   Where:
   R= value of antimicrobial activity
   B = Average of the number of viable cells of bacteria on the untreated test piece / inoculum control after 24 hours
   C = Average of the number of viable cells of bacteria on the antimicrobial test piece after 24 hours.

**RESULTS**

| **Quantitative Assessment of Activity - ISO 22196:2011**<br>***E. coli*** | | | | | |
|---|---|---|---|---|---|
| Concentration of starting inoculum | | $2.57 \times 10^5$ | | | |
| **Sample Description** | | **No. Bacteria Recovered** | **Log Value** | **R = [log(B/C)]** | **% Reduction** |
| 1 | ADA 2879/1 metal sheet covered with PE opaque powder coating. Blank sample | $1.57 \times 10^7$ | 7.2 | --- | --- |
| 2 | ADA 2879/2 metal sheet covered with PE opaque with Ultra-Fresh CA-16 | $8.49 \times 10^1$ | 1.9 | 5.3 | >99.9% |
| 3 | ADA 2879/3 metal sheet covered with PE opaque powder coating with Ultra-Fresh CA-16 | $5.69 \times 10^1$ | 1.8 | 5.4 | >99.9% |
| 4 | ADA 2879/4 metal sheet covered with PE opaque powder coating with Ultra-Fresh CA-16 | $2.56 \times 10^1$ | 1.4 | 5.8 | >99.9% |
| Inoculum Control | | $1.76 \times 10^7$ | 7.2 | ---- | ---- |

| **Quantitative Assessment of Activity - ISO 22196:2011**<br>***S. aureus*** | | | | | |
|---|---|---|---|---|---|
| Concentration of starting inoculum | | $2.40 \times 10^5$ | | | |
| **Sample Description** | | **No. Bacteria Recovered** | **Log Value** | **R = [log(B/C)]** | **% Reduction** |
| 1 | ADA 2879/1 metal sheet covered with PE opaque powder coating. Blank sample | $9.44 \times 10^4$ | 5.0 | --- | --- |
| 2 | ADA 2879/2 metal sheet covered with PE opaque with Ultra-Fresh CA-16 | $2.92 \times 10^1$ | 1.5 | 3.5 | >99.9% |
| 3 | ADA 2879/3 metal sheet covered with PE opaque powder coating with Ultra-Fresh CA-16 | $6.07 \times 10^1$ | 1.8 | 3.2 | >99.9% |
| 4 | ADA 2879/4 metal sheet covered with PE opaque powder coating with Ultra-Fresh CA-16 | $<2.00 \times 10^1$ | <1.3 | >3.7 | >99.9% |
| Inoculum Control | | $1.55 \times 10^5$ | 5.2 | ---- | ---- |

Note: The level of treatment stated above indicates theoretical levels only.

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