# High Performance Styrenics (ZR303-1008)

## ZYLAR® Commercial Cleaner Testing

TECHNICAL BULLETIN


**SUMMARY**

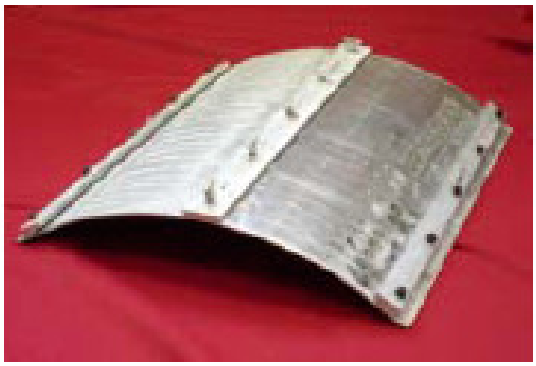
ZYLAR 531 was compared to two leading impact acrylic (i-PMMA) products for their resistance to common commercial bathroom cleaners. ZYLAR 531 and these two grades of i-PMMA are commonly used to make commercial bathroom towel or paper dispensers. Also tested was ZYLAR 631, the newest member of the Styrolution family of ZYLAR impact modified SMMA resins. The cleaning solutions chosen for this study are commonly used to clean public bathrooms and may come into contact with commercial paper dispensers.

Both ZYLAR 531 and 631 out-performed the two i-PMMA materials after exposure to eight commercial bathroom cleaners. ZYLAR 531 did not fail with any reagent and ZYLAR 631 experienced only minor failure with Scrubbing Bubbles (only 1 of 5 test bars failed). Both i-PMMAs had all 5 bars fail with the Scrubbing Bubbles, Lysol Toilet Bowl Cleaner and Citrus Cleaner. Unlike the ZYLAR failure, the failures in the i-PMMA were within the first 10 applications.


**EXPERIMENTAL**

Four sample materials were tested: ZYLAR 531, ZYLAR 631, and two leading competitive i-PMMA materials. All samples were colored in typical commercial dispenser colors.

Tensile bars were injection mold on an Engel molding machine using a standard ASTM mold and according to standard molding specifications. Both i-PMMA samples were dried prior to molding. As is common industry practice, ZYLAR samples were not pre-dried prior to molding samples. The tensile bars were then mounted into a 5% constant strain fixture (see picture 1). The samples were sprayed several times a day with a variety of common residential and commercial cleaning products. The cleaners were allowed to air dry on the parts and the parts were not cleaned off during the test. All parts were exposed to the cleaner until they failed or for a total of 50 applications. A list of cleaners used in this testing is provided in table 1.



Picture 1 – Constant Strain Fixture

| Reagents Used |
|---|
| • Clorox® bleach solutions<br>• Generic ammonia<br>• Clorox Commercial Solutions® Tilex® Instant Mildew Remover<br>• Clorox Commercial Solutions® Formula<br>• Professional Lysol® Disinfectant Toilet Bowl Cleaner<br>• Johnson Commercial Line™ Windex® Powerized with Vinegar<br>• Goo Gone® Citrus Power All-Purpose Cleaner<br>• Johnson Antibacterial Scrubbing Bubbles |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**Summary of Results**

The pictures below illustrate the effects of Johnson Antibacterial Scrubbing Bubbles on ZYLAR 631, ZYLAR 531 and two leading impact acrylics. Similar results were seen after exposure to samples of Lysol Toilet Bowl Cleaner and Goo Gone Citrus Cleaners.


The following table summarizes the effect of industrial cleaners on all materials tested after fifty applications.

| CLEANING | ZYLAR 631 | ZYLAR 531 | i-PMMA #1 | i-PMMA #2 |
|---|---|---|---|---|
| Clorox® bleach solutions | N | N | N | N |
| Generic ammonia | N | N | N | N |
| Clorox Commercial Solutions® Tilex® Instant Mildew Remover | N | N | N | N |
| Clorox Commercial Solutions® Formula | N | N | N | N |
| Professional Lysol® Disinfectant Toilet Bowl Cleaner | N | N | SA | SA |
| Johnson Commercial Line™ Windex® Powerized with Vinegar | N | N | N | N |
| Goo Gone® Citrus Power All-Purpose Cleaner | N | N | SA | SA |
| Johnson Antibacterial Scrubbing Bubbles | A | N | SA | SA |

N = No Effect
M = Minor crack(s)/surface damage
A = Attacked (some samples broke)
SA = Severely Attacked (all samples broke early in test)



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