



ANTIMICROBIAL PROTECTION

EASIER (AND MORE VALUABLE)
THAN YOU THINK

SPEAKERS



Theresa Patton is senior marketing manager for consumer goods in North America for Avient. Theresa and her team identify and interpret social, economic, and creative catalysts likely to influence CMF preferences, creating a bridge between what consumers want and what technology can deliver.



Ryan Divens is lead research and development specialist within Avient's Color & Additives division. He has extensive experience developing color and additive solutions for thermoplastics across many market segments including healthcare, industrial, and consumer applications.



Michelle Maniscalco leads content marketing, PR, social media engagement, and web content optimization at Avient.

WELCOME TO AVIENT

A NEW KIND OF MATERIALS COMPANY



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A NEW KIND OF MATERIALS COMPANY

**Deep Customer Relationships
& Application Know-How**

We sell solutions not commodities.

16,000+
CUSTOMERS

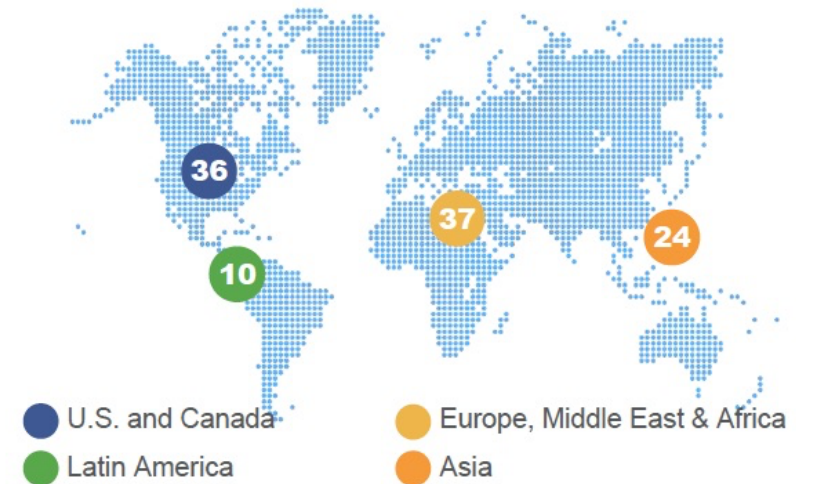
**Superior Design Capabilities
& Advanced Analytics**

We iterate fast and often.

>75% of sales
**ARE CUSTOMIZED SOLUTIONS
TO UNIQUE SPECIFICATIONS**

**Global Footprint Strategically
Aligned to Serve Customers**

We produce locally, serve globally.



THE NEW AVIENT

ABOUT US



9,100
employees
worldwide



35,000+
formulations



~\$4 billion
in sales



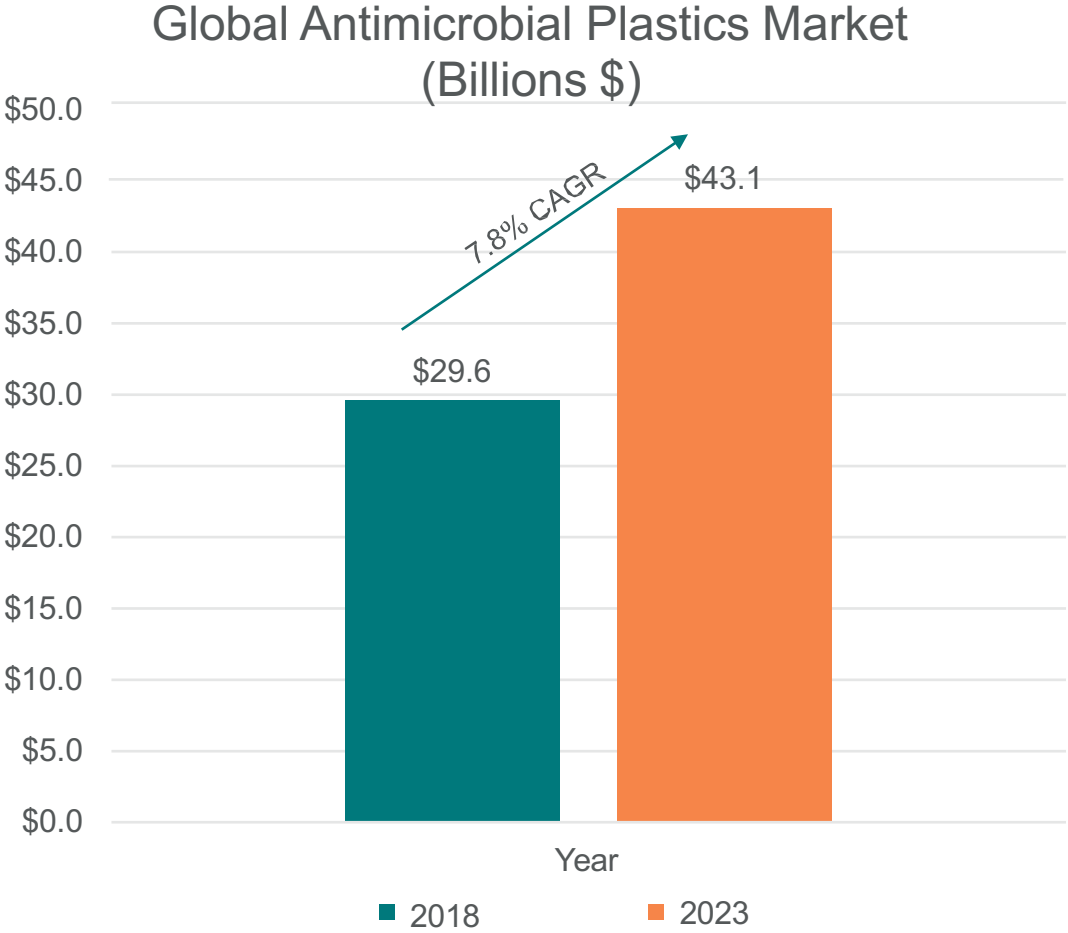
\$1.6 million
donated
in 2019



105
facilities in
30+ countries

ANTIMICROBIALS

EXPECTED GROWTH IN CONSUMER GOODS





DEFINING ANTIMICROBIALS



ANTIMICROBIAL

Destroying or inhibiting the growth of all microorganisms, especially pathogenic microorganisms



ANTIFUNGAL

Destroying or inhibiting the growth of fungal microorganisms



ANTIBACTERIAL

Destroying or inhibiting the growth of bacterial microorganisms such as E.coli, Staph, Salmonella, MRSA

Gram negative

Gram positive

A CASE FOR SAFER ACCESSORIES



- Americans check their cell phones on average 47 times per day, providing many opportunities to transfer microorganisms from fingers to phone¹
- Cell phones carry 10x more bacteria than toilet seats²
- Studies have found serious pathogens on cell phones such as Streptococcus, MRSA and E. coli³
- Many other devices or accessories also at significant risk for collecting the same type of bacteria and germs

1. <https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/global-mobile-consumer-survey-us-edition.html>
2. <https://cals.arizona.edu/news/why-your-cellphone-has-more-germs-toilet>
3. <https://ann-clinmicrob.biomedcentral.com/articles/10.1186/1476-0711-8-7>

ANTIMICROBIALS FOR PLASTICS

WORK ACROSS A RANGE OF POLYMER RESINS

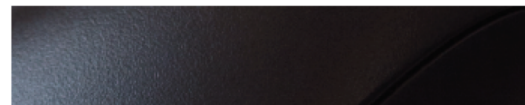


WithStand™
Antimicrobial Additives

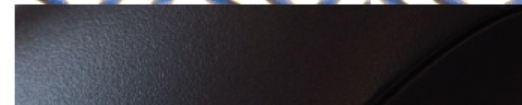
Molded with
antimicrobial
additives

Molded without
antimicrobial
additives

Side View

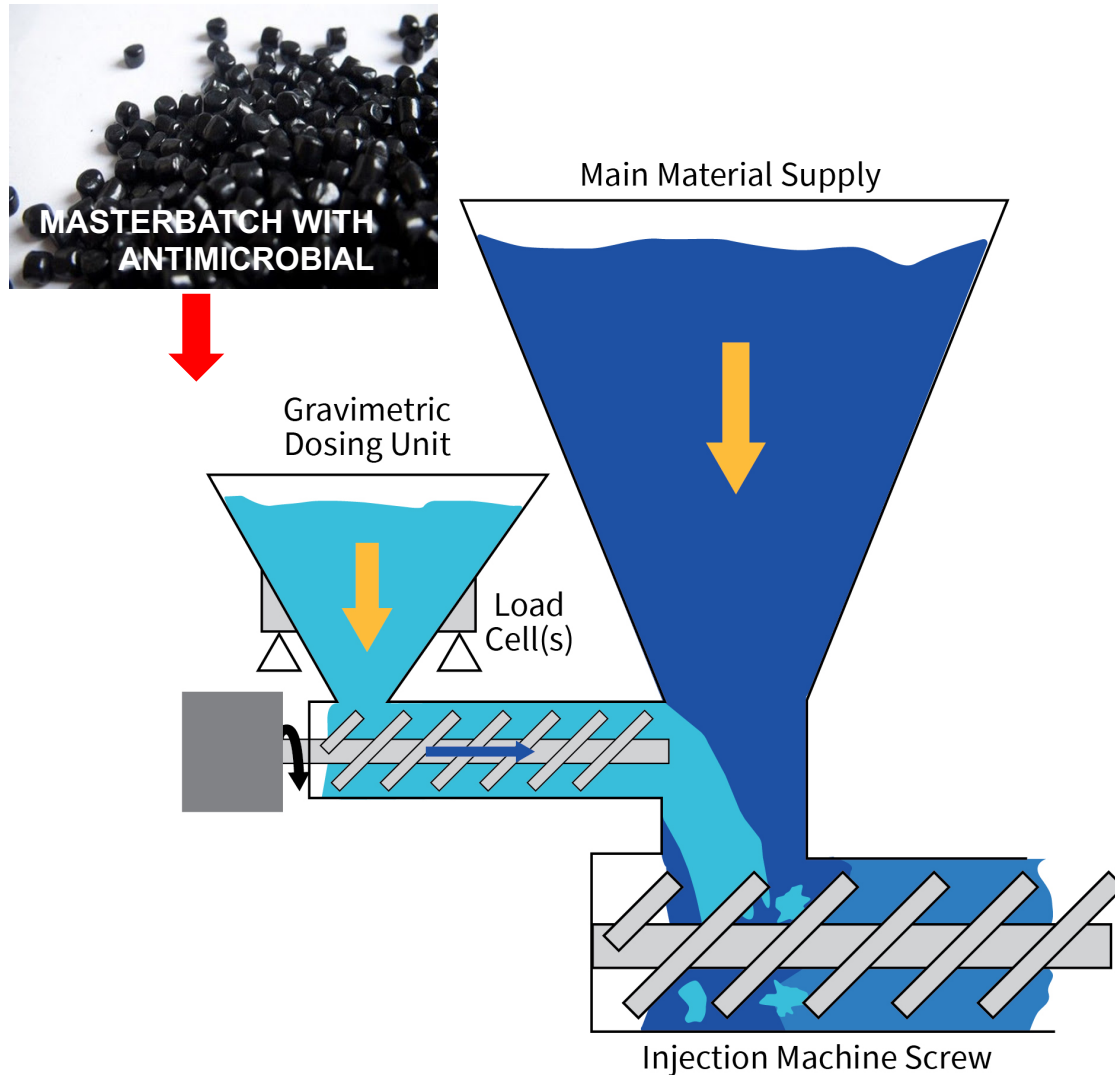


Bacteria does not attach to surface of part
molded with WithStand



Bacteria attaches to surface of part
molded without WithStand

PROCESSING OPTIONS



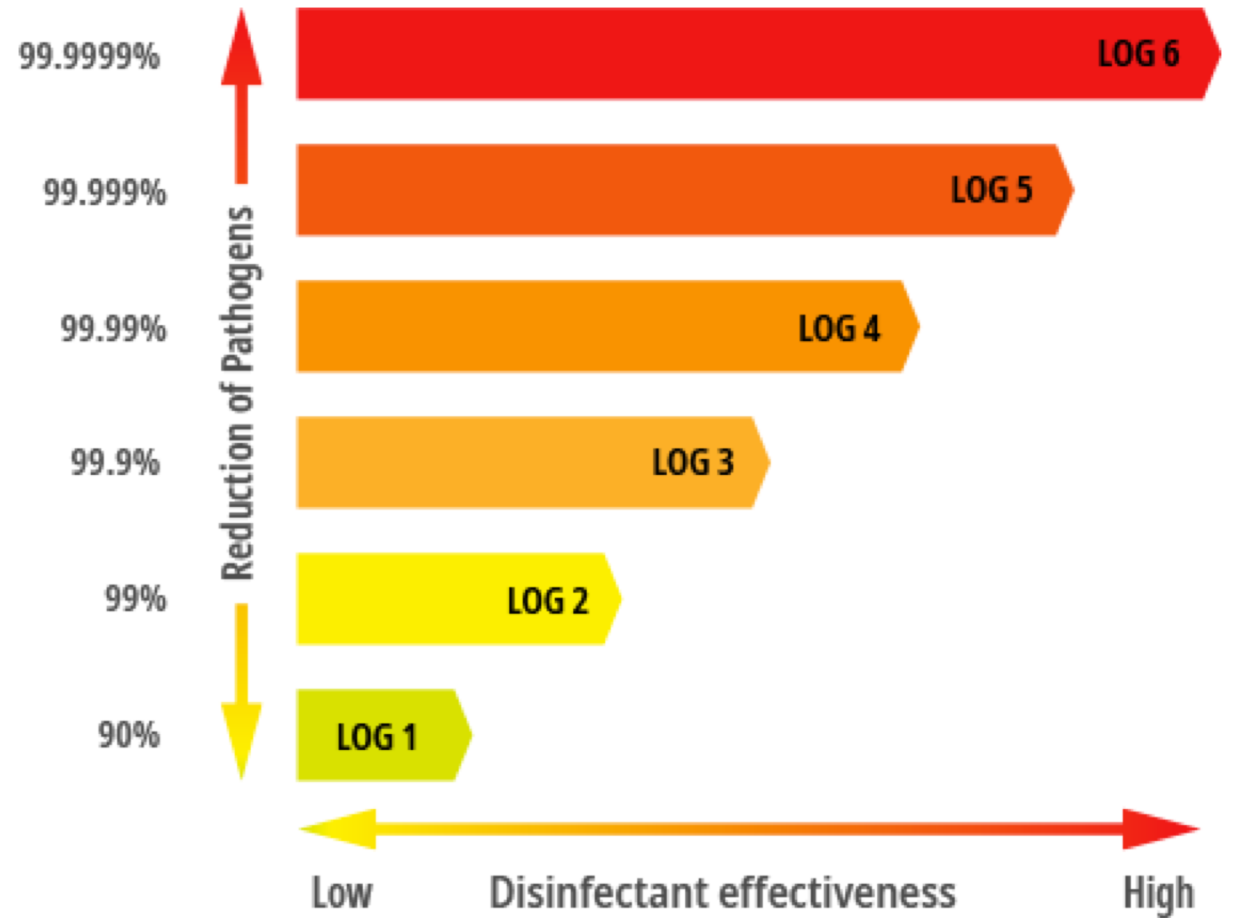
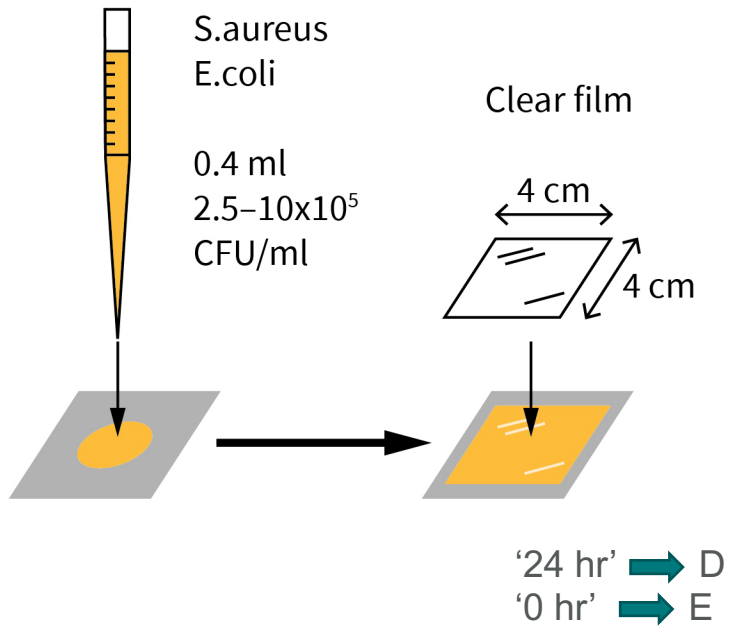
Concentrates:

- Masterbatch
- Liquid solution

100% single solution

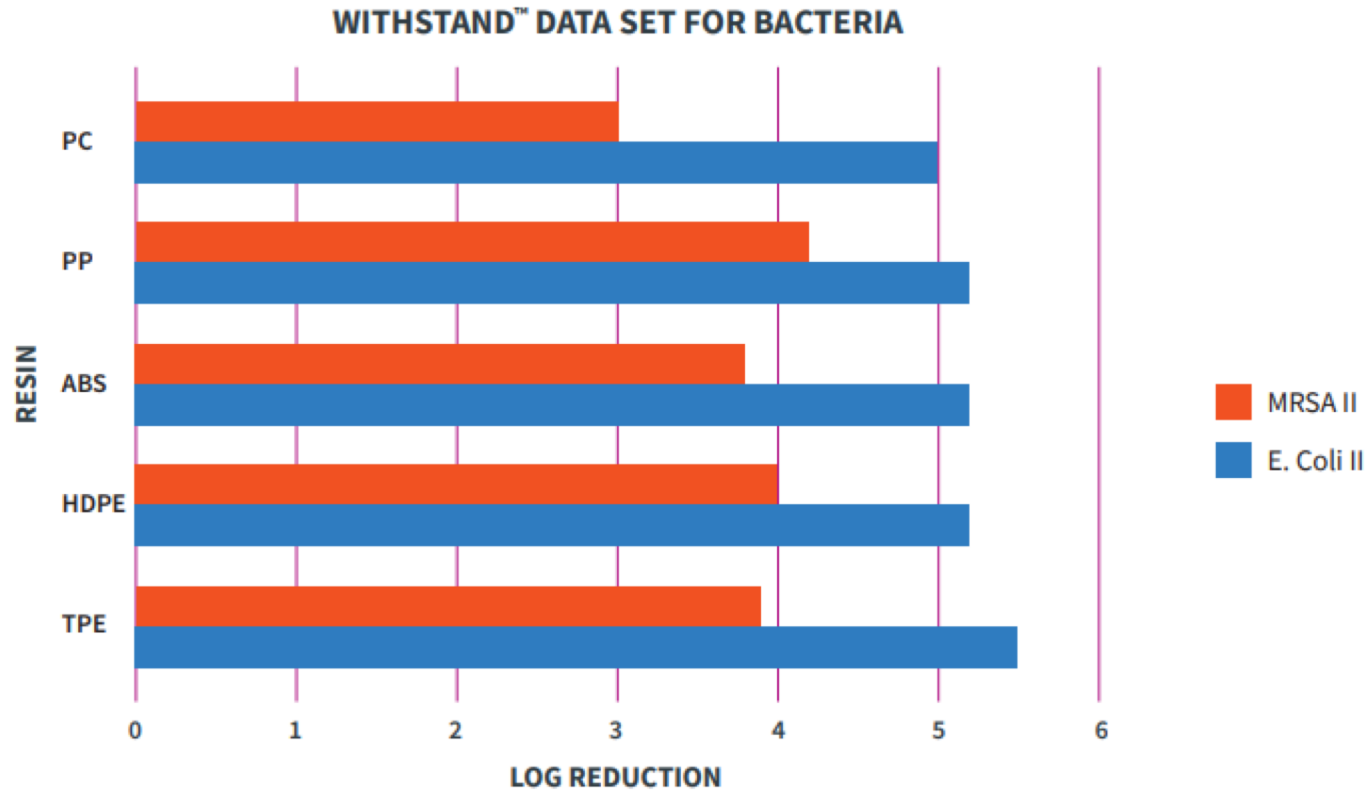
TESTING FOR BACTERIA

Inoculation



DATA SET FOR BACTERIA

WITHSTAND™ ANTIMICROBIAL ADDITIVES



APPLICATIONS



TEXTILE



BUILDING AND
CONSTRUCTION

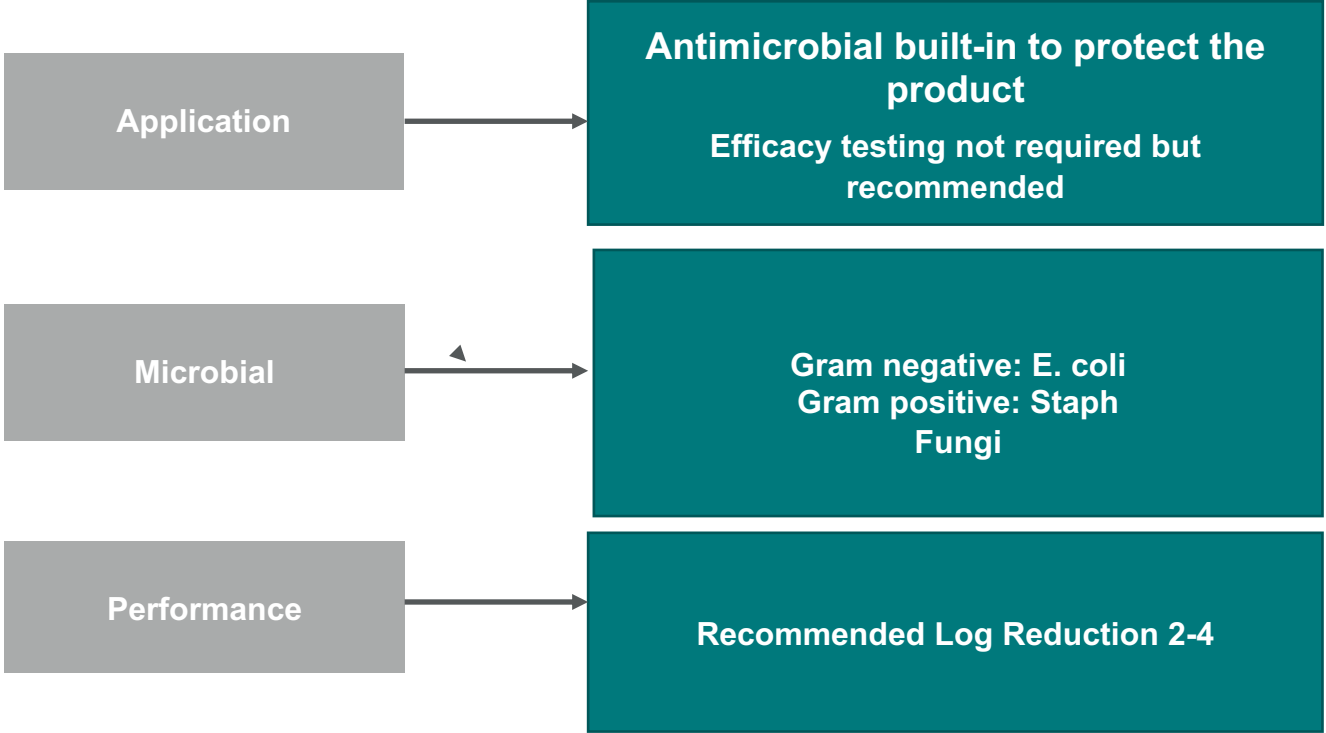


PACKAGING



CONSUMER

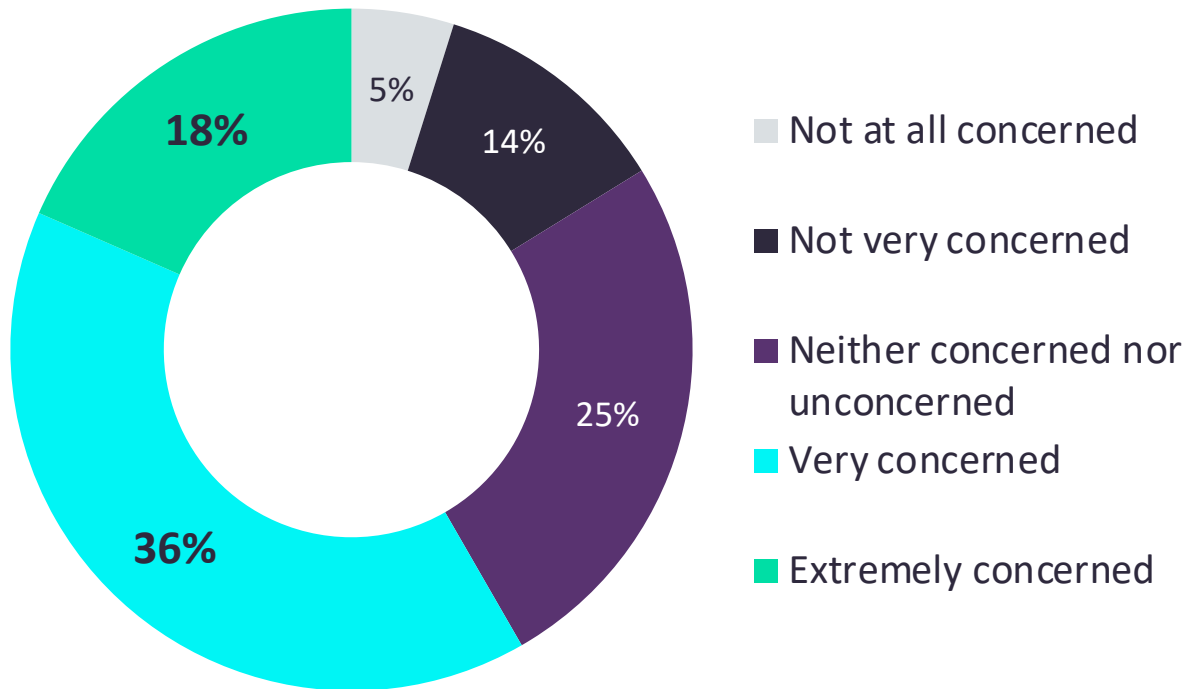
MAKING CLAIMS



Example
“Antimicrobial properties are built-in to inhibit the growth of bacteria that may affect this product. The antimicrobial properties do not protect users or others against bacteria, viruses, germs, or other disease organisms.”

THE CONSUMER HAS SPOKEN

"How concerned are you about exposure to germs and the general risk of infection in your home?" (2016)¹



54%

54% of consumers surveyed were “very interested” or “interested” in having anti-microbial protection in their next personal vehicle²

\$100

Nearly half of respondents indicated they would be willing to pay more than \$100 USD to have an anti-microbial feature²

1. Source: GlobalData's 2016 Q3 global consumer survey
2. Source: IHS Markit, July 13, 2020

REGULATORY CONSIDERATIONS

U.S. FDA: Food and Drug Administration

- For use in food packaging
- For use in cosmetics
- For use in medical devices



U.S. EPA: Environmental Protection Agency

- For use in food contact applications
- For use in other applications



U.S. NSF: National Sanitary Foundation

- For use in water and food contact applications



MANAGING A GLOBAL FOOTPRINT

- Determine where products will be manufactured and sold
- Important considerations
 - Global regulatory requirements
 - Global formulations

A background image showing a business meeting. In the foreground, a person's hand in a light blue shirt is pointing at a document. In the background, another person in a dark suit is holding a pen and looking at a laptop. The scene is brightly lit, suggesting an office environment.

DESIGN CONSIDERATIONS

- Regulatory requirements
 - Base resin
 - Type of processing
 - Part thickness
- Surface finish / part configuration
 - Color and clarity needed

MARKETING CONSIDERATIONS

- What do you want to protect against – bacteria or fungus?
- What claim will you be making?
- How will performance be measured?
 - What is the value-add?

BENEFITS OF USING WITHSTAND™



- Increased speed to market
 - Validated formulations for efficacy
 - Efficacy testing coordination
- Customized solution for application
 - Agnostic approach
- Risk management
 - Regulatory/Product Stewardship
- Global footprint



QUESTIONS?

THANK YOU FOR YOUR TIME!