



**99.99% REDUCTION  
IN THE H1N1  
INFLUENZA VIRUS**

**ON BIOCOTE TREATED MATERIALS**

Outbreaks of influenza caused by the H1N1 virus are a repeated threat. The contagious H1N1 virus spreads effectively between people and, due to widespread international travel, between countries.

July 2009 saw the beginning of the most recent global H1N1 influenza pandemic with around 30,000 confirmed cases reported in 74 countries, although unconfirmed cases make this outbreak undoubtedly more significant. The economic impact of influenza can be huge; the World Health Organisation estimated an H1N1 pandemic could cost the UK economy over £70 billion so a measure with the potential to limit the spread of viral infection is worthy of including in an infection control strategy.

The evidence described here suggests the application of BioCote® antiviral technology has the potential to complement strategies aimed at inhibiting the spread of viruses responsible for the influenza illness.

Viruses cause human disease by infecting cells of the body. Viral disease can be averted if the virus is rendered non-infectious before it enters the body's cells and establishes an infection. Antiviral vaccines typically operate by converting the virus from an infectious to noninfectious form.

This study quantified the conversion of influenza A H1N1 virus from an infectious to non-infectious form because of its exposure to BioCote® containing materials.

#### **Aim**

To understand how effective BioCote® approved silver ion antimicrobial technology is against influenza A H1N1 virus when incorporated into various manufacturing materials.

#### **Method**

Known amounts of infectious H1N1 virus were added to the surface of a variety of materials commonly used for manufacturing that contained BioCote® approved antimicrobial silver ions; specifically acrylonitrile butadiene styrene (ABS), polycarbonate (PC), thermoplastic polyurethane (TPU), polyvinyl chloride (PVC) and polybutylene terephthalate (PBT) polymers, laminated wood board and wet and powder paints.

Exposures were left overnight after which the virus was recovered from the test materials. Viruses still able to infect cells after exposure to BioCote® technology were counted using an immunological microplate plaque assay.

Controls were also included in this study to determine the amount of virus inactivation directly attributable to BioCote® silver technology.



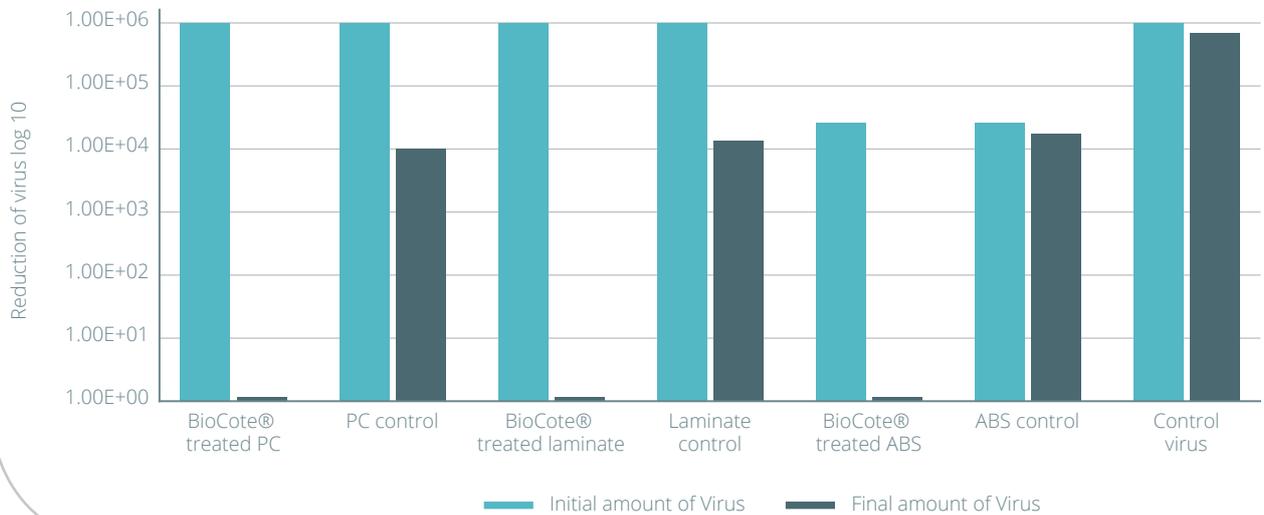
## RESULTS

All BioCote® containing materials demonstrated significant antiviral activity compared to untreated and/or virus controls.

**Figure 1** shows the reduction of infectious H1N1 virus due to its exposure to BioCote treated materials, compared to untreated materials (controls). A control of the H1N1 virus not exposed to any material is also included.



**FIGURE 1** Reduction (in numbers) of infectious H1N1 virus exposed to treated materials



## RESULTS FOR POLYCARBONATE (PC) AND LAMINATE

>99.99%

reduction in viable H1N1 virus particles on BioCote treated PC

>99.99%

reduction in viable H1N1 virus particles on BioCote treated laminate

## CONCLUSION

BioCote® approved silver ion technology is effective at significantly reducing numbers of infectious influenza A H1N1 virus. Antiviral activity was demonstrated by BioCote® containing ABS, PC, TPU, PVC and PBT polymers, laminated board and wet and powder paints.

