Antimicrobial Polymer

Introductions

The Far Eastern Group provides an antimicrobial polymer which can be applied to different finished products depending on the customized applications. Now we have developed the organic phase antimicrobial polymer and water-soluble polymeric agent, which are polymers with the anti-microbial group on the main chain. The mechanism of our anti-microbial is "contact killing way" and no poison will be released in our mechanism. It makes our product safer than small molecule of anti-microbial agents because of avoiding chemical leakage from small molecule.

Also, the functional group of our anti-microbial agent can be regenerated, and the original anti-microbial ability can be recovered when treating in some conditions. It fits the environmentally friendly concept of recycling. The antimicrobial polymer not only reduces bacteria with a high rate (>99.9%) (Fig. 1) but also lowers the overall cost rather than silver-based anti-microbial agent. Therefore, the antimicrobial polymer is potential to be used in more applications. (Fig. 2)

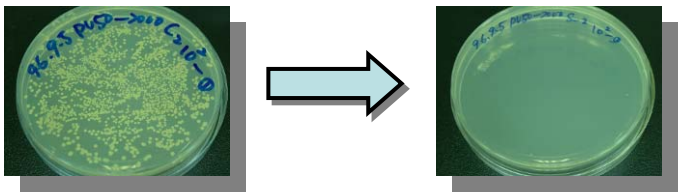
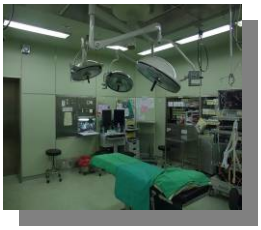


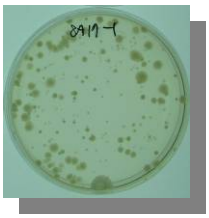
Fig. 1 Reduction rate of 99.9% bacteria

Resin　　Reactive antimicrobial agent　　Water treatment filtration system

Fig. 2 Application of a wide range of products



hospital environment control



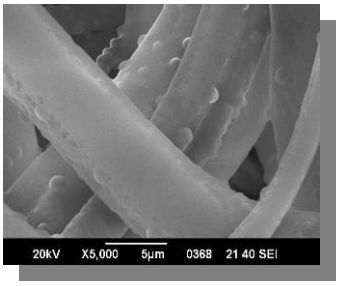
before control

after control

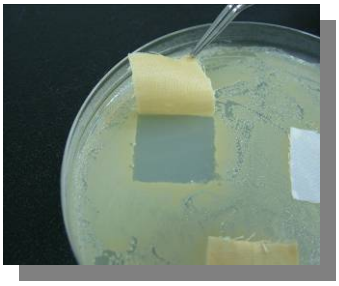
Fig. 3 Using the antimicrobial polymer controls the environment in the hospital. It is effective to achieve the bactericidal effect.

Properties

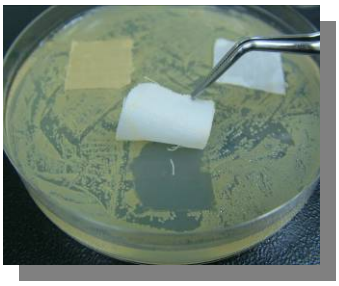
- ✓ high bacteria reduction rate (>99.9%, according to the method of AATCC 100.)
- ✓ long-term bactericidal effect and regenerating bactericidal group (recover its original anti-microbial ability).
- ✓ application of a wide range of products: coatings, textiles (Fig. 4), spray, water treatment filtration system, environment control.
- ✓ pass anti-mold test by SGS
- ✓ no irritation to wound and skin.
- ✓ reducing environmental pollution by natural polymer modification



Textiles after treating the reactive antimicrobial agent SEM (5,000x)



Textiles was treated with reactive antimicrobial agent No colony was found under the textiles.



Textiles was treated without reactive antimicrobial agent Many colonies were found under the textiles.

Fig.4 Textiles after treating the reactive anti-microbial agent can effectively reduce the bacteria growth.

Applications:

- Resin: It can be coated on the surface which the microbial can be easily attached on, or it can be coated on the film.
- Textiles-treating agent: It can treat on the textiles which microbial can easily grow on, such as underwear products, sports clothing and the coverlets, the bedspread in the hospital. With the anti-microbial property, we can increase the added value of textile products.
- Water treatment filtration system: We can add the anti-microbial agent into the water treatment filtration system to eliminate the microbial and ensure the safety of drinking water
- Environment control: After spraying the anti-microbial agent around the environments, we can effectively control the microbial in the environment, such as the hospital area and its air conditioning filters, to reduce the risk of infection.