



## bio-hygienic

### Antimicrobial growth problems and solutions

#### The most significant breakthrough ever in antimicrobial rubber technology

Imagine a situation where the rubber components you incorporate into your products; that form part of your production line; or you include in your plant specification; require much less costly labour-intensive, routine inspection and sterilisation treatment than they currently demand. Imagine rubber that inhibits the growth of any micro-organism; bacteria, fungi or algae and will deter it from contaminating or colonising its surface. Imagine the valuable, virtually unique marketing benefits and added value your products would enjoy.

Imagine the savings on downtime, lost production and maintenance costs. Just imagine how such a technically advanced antimicrobial rubber could improve your products, your productivity, your profitability.

#### bio-hygienic explained

The growth of microbes on rubber surfaces can lead to foul odours, discolouration, the formation of mildew and slime.

Another potential effect of microbial contamination on rubber components is serious surface degradation; a process that can significantly reduce the component's operational lifespan.

Traditional protection against microbial contamination involves thoroughly cleaning and washing with hot water and detergent. Such cleaning procedures, especially where the rubber components are sited in difficult to access locations, can be costly and time consuming. What's more, these procedures do not offer residual protection against further contamination.

Very often, to ensure compliance with health and hygiene regulations, rubber components are simply scrapped and replaced, frequently at significant expense.

bio-hygienic is a pro-active antimicrobial rubber that provides residual protection against microbial contamination, thereby dramatically reducing the necessity for a traditional routine decontamination service agenda.

#### Innovative patent pending technology

Bio-hygienic's innovative patent pending technology can be produced in a wide range of specialist compounds to meet a broad spread of needs. It incorporates a **zirconium phosphate-based ceramic, ion-exchange resin containing silver**, which is acknowledged to be safe for human contact, and is recognised for its antimicrobial effectiveness against a broad spectrum of micro-organisms. Unlike most organic biocides, bio-hygienic can be used in food contact situations and is designed for use in pharmaceutical and medical industries.

bio-hygienic  
is not  
imagination.  
It is reality.  
Available now.



#### Products:

- O-rings
- Oilseals
- Profiles
- Sheets
- Mouldings

#### Standard bio-hygienic RX Types:

- bio-hygienic® RX EPDM 70 black
- bio-hygienic® RX Viton® 70 black
- bio-hygienic® RX Silicon 70 red
- bio-hygienic® RX HNBR 70 yellow



## bio-hygienic

### Non-leaching

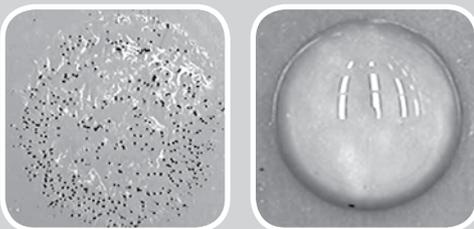
This antimicrobial agent forms an integral part of the rubber compound. It is not simply a skin or liner, and therefore the antimicrobial properties always remain active. Furthermore, any abrasion or wear to the surface of the rubber actually increases the exposure of the silver and with it the efficacy of its antimicrobial qualities.

- Designed for use in pharmaceutical and food processing technology, water treatment, medical equipment, beverage production and dispensing, and for close human contact.
- Provides effective microbial protection against a broad spectrum of micro-organisms.
- Available in a wide range of technical rubber compounds.
- Can be incorporated as part of a customised compounding facility.
- Forms an integral part of the rubber compound, is durable and non-leaching.
- Does not affect colour stability of the compound.
- Has no taste. Contains no smell.
- Non-toxic, non-flammable, non-corrosive.

### Proven bio-hygienic efficiency is supported by substantial technical data

Pictures show contaminated water droplets. The sample on the left, which is on an untreated rubber surface, displays healthy growth of fungi.

The sample on the right, exposed to silver ions in bio-hygienic® rubber is virtually clear of any fungal contamination.



### The effect of silver on healthy bacteria



Healthy bacteria



DNA condenses on itself

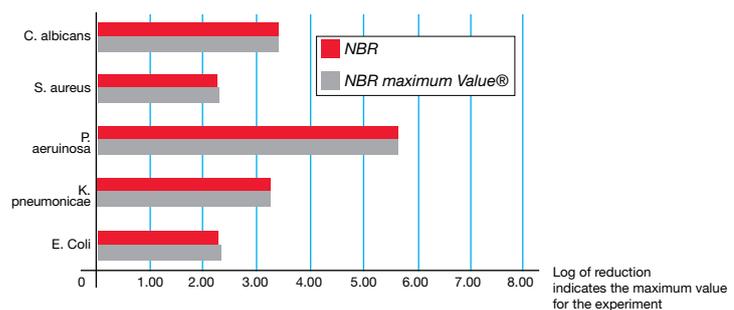


Formation of electron dense granulate



Cell wall decomposes

### bio-hygienic NBR Rubber Exhibiting Safe and Durable Antimicrobial properties



### bio-hygienic EPDM Rubber Exhibiting Safe and Durable Antimicrobial properties

