



Gammacolor s.r.l.  
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Associazione Tessile e Salute  
Azienda associata

p.IVA 00736390964 C.F. 02639210158 c.c.i.a. Milano n. 927455 Codice ISS azienda 00736390964

## GAMMA RH

Permanent antimicrobial agent for finishing on any type of fiber.

Static biocide: does not migrate or affect adjacent substrates.

Easy to apply.

OEKO-TEX® approved (white list)

Free from silver ions.

**CHEMICAL NAME:** quaternary ammonium organosilane

**APPEARANCE:** colorless transparent liquid

**STORAGE:** Properly stored (sealed containers and temperatures between 5 and 35 ° C)  
for at least 6 months.

**DENSITY:** 0.99 - 1.01 g / ml at 20°C.

**pH:** 6.5 - 7.5 at 5% in water at 20°C.

**SOLUBILITY:** it is soluble in water, methanol and other solvents

**ION CHARGE:** cationic

**STABILITY:** stable in hard water and solutions of weak acids and bases

**COMPATIBILITY:** it is compatible with non-ionic and cationic products

**BIODEGRADABILITY:** GAMMA RH is easily biodegradable above 70% (OECD 302B).  
APEO free.



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## GAMMA RH

### FUNCTIONS AND ADVANTAGES (I)

Applicable on all types of fabrics: guarantees permanent protection against a wide range of microorganisms regardless of the type of substrate on which it is applied

The most outstanding feature of this new biocide is that it does not migrate.

This product is static, it remains attached to the fiber and its activity develops exclusively on the support material.

Most of the biocides on the market are dynamic due to their high migration capacity, and act not only on the substrate they protect but also on the surrounding area, creating an undesirable influence or protection zone.

This leads to several problems.

On the one hand, the product is removed by migration and washing.

Then, this migratory capacity endangers the surfaces that must be protected, for example human skin, as it can remove the flora from the surface of the latter.

For this reason, most of the current dynamic biocides are excluded from industrial application.

If GAMMA RH is applied properly, it is fast up to 25 continuous washing cycles without migrating to its surroundings.

Particularly suitable for finishing fabrics that are in contact with the skin.

## GAMMA RH

### FUNCTIONS AND ADVANTAGES (II)

GAMMA RH prevents deterioration and / or discoloration caused by microorganisms.

The treated products maintain their freshness and above all prevent the onset of odors caused by bacteria and fungi.

It increases the duration of the treated products.

## GAMMA RH

### METHOD OF ACTION (I)

GAMMA RH is a unique product thanks to its special composition.

Each part of the molecule serves a specific purpose.

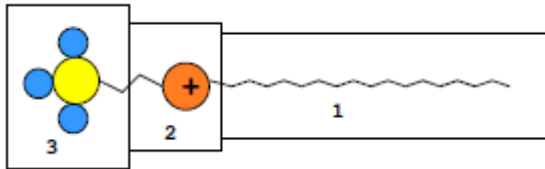


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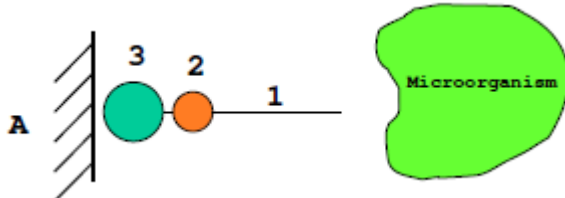


Part 1 is formed by a long aliphatic chain which has an affinity for the cell membrane.

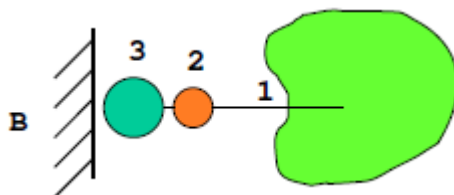
Part 2 has a strong positive charge.

Part 3 is an organosilane group that allows polymerization and to obtain water insoluble pre-polymers.

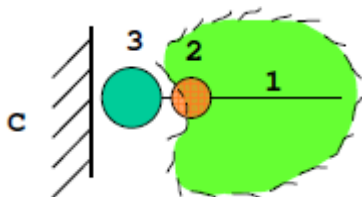
#### GAMMA RH METHOD OF ACTION (II)



The cell membrane of the microorganism has an affinity for part 1



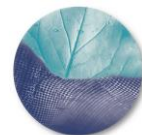
Part 1 is introduced into the microorganism



Part 2 penetrates the microorganism causing its death



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## GAMMA RH FIELDS OF APPLICATION

DECORATIVE FABRICS for furniture, carpets, upholstery.

BED sheets, blankets, bedspreads, sheets, sleeping bags, pillows

UNDERWEAR for men and women, socks and tights

OUTDOOR ITEMS

SPORTING ITEMS

SPORTS SHOES AND INSOLES

BATH CURTAINS

AIR-WATER FILTERS

NON-WOVEN FABRICS

LINEN WASHING

## GAMMA RH ACTIVITY (I)

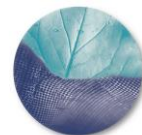
GAMMA RH acts on:

Gram positive bacteria:

Bacillus subtilis  
Corynebacterium sp.  
Lactobacillus sp.  
Listeria monocytogenes  
Methicillin-resistant  
Staphylococcus epidermidis  
Staphylococcus aureus  
Streptococcus faecalis  
Streptococcus pneumoniae  
Streptococcus mutans  
Shigella sonnei  
Bacillus cereus



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Gram negative bacteria:

Aerobacter aerogenes  
Acinetobacter sp.  
Enterbacter sp.  
Escherichia coli  
Klebsiella pneumoniae  
Mycobacterium smegmatis  
Mycobacterium tuberculosis  
Proteus vulgaris  
Proteus mirabilis  
Pseudomonas aeruginosa  
Pseudomonas cepacia  
Pseudomonas fluorescens  
Salmonella typhosa  
Salmonella choleraesius  
Serratia narcescens

Yeasts:

Candida albicans  
Saccharomyces cerevisiae  
Oscillatoria borneti LB143  
GAMMA RH  
ACTIVITY (II)

Fungus:

Aureobasidium pullulans  
Aspergillus farres  
Aspergillus niger  
Aspergillus repens  
Aspergillus terreus  
Aspergillus versicolor  
Aspergillus fumigatus  
Penicillium albicans  
Penicillium citrinum  
Penicillium elegans  
Penicillium funiculosum  
Penicillium humicolor  
Penicillium notatum  
Penicillium variable  
Pullularia pululans  
Cladosporium herbarum  
Tricophylon mentagrophytes  
Tricophylon interditalie



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Tricophylon  
Mucor sp.  
Chaetomium globosum  
Rhizopus nigricans  
Fusarium nigrum  
Fusarium solani  
Gliocladium roseum  
Oospora lactis  
Stachybotrys chartarum  
Trichoderma flavus

Algae:

Cyanophyta (azul-verde) occillatoria  
Cyanophyta (azul-verde) anabaena  
Chrysophyta (marrón)  
Chlorophyta (verde) Seienastum gracile  
Chlorophyta (verde) Protococcus  
Anabaena cylindrica  
Selenastrum gracile B-325  
Pleurococcus sp. LB11  
Schedesmus quadricauda  
Gonium sp. LB 9c  
Volvox sp. LB 9  
Chlorella vulgarus

**GAMMA RH**  
**APPLICATION (I)**

GAMMA RH can be applied on any textile fiber.

The product can be applied by exhaustion, impregnation, spray, pulverization (the latter method typically for carpets)

Application for exhaustion

GAMMA RH can be applied for exhaustion thanks to its cationic character.

Typical concentrations are between 2-4% on the weight of the goods.

A 90% reduction in microbes is achieved after a minimum of 25 washing cycles.

Before the finishing application, the fabric must be free from impurities from previous treatments, dye, etc.

The bath must be previously acidified with acetic acid at pH 5 - 5.5.



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Heat the bath to 40-50 ° C and keep for 15 - 20 minutes to ensure the total exhaustion of the product.

A compatibility check must be performed when used in conjunction with fabric softeners.

Usually, drying is done after, and then polymerize for 30 seconds at 150-160 ° C

## GAMMA RH APPLICATION (II)

Application by impregnation

The doses for the application by impregnation are very variable.  
The concentrations of use vary between 25 - 50 g / l of GAMMA RH

Pick up: 80%

GAMMA RH has a permanent effect of at least 25 washes. It is recommended to apply together with GAMMAPRET MP to get better fastness to washing up to over 40 cycles

Before the finishing application, the fabric must be free of impurities from previous treatments, and adequately neutralized.

The pH of the tissue must be below 6 to ensure fixation and avoid yellowing.

The bath must be previously acidified with acetic acid at pH 5 - 5.5.

To achieve good cure, the fabric must be dried and then cured for 1 minute at 150-160 ° C.

GAMMA RH

## IMPORTANT

**When handling this product, it is important consult the safety data sheets at your disposal.**

**To our knowledge, GAMMA RH has no health side effects.**

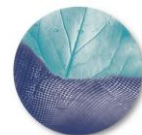
**However, it is important to respect and follow safety standards for handling chemicals.**

**The information contained in this technical data sheet is the result of our experience. We cannot be held responsible for any changes in use or conditions of use of this product.**

**Users are responsible for the correct application of the product.**



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Keywords: antimicrobial, antibacterial, biocide

**The data reported are the result of accurate studies and / or experience gained, however they must be considered indicative and in any case without any guarantee on our part for use.**

**The data contained in this sheet are not to be considered specific.**  
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