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## Ciba<sup>®</sup> TINOSAN<sup>®</sup> SDC

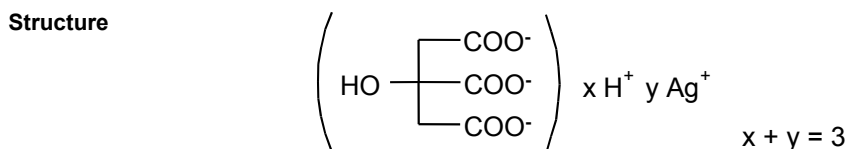
### Antimicrobial

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**Characterization** TINOSAN<sup>®</sup> SDC is a new antimicrobial based on a stabilized silver complex produced by an unique electrochemical process with silver and citric acid.

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**Chemical nature** Water soluble silver salt of citric acid.



**INCI name** Citric acid (and) silver citrate

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**Product form** Colourless, low viscous liquid

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**Features/benefits** TINOSAN<sup>®</sup> SDC provides a broad spectrum antimicrobial activity and is effective against unwanted skin bacteria and pathogenic micro organisms. It's fast-killing activity makes TINOSAN<sup>®</sup> SDC an effective antimicrobial for home & personal care products including I&I and hospital formulations.

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**Applications**

- Deodorant active for Personal Care products
- Antimicrobial active ingredient for Personal Care products
- Preservative for Personal Care products
- Biocide for Household, I&I and hospital products

Due to different national regulations for antimicrobials, biocides and preservatives, the local registration status has to be considered.

A list TINOSAN<sup>®</sup> SDC registration status is available from Ciba Specialty Chemicals on request.

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**Guidelines for use**

Skin Care products	0.1% - 0.3%
Home Care products	0.1% - 0.5%

TINOSAN<sup>®</sup> SDC shows good compatibility in most formulations at pH <7 with anionic and non-ionic surfactants, emulsifiers and with amphoteric surfactants. TINOSAN<sup>®</sup> SDC is compatible with many other antimicrobial actives including Irgasan<sup>®</sup> DP 300 and most preservatives. Combination of TINOSAN<sup>®</sup> SDC with cationic ingredients and incorporation in formulations with pH above 7 should be avoided.

Exposure of TINOSAN<sup>®</sup> SDC or TINOSAN<sup>®</sup> SDC-containing formulations to light should be avoided and the product preferably be stored in containers that provide protection against light. Final formulations should be tested on light stability in case they are sold in transparent packaging.

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**Instructions for Incorporation**

TINOSAN® SDC is highly water soluble and easy to incorporate into the aqueous phase of gels, surfactants and emulsions made by a cold process. In the manufacturing of emulsions produced by hot processes, the antimicrobial active should preferably be added to the final formulation after the emulsion has cooled down. For formulations sensitive to acids, TINOSAN® SDC can be pre-neutralized prior to addition to the product. Exposure of TINOSAN® SDC to pH's higher than 7 and temperatures above 50°C should be avoided in order to achieve optimal formulation stability. High salt concentrations can reduce the bactericidal activity whereas anionic surfactants in a concentration of 0.03% to 1% increase the biocidal efficacy of TINOSAN® SDC.

**Broad Spectrum Efficacy Minimum Inhibitory Concentration (MIC) of TINOSAN® SDC**

Microorganism	% TINOSAN SDC
<i>Gram-positive bacteria</i>	
Bacillus subtilis ATCC 6633	0.16
Corynebacterium minutissimum ATCC 23348	0.12
Corynebacterium xerosis ATCC 373	0.12
Micrococcus luteus ATCC 10240	0.08
Staphylococcus aureus ATCC 6538	0.16
<i>Gram-negative bacteria</i>	
Enterobacter gergoviae ATCC 33028	0.16
Escherichia coli ATCC 10536	0.08
Klebsiella pneumoniae ATCC 4352	0.16
Proteus mirabilis ATCC 14153	0.16
Pseudomonas aeruginosa ATCC 15442	0.16
Pseudomonas fluorescens ATCC 17826	0.16
<i>Yeasts &amp; Moulds</i>	
Aspergillus niger ATCC 16404	0.5
Candida albicans ATCC 10231	0.12
Malassezia furfur DSM 6171	0.25
Trichophyton mentagrophytes ATCC 9533	0.5

**Package, Handling & Safety**

In accordance with good industrial practice, handle with care and prevent contamination of the environment. Avoid ignition sources. For more detailed information please refer to the material data sheet. TINOSAN® SDC is provided in light resistant packaging.

**Safety & Registration**

Detailed information on product safety and the registration status is available on request.

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