

Product Fact Sheet



JMAC™ LP 10

Antimicrobial active

CLARIANT INTERNATIONAL LTD

COMPOSITION

Aqueous dispersion of silver chloride and titanium dioxide

Rothausstrasse 61
4132 Muttenz
Switzerland

PRODUCT PROPERTIES^{*)}

Silver chloride content	About 2%
Ionicity	Anionic
Appearance at 25 °C	White liquid
Freeze point	About 0°C
Density at 25 °C (DIN 51757)	About 1,0 g/cm ³
Brookfield viscosity (Sp. 4/20 rpm)	About 3500 mPas

BUSINESS UNIT INDUSTRIAL &
CONSUMER SPECIALTIES

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^{*)} These characteristics are for guidance only and are not to be taken as product specifications. The tolerances are given in the product specification sheet. For further information on product properties, toxicological, ecological and safety data, please refer to the safety data sheet.

USE

JMAC™ LP 10 is used as antimicrobial agent with low toxicity in a wide range of applications. Following are some examples:

- Paints and coatings
- Paper and paper board
- Emulsion polymers
- Textile applications
- Chalks, sealants and adhesives

JMAC™ LP 10 is used in a wide pH range of 3 – 12. The active component is a silver chloride / titanium dioxide compound which is stable in dry form to temperatures of up to 300°C without losing antimicrobial effectiveness.

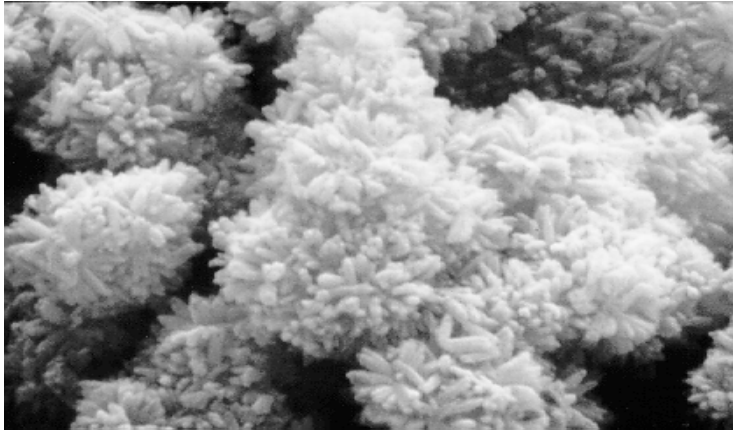
The effective dosage should be tested in appropriate challenge tests prior to use. Typical dose levels in liquid, aqueous formulations are 0,25 – 1,0% JMAC™ LP 10.

MECHANISM OF ACTION

When JMAC™ LP 10 is formulated in aqueous media, a saturated solution of silver chloride is formed around the titanium dioxide particles. Silver ions diffuse from the particles to the aqueous phase and form an equilibrium concentration. Silver ions react destructively within microbial cells by interruption of cell membrane, enzyme inhibition and interrupting DNA.

JMAC™ ACTIVE

Electron microscopy of silver chloride on titanium dioxide particles



MICROBIAL DATA

JMAC™ LP 10 has a broad spectrum of activity which is demonstrated by the following MIC data.

MIC Levels	Organism	MIC (ppm)
Bacteria		
	<i>Pseudomonas aeruginosa</i>	8
	<i>Pseudomonas fluorescens</i>	5
	<i>Pseudomonas olovorans</i>	5
	<i>Citrobacter freundii</i>	10
	<i>Proteus vulgaris</i>	10
	<i>Escherichia coli</i>	10
	<i>Staphylococcus aureus</i>	20
Fungi / Yeast		
	<i>Aspergillus niger</i>	250
	<i>Candida albicans</i>	250



CHEMICAL COMPATIBILITY AND STABILITY IN FORMULATIONS

JMAC™ LP 10 is compatible with most raw materials used in the manufacture of industrial products. Under reducing conditions JMAC™ LP 10 can cause discoloration by the formation of metallic silver. Reducing agents can give rise to rapid formation of blue-grey-pink color. Compatibility should always be checked and evaluated before use.

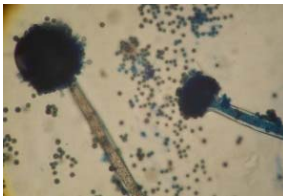
When adding JMAC™ LP 10 to formulations of low viscosity titanium dioxide and silver chloride particles can precipitate. To overcome sedimentation the rheology of the preparation needs to be adjusted.

HANDLING AND STORAGE

Protect from exposure to cold during transport and storage. The properties of the product are irreversibly altered upon exposure to cold. At below 0°C grey discoloration occurs and the product becomes inhomogenous and separates irreversibly. The precipitates can not be homogenized by warming up.

The storage of JMAC LP 10 at higher temperatures than room temperature (15 – 25°C) will lead to reduces shelf life. JMAC LP 10 tends to separate and precipitate above temperatures of 40°C. Precipitates will agglomerate and will irreversibly perish the product.

Use biocides safely. Always read the label and product information before use. Any usage shall comply with the Biocides Product Regulations 2012-538-EC.



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