# Fluorescent Whitening Agents For Paper

# MEGA WHITE

## SI LIQUID

### APPLICATION

Multipurpose FWA for high whiteness levels

### FORMULATION

Environmentally friendly product

### SPECIAL BENEFITS

Economical
Works well in size press application.
Reaching high whiteness levels

# MEGAWHITE SI LIQUID

**Megawhite SI Liquid is a terasulpho - type Fluorescent Whitening Agent [FWA] for paper. It has a broad Spectrum of application, good general properties and is largely unaffected by pH.**

## Uses

### Megawhite SI Liquid in the wet end.

**Megawhite SI Liquid** is an appropriate FWA to be used in sized, unfilled and filled papers and boards at pH 4 - 9 as well as in upsized paper, provided water hardness is above 50 ppm CaO.

### Megawhite SI Liquid at the size press

**Megawhite SI Liquid** works well in starch based size press liquors, and in combination with CMC, PVA and synthetic binders.

To obtain the best possible results with **Megawhite SI Liquid.** The base papers should be produced at a pH no lower than 5.

### Megawhite SI Liquid agents in the coating.

Megawhite SI Liquid is used in coating mixes containing combinations of natural and synthetic binders and the usual pigments at pH 7- 11 for low to medium whiteness. The FWA effects is largely dependent on the type and amount of co-binder used, such as

Starch, CMC, PVA, etc.

## Properties

| | |
|---|---|
| **Appearance** | Clear, Yellow to yellowish brown liquid. |
| **Chemical constitution** | Diaminostibene disulphonic acid derivative |
| **Miscibility** | Can be mixed with water in all properties |
| **PH** | 8.0 - 10.0 |
| **Density at 25 °C** | 1,19 g/ml |
| **Viscosity at 25 °C** | Lower than 50 mPa.s ($D= 10S^{-1}$) |
| **Ionic character** | Anionic |

## Storage stability

**Megawhite SI Liquid** is shows a high level of stability in storage and cold temperatures. Prolonged storage in temperatures below 0° can results in product freezing. Frozen product can be restored to its original state without loss of effectiveness be leaving to stand at room temperature or heating briefly to temperature no higher than 60 °C

## Shade

**Megawhite SI Liquid** gives a neutral shade in all applications. It only has a tendency to produce a greenish hue if too large amounts are used.

## Fastness Properties

The product's light fastness and stability to acids and alkalis are comparable to those of other fluorescent whitening agents with the same chemical constitution.

## Ecology / toxicology

The usual hygiene and safety rules for handing chemicals must be observed in storage, handling and use.

Median lethal dose in rats **($LD^{50}$)** is about 5300-mg/kg-body weight. Tests with rabbits showed no irritation on the skin or mucous membranes.

The product is partially eliminated by the microorganisms in activated sludge and does not impair their effectiveness in amounts of up to 300mg/l. Trout withstand up to 1000 mg/l (the highest concentration tested) on brief exposure (48 hours).

## Megawhite SI Liquid in the wet end application

**Megawhite SI Liquid** can be added either batch wise in the pulper or mixing chest or continuously at suitable dosing points in the stock preparation system.

Care must be taken that the product is applied prior to either alum or cationic auxiliaries.

Although **Megawhite SI Liquid** has medium to high affinity for cellulose, the whiteness depends on the treatment time and the consistency of the furnish.

The best effects is dosed at a points where the furnish is of high consistency.

This is particularly important is soft water is being used.

Average dosage 0.05-1.0% ***Megawhite SI Liquid*** {*based on the weight of bone dry Cellulose*}.

## Megawhite SI Liquid at the size press application

**Megawhite SI Liquid** performs well with the conventional starch qualities used at the size press. It can be used together with CMC, PVA, and anionic and weakly cationic and weakly cationic synthetic sizing agents. Its effectiveness is influence by the Ph of the base paper. The best effects are obtained if the pH of the base paper is above 5.

If the pH of the starch is below 5.0 we would recommend using **Megawhite AS Liquid** or **Megawhite BSU Liquid.**

It is preferable to add **Megawhite SI Liquid** undiluted to the ready-prepared size press liquor.

Average dosage *05 7.5 g/l* ***Megawhite SI Liquid*** *in size press liquor.*

MEGA WHITE

In as special case, e.g. if liquor pick-up is low owing to the condition of the equipment and/or hard sized base paper, amounts of up to 25g/1 can be used.

The required whiteness level can usually be obtained cost effectively by optimally dividing application of the FWA between the furnish and the size press.

- **Megawhite SI Liquid in coating.**

FWAs of the diaminostilbene disulphonic acid derivative class do not have adequate affinity for coating pigments and synthetic lattices bade on copolymers of acrylic acid ester or butadiene styrene. To achieve the best erect with FWAs co-binders are essential as carriers.

Suitable carriers for **Megawhite SI Liquid** are (in order of decreasing effectiveness) PVA, CMC, starch and synthetic co- binders.

The best effects of **Megawhite SI Liquid** are obtained with the following amounts of co-binders, based on solids content:

| | |
|---|---|
| PVA | 1.2parts |
| CMC | 1.2parts |
| Starch | 6.Oparts |
| Synthetic co-binders | O.4parts |

For reasons of rheology and printability it is not always possible in production to use as sufficient amount of co-binders that promotes the best whitening effects. In this case we recommend using our boosted FWA products.

To a very limited degree, cross-linking agents based on melamine and urea formaldehyde are also effective as carriers for FWAs.

Megawhite SI Liquid can be used at pH 7-11 and does not affect the rheological properties of various coating colours.

Megawhite SI Liquid can be added undiluted at almost any stage in the preparation of coating compounds.

Average dosage 0.2 - 1.0 parts based on the coating pigment.

To obtain very high whiteness levels, we recommend our specialty FWA products (Megawhite AS liquid and Megawhite BSU liquid)

The information and recommendations contained in this data sheet are to the best of our knowledge correct, but no guarantee is given in this respect and no responsibility can be accepted for the results obtained.

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