

Technical Data Sheet

Formitex Super plus

Uses

Product with pH regulating properties for core neutralization and demineralization

Properties

Chemical properties	pH Regulating Agent
Appearance	Clear liquid
Specific weight at 20°C	1.04g/cm
Ph value of a 10% solution	1.0 to 1.5
Stabilities	Formitex Super plus is stable to hard water and to the chemicals normally applied in dyeing. The product is not sensitive to frost.

Characteristics

- Foam free and clear liquid.
- It has no mineral acid (Free from Sulphates, Chlorides, Nitrates, Phosphates)
- Dilute with cold water, any proportion.
- Formitex Super plus is stable to chemicals /auxiliaries normally used in the dyeing bath and to hard water.
- Formitex Super plus is non-volatile.
- It allows the adjustments of neutral to slightly acidic pH on the substrate.
- The product does not cause any fiber damaging in comparison with mineral acid.
- Uniform pH regulation capacity in overall the pH range and finishing recipes

Dilution

Formitex Super plus is miscible with cold and warm water at every ratio.

Advantages of product employ

A pH regulating with Formitex Super plus has the following advantages:

- No yellowing of fabric during drying by residual alkalis.
- Elimination of alkaline earth ions.
- Lower charge of electrolytes of the fabric.
- No problems in pigment printing by residual alkalis.
- Better crease angle in resin finishing by lower mineral content of the fabric.
- Product with pH buffering properties for regulating and demineralization.
- Lower residual formaldehyde values when resins with little formaldehyde are applied
- No deposit of rollers during finishing with reactive softener.
- Lower content of carbon in exhaust air.
- Lowest possible costs for chemicals.
- Good buffering capacity.
- Elimination of hardening substances and heavy metals.

Application

- The product allows the adjustment of neutral to slightly acid pH values on the material. In normal industrial concentrations the product does not cause any fiber damaging in comparison with mineral acids.
- Formitex Super plus is not volatile and does not have any corrosive effect. Therefore, there is no corrosion on stenters or wet finishing machines.
- The storage and dosage of Formitex Super plus in tanks/dosage pipelines made of stainless steel is possible.
- The pH value of the material treated by Formitex Super plus does not change, not even during longer storing times.
- By application of Formitex Super plus for the neutralization, the pH change on the fabric by alkaline industrial water is compensated

Application for demineralization of cellulosic fibers

- Elimination of hardening substances and heavy metals.
- Improved dyeing effect in case of dyes which are sensitive to hardening substances
- Higher degree Of whiteness in following peroxide bleach.

Formitex Super plus is used to adjust neutral to slightly acid pH-values after alkaline finishing processes

Neutralization of strongly bond alkali

The residual alkali remains on the good after alkaline scouring caustifying, bleaching, mercerizing and even after washing out.

This has to neutralize before further treatment. Due to the special buffer characteristics of Formitex Super plus, a neutral pH value is obtained very efficiently and quickly

Advantages over other acids donors

The advantage over Acetic acid is that even if the product is slightly over dosed, the pH value does not drop quickly.

Moreover a subsequent rise of the pH value due to evaporation of volatile acid and components in the streamer is ruled out

Identification of CL-

Soluble: Nitric Acid 1% + Silver Nitrate 10%+ Buffer —If ppt is observed then Cl ions present.

Insoluble: Buffer + H₂SO₄ 0.5% + Silver Nitrate 10% — if ppt is observed then Cl ions present

Identification of SO₄

Add dilute hydrochloric acid and barium chloride in buffer solution to produce barium sulphate as severe SO₄ precipitation.

Add lead nitrate with buffer solution to form lead sulphate as severe SO₄ precipitation

To Check the intensity of minerals matters

In order to check the presence of sulphate, chloride, phosphates, nitrates ions and other mineral matters take ready for dye fabric (pure cotton) then pour few drops of buffer solution on it and dry it, if jet black color appears then presence of minerals matter in the buffer product.

Recipe proposal

Discontinuous application (VAT, JET Machine)

Neutralization with Formitex Super plus on discontinuous working procedures (vat, jet machine) the application concentration depends on the following parameters:

- Residual alkali content in the liquor and on the fabric
- pH of industrial water.
- Desired pH value of the bath or the fabric.
- Weight and structure of the fabric.

For neutralization/extraction after alkaline, discontinuous processes we recommend the addition of Formitex Super plus in rinsing bath;

To obtain a neutral pH on full white substrate together with softer, Formitex Super plus can be applied together with softener

Application Quantity

Formitex Super plus	0.1-2.0%
Treatment temperature	40-70°C
Time	10 mins

Application Quantity

Formitex Super plus	0.5-0.3%
Softener	X%
PH	5.5
Time and Temp	20mins at 40°C

Continuous washing machine

Neutralization with Formitex Super plus on continuous washing machines; the application concentration depends on the following parameters:

- Residual alkali content of the fabric.
- pH of industrial waters.
- Desired pH value on the fabric. Weight and structure of the fabric.
- Contact time of the fabric with the neutralization bath.

pH controlled dosing to the last washing box:

In case of continuous washing machine Formitex Super plus can be dosed to the penultimate or to the last washing box. For pH controlled dosing we recommend a pH-value of 4.3-5.0 at the control device of the acid dosing.

Formitex Super plus can be added in undiluted form to the washing liquor by means of pH controlled dosing pumps

Dosing without pH control on continuous washing machines

The dosage of Formitex Super plus can be affected directly into the counter-flow of the washing machine in dependence of the residual alkali content of the fabric industrial trials show that in most cases a sufficient neutralization is obtained by applying 0.3-0.5% Formitex Super plus

Demineralization of natural and synthetic substrate containing Alkaline earth metals & heavy metals woven fabrics

Pad batch method

Demineralization in pad batch procedure

Formitex super plus	1g/l - 5g/l
Quest NE	1.0 - 2.0 g/l
Surface DSW	1.0 - 3.0 g/l
Liquor pick-up	80 - 100%
Impregnation temp	50 - 70° C
Dwell time	2-6 hours

Pad stamp method

Demineralization in pad steam procedure

Formitex super plus	3.0-6.0 g/l
Quest NE	1.0-2.0 g/l
Surface DSW	1.0-3.0 g/l
Liquor pick-up	80-100%
Impregnation temp	20-50° C
Dwell time	2-10 mins

Washing machine method

Demineralization on the washing machine

Formitex super plus	1.0-5.0 g/l
Surface DSW	0.5-1.0 g/l
Temperature	70-90° C
Dwell time	2-10 mins

Discontinuous method

Demineralization on the discontinuous method

Formitex super plus	0.5-4.0 g/l
Surface DSW	0.5-1.0 g/l
Temperature	40° C
L-R	10:1
Time	30 mins

On woven fabrics with acrylate or CMC size it is necessary to avoid precipitation of size by desize the fabric before the demineralization

Knits fabrics J-box Method

Demineralization on J-box dwelling band;

Formitex super plus	2.0-5.0 g/l
Quest NE	1.0-3.0 g/l
Surface DSW	1.0-3.0 g/l
Liquor pick-up	100-130%
Dwell time	2-20 mins
Impregnation temp	50-70° C
Dwell temp	30-70° C

Washing machine method

Demineralization on the washing machine;

Formitex super plus	1.0-5.0 g/l
Quest NE	1.0-3.0 g/l
Surface DSW	0.5-1.0 g/l
Temperature	70-90° C
Dwell time	30-60 sec

Pad steam method

Demineralization in pad steam procedure;

Formitex super plus	0.5-3.0 g/l
Surface DSW	1.0-2.0 g/l
Liquor ratio	10:1
Treatment temp	40-60° C
Treatment time	10-30 mins

Please note

Formitex Super plus is highly not volatile, if a fabric neutralized with Formitex Super plus is treated by a resin finishing: the catalyst quantity has to be adapted to the pH of the fabric. As standard procedure for the continuous application we recommend after neutralization a post rinsing step before dyeing on cylinder dryers or stenter.

The information given in this leaflet is based not only on work in our laboratories but also on the reported results of other workers in this field. It is offered without guarantee and no patent liability is assumed