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Uniperol® Bleach IT

Basic bleaching agent, without optical brightener

Stabilised reducing agent for bleaching wool, silk, cellulose and polyamide fibres.

Chemical character	Reduction bleaching agent based on sodium dithionite with stabilisers; not based on phosphate. Basic bleaching agent without optical brightener
Physical form	White powder The product has a pungent odour.
Shelf life	Uniperol® Bleach IT can be stored in the original sealed containers at temperatures below 35 °C for up to 24 months. Opened containers should be used up as soon as possible and should be properly resealed after use. Avoid moisture!
Safety note	**Do not store with water, acids, oxidising agents, nitrates or peroxides. Protect from moisture.** Before first use, please pay attention to the information on storage, safe handling, disposal and ecology in the current **Safety Data Sheet.**

Properties

Product specification

Tolerances for test characteristics are given in the product specification.

Physical data

Bulk density (g/dm^3)	Approx. 1150
Water solubility (g/l at 20 °C)	Approx. 5 g/l.

Stability(20 °C)

Good stability to
- Caustic soda solutions
- Hard water ions
- Hard metal salts

The product property data merely provide an indication of how the product is to be used. They do not constitute the agreed quality of the product, nor are they the object of regular quality control tests.

Effect

The insensitivity to water hardness is a peculiarity of Uniperol ® Bleach IT and Uniperol ® Bleach ® products and distinguishes them from products that are stabilized with phosphate. The bleached fabrics processed in hard water also remain free of deposits of any kind and retain their natural feel. Hard-water salts contained in cotton are dissolved out, improving the stability of the white effect. (Important in storage).

Chemical bleaching effect

The Uniperol® Bleach types bleach textiles by reducing coloured minor constituents, rendering them colourless and water-soluble. Because they are well stabilized, Uniperol® Bleach liquors retain their bleaching effect longer than liquors containing unstabilized dithionite (hydrosulphite).

Substrate dependence on the effect

	Uniperol® Bleach IT
Wool	Very good effect
Silk	Very good effect
Animal hair	Very good effect
Feathers	Very good effect
Cotton	Effective
Bast fibres	Effective
Hard fibres	Effective
Straw, wood etc.	Effective
Viscose	Effective
Polynosic Fibres	Effective
Triacetate	Little effect
Polyamide 6 und 66	Very good effect
Polyester	Little effect
Polyacrylnitrile	Little effect
Cupro	Effective
Acetate	Little effect
Fur skins	Very good effect

Antichlor effect

Uniperol® Bleach IT quickly removes active chlorine and chloramines from wool, i.e. after anti felting treatment with Uniperol® Antifelt 88, hypochlorite or chlorite.

Binding of heavy metal ions

Uniperol® Bleach IT binds heavy metal ions present in water or the fabrics for bleaching i.e. rust

Application to textiles

Pretreatment

Textile materials that are soiled or contain grease, spinning oils or sizes are scoured or desized before bleaching. Natural fibres are prebleached with hydrogen peroxide. Only through a combination of oxidation and reduction bleaching are an optimum white effect, good light fastness and storage stability, and a good brightening effect obtained. Prebleaching with peroxide can be omitted with synthetic and regenerated fibres and with light-coloured silk qualities.

Recipe overview

The following recipes are indications only. Preliminary trials should be carried out under the local conditions.

Application in long liquor for all fibre types

Initial temperature:

For Uniperol® Bleach IT= normal treatment temperature

Recipe:

... g/l Uniperol® Bleach IT
1,0 g/l Kieralon® Wash TX 1586
Treat at..... °C ..... min (see the information in the following table)
Then rinse thoroughly.

Substrate	Uniperol® Bleach IT (g/l)	Temperature (°C)	Time (min)
Wool (no oxidative prebleaching)	2 – 6	60 – 80	20 – 60
Wool (With Peroxide prebleach)	2 – 6	50 – 70	20 – 60
Silk (degummed)	2 – 4	60 – 80	20 – 60
Cotton	1 – 3	60 – 80	15 – 30
Bast and hard fibres	2 – 4	60 – 90	30 – 60
Regenerated cellulose	2 – 4	60 – 80	15 – 30
Polyamide 6 und 66	2 – 4	60 – 80 (130[1])	20 – 30 (10)
Bristles, straw.	2 – 6	20 – 50	2 – 8 h

[1] *HT-Hydrofixation*

The application rates are selected from within the given range according to the bleaching effect desired and the liquor ratio. The lower end of the given concentration range applies particularly to long liquors; the higher end to short liquors. To achieve the best possible standard of fastness, the Uniperol® Bleach types containing fluorescent brightening are usually combined with Uniperol® Bleach IT.

Dissolving Uniperol® Bleach IT

Uniperol® Bleach IT is stirred into water of temperature of 40–50 °C or, if possible, strewn into the circulating liquor. The solutions are only stable for a short time. The liquor should be prepared shortly before use and should not be stirred or heated unnecessarily.

Further additions

Additions to the bleaching bath can improve the effect:

– Kieralon® Wash F-OLB Conc. for scouring and to improve the bleaching effect. It prevents the redeposition of impurities solubilized by reduction and has a levelling effect on fluorescent brighteners.
– Uniperol® Level AC, highly effective leveling agent.
– Other anionic or nonionic fluorescent brighteners as required.
– Ammonia or Soda ash for the neutralisation of carbonised, chlorinated or acid pre-bleached wool (to initially pH 7–9).
– Moth proofing (anionic or nonionic with Uniperol® Bleach IT also cationic).
– Aftertreatment: Siligen® Softener SIS is very suitable despite its weakly cationic reaction. Avoid aftertreatment with softeners that have a yellowing effect or reduce the fluorescence of the brightening. Cationic softeners should be tested before use

Procedure

Uniperol® Bleach IT is best added after the liquor has been raised to the final temperature e.g. to 60 °C in the case of wool.

If the liquor or goods circulation is inadequate, bleaching is carried out below the temperature given in the table and the bleaching time extended

The bleaching time is very dependent on the textile material, temperature, pH, liquor circulation and exposure to air. Since the best results are obtained when the bath is dropped shortly before its reductive effect is exhausted, it is advisable to test the liquor exhaustion during the first runs. It is not advisable to replenish the liquor and reuse it for further batches. Proper disposal of the liquor should be ensured.

After the liquor has been dropped, the goods are rinsed with warm water. To ensure that any residual reducing agent on wool does not subsequently give rise to an unpleasant odour, add 1 ml/l hydrogen peroxide 35 % to the final rinsing bath or the softening bath.

Recipe examples:

The following recipes are provided only as a guide. In view of the many effects that may occur under production conditions, it is essential to carry out preliminary trials.

Bleaching of wool

Peroxide bleach stage

0,5 g/l Kieralon® Wash JET-B Conc.
2,5–5 g/l Prestogen® Activator W Liquid
10,5–25 g/l Hydrogen peroxide(35% solution)

45 min at 70 °C.
Rinse.

Reduction bleach stage

0,5 g/l Kieralon® Wash F-OLB Conc. or
2–6 g/l Uniperol® Bleach IT (also in combination with other Uniperol® Bleach products)
optimal is 12% bleaching agent based on the weight of wool.

30 – 60 min at 60 °C;

Rinse;
In the last rinse bath or softener bath add
1 ml/l Hydrogen peroxide 35%.

Note: If prebleaching is omitted, bleach with Uniperol® Bleach for 30 – 60 min at 70 °C.

Bleaching of cotton

Peroxide bleach stage

1 % Kieralon® Wash F-MFB
1 – 2 g/l NaOH
3 – 6 g/l Hydrogen peroxide 35% solution
30 – 45 min at the boil.
Rinse.

The presence of Fe3 + ions (impurities) can lead to a catalytic decomposition of hydrogen peroxide and thus a loss in fibre strength and whiteness. If impurities of Fe (III) ions are present, we recommend an addition of 0.5 to 2.0 g / l Lufibrol® Chelant FE, depending on the degree of contamination, in the bleach recipe

Reduction bleach stage

2 – 3 g/l Uniperol® Bleach IT
(optimal is 6% Uniperol® Bleach based on the weight of wool)
0,5 – 1 ml/l Acetic acid (60% solution) auf pH 5–6
15 – 30 min at 60 – 80 °C.

Rinse,
or softener finish with
1 – 2 g/l Siligen® Softener SIS.

Bleaching of viscose fibres

Reduction bleaching stage

0,5 g/l Kieralon® Wash F-MFB
2 – 4 g/l Uniperol® Bleach IT
(optimal is 8% based on the weight of wool)
15 – 30 min at 60 – 80 °C

Rinse,
or softener finish with
1 – 2 g/l Siligen® Softener SIS.

Bleaching of polyamide fibres

Reduction bleaching stage

0,6 g/l Uniperol® Level AC
2 – 4 g/l Uniperol® Bleach IT
(optimal is 6% Uniperol® Bleach based on the weight of wool)
20 – 30 min at 60 – 80 °C or 10 min at 130 °C
(HT-Hydrofixation)

Rust spot removal

For the removal of iron compounds from (white) textiles of any kind. Isolated spots are treated by wetting the affected areas and strewing on a little Uniperol® Bleach IT, after a short time it is rinsed and if required repeated. More extensive staining is treated by applying Uniperol® Bleach IT in a long liquor, the application rate and treatment time being at least double those in the bleaching recipes. Preventive treatment of cotton fabrics with Uniperol® Bleach IT to protect them against catalytic damage in the peroxide bleach requires the same concentrations and treatment times as those for bleaching.

Testing the liquor

The exhaustion of the bleaching bath can be monitored with vat-testing paper, which turns green as long as sodium dithionite is present. The reducing agent content can be determined more exactly by titration.

For this purpose, mix 20 ml of the bleaching liquor with 5 ml formaldehyde (prediluted 1:1 with water), add distilled water, a few drops of acetic acid and starch solution, and titrate with 0.1 N iodine solution until a permanent blue colour is obtained. To determine the treatment time, the residual concentration can be calculated sufficiently accurately as follows:

Uniperol-Bleach (g/l) = consumption of 0.1 N iodine (ml) / 3

Optimum bleaching results are obtained if the bleaching liquor is dropped when the residual concentration is 0.1 – 0.2 g/l Uniperol-Bleach

The correct procedure for disposal of the liquor should be followed.