

AVCO-STABILIZER HSF 200

SILICATE-FREE ORGANIC STABILIZER FOR HOT PEROXIDE BLEACHING

AVCO-STABILIZER HSF 200 is a synergistic blend of organic complexes. Their combination is particularly suited for the stabilization of the peroxide in hot alkaline bleaching baths for bleaching cotton, viscose and blends with polyester.

AVCO-STABILIZER HSF 200 does not contain any silicates, therefore, stabilization can be obtained either with or without the use of silicate.

AVCO-STABILIZER HSF 200 is free from surface active substances and is non-foaming.

SPECIFICATION:

Appearance	Clear yellowish liquid.
Chemical nature	Magnesium complexes of polyhydroxy and polycarboxy organic compounds in aqueous solution
Solubility	Miscible with water in any ratio.
Ionicity	Anionic.
pH (10%)	6 - 8
Density at 20°C	1.13 – 1.15 g/cc
Compatibility	Good with anionic products, alkalis and electrolytes. Is not compatible with cationics.
Storage	Stable for at least 12 months.

PROPERTIES & USES:

AVCO-STABILIZER HSF 200 is an organic stabilizer that provides a perfect peroxide stabilization, without the use of silicate. When a high alkalinity and/or elevated temperature becomes responsible for an increased decomposition rate of the hydrogen peroxide AVCO-STABILIZER HSF 200 would slow down such process and make it happen in controlled mode.

AVCO-STABILIZER HSF 200 serves for stabilizing alkaline peroxide bleach liquors at temperatures 95-100°C and in HT conditions. Contrary to the use of sodium silicate, there is no risk of precipitation when using AVCO-STABILIZER HSF 200.

This obviates the need for the time and labor consuming cleaning especially of HT and continuous bleaching ranges.

Fabrics bleached with AVCO-STABILIZER HSF 200 are highly absorbent, have very low ash content and soft handle. Fibre impurities that are difficult to remove such as calcium and magnesium pectinates, or other alkaline earth compounds originating from defoliants or minerals naturally present in raw cotton, are removed by the complexing capacity of AVCO-STABILIZER HSF 200.

The use of AVCO-STABILIZER HSF 200 counteracts the risk of pin holes caused by catalytic decomposition of peroxide by the influence of heavy-metal ions.

AVCO-STABILIZER HSF 200 is compatible with other auxiliaries without causing any separation of the bleaching liquor.

APPLICATION:

Depending on the method applied, 15-20% AVCO-STABILIZER HSF 200 are added, calculated on the amount of peroxide (35%) used. The quantities of alkali and peroxide depend on the kind of pretreatment, the quality of the fabric to be bleached, the process applied, as well as on the time and temperature of the treatment.

Peroxide bleaching liquors are ideally prepared with water of 4-8 German Hardness (5-10 English hardness). The stabilizing effect of AVCO-STABILIZER HSF 200 alters very little, if water with a higher or lower degree of hardness is used.

When preparing the bleaching liquor, it is recommended to add the ingredients in the sequence in which they are listed in the following recipes.

The whiteness of bleached fabrics can be improved by using hot water containing POLYQUEST PDK for the first rinsing bath (add 1-2 g/l). Such treatment will enhance the brilliance, especially of optically brightened material. The second rinsing bath should be 80°C and the last rinsing-bath should be cold.

Recommended Recipes:

Fully Continuous Processes (with de-sized fabrics)

1. Peroxide bleaching by the steaming method at temperatures up to 105°C (on a roller bed steamer)

AVCO-STABILIZER HSF 200	4	-	8	g/l
AVCO-BIOLUZE KB LF	3	-	4	g/l
caustic soda (100%)	2.5	-	15	g/l
H ₂ O ₂ (35%)	25	-	50	cc/l

The dwell time in the saturated steam atmosphere is usually 15-20 minutes.

2. Peroxide bleaching by the HT steaming method

AVCO-STABILIZER HSF 200	6	-	10	g/l
AVCO-BIOLUZE KB LF	3	-	4	g/l
caustic soda (100%)	2	-	3	g/l
H ₂ O ₂ (35%)	30	-	40	cc/l

The dwell times in the HT steamer usually vary between 60 and 90 seconds. However, a complete removal of husks can only be achieved with an appropriate alkaline pretreatment.

Semi continuous Processes

1. Peroxide bleaching by the pad roll method.

AVCO-STABILIZER HSF 200	5	-	8	g/l
AVCO-BIOLIT NFB	3	-	7	g/l
caustic soda (100%)	3	-	7	g/l
H ₂ O ₂ (35%)	25	-	35	cc/l

At a temperature of 95°C in the batch box, the dwell time should be about 2 hours.

2. Open Width J-Box Bleaching

AVCO-STABILIZER HSF 200	6	-	8	g/l
caustic soda (100%)	2	-	4	g/l
AVCO-BIOLUZE KB-LF	3	-	4	g/l
H ₂ O ₂ (35%)	30	-	40	cc/l

Liquor pick-up - about 100%
 Bleaching temperature - 100°C
 Dwell time: 10-30 minutes

High liquor ratio machines

1. Bleaching in jet machines

AVCO-STABILIZER HSF 200	0.5	-	1.5	g/l
caustic soda (100%)	1.5	-	2	g/l
AVCO-BIOLUZE KB-LF	1	-	2	g/l
AVCO-POLYQUEST FCE	1	-	2	g/l
H ₂ O ₂ (35%)	3	-	8	cc/l

Bleach at 90-95°C for 45-60 minutes.
 Add antcrease agent if needed.

GENERAL INFORMATION:

The following conversion factors relate to the calculation of bleaching liquor recipes:

1 ml H ₂ O ₂ (35%) =	0.66 ml H ₂ O ₂ (50%)
1 ml H ₂ O ₂ (50%) =	1.51 ml H ₂ O ₂ (35%)
1 gr c. soda =	2.50 ml caustic soda solution 36 Be'(66.4 Tw)
	2.44 ml caustic soda solution 38 Be'(71.4 Tw)
	1.64 ml caustic soda solution 45 Be'(91.0 Tw)
	1.33 ml caustic soda solution 50 Be'(106.0 Tw)

Under practical working conditions, a 50 Be' caustic soda solution is equivalent to a 50% lye.

In order to calculate the concentration of chemicals required in the replenishing liquor for a wet-on-wet impregnation bleach - presuming an almost 100% liquor turnover - the factor F must first be determined according to the following equation:

$$F = \frac{\text{L.P.U after impregnation}}{\text{L.P.U after impregnation} - \text{L.P.U before impregnation}}$$

The concentration of the replenishing liquor (Cr) is determined by multiplying the desired concentration of the individual product (C) in the impregnating liquor by factor "F"

Example:

Liquor pick-up after impregnation:	100 %
Liquor pick-up before impregnation:	60 %

$$F = \frac{100}{100 - 60} = 2.5$$

As a result, the replenishing liquor must be prepared 2.5 times stronger than the concentration in the impregnation liquor.

CR	=	concentration of the replenishing liquor (F x C)
F	=	2.5
C	=	20 ml/l product (quantity assumed)

$$CR = 2.5 \times 20 = 50 \text{ ml/l product}$$

As a result of this example, the replenishing liquor must contain 25 ml/l of the product.