

## Technical - Information

# AVCO-LEVELER GUT

LEVELING AGENT FOR CATIONIC DYESTUFFS

AVCO-LEVELER GUT is a levelling agent for dyeing poly-acrylic fibres and its blends with cationic (basic) dyestuffs, modified with an anti-precipitant.

### SPECIFICATIONS:

<b>Appearance</b>	Clear, colourless liquid.
<b>Chemical nature</b>	Combination of quaternary ammonium compound with non-ionic surfactant in aqueous solution.
<b>pH (10% sol.)</b>	8 - 9
<b>Solubility</b>	Miscible with water at any ratio.
<b>Ionic type</b>	Cationic.
<b>Stability</b>	Good to acids, alkalis, electrolytes, water hardness under the conditions normally encountered in acrylic dyeing.
<b>Compatibility</b>	Compatible with cationic and non-ionic products. Check in the laboratory the compatibility with anionic products.
<b>Storage</b>	Freezes below 0°C, fully usable after thawing. Shelf life is 12 months at least.

### PROPERTIES & USES:

1. High levelling power towards cationic dyestuffs.
2. Maximum migration and maximum colour yield.
3. AVCO-LEVELER GUT does not block dye-sites, and therefore does not prevent receptivity.
4. AVCO-LEVELER GUT overcomes differences in the dye affinity caused by variation in the fibres.
5. AVCO-LEVELER GUT contains in its composition an anti-precipitant, which can overcome problems in dyeing poly-acrylic fibre blends with polyamide or cellulosic fibres.

### APPLICATION:

#### I. DYEING OF ACRYLIC FIBRES:

1. Set dye bath at 60°C, and add chemicals in the following order:

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- a. Acetic Acid to adjust pH at: 4 - 4.5
- b. AVCO-LEVELER GUT 3 – 0.5% o.w.f.
- c. Cationic dyestuff pre-dissolved in hot water with acetic acid or special solubilizer.
2. Bring to the boil at 45 - 60 minutes, and run for 45 - 90 minutes, or dye at 106°C for 30 - 45 minutes.
3. Cool down to 70°C and drop bath.
4. Softening can be done with AVCO-SOFT NE (1 - 3% o.w.g.), while dyeing, or in the cooling down process or in a separate bath after dyeing.
5. Dosage (depends on saturation factor of dyestuff):

Dyestuff (%)	< 0.5	0.5 – 1.0	1.0 – 2.0	2.0 – 3.0	3.0 – 5.0
AVCO-LEVELER GUT (%)	2.5 – 3.0	2.0 – 2.5	1.5 – 2.0	1.0 – 1.5	0.5 – 1.0

The concentrations mentioned above should be reduced by 30% for fibers with saturation factor of 1.5 or below.

## II. CORRECTION OF UNLEVELLED DYEING:

Treat at the boil or at 105 - 108°C for 60 – 90 minutes with:

AVCO-LEVELER GUT 3 – 5 %  
 Sodium sulphate 3 – 5 g/l  
 Dye from original recipe X%  
 Adjust the pH to 4 - 4.5 with acetic acid.

## III. DYEING OF ACRYLIC BLENDS:

### 1. Dyeing Acrylic / cotton (2 bath method with cationic and VS dyes)

Use the following recipe:

Cationic dyestuff Y %  
 Sodium sulphate (Glauber salt) 5 – 10 %  
 AVCO-LEVELER GUT 3 – 1 % (3% for light shades, 1% for dark shades)  
 Adjust the pH to 4 - 4.5 with acetic acid.

- a. Set the dye bath at 40°C with Glauber salt and acetic acid. Run for 5 min.
- b. Add AVCO-LEVELER GUT and run for 5 min.
- c. Add dyes pre-dissolved with acetic acid over 10 min.
- d. Heat up to 105°C (2°C/min up to 80°C and 1°C/min to 105°C) and run for 30 min.  
(It is possible to dye also at 98°C for 60 min)
- e. Cool down to 70°C and rinse (overflow).
- f. Check shade carefully!
- g. Drop the bath.
- h. If needed clean the staining of cotton with AVCO-LEVOLUZE 200, apply 1 g/l at 70°C for 15 min and drop the bath.

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- i. Continue to dye the cotton. Cold reactive dyes are preferred (up to 60°C).
- j. Wash-off with AVCO-RON HWF, apply 1 g/l at 80°C for 15 min.
- k. Softening is done with AVCO-SOFT NE or AVCO-SUPERSOFT KPS(1 - 3%).

### 2. Dyeing Acrylic / Polyamide

Use the following dyeing recipe:

AVCO-LEVELER GUT	X %
Cationic dyestuff	Y %
Anionic dyestuff	Z %
Sodium sulphate (Glauber salt)	10 %

Adjust to pH 4 - 4.5 with acetic acid.

Following are two possible processes:

#### One bath, one stage method (light to medium shades):

- a. Set the bath at 40°C, add AVCO-LEVELER GUT, Glauber salt and acetic acid run for 10 min., then add the pre-dissolved anionic dyestuff and run for a further 5 min., before adding the cationic dyestuff.
- b. Raise the temperature at 1°C/min. to 80°C and run for 15 min. to exhaust the anionic dyestuff onto the polyamide component.
- c. Continue to raise the temperature at 0.5 - 1.0°C/min. to 98°C, and dye for 45-60 min. to exhaust the cationic dyestuff onto the acrylic fibres.
- d. Cool down slowly to 60 - 70°C and overflow rinse.
- e. If required, softening with AVCO-SOFT NE (1 - 3% o.w.f.) can be carried out in the dyeing bath while cooling down

This procedure is suitable for pale to medium shades, but for dark shades it may be advisable to proceed as follows:

#### One bath, two stage method (dark shades):

- a. Proceed as above, but do not add the cationic dye at the beginning. Raise the temperature to 70°C (at 1.5°C/min) and run for 10 min. to exhaust the anionic dye as far as possible.
- b. Raise the temperature to 100°C by 1°C/min and run for 30 min.
- c. Cool slowly to 70°C and add cationic dyestuffs (pre-dissolved and sieved), over 10 - 15 min. Continue dyeing as in steps c. to e. above.

### 3. Dyeing Acrylic / wool

The methods for Acrylic / Polyamide blends are also suitable for this blend.