

How to Exhaust Dye Nomex[®] Using Orcozine[™] Dyes

Because Nomex[®] is very resilient to heat, chemicals, and abrasion, it is also very difficult to dye, requiring a high dyeing temperature of 250°F (121°C) and special dye carriers. In the dyeing process, it is first very important to properly and evenly prescour the goods and to also afterscour in order to remove residual dye and carrier.

Dyes generally used for the dyeing of Nomex[®] are as follows:

Orcozine[™] Yellow 7GL 200%
Orcozine[™] Golden Yellow GL 200%
Orcozine[™] Brilliant Yellow 10GFF
Orcozine[™] Orange G 200%
Orcozine[™] Red GRL
Orcozine[™] Brilliant Red 4GB 200%
Orcozine[™] Red B
Orcozine[™] Blue 3G 200%
Orcozine[™] Blue BRL 300%
Orcozine[™] Blue 6GL-WC Supra

Dyeing Procedure

1. In a bath at 120°F (49°C) add 20 g/L sodium nitrate over 20 minutes in three parts, adjust pH to 2.5-3, and circulate for 5 minutes.
2. Add 1 % owg **Orconol CHSA Conc[™]**, chelating and lubricants if necessary, and circulate for 5 minutes.
3. Add 20 g/L Acetaphenone-type carrier and circulate for 5 minutes.
4. Add selected **Orcozine[™]** dyes properly prepared and circulate for 5 minutes.
5. Slowly add acetic acid, formic acid, or Tetrasodium Pyrophosphate (TSPP) to achieve a pH of 3-3.5.
6. Raise temperature to 265°F (130°C) at a rate of 2°F per minute.
7. Run for 1-1 ½ hours.
8. Slowly cool to 120°C (49°C) and drop bath.
9. Warm rinse at 120°F (49°C) until clear.

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If shading is necessary, add dyes at 150°F (65°C), return to temperature to 265°F (130°C), and run for one hour to allow for full penetration of the dye into the fiber.

After-Scouring Procedure

After-scouring of Nomex® is a very important step in the overall dyeing process. The purpose is to remove any residual dye or carrier leftover from the dyeing process.

1. In a bath at 100°F (38°C) add:
 - 1 % owg **Orconol CHSA Conc™**
 - 0.5-1.0 % owg Acetic Acid 56%
 - 0.75 oz/gal (5 g/L) **Orco Citrisolve DL-AAS-2™**
2. Slowly raise temperature to 175°F (80°C) and run for 20 minutes.
3. Overflow rinse to 120°F (49°C) and continue for 15 minutes.
4. Drop bath.

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Released: 05/22 RY

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