

**R 3000 NAJ****[Water-soluble polyester resin]**

Specialty polyester resin for zero twist polyester filament yarn sizing.

**Product attributes:**

- R 3000 NAJ is a 100% solid polymer designed for sizing of coarse and medium denier polyester yarn.
- R 3000 NAJ as a single product replaces acrylic solution and acrylic-PVA combination. It is also user friendly product, where as with acrylic-PVA combination the sizer needed to change acrylic-PVA ratio to have optimum performance based on relative humidity condition.
- R 3000 NAJ sized beams have excellent resistance to high humid climatic conditions even after prolonged storage without blocking and loss in bond strength. This allows the weaver to maintain high efficiency till the end of the beam. (This is a serious problem with acrylic-PVA combination.)
- R 3000 NAJ reduces the percentage of size add on to 3.5-7% depending on yarn and type of looms with exceptionally good weaving performance on rapier / projectile looms.

**Specifications:**

Physical Form	:	Solid granules
Diluent	:	Water
Solid content	:	98 ± 2%
Nature	:	Anionic

## Application Guidelines:

- This product is specifically recommended for sizing of coarse and medium denier yarn. Unlike acrylic/ PVA polymers, which provide only surface bonding, R 3000 NAJ also provides excellent filament to filament bonding.
- R 3000 NAJ eliminates the need to maintain inventory of multiple products.

## Recipe selection guide:

DENIER	SOLID IN SOLUTION	REFRACTOMETER READING*	FINAL ADD-ON
150 / 135 Denier	8 – 9%	9.5 – 10.5%	3.5 – 4%
75 Denier	11 – 12%	12.5-13.5%	5.0 – 5.5%

\* Refractometer: R 3000 NAJ solution shows reading 1.5% higher than actual solid. Wet pick up is normally 45 – 55%.

- A typical recipe to size polyester filament yarns is as follows:

R 3000 NAJ	:	9.5 kg
Zycowet P	:	0.5kg**
Water (Demineralized water or Soft water, TDS <200 ppm )	:	90 kg
Total Wt.	:	100 kg.
Note: Solid content of recipe is $\frac{\text{Solid} \times 100}{\text{Total Weight}}$	:	10.00%

\*\* Zycowet P is a polymer additive, which is specially recommended for easy desizability. Zycowet P addition is recommended after making R 3000 NAJ solution and allowing it to cool to 50 deg C.

## Solution making guidelines:

- Product characteristics: R 3000 NAJ is a high molecular weight polyester resin. For making solution of this product sufficient shear along with heat are required.
- Equipment specification: It is recommended that SS vessel (304/316) with high-speed stirrer (1440 rpm) equipped with cowls blade and baffles on the inside wall of the vessel (for detailed design of the vessel contact Zydex) may be used for making solution of this resin. Use indirect heating with hot oil/steam.

## **Solution making procedure:**

- Take total water used in the recipe. Start heating and bring it close to boiling.
- Addition of R 3000 NAJ should be spread over 20-30 min after the temperature has reached 90°C. This ensures easy solubilization. Do not add all the powder at one time. We recommend maximum 25% solid solution with R 3000 NAJ for better cooking and efficacy of product.
- Heat further for 1 hour to dissolve R 3000 NAJ completely.
- Part of water evaporated during heating should be replaced by adding equivalent amount of water.
- Bring down the temperature to 50 - 55°C.
- Add Zycowet P under stirring. (max.: 5% on solid basis).
- Allow the solution to cool to 30-35°C.
- Use lubricants and antistatic additives as per requirement.

## **Desizing procedure:**

One of major drawback with the other polyester resins is improper desizability, which results in poor dyeability and stiff feel. **R 3000 NAJ** is unique in the sense that in spite of a processor not doing desizing properly it would not affect the dyeability. However, in order to have proper dyeability and desired feel of desized fabric, we recommend the following.

- Use soda ash ( $\text{Na}_2\text{CO}_3$ ) and detergent in (2gpl and 5 gpl) at 90 deg C for 60 min.
- For better desizability use Zycowet P 30% solution 0.5 gpl (refer product brochure) in place of detergent.

*Note: Usage of **caustic soda** (NaOH) >2-3 gpl for desizing may result in making insoluble complex.*

## Storage:

- Keep the bags of R 3000 NAJ in a cool shade. Do not store in direct sun or at a temperature higher than 40°C.
- In case the bags are open and are intended to be stored for a longer time, ensure to tie and seal the mouth to avoid moisture contact.
- Minimum shelf life is 12 months.

## **Disclaimer:**

*The information & data contained herein are given in good faith but without warranty. We recommend that before using our products, the customer should make his/her own tests to determine the suitability of the products for his/her own purpose under his/her operating conditions. As the circumstances under which our products are stored, handled and used are beyond our control, we cannot assume any responsibility for their use by the customers.*

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