

R 3000 NAJ (F)**[Fine denier sizing]**

Specialty polyester resin for zero twist polyester filament yarn sizing.

Product attributes:

- R 3000 NAJ (F) is a 100% solid polymer designed for sizing of fine denier polyester yarn.
- R 3000 NAJ (F) is an exclusive product for weaving on air jet looms and sizing of finer multifilament denier and denser sorts on Air jet / 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 medium and finer multifilament denier yarn with dense construction on air jet looms. The surface area is higher per unit weight in such yarns and hence there are chances of over drying and size film cracking. R 3000 NAJ (F) flexible film takes care of such over drying conditions. The product gives a consistent film strength withstanding the chamber temperature variations.

- In air jet looms where the speed is more than 600 rpm there is going to be a lot of stress and strain on the yarn due to metal to yarn friction. This gets compounded when denser sorts are woven where yarn-to-yarn friction will also be higher. R 3000 NAJ (F) gives a flexible film even under such extreme conditions without cracking.
- Being a polyester resin with nano particle **size** the product is especially suitable for microfilament yarn sizing.

Recipe selection guide:

DENIER	SOLID IN SOLUTION	REFRACTOMETER READING *	FINAL ADD-ON
50 / 36 Denier	12 – 15%	13.5-16.5%	5.5 – 7%
75 / 36 Denier	12 – 13%	13.5-14.5%	5.0 – 6.0%
150 / 135 Denier	8 – 9%	9.5 – 10.5%	3.5 – 4%

* Refractometer: R 3000 NAJ (F) 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 (F)	:	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 is recommended after making R 3000 NAJ (F) solution and allowing it to cool to 50 deg C.

Solution making guidelines:

- Product characteristics: R 3000 NAJ (F) 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. Heating media is 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 (F) should be spread over 20-30 minutes 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 (F) 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 problem. R 3000 NAJ (F) is unique in the sense that in spite of a processor not doing desizing properly it would not affect the dye ability. However, in order to have proper dye ability and desired feel desized fabric we recommend the following.

- Use soda ash (Na₂CO₃) and detergent in (2gpl and 5 gpl) at 90 deg C.
- For better desizability use Zycowet P 30% solution 0.5 gpl (refer product brochure) in place of detergent.

Note: Excessive usage of caustic soda (NaOH) instead of soda ash for desizing may result in making insoluble complex.

Storage:

- Keep the bags of R 3000 NAJ (F) 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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