R 3000 NAJ

DESCRIPTION

R 3000 NAJ is high molecular weight polyester resin with ability to form Nano particle sized dispersion in water. It is an exclusive product for weaving of medium to coarser denier multifilament polyester yarn on Shuttle/Rapier/Projectile looms. It can replace low molecular weight PVA or Acrylic size.

PRODUCT ATTRIBUTES

- Unlike Acrylic size, **R 3000 NAJ** works at lower pick up and gets cured at lower temperature and thus preserves resources.
- Nano particle sized dispersion gives better filament to filament bonding. This ensures the sized yarn to withstand high pressure during weft insertion.
- Compared to acrylic, it has better re-emulsifying property.
- It forms flexible film like PVA/Acrylic.
- It gives excellent dry abrasion resistance property which helps in withstanding stresses and metal to yarn & yarn to yarn friction on looms running.
- It has got better soda ash as well as caustic soda desizability than other PET resins.

TECHNICAL DATA

FORM	
Appearance	Greenish/Yellowish/Off white
Physical Form	Solid granules
Diluent	DM or RO Water
Solid content	98 ± 2%
Nature	Anionic

RECIPE SELECTION GUIDE

Denier	Solid in Dispersion	Refractometer reading*	Final Add-on
50/35 denier	**10 - 12%**	**11.5 - 13.5%**	**5 - 6%**
75/36 denier	**8 - 10%**	**9.5 – 11.5%**	**4 - 5%**

***** ***R 3000 NAJ*** shows reading above 1.5% than actual solid. Wet pick up is normally 45- 55%.

A typical 20% recipe to size polyester filament yarns is as follows:

R 3000 NAJ **: 20 kg**
Water (Demineralized water or Soft water) : 80 kg
Total Wt. : 100 kg.

Note: Solid content of recipe is Solid x 100 / Total Weight : 20.00%

DISPERSION MAKING GUIDELINES

R 3000 NAJ being a high molecular weight polyester resin requires sufficient shear along with heat to make its dispersion.

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 dispersion of this resin. Heating media is indirect heating with hot oil/steam.

DISPERSION MAKING PROCEDURE

1. Take total D.M. or soft water used in the recipe.
2. Start heating and bring temperature to 90-95 °C.
3. Addition of one bag of R 3000 NAJ should be spread over 2-3 minutes after the temperature has reached 90-95 °C. This ensures easy solubilization. Continue heating-stirring for next 5 minutes. (While adding resin slowly from resin bag in 10 mins interval, chances of lump formation at the mouth of the bag is high due to contact of resin with vapor rising from the cooking vessel. Avoid such situation and if it does then you can add those lumps in the cooking vessel for cooking). After this, then add another resin bag in 2-3 mins interval. Continue heating-stirring for another 5 min & so on. After adding last bag, continue the heating-stirring for next 40-45 min. We recommend maximum 25% solid dispersion for proper cooking and stability of dispersion.
4. Add small quantity of biocide as per your requirement & procedure. Continue the stirring for next 15-20 min for proper dissolution of the biocide in the dispersion. After proper filtration, store the dispersion properly; if dispersion is left open then skin formation on top layer will take place.
5. Please check %solids of dispersion & as per result adjust accordingly, if needed. Also note down viscosity in Zahn cup no. 4 or B-four cup.
6. Use lubricants and antistatic additives as per requirement.

DEFOAMER is recommended if ONLY foam control is critical. Add **0.2%** on the weight of resin in cold water under stirring (before starting the cooking). Stir for 5-10 min and then start increasing the temp. to 90-95 °C & start adding resin gradually.

ZYCOWET RWLF-F is recommended if wetting cum defoaming action is required. Add **1%** on the weight of resin in cold water under stirring (before starting the cooking). Stir for 5-10 min and then start increasing the temp. to 90-95 °C & start adding resin gradually.

7. Before sizing, dilute the dispersion to the required solid but make sure the dispersion is well stirred before sizing.
8. **After-waxing:** As per your requirement & procedure. If working at lower %SPU, increase after-waxing dosage accordingly.

DESIZING PROCEDURE

R 3000 NAJ is desizable with Caustic soda as well as Soda ash.

1. Continuous desizing with Caustic soda:
Maintaining standard process & machine parameters like for polyester desizing. Caustic soda (48%): 8gpl and Wetting aid: 2.5 gpl. Temp.: Above 90 °C.

2. Continuous desizing with Soda ash:
Maintaining standard process & machine parameters like for polyester desizing. Soda Ash (48%): 10gpl and Wetting aid: 2.5 gpl. Temp.: Above 90 °C.

3. Exhaust desizing with Caustic soda:
Maintaining standard process & machine parameters like for polyester desizing. Caustic soda (48%): 8gpl to 10gpl & Wetting aid: 2.5 gpl. Temp.: Above 90 °C.

4. Exhaust desizing with Soda ash:
Maintaining standard process & machine parameters like for polyester desizing. Soda Ash (48%): 10gpl to 12gpl and Wetting aid: 2.5 gpl. Temp.: Above 90 °C.

NOTE: With **R 3000 NAJ** sized fabrics the processors can use the same desizing recipe of caustic soda & maintain same machine-process parameters like used for Acrylic size and need not maintain separate lines. **We recommend checking desizing at lab level first. After seeing satisfactory results at lab level then only proceed with desizing at plant level.**

COMPLEMENTING ADDITIVES

1. ZYCOWET RWLF-F: Wetting cum defoamer additive. To be added depending upon the type of sorts/ speed of the sizing machine. It is recommended as an additive along with R 3000 NAJ grade for quickly suppressing the foam & for improved wetting during sizing as texturized yarn, BSY, lower intermingled yarn etc. require better wetting in sow box.

STORAGE & SHELF LIFE

- 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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