SIZING
R 3000 NAJ W-SP

Technical Data Sheet

Zydex® Innovating for Sustainability

DESCRIPTION

R 3000 NAJ W-SP is high molecular weight polyester resin with ability to form Nano particle sized dispersion in water. It is an exclusive product for weaving of me d i um t o finer denier multi-filament polyester yarn & denser sorts on medium to high speed Waterjet loom, Rapier loom & medium speed Airjet loom. It can replace Acrylic size & PVA.

PRODUCT ATTRIBUTES

- Unlike Acrylic size, R 3000 NAJ W-SP 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 air/water pressure during weft insertion.
- Compared to acrylic, it has better re-emulsifying property.
- It forms flexible film like Acrylic size.
- Their sized beam has excellent resistance to high humid climatic conditions even after prolonged storage without blocking of sized beams and loss in bond strength. Even under wet conditions of water jet looms, it gives non-blocking characteristics at the time of beat-up.
- It gives better wet & dry abrasion resistance property which helps in withstanding stresses and metal to yarn & yarn to yarn friction on Water jet looms & Airjet looms running at high speed.
- It has got better caustic soda desizability unlike other PET resins which recommends only soda ash desizability. Hence no need to have separate desizing recipe for new NAJ sizers previously using Acrylic.

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 W-SP 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 W-SP	**: 20 kg**
Water (Demineralized water or Soft water)	**: 80 kg**
Total Wt.	**: 100 kg**

DISPERSION MAKING GUIDELINES

R 3000 NAJ W-SP 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 (For Eg: 20%)

1. D.M. or R.O. water (preferable TDS less than 80 & water should be colourless & free from impurities).
   - Start the stirring @ room temperature. Stirring RPM should be above 500.
2. Shake well Zycowet RWLF-F carboy before use. Add 1% on the weight of resin @ room temp. (i.e. below 50 °C).
   - Stir it for next 10 minutes @ room temp.
   - Now after this, increase the temperature to 90 °C (90-95 °C) & continue the stirring.
3. After temperature reaches to 90 °C, while continuing the stirring add RESIN bags slowly.
4. Empty one resin bag in 8-10 min interval time. Continue heating-stirring for next 5 minutes. (While adding resin slowly from resin bag in 10 min 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 8-10 min interval. Continue heating-stirring for another 5 min & so on.
   - After adding last bag, continue the heating-stirring for next 40-45 min. Efficient heating & stirring will ensure preparation of proper & stable.
   - Dispersion colour: Pale green/ pale yellow translucent liquid.
5. 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.
   - 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.
   - In general, RF reading will be 1.5% more than actual solids. For ex. if in refractometer, RF is seen 21.5% then actual % solid is 20%.
6. Use lubricants and antistatic additives as per requirement.
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 W-SP is desizable with Caustic soda as well as Soda ash.

1. **Continuous desizing with Caustic soda:** Caustic soda (48%): 8gpl and Wetting aid: 2.5 gpl. Temp.: 95 °C. Subsequent washes* @ 90-95 °C.
2. **Continuous desizing with Soda ash:** Soda Ash (48%): 10gpl and Wetting aid: 2.5 gpl. Temp.: Above 95 °C. Subsequent washes* @ 90-95 °C.
3. **Exhaust desizing with Caustic soda:** Caustic soda (48%): 12gpl to 16gpl & Wetting aid: 2.5 gpl. Temp.: Above 95 °C. Subsequent washes & draining** @ 90-95 °C & 85-90 °C resp.
4. **Exhaust desizing with Soda ash:** Soda Ash (48%): 12gpl to 16gpl and Wetting aid: 2.5 gpl. Temp.: Above 95 °C. Subsequent washes & draining** @ 90-95 °C & 85-90 °C resp.

*: In subsequent washes, don't lower temp. below 90 °C

**: In draining, don't lower temp. below 85 °C

NOTE: With R 3000 NAJ W-SP sized fabrics the processors can use the same desizing recipe of caustic soda like used for Acrylic size. 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 W-SP 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.3000 NAJ W-SP 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 W-SP 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:

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