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## **ROCKSOFT™NCE-L-600**

**Product #160**

**Patent #5,811,381**

(Considerations in applications to Garment Wet Processing.)

### **I. INTRODUCTION:**

**ROCKSOFT™NCE-L-600** is a liquid neutral cellulase for use on cellulosic garments. **ROCKSOFT™NCE-L-600** is a neutral stable form of cellulase and is best run at pH 6.5 and temperature of 55°C – 60°C (131°F – 140°F).

### **II. PHYSICAL PROPERTIES:**

Appearance: Medium to dark amber liquid (Note that color does not affect or reflect activity.)

Odor: Slight fermentation odor

pH (as is): 6.5 ± 0.5

Density: 1.20 – 1.30 g/mL

Activity: >450 AzoCMCase/g

### **III. PRODUCT CAPABILITIES:**

When run as directed in this bulletin, **ROCKSOFT™NCE-L-600** can be utilized to accomplish the following:

1. Significantly soften 100% cotton fabrics, both woven and knits.
2. Appreciably remove the fuzz and cotton pill balls from garments, sweaters, socks and others as a result of long wet processing or garment dyeing cycles.
3. Increases the "stone wash" effect on rotary washed garments when using a significant amount of pumice stones and/or other abrasives.
4. Can desize TMKP sized fabrics alone and aids in desizing other sized fabrics when used in conjunction with a nonionic detergent or amylase.
5. May be used in pre-washing to further increase softening.

### **IV. PROCESSING CONDITIONS: GENERAL**

**ROCKSOFT™NCE-L-600** will function from a pH of 5.5 to 7.0. We recommend an operating pH range of 6.2 – 6.7. **ROCKSOFT™NCE-L-600** will function from 45°C – 60°C (113°F – 140°F). We recommend an operating temperature of 55°C - 60°C (131°F – 140°F).

**If ROCKSOFT™NCE-L-600 is used as an ingredient in compositions that are used in STONEWASHING applications, these compositions should be used in combination with a significant amount of pumice stones.**

The closer the operating parameters are kept to the above recommendations, the better the utilization of **ROCKSOFT™NCE-L-600**. The recommended liquor to goods ratio is 6.25:1 for stone wash applications and 7:1 to 8:1 for softening and fuzz removal.

## **V. RECOMMENDATIONS FOR USAGE:**

### **Stonewashing:**

1. Follow your normal desize and rinse procedures that are currently being utilized. Insure that the bath and garments are at pH 6.0 to 7.0 before starting the low liquor ratio (cellualse) stoning cycle. (This is especially important if you use an alkaline desize.)
2. **ROCKSOFT™NCE-L-600** functions at concentrations from 0.3% to 0.6% OWG.
3. **ROCKSOFT™NCE-L-600** is recommended for use in specialty denim processing in combination with a significant amount of pumice stones. (Not for animal or human consumption).

A model formula is attached for reference and does not represent an endorsed method of processing.

### **Processing:**

1. Load the garments into the washing machine and add a significant amount of pumice stones or replace the amount of pumice stones used up in the last wash cycle. Garment load will vary from 30 to 50 percent of washer capacity. Normally the garments are not reversed.
2. Desize the garments with your normal procedure. (Desizing may be done prior to adding pumice stones if streaking is a problem.)
3. Drain balance and rinse with warm water at least one time.
4. Add water for cellulase step at a liquor ratio of 6.25:1 and be below the wheel rib. The water level should be just enough to cover the garments. Maintain the water temperature at 55°C – 60°C (131°F – 140°F).
5. Wash for 2 minutes.
6. Check the pH of the water. It should be between 6.0 and 7.0. Adjust as necessary with acetic acid or citric acid/sodium citrate.
7. Wash for 2 minutes
8. Recheck the pH of the water and adjust as necessary.
9. Add **ROCKSOFT™NCE-L-600** at 0.3 % to 0.6 % OWG. Percentage will vary with finish desired.
10. Wash for 45 – 90 minutes.

**CAUTION:** Do not use live steam on enzyme baths. Temperatures above 60°C (140°F) will significantly reduce the enzyme activity and may eventually destroy them.

11. This step is needed to deactivate the cellulase. You may either raise the pH above 11 or raise the temperature above 71°C (160°F). If you go into bleach or alkaline top brightening, the pH and temperature does not need to be raised for deactivation.  
Drain washer and fill to high level.  
Maintain water temperature at 71°C (160°F). If you go into bleach or alkaline top brightening, the pH and temperature does not need to be raised for deactivation.

12. Add 0.5% to 1.0% OWF of **ROCKSOFT™SUPER SCOUR CE.** \*
13. Wash for 5 minutes.
14. Drain machine and rinse 1 to 2 more times at 38°C – 50°C ( 100°F – 122°F).

**If no further garment processing is desired...**

15. Fill to medium to high level at 38°C (100°F).
16. Wash for 5 to 10 minutes.
17. Extract and dry.

**This yields a dull garment appearance.**

**If a brighter finish is required, process as follows between step #14 and #15.**

#### **Top Brightening Bath**

- A. Fill to medium level at 60°C (140°F)  
Add 2.0 % to 4.0 % OWG **DAD.** \*  
Add 0.25% to 0.33% OWG **ROB\*** or **BOB.** \* (optional)
- B. Wash for 10 minutes.
- C. Rinse 2 times at high level at 50°C (122°F).

**Proceed to step 15.**

**If bleaching is required, bleach after step #14. Top Brightening Bath can be before or after bleach but be sure to use an antichlor after bleaching.**

**\* Additional information for any other product mentioned here is available in the respective technical bulletin.**

#### 100% Cotton Softening:

To Soften we recommend the following parameters.

Liquor to goods ratio 8:1

pH: 6.5 (with acetic acid or buffer)

Temperature: 54°C ± 3°C

**ROCKSOFT™NCE-L-600** concentration: 0.8 – 1.2% owg

Time: 20 – 60 minutes depending on desired softness.

To achieve an even softer hand, we suggest the addition of 1% - 3% of an amino functional silicone, like **SPRINGSOFT #104**, after running 2/3 of the total cycle time and completing the cycle. Follow this with several neutral rinses, extract and dry.

Fuzz/Pillball Removal:

Using the above process parameters, 0.4% - 0.8% owg **ROCKSOFT™NCE-L-600** has been found effective in the removal of fuzzballs and fuzziness when run for 15 to 30 minutes.

**VI. STORAGE CONDITIONS/ACTIVITY:**

**ROCKSOFT™NCE-L-600** retains more than 90% activity after four months when stored at 25°C (77°F) out of direct sunlight and in the original, closed container. **ROCKSOFT™NCE-L-600** also retains more than 90% activity after 1 month when stored at 37°C (100°F). Do not let freeze.

**VII. INACTIVATION:**

**ROCKSOFT™NCE-L-600** can be inactivated by raising the pH above 11 or use **DAD** at 2.0% OWG or temperature above 71°C (160°F) or a combination of the two. After the desired effect has been achieved, we recommend inactivating **ROCKSOFT™NCE-L-600** with in the next operating bath.

**VIII. PACKAGING:**

**ROCKSOFT™NCE-L-600** is packaged in 120 kg polyethylene drums.

**IX. TECHNICAL SERVICE:**

Information covering specific applications for this product is available from your Dyadic International, Inc. sales/technical representative. We will work with you to enhance processes and solve problems, in addition to assisting you in achieving the end result/look desired. Call your sales/technical representative for any questions, comments, or help that you need!

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