



DYADIC INTERNATIONAL, INC.
140 INTRACOASTAL POINT DRIVE, SUITE 404
JUPITER, FLORIDA 33477
(561) 743-8333
(561) 743-8343 fax
<http://www.dyadic-group.com>

ROCKSOFT™ULTRA L-1600

Product #142

(Considerations in applications to Garment Wet Processing.)

I. INTRODUCTION:

ROCKSOFT™ULTRA L-1600 is a liquid acid cellulase specifically designed to give less backstaining than traditional acid cellulases in denim washing applications. **ROCKSOFT™ULTRA L-1600** has a wide operating range and may be run from pH 4.5 to 6.5 and temperature of 30°C (86°F) to 60°C (140°F). As the pH increases and the temperature decreases backstaining will decrease significantly.

II. PHYSICAL PROPERTIES:

Appearance: Amber, slightly viscous liquid. (Note that color does affect or reflect activity.)
Odor: Slight fermentation odor.
pH (as is): 4.0 – 4.9
Density: 1.10 – 1.25
Activity: >1600 DTU/g

III. PRODUCT CAPABILITIES:

When run as directed in this bulletin, **ROCKSOFT™ULTRA L-1600** 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™ULTRA L-1600 will function from a pH of 4.5 to 6.5. Acetic acid based pH controls are preferred over citric and phosphate. **ROCKSOFT™ULTRA L-1600** will function from 30°C – 60°C (86°F – 140°F). We recommend an operating temperature of 55°C - 57°C (130°F – 135°F).

The closer the operating parameters are kept to the above recommendations, the better the utilization of **ROCKSOFT™ULTRA L-1600**. 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.

If ROCKSOFT™ULTRA L-1600 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.

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 4.5 to 5.0 before starting the low liquor ratio (cellulase) stoning cycle. (This is especially important if you use an alkaline desize.)
2. **ROCKSOFT™ULTRA L-1600** functions at concentrations from 0.3% to 0.6% OWG. There are occasions where a higher concentrations may be used, however, we recommend that you consult us before proceeding with any trials, so that we may guide you accordingly. Either the amount of stones or the cycle time will be reduced at higher concentrations.
3. **ROCKSOFT™ULTRA L-1600** is recommended for use in specialty denim processing in combination with a significant amount of pumice stones. (Not for animal or human consumption).
4. **ROCKSOFT™ULTRA L-1600** functions at a wide pH and temperature range. You will have the most activity from pH 4.5 to 5.0 and 60°C (100°F), so the typical cycle time would be 30 to 45 minutes but this would also give the most backstaining. To reduce backstaining lower temperature to 37°C (100°F), increase the pH to 6.0 to 6.5, and increase time to 45 minutes to 75 minutes to compensate for reduction in activity. You may also choose to run somewhere between pH 4.5 and 6.5 and between 37°C and 60°C to adjust to the look you require.

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 30°C – 60°C (86°F – 140°F).
5. Wash for 2 minutes.
6. Check the pH of the water. It should be between 4.5 and 6.5. Adjust as necessary with acetic acid, citric acid/sodium citrate, or **LAB5.***
7. Wash for 2 minutes
8. Recheck the pH of the water and adjust as necessary.

9. Add **ROCKSOFT™ULTRA L-1600** at 0.3 % to 0.6 % OWG.
10. Wash for 15, 20, 30, 45 minutes. Time will vary with finish desire. We recommend 15 to 45 minutes at pH 4.5 to 5.0 and 45 to 75 minutes at pH 6.0 to 6.5.
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 8 or raise the temperature above 65°C (150°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) or add soda ash at 1.0% OWG or add **DAD*** at 2.0% OWG to raise pH above 8.
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 – 49°C (100°F – 120°F).

If no further garment processing is desired...

15. Fill to medium to high level at 38°C (140°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 49°C (120°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: 5.0 (with acetic acid or buffer)

Temperature: 60°C ± 3°C

ROCKSOFT™ULTRA L-1600 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™ULTRA L-1600** has been found effective in the removal of fuzzballs and fuzziness when run for 15 to 30 minutes.

VI. STORAGE CONDITIONS/ACTIVITY:

ROCKSOFT™ULTRA L-1600 retains more than 90% activity after four months when stored at 25°C (77°F – 77°F) out of direct sunlight and in the original, closed container. **ROCKSOFT™ULTRA L-1600** also retains more than 90% activity after 1 month when stored at 37°C (100°F). Do not let freeze.

VII. INACTIVATION:

ROCKSOFT™ULTRA L-1600 can be inactivated by raising the pH above 8.0 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™ULTRA L-1600** with in the next operating bath.

VIII. PACKAGING:

ROCKSOFT™ULTRA L-1600 is packaged in 240 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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