



Formulation

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| Name | COLD WATER 2X LIQUID LAUNDRY DETERGENT | | |
| No. | 1136 | | |
| Description | This 2X heavy-duty liquid (HDL) is for use in cold water with cleaning performance better than Formulation 1134 in cold water. | | |
| Formulation | INGREDIENTS: | <u>% by Weight</u> | <u>Functionality</u> |
| | BIO-SOFT® S-101 | 5.15 | Surfactant |
| | STEOL® CS-460 | 21.67 | Surfactant |
| | BIO-SOFT® EC-690 | 17.78 | Surfactant |
| | AMMONYX® LO | 3.33 | Secondary Surfactant |
| | Hardened Coconut Fatty Acid | 1.00 | Foam Modifier |
| | Sodium Hydroxide (50% aqueous solution) | 2.90 | Neutralizer |
| | Borax Pentahydrate | 2.25 | Stabilizer |
| | Propylene Glycol | 2.00 | Stabilizer |
| | Citric Acid (50% aqueous solution) | 6.00 | Builder |
| | Triethanolamine | 0.76 | Buffer |
| | Monoethanolamine | 0.75 | Buffer |
| | Fluorescent Whitening Agent | 0.20 | Brightener |
| | Cold Water Protease | 1.30 | Enzyme |
| | Cold Water Amylase | 0.65 | Enzyme |
| | Deionized Water, Fragrance, Colorant, and Preservative | q.s. to 100 | Additives |
| | Total | 100.00 | |
| Procedure | <ol style="list-style-type: none"> Charge 140°F (60°C) water (50% of the calculated total required) and start agitation. Keep agitation going until batch is complete. Add Fluorescent Whitening Agent. Mix for at least 30 minutes if Whitener is a powder. Add Citric Acid with mixing and wait until dissolved. Add Borax Pentahydrate with mixing and wait until dissolved. Add Propylene Glycol with mixing. Add Monoethanolamine with mixing. Add Triethanolamine with mixing. Add Hardened Coconut Fatty Acid with mixing. Fatty Acid is added molten and will turn the batch cloudy when added. Add 75% of the Sodium Hydroxide charge with mixing. Fatty Acid gels slightly, but dissolves. After a short time batch will become clear. Slowly add BIO-SOFT® S-101 with mixing. Batch will thicken a bit. Add BIO-SOFT® EC-690 with mixing. Add STEOL® CS-460 with mixing. Add AMMONYX® LO with mixing. Adjust pH with Sodium Hydroxide with mixing. pH target range is 8.5 to 9.0, with a specific target of 8.8. Once batch has cooled to 90°F (32°C) or below, add Preservative, Enzymes, Colorant, and Fragrance with mixing. Add required amount of Deionized Water to complete batch with mixing. Run final pH check if pH is below 8.5. Adjust into target range with Sodium Hydroxide. If pH is | | |

above 9.0, adjust into target range with BIO-SOFT® S-101.

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| Physical Properties | Appearance at 25°C pH, as is Viscosity at 25°C, cps | Clear liquid 8.5–9.0 (Target 8.8) 150–300 |
| Storage/Stability | 3 Freeze/Thaw Cycles 4 Weeks at 5°C 4 Weeks at Room Temperature 4 Weeks at 40°C | Pass Pass Pass Pass |
| Instructions for Use | 26 loads per/50 fl. oz. bottle = 1.92 fl. oz./load | |
| External Comment | Marketing Notes: BIO-SOFT® S-101, BIO-SOFT® EC-690 and AMMONYX® LO are approved ingredients on www.cleangredients.org . For further information, visit www.stepan.com or www.cleangredients.org . | |
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| For Additional Assistance | For applications or product handling assistance, call our Technical Service Department at 1-800-745-7837 (U.S.) or 011-334-76-505-100 (Europe). For ordering assistance, call our Account Service Department at 1-800-457-7673. The information contained herein is based on the manufacturer's own study and the works of others and is subject to change without prior notice. The information is not intended to be all-inclusive, including as to the manner and conditions of use, handling, storage or disposal or other factors that may involve additional legal, environmental, safety or performance considerations. Nothing contained herein grants or extends a license, express or implied, in connection with any patents issued or pending of the manufacturer or others, or shall be construed as a recommendation to infringe any patents. STEPAN COMPANY MAKES NO PRODUCT WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR USE, EXPRESS OR IMPLIED, AND NO OTHER WARRANTY OR GUARANTY, EXPRESS OR IMPLIED, IS MADE, INCLUDING AS TO INFORMATION REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY, ACCURACY, COMPLETENESS, OR ADEQUACY. Stepan Company (and its employees, subsidiaries and affiliates) shall not be liable (regardless of fault) to the vendee, its employees, or any other party for any direct, indirect, special or consequential damages arising out of or in connection with the accuracy, completeness, adequacy, furnishing, use, or reliance upon information provided herein. The vendee assumes and releases Stepan Company (and its employees, subsidiaries and affiliates) from all liability, whether in tort, contract or otherwise to the fullest extent possible under the relevant law. | |



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