



Formulation

Name	ECONOMY LIQUID LAUNDRY DETERGENT FOR UNIT-DOSE POUCH	
No.	1182	
Description	This liquid laundry detergent has cleaning performance comparable to economy pouch formulas on the market.	
Formulation	INGREDIENTS:	<u>% by Weight</u> <u>Functionality</u>
	BIO-SOFT® S-101	10.30 Surfactant
	BIO-SOFT® N25-7	20.00 Surfactant
	Oleic Acid	3.00 Defoamer
	Monoethanolamine	3.00 Neutralizer
	Glycerol	43.13 Solvent
	Propylene Glycol	10.00 Solvent
	Formic Acid	1.10 Stabilizer
	Protease	0.40 Enzyme
	Amylase	0.10 Enzyme
	Calcium Chloride	0.02 Stabilizer
	Deionized Water	q.s. to 100 Solvent
	Total	100.00
Procedure	<ol style="list-style-type: none"> 1. Charge Water (70% of the calculated total required) and start agitation. Keep agitation going until batch is complete. 2. Slowly add BIO-SOFT® S-101 with mixing. The batch will thicken a bit. Begin heating to 130°F (54°C). 3. Add BIO-SOFT® N25-7 with mixing. After well mixed, turn off heating. 4. Add Oleic Acid. 5. Add Formic Acid. 6. Add Glycerol (75% of the calculated total required). 7. Add Propylene Glycol (75% of the calculated total required). Let cool to 86°F (30°C) or below. 8. Add Monoethanolamine until pH is close to 8 (and within target range). 9. Add equal amounts of Propylene Glycol and Glycerol to make up the mass balance (Note: Less may be required than what is stated above for each of these ingredients if more Monoethanolamine than stated is required to hit the target pH). 10. Add Calcium Chloride with slight heating to solubilize (110°F-120°F (43°C-49°C) should be sufficient). Let cool to 86°F (30°C) or below. 11. Add Protease. 12. Add Amylase. (Note: After enzyme addition, the formulation may become slightly hazy but that will clear up after subsequent steps.) 13. Add the remainder of required amount of Deionized Water to complete batch. 	
Physical Properties	Appearance at 25°C	Clear liquid
	pH, as is	7.7–8.3 (Target 8.0)
	Viscosity at 25°C, cps	200–400
Storage/ Stability	Liquid Detergent Alone	-
	3 Freeze/Thaw cycles	Pass
	4 Weeks at 4°C	Pass

4 Weeks at Room Temperature	Pass
4 Weeks at 50°C	Pass
-	-
Liquid Detergent in Stock PVA Pouch Material	-
3 Freeze/Thaw Cycles	-
4 Weeks at 4°C	Pass
4 Weeks at Room Temperature	Pass
4 Weeks at 40°C	Pass
4 Weeks at 50°C	Pass
-	Pass
No Leaking from Stock PVA Pouch	-
Solubility of Pouch After Storage in All Conditions Above	Pass
	-
	Pass

Instructions for Use Use 23 grams of liquid laundry detergent per pouch. Use one pouch for normal loads and two pouches for heavily-soiled loads.

External Comment Marketing Notes: BIO-SOFT® S-101 and BIO-SOFT® N25-7 are approved ingredients on www.cleangredients.org. For further information, visit our website 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.

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