



# Formulation

Name	<b>LIQUID DISH DETERGENT USING BIO-SOFT® S-120</b>	
No.	1273	
Description	This liquid dishwash formulation provides good cleaning and foaming performance in manual dishwash applications.	
Formulation	<b>INGREDIENTS:</b>	<b><u>% by Weight</u>   <u>Functionality</u></b>
	Water	q.s. to 100.00 Carrier
	Sodium Hydroxide (Caustic Soda)	1.80 Neutralizer
	BIO-SOFT® S-120	6.75 Primary Surfactant
	STEOL® CS-230	18.10 Primary Surfactant
	AMMONYX® LMDO	3.00 Secondary Surfactant
	Citric Acid, 50% Solution	As Needed pH Modifier
	Sodium Chloride	1.00 Viscosity Builder
	Preservative, Dye, Fragrance, etc.	q.s.
	<b>Total</b>	<b>100.00</b>
Procedure	<ol style="list-style-type: none"> <li>1. Charge water and add sodium hydroxide while mixing.</li> <li>2. Slowly add the BIO-SOFT® S-120 acid and mix until homogeneous. Note: This neutralization generates heat. Keep the temperature below 50 °C (122 °F) while neutralizing.</li> <li>3. Check the pH, and if it is below 5, adjust with Sodium Hydroxide until it is above 5.</li> <li>4. Once the pH is above 5, add the STEOL® CS-230 and mix until homogeneous.</li> <li>5. Add the AMMONYX® LMDO and mix until homogeneous. Check the pH.</li> <li>6. Use Citric Acid, 50% Solution or Sodium Hydroxide to adjust the pH to between 6.5 - 8.5.</li> <li>7. Add preservative, dye, fragrance and other additives and mix until homogeneous.</li> <li>8. Add the sodium chloride to increase the viscosity and mix until homogeneous.</li> </ol> <p>NOTE: STEOL® CS-130 or STEOL® CS-330 may be used in place of STEOL® CS-230 without affecting the performance or stability of the formulation, but the typical viscosity range may be different. See the "External Comment" section for the alternate viscosity ranges.</p>	
Physical Properties	Appearance at 25 °C	Clear liquid
	pH, as is	6.5-8.5
	Viscosity at 25 °C, cps	1,300 - 1,900
	Density at 25 °C, lbs/U.S. gal	8.59
	Density at 40 °C, lbs/U.S. gal	8.47
Storage/Stability	Freeze/Thaw (3 cycles)	Pass
	6 weeks at 4 °C (39 °F)	Stable
	6 weeks at 25 °C (77 °F)	Stable
	6 weeks at 40 °C (104 °F)	Stable
Instructions for Use	<p>Squirt a small amount of detergent into sink and fill sink with warm/hot water. Alternately, squirt a small amount of detergent onto damp sponge or washcloth.</p> <p>The performance of this formulation is equal to or slightly better compared to two U.S. consumer economy brand dish detergents.</p>	

External  
Comment

If using STEOL® CS-130 instead of STEOL® CS-230, the viscosity range is 1,300 - 1,900 cps. If using STEOL® CS-330 instead of STEOL® CS-230, the viscosity range is 800 - 1,400 cps.

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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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