

## FORMULATION

# Odor Removal Liquid Laundry Detergent

## Overview

- Liquid laundry detergent with excellent odor removal performance
- Excellent soil and stain removal that keeps whites white and colors bright
- Effective in hard and cold water conditions
- Biodegradable, free from environmentally persistent ingredients such as polyacrylates, and free-from phosphates

## Composition

Ingredient	Trade Name	Function	% w/w
Water			QS to 100
Sodium Hydroxide (50%)		Neutralizing Agent	0.75-1.25
Linear Alkyl Benzene Sulfonic Acid	Bio-Soft S-101 (Stepan)	Biodegradable Anionic Surfactant	3-5
Sodium Oleate		Biodegradable Anti-Foamer	1.0-1.5
Sodium Citrate		Biodegradable Chelant	3-5
<b>Sodium Polyaspartate (40% active)</b>	<b>Soltellus 2101L (Lygos)</b>	<b>Biodegradable multi-functional polymer</b> <ul style="list-style-type: none"> <li>• Anti-redeposition agent for brighter colors and whiter whites</li> <li>• Anionic surfactant and enzyme booster</li> </ul>	<b>1.5-2.5</b>
Sodium Laureth Sulfate (60% active)	Steol CS-460 (Stepan)	Biodegradable Anionic Surfactant	5-10
Laureth-7 (100% active)	Genapol LA-070	Biodegradable Nonionic Surfactant	6-12
Glycerin		Biodegradable Co-Solvent	3-5
Ethanol		Biodegradable Co-Solvent	0-2.5
Zinc Ricinoleate		Traps and Adsorbs Odor Molecules	0-2
Sodium Zinc Polyitaconate (26%)		Traps and Adsorbs Odor Molecules	0-2
NaOH or Citric Acid		pH Adjuster	As Needed
NaCl		Viscosity Modifier	As Needed
Protease	Liquinase Eivity 3.5L (Novonesis)	Facilitates the Breakdown of Protein Stains	0.5-1.0
Amylase	Amplify Prime 100L (Novonesis)	Facilitates the Breakdown of Starch Stains	0.25-0.5
Nuclease	Pristine 100 L (Novonesis)	Enhances Stain and Odor Removal	0.25-0.75
CaCl <sub>2</sub> Dihydrate		Enzyme Stabilizer	0.02-0.04
Methylisothiazolinone / Benzisothiazolinone	Acticide MBS (Thor)	Biodegradable Preservative	0.15
Fragrance/Dyes	Adjuvants	Product Aesthetics	

## Directions

1. Mix water and NaOH, then slowly add BIO-SOFT S-101 with uniform mixing
2. Add co-solvents, surfactants, chelants, anti-foamers, and Soltellus 2101L while mixing
3. Add pH adjuster and viscosity modifiers to reach pH 7.5 to 8.5 and desired viscosity
4. If using heated process, let system cool to ambient temperature prior to adding enzymes, stabilizer, preservatives, and adjuvants

## Potential Claims

- Eliminates malodors on garments
- Keeps whites white and colors bright
- Excellent for cleaning in hard water
- Saves money and the environment with a cold water clean
- Safe for sensitive skin
- Free from harmful ingredients
- Free-from polyacrylates and phosphates
- Biodegradable
- Safe for septic tanks

## Product Properties

Parameter	Value
Appearance	Colorless to lightly colored formulation
pH (as is)	7.5-8.5
Compatability	Limited compatability with cationic ingredients

