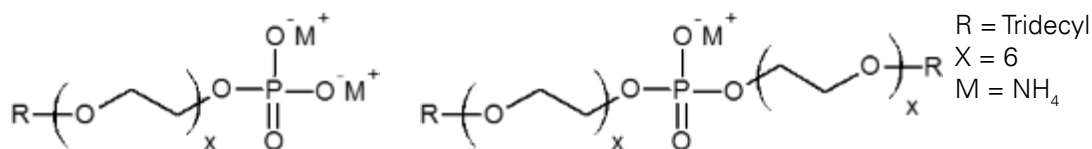


# POLYSTEP® P-12A

a primary emulsifier for use in emulsion polymerization systems

**POLYSTEP P-12A** is a tridecyl ethoxylate phosphate ester, ammonium salt for use in emulsion polymerization. When compared to an alkyl phenol ethoxylate (APE) type phosphate ester as the primary emulsifier, **POLYSTEP P-12A** can improve performance attributes in both the emulsion polymerization process and downstream coating applications.



## Key Attributes:

- ✓ Low coagulum formation in small particle latexes
- ✓ Improves mechanical stability
- ✓ Alkyl phenol ethoxylate (APE) free
- ✓ Improves color acceptance
- ✓ Improves washability
- ✓ Improves RT<sup>1</sup> block resistance

## Latex Performance

Polymer	52BA/46MMA/2MAA	
Surfactant	POLYSTEP P-12A	NP-6PE
Level BOM, %	1.5	1.5
Final PSD, nm	113	111
Ca <sup>2+</sup> Stability, g 10% CaCl <sub>2</sub>	8.5	8.4
Shear Stability, min	6.0	4.0
Heat Stability, 49°C for 30 days	Pass	Pass

BA = Butyl Acrylate    MMA = Methyl Methacrylate    MAA = Methacrylic Acid

**POLYSTEP P-12A** is comparable to a nonyl phenol (POE-6) phosphate ester (NP-6PE) as the sole primary emulsifier in an acrylic polymer (T<sub>g</sub> = 2°C) stabilized with MAA and no additional post-additive latex stabilizers.

**POLYSTEP P-12A** provided comparable results in the emulsion polymerization process and resulting latex as NP-6PE.

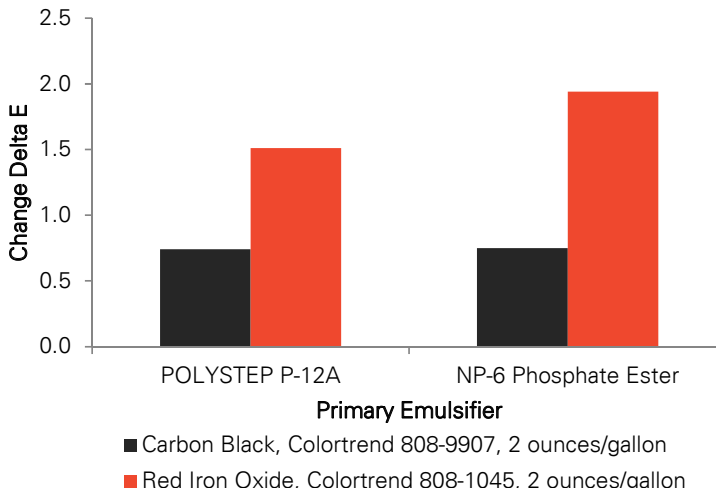
<sup>1</sup>RT = Room temperature

The coatings containing **POLYSTEP P-12A** and NP-6PE do not contain any additional wetting agents added to the paint formulation. The examples that follow show how the choice of surfactant in the latex impacted coating applications.

### Color Acceptance

**POLYSTEP P-12A** improved performance for red iron oxide and provided equivalent performance to NP-6PE for carbon black color acceptance.

<50 g/L VOC, PVC = 29.8%, Volume Solids = 33.7%

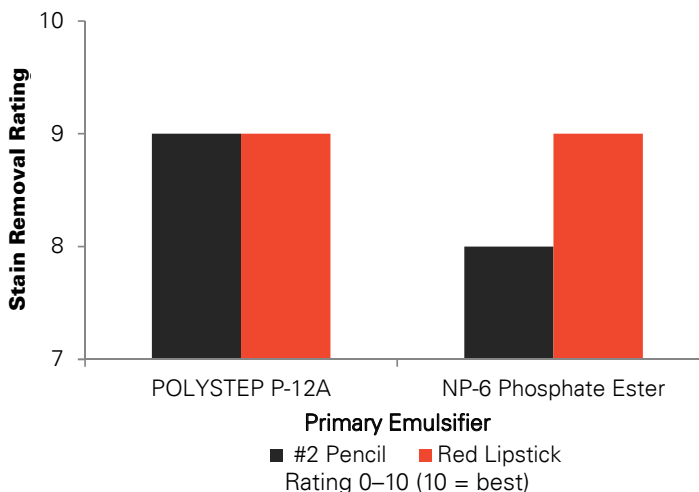


### Washability

**POLYSTEP P-12A** improved #2 pencil stain removal compared to NP-6PE and provided comparable red lipstick removal.

ASTM D4828

<50 g/L VOC, PVC = 29.8%, Volume Solids = 33.7%

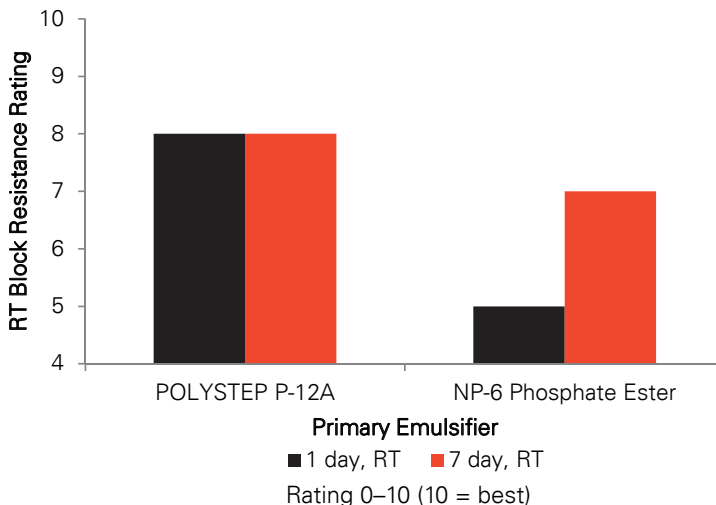


### Block Resistance

**POLYSTEP P-12A** improved 1-day and 7-day RT block resistance compared to NP-6PE.

ASTM D4946

<50 g/L VOC, PVC = 29.8%, Volume Solids = 33.7%



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