

78039 Wetting Agent PM

Acrylic polymer for emulsification.

Recommended by Wolbers for any type of cleaning emulsion.

In aqueous mediums: Dispersing agent to reduce setting of pigments.

Application: 0.1 – 0.3 %.

Wetting Agent PM is novel in oil-in-water (o/w) emulsifiers which provide numerous benefits to emulsions prepared with them:

Universal Emulsification:

Wetting Agent PM is a water soluble polymer that readily anchor at the oil-water interface independent of oil type.

Excellent Stability:

A broad range of emulsions have remained stable in the bottle for years, even at elevated temperatures of 40°C. These emulsions are also stable to repeated freeze-thaw cycles.

Low Irritancy / Low Usage Levels:

Due to its hydrogel nature and highly efficient properties, typical usage levels of only 0.1 – 0.3 % of Wetting Agent PM is required to replace 3-7 % of traditional surface active emulsifiers which can be irritating.

Rapid Release of the Oil Phase:

Emulsions created with Wetting Agent PM have a triggered release mechanism. The acrylic hydrophilic portion of the agent hydrogel instantly deswells upon contact with the surface characteristics and salt content common on skin. The oil phase is released and provides immediate coverage of the substrate, eliminating the lengthy lag time seen in traditional o/w emulsions.

Oil Phase Will Not Re-Emulsify:

When formulated with little or no surfactant, the oil phase in the Wetting Agent PM can spread rapidly and cannot re-wet. Waterproof emulsions are therefore easily prepared. In traditional emulsions, upon final evaporation of the oil phase, the oil layer contains high concentrations of surfactants¹, rendering the oil phase readily re-emulsifiable.

Simplifies Emulsion Formation Procedures:

Stable emulsions can be formed by the stepwise addition of oil phase ingredients to the water phase at any temperature, including ambient room temperature, at which point all ingredients are liquid. Economies may be derived from the elimination of heating and cooling cycles during manufacture.

Effective O/W Emulsions at Low Loadings:

Due to the immediate availability of the active oil phase using the Wetting Agent PM, the equivalent efficacy at reduced oil or solvent levels may be seen.

¹ H. Tsutsumi, T. Utsugi and S. Hayashi, Journal of the Society of Cosmetic Chemisty, 30, 354, 1979.



Relative Base Strength Parts Required Per One Part Disperse Aid
(Neutralized to an approximate pH of 6.0-7.0)

Sodium Hydroxide (18% solution):	0.5
Potassium Hydroxide (18% solution):	0.5
Ammonium Hydroxide (28% solution):	0.3
Triethanolamine (TEA):	2.0
Tromethamine (2-amino 2-hydroxymethyl-1,3-propanediol):	2.0
Aminomethyl propanol (AMP):	1.5
Tetrahydroxypropyl ethylene diamine:	2.0

Indirect Method

1. Disperse the polymeric emulsifier in the oil phase until the powder is wetted in the oil.
2. Add the oil phase (containing the Wetting Agent PM) to the water phase, containing the neutralizing alkali, under vigorous (800-1500 rpm) agitation. Do not use in-tank homogenizers.
3. Wetting Agent PM will swell rapidly in water causing a swift build of viscosity and the formulation of a creamy emulsion. Continue with vigorous agitation for 15-20 minutes.

Direct Addition Method

1. Disperse the polymeric emulsifier by sifting slowly into rapidly agitating water. An eductor or powder disperser may be used to speed dispersion. Foaming will occur during this step.
2. Continue agitation, pour in the oil phase, and neutralize with a suitable base.
3. Use rapid (800-1200 rpm) mixing to reduce particle size and obtain a glossy product. Controlled homogenization may be useful, but viscosity variation could result from high shear.

NOTE. Liquid nonionic surfactant (HLB 8-12) in a concentration of 0.1-0.4 % may be added to the oil phase to reduce the size of the oil droplets, and improve the creamy appearance of the emulsion.