

NON-IONIC SURFACTANTS

Alkyl Phenyl Polyoxyethylene Ether NP-4 to NP-40

Non-ionic surfactant series from NP-4 to NP-40, covering HLB 8.9 to 18 for emulsifying, wetting and levelling.

Overview

The NP series is a family of alkyl phenyl polyoxyethylene ethers running from NP-4 to NP-40, which in practice means an HLB ladder from 8.9 up to 18. Choosing a grade is choosing an HLB: the low end makes water-in-oil emulsifiers, the middle covers wetting, penetration and levelling for textile and metal processing, and the high end gives salt-tolerant, high-temperature emulsifiers and solubilisers. The whole series resists hard water and alkali.

Typical Data

Property	Value
Chemical component	$\text{R-C}_6\text{H}_4\text{-O(CH}_2\text{CH}_2\text{O)}_n\text{H}$, R = C ₉ H ₁₉ , n = 3-40
Appearance	Transparent to white paste or yellow solid
Quality standard	Q/12KF5060-2015
Packing	200 kg drums, NP-10 in 215 kg drums
Transport	Non-dangerous goods

Published Grades

Grade	Cloud point	Hydroxyl value mg KOH/g	pH at 25C	HLB	Properties and applications
NP-4	-	130-150	-	8.9	Emulsification, wetting. W/O emulsifier, and a whole-agent and anti-adhesion agent for PVC polymerisation.
NP-7	-	95-115	-	12	Emulsification, level dyeing, wetting, penetration. Cleaner for wool spinning and synthetic fibre, metal processing, PAN dyeing detergent, soap cooking agent, cationic dye leveller.
NP-9	42-48	-	6.5 +/- 1	12.8	Wetting, penetration, emulsification. Main component of chemical fibre oil and detergent.
NP-10	60-67	-	6.5 +/- 1	13.6	Level dyeing, emulsification, wetting, diffusion, antistatic. Low temperature wool dyeing additive, pesticide, medicine, rubber and mineral oil emulsifier, waterproof concrete and asphalt emulsifier, chemical fibre oil monomer.
NP-15	80-90	-	6.5 +/- 1	15	Emulsification, washing. Auxiliary for textile printing and dyeing, metal processing and oil field work.
NP-21	At or above 100	-	6.5 +/- 1	16	Emulsification, salt resistant, high temperature resistant. High concentration electrolyte wetting agent, synthetic rubber stabiliser.
NP-40	-	26-34	6.0 +/- 1	18	Emulsification, solubilising. Emulsifier, dispersing agent, penetrant.

Use Guide

- Start from the HLB you need: below 10 for water-in-oil, 12 to 14 for wetting and detergency, 15 and above for oil-in-water and solubilising.
- Where cloud point is published, keep the process temperature below it so the surfactant stays in solution.
- Blending two grades gives intermediate HLB values when no single grade matches.
- Supplied in 200 kg drums, with NP-10 in 215 kg drums, as non-dangerous goods.

Applications

- Wool and synthetic fibre scouring and cleaning
- Metal processing fluids and cleaners
- Pesticide and rubber industry emulsifiers
- Waterproof concrete production and asphalt emulsification
- Chemical fibre oil formulation

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