

NELSON BROTHERS

# METALWORKING GUIDE



PIBSA INTERMEDIATES  
AND EMULSIFIERS

DISTRIBUTED THROUGH S&S CHEMICAL COMPANY INC.



Nelson  
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## NELSON BROTHERS PIBSA PRODUCTS

- + Clear, light amber
- + Noncontinuous, chlorine-free process
- + Hard-water stable
- + Low-foam forming
- + Bio-resistant structure

## PRODUCT RANGE

### EMULSIFIER CORE COMPONENTS - PIBSA

PRODUCT	Molecular Weight (PIB)	Acid Value mg KOH/g	Viscosity @100°C, cSt	Application and Benefits
<b>NBSC 5201</b>	450	86	60	Low molecular weight, highly reactive PIBSA engineered for efficient oil-in-water emulsification across demanding fluid systems. This product delivers hard water stability, and low foam formation while enabling significantly lower treat rates and minimal co-emulsifier demand versus traditional PIBSAs. Upon neutralization, NBSC 5201 promotes spontaneous emulsion formation, providing high droplet stability and bio-resistant characteristics.
<b>NBSC 5202</b>	750	56	250	Medium molecular weight, highly reactive PIBSA that balances ease of emulsion formation with greater droplet stability and corrosion protection in oil-in-water fluid systems. NBSC 5202 enables lower treat rates and reduced co-emulsifier demand versus traditional PIBSAs while maintaining hard water stability, and low foam formation. This product is well-rounded choice for metal removal and forming fluids.
<b>NBSC 5203</b>	1000	55	490	High molecular weight, highly reactive PIBSA typically paired with high-HLB co-emulsifiers for oil-in-water fluid systems. This product delivers superior droplet stabilization, low foam formation, and hard water stability, and is fully concentrated. Upon neutralization, NBSC 5203 supports robust, stable emulsions making it well suited for metal removal and forming fluids and invert emulsification applications where high viscosity handling is acceptable.
<b>NBSC 5204</b>	1000	42	116	High molecular weight, highly reactive PIBSA typically paired with high-HLB co-emulsifiers for robust oil-in-water emulsification. Its advanced chemistry enables seamless integration into traditional PIBSA-based formulations, delivering low foam formation and hard water stability. NBSC 5204 provides exceptional droplet stability and consistent performance in metal removal and forming fluids, as well as invert emulsification systems.

## INNOVATIVE EMULSIFIER TECHNOLOGY

PRODUCT	Density @40°C, cSt	Acid Value mg KOH/g	Viscosity @40°C, cSt	HLB	Total Base Number mg KOH/g	Application and Benefits
<b>NBSC 5401</b>	0.96	30	100	4	-	Low HLB, PIBSA-based, nonionic additive designed to work synergistically with primary emulsifiers to form stable oil-in-water emulsions. It promotes rapid, spontaneous emulsion formation while maintaining stability in hard water and generating minimal foam. As a co-emulsifier and HLB adjuster, NBSC 5401 enhances formulation flexibility and delivers added lubricity and corrosion protection in metal removal and forming fluids.
<b>NBSC 5402</b>	0.96	41	3700	10.5	36	Fully-finished pre-neutralized emulsifier core intended for oil-in-water (O/W) fluid systems. This product is completely comprised of PIBSA derivatives and delivers high droplet stability, low foam formation, and hard water stability without the need for additional co-emulsifiers. Designed for formulation simplicity and flexibility, NBSC 5402 forms clean, robust emulsions and is ideal for incorporation into naphthenic oil systems and semi-synthetic formulations.
<b>NBSC 5403</b>	0.96	36	4600	9.5	37	Ready-to-use emulsifier intended for oil-in-water fluids. The actives of this product are 100% PIBSA-based, and are lightly diluted in base oil for facile handling. This product provides a core emulsifier starting point with high droplet stability, low foam, and hard water stability, and offers wide-oil compatibility from 100 vis paraffinic to 100 vis naphthenic oils. NBSC 5403 contains a modest amount of reserve alkalinity from excess alkanolamines, with a typical pH of 8–8.5 in 95% water.
<b>NBSC 5404</b>	0.94	38	7480	8.5	34	Ready-to-use emulsifier intended for oil-in-water fluids. The actives of this product are 100% PIBSA-based, and are lightly diluted in paraffinic oil for facile handling. This product provides a core emulsifier starting point with high droplet stability, low foam, and hard water stability. NBSC 5404 is ideal for incorporation into paraffinic oil systems.

## DISPERSANT OFFERINGS

PRODUCT	Density @15.6°C, cSt	Viscosity @100°C, cSt	Nitrogen wt. %	Flash Point PMCC	Total Base Number mg KOH/g	Application and Benefits
<b>NBSC 5601</b>	0.94	356	0.98	209	22	A high molecular weight, high-concentration, multifunctional polyisobutylene succinimide (PIBSI) dispersant designed for use in metalworking applications such as cutting oils and coatings.



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