PILOT® CHEMICAL COMPANY

Leadership. Service. Flexibility. Success. **We're going further®.**

Metalworking & Lubricants

Metalworking and Lubricant Additives

At Pilot, our well-known, first-intent lubricant additives offer excellent corrosion inhibition and emulsification characteristics, with lower viscosities and improved handling features, than comparable natural sulfonates. The reason is our proprietary ice-cold sulfonation process. We manufacture the leading sulfonates for metalworking, corrosion inhibitor, emulsifier, demulsifier, and lubrication applications.

Specialty Additives	Pilot produces a variety of specialty additives designed to enhance your metalworking and lubrication formulation			
Product	**Chemical Name**	**Physical Form/Activity**	**Features/Benefits**	**Application**
Calamide® F	Oleamide DEA	Liquid/100%	Calamide® F is a co-emulsifier, corrosion inhibitor and lubricity agent in metal removal and metal forming fluids. Biodegradable and derived from natural and renewable resources.	Lubrication and metalworking formulations
Pilot® DABSA	Alkyl Aryl Sulfonic Acid	Liquid/80%	Pilot® DABSA is a high molecular weight sulfonic acid for neutralization to specialty sulfonates. Its acid form permits in situ neutralizations.	
Pilot® SXS-40	Sodium Xylene Sulfonate	Liquid/40%	Pilot® SXS-40 is a great solubilizer, coupling agent, cloud point depressant and viscosity reducer. Biodegradable.	

Alcohol Ethoxylates	Nonionic chemistries characterized by high surface activity, and rapid biodegradability, to readily enhance your formulations			
Product	**Chemical Name**	**Physical Form/Activity**	**Features/Benefits**	**Application**
Masodol® 91-2.5	C9-11 Alcohol Ethoxylate	Liquid/100%	Low HLB linear primary alcohol ethoxylate nonionic surfactant characterized by high surface activity, rapid biodegradability and low aquatic toxicity	Lubrication and metalworking formulations
Masodol® 1-3	C11 Alcohol Ethoxylate	Liquid/100%	Narrow-range linear primary alcohol ethoxylate nonionic surfactant characterized by high surface activity, rapid biodegradability, and low aquatic toxicity	
Masodol® 1-7	C11 Alcohol Ethoxylate	Liquid/100%	Narrow-range linear primary alcohol ethoxylate nonionic surfactant characterized by high surface activity, rapid biodegradability, and low aquatic toxicity	
Masodol® 25-7	C12-15 Alcohol Ethoxylate	Liquid/100%	Linear primary alcohol ethoxylate nonionic surfactant characterized by high surface activity, rapid biodegradability, and low aquatic toxicity	

Sulfonates	Pilot Chemical's sulfonates are manufactured utilizing custom tailored first-intent alkylates which offer consistent emulsification, demulsifying characteristics, corrosion inhibition performance, and great handling properties that natural sulfonates cannot match.			
Product	**Chemical Name**	**Physical Form/Activity**	**Features/Benefits**	**Application**
Aristonate® C-5000	Neutral Calcium Sulfonate (EW=515)	Liquid/50%	Aristonate® C-5000 is a high performance corrosion inhibitor and demulsifier. It has a typical total base number, TBN of 5mgKOH/g and features great water rejection characteristics for hydraulic fluids and greases.	Lubrication, metalworking and coating formulations
Aristonate® S-2460	Very High Molecular Wt. Alkyl Aryl Sulfonate (MW=520)	Liquid/60%	Aristonate® S-2460 is a high molecular weight, and highly branched member of Pilot's newer generation of oil soluble sodium alkyl aryl sulfonates. Aristonate® S-2460 is a clear, dark brown, sodium sulfonate of relatively high viscosity, which finds use in a wide variety of applications where excellent corrosion protection, low foam, moderate emulsification, and lubricity is required.	
Aristonate® S-4000	Low Molecular Wt. Alkyl Aryl Sulfonate (MW=400)	Liquid/60%	Aristonate® S-4000 is a very efficient and low foaming emulsifier for soluble oils. It easily forms microemulsions generating the basis for semi-synthetic fluids.	
Aristonate® S-5000	Very High Molecular Wt. Alkyl Aryl Sulfonate (MW=500)	Liquid/60%	Aristonate® S-5000 is a corrosion inhibition agent with a low foam profile and good emulsification properties. It is well suited for semi-synthetics.	
Aristonate® H	High Molecular Wt. Alkyl Aryl Sulfonate (MW=470)	Liquid/60%	Aristonate® H is a corrosion inhibitor with good emulsification performance and has great iron and hard water tolerance.	
Aristonate® L	Low Molecular Wt. Alkyl Aryl Sulfonate (MW=400)	Liquid/60%	Aristonate® L is a high performance emulsifier for soluble oils.	
Aristonate® M	Medium Molecular Wt. Alkyl Aryl Sulfonate (MW=430)	Liquid/60%	Aristonate® M is a general utility and economical sulfonate that offers emulsification and corrosion protection.	
Aristonate® VH-2	Very High Molecular Wt. Alkyl Aryl Sulfonate (MW=520)	Liquid/60%	Aristonate® VH-2 is a strong corrosion inhibitor. It has good emulsification properties for soluble oils and semi-synthetics, used on paraffinic base stocks.	
Calfax® DB-45	Sodium C12 Branched Diphenyl Oxide Disulfonate	Liquid/45%	Calfax® DB-45 and Calfax® 16L-35 are specialty detergents that can increase the hard water tolerance of an emulsion without increasing foam tendencies. Offers excellent synergies with Aristonate® S-series products.	
Calfax® 16L-35	Sodium C16 Linear Diphenyl Oxide Disulfonate	Liquid/35%		
Calsoft® OS-45S	Sodium Oleic Sulfonate	Liquid/45%	Calsoft® OS-45S is an emulsifier and wetting agent with defoaming and anti-foam characteristics. It imparts corrosion resistance in many formulations and is a good solubilizer and dispersant. Biodegradable and derived from natural and renewable resources.	

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