Ready to go,
Ready to last.

High-Performance Additives

for Metalworking Fluids
and Industrial Lubricants

Colonial Chemical

For over thirty years, Colonial Chemical has provided a broad range of performance additives for metalworking fluids and industrial lubricant applications, each developed to address one or more performance requirements of specific equipment or processes, environmental and regulatory requirements and budget targets. Colonial Chemical's quality additives enable the metalworking fluids to create an effective barrier between metal surfaces and corrosive environments and are used to formulate neat oils, soluble oil, semi-synthetic and full synthetic metalworking fluids.

Utilizing competitive R&D technology and processes, Colonial Chemical has developed breakthrough, leading-edge chemistries that benefit both developers and end-users and provide cost-saving, flexible alternatives to conventional chemistry. Our chemists and engineers blend years of experience in additive manufacturing to deliver products that meet customer's demands for performance, quality, flexibility, and fast delivery for broad-range performance additives.

High-Performance Additives

for Metalworking Fluids and Industrial Lubricants

Corrosion Inhibitors

Lubricity Additives

Ready to work.

Metalworking fluids play pivotal roles in the metalworking process: lubrication, cooling, chip removal, corrosion and rust prevention, increasing tool life, and improving surface integrity and finish. Through the years, development of metalworking fluids has been becoming increasingly complex and constantly facing the challenges brought forward by:

- The shrinking toolbox of enabling additive technologies
- Stringent government regulation for health, safety, and environment
- Increased machining on high-strength ferrous and non-ferrous materials
- Reduced sump size and footprints and high-pressure fluid application
- Demanding corrosion and wear protection for tools and workpieces
- Cost effectiveness of participating chemistries
- High expectation for fluid marketability
- Waste treatment and/or fluid recycling

As a global leading technology provider for metalworking fluids and industrial lubricants, Colonial Chemical provides a broad range of high-performance additives to allow the metalworking fluid formulation community to address those perceived challenges and deliver modern, cost-effective, and water-dilutable metalworking fluids (i.e., soluble oils, semi-synthetic, and synthetic fluids) to meet the evolving regulatory and machining challenges. Branded as Cola®Cor, Cola®Zoline, Cola®Lube, Cola®Fax, and Cola®Carb, Colonial's additive chemistries offer performance in corrosion protection, boundary lubrication, wear and extreme pressure (EP) protection, emulsification, and surface wetting. They have been widely used in metalworking, metal treatment and protection fluids, metal cleaners, greases, fuel additives, general corrosion controls, equipment corrosion protection in oil and gas, enhanced oil recovery, paints and coatings, and other industrial lubricants.

Colonial's high-performance metalworking fluid additive portfolio features:

- Multifunctionality
- Hard water tolerance
- Low foaming tendency
- Easy handling and formulating
- Environmental friendliness

Corrosion Inhibitors

Corrosion inhibitors are one of the most important and widely used additives in metalworking, treating, protecting, and other general applications. Cola®Cor products encompass a broad class of organic film-forming corrosion inhibitors including:

- **Acylamidocarboxylates**
- **Amine Carboxylates**
- **Amine Borates and Amine Phosphates**
- **Phosphate Esters**
- **Arylsulfonamidocarboxylic Acids**
- **Alkanolamides**
- **Imidazolines**

In addition to their core performance for corrosion protection, some of these corrosion inhibitors also provide performance in emulsification and lubrication.

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Acylamidocarboxylates				
Cola®Cor 186	Anionic	Water Soluble upon neutralization	• Acylamidocarboxylic acids • In free acid form • Offers formulation flexibility • Needs to be neutralized with alkanolamines and aqueous alkali hydroxides at your choice prior to use • Low-foaming corrosion inhibitor • Offers multimetal protection	• Metalworking fluids (emulsions, semi-synthetic, synthetic) • Rolling emulsions • Mild alkaline metal cleaners • Water-based hydraulic fluids
Cola®Cor IT	Anionic	Water Soluble	• Alkanolamine-neutralized acylamidocarboxylic acids • Water soluble • Stable in hard water up to approx. 1000ppm $CaCO_3$ • Most effective on ferrous metals and in an alkaline solution • Free of GHS hazard labels	• Metalworking fluids • Rolling emulsions • Water-based hydraulic fluids • Alkaline metal cleaners
Cola®Cor 372	Anionic	Water Soluble upon neutralization	• DCHA solubilized acylamidocarboxylic acids • Multi-metal corrosion inhibitor • Needs to be neutralized with alkanolamines or metal hydroxides • Used for magnesium, steel, and aluminum protection • Reduces cobalt leaching • Low foaming and hard-water stable	• Metalworking fluids (emulsions, semi-synthetic, synthetic) • Rolling emulsions • Mild alkaline metal cleaners • Fire-resistant hydraulic fluids (HFAE, HFAS) • Polymer quenchants • Anywhere corrosion inhibitors are needed
Cola®Cor 215	Anionic	Water Soluble	• Optimized blend of carboxylic acids including acylamidocarboxylic acids • Alkanolamine neutralized • Water soluble • Corrosion protection for aluminum and ferrous metals • Hard water stable at 300 – 400 ppm	• Synthetic, semi-synthetic, and soluble oil metalworking formulations • Machining coolants • General machining: threading, tapping, cutting, grinding fluids • Alkaline metal cleaners
Cola®Cor 298	Anionic	Water Soluble	• Optimized blend of carboxylic acids including acylamidocarboxylic acids • Alkanolamine neutralized • Corrosion inhibitor primarily for ferrous metals but non-agressive toward non-ferrous materials • Low-foaming • Hard water stable – over 500 ppm • Prevents flash rusting	• Synthetic, semi-synthetic, and soluble oil metalworking formulations • Machining coolants, general machining - cutting, grinding fluids, threading, and tapping • Metal cleaners • Metal paint primer

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Corrosion Inhibitors - Amine Carboxylates				
Cola®Cor 200	Anionic	Water Soluble	• Blend of alkanolamine neutralized carboxylic acids and alkoxylates • Low foaming • Water-soluble corrosion inhibitor for ferrous materials • Excellent tolerance to hard water • Enhanced wetting capability	• Water-dilutable metalworking fluids • Metal cleaners • Detergents • Aerosols • Water-based coating applications
Cola®Cor 232	Anionic	Water Soluble	• Alkanolamine neutralized dibasic carboxylic acids • Low foaming • Highly effective corrosion and stain inhibitor for ferrous materials under alkaline conditions • >500 PPM hard water tolerance • Leaves no residual tacky film	• Synthetic metalworking fluid formulations • Metal cleaners • Circulating cooling systems
Cola®Cor 232H	Anionic	Water Soluble	• Alkanolamine neutralized mono- and di-basic carboxylic acids • Low foaming • Highly effective corrosion and stain inhibitor for ferrous materials under alkaline conditions • Excellent tolerance to hard water (>1000 PPM) • Leaves no residual tacky film	• Synthetic metalworking fluid formulations • Metal cleaners • Circulating cooling systems
Cola®Cor 300	Anionic	Water Soluble	• Alkanolamine neutralized carboxylic acids • Low foaming • Water-soluble corrosion inhibitor • Excellent tolerance to water hardness (>1000 PPM)	• Water-dilutable metalworking fluids • Metal cleaners
Cola®Cor 400	Anionic	Water Soluble	• Blend of alkanolamine neutralized dibasic carboxylic acids and phosphate esters • Very low-foaming corrosion inhibitor for ferrous and non-ferrous materials • Hard water tolerance • Prevents flash rusting • Improves lubricity	• Water-dilutable metalworking fluids • Detergents • Low foam alkaline spray washes • Aerosol applications
Cola®Cor 500	Anionic	Water Soluble	• Blend of alkanolamine neutralized mono- and di-carboxylic acids • Water-soluble, non-foaming corrosion inhibitor for cast iron and steel alloy • Hard water tolerance • Protects ferrous and non-ferrous metals • Lubricating, wetting and spreading properties	• Water-based metal working fluid formulations • Forming and drawing compounds • Useful in water/glycol or other water based hydraulic fluids • Alkaline hard surface cleaners

Corrosion Inhibitors - Amine Borates and Amine Phosphates

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Cola®Cor BCI	Anionic	Water Soluble	• Alkanolamine borates • Corrosion inhibitor for ferrous materials • Free of secondary amine • Excellent alkalinity reserve • Low foaming • Hard water stable	• Metalworking fluids
Cola®Cor CI-24	Anionic	Water Soluble	• Mixed alkanolamine and polyamine borates • Highly effective corrosion inhibitor for ferrous materials in aqueous systems • High alkalinity reserve	• Metalworking fluids
Cola®Cor RP	Anionic	Water Soluble	• Optimized blend of alkanolamine borates • Non-foaming • Corrosion inhibitor for cast iron, steel, and nonferrous metals such as aluminum and copper • Recommended as a replacement for sodium nitrite especially in cutting and grinding fluids • Extremely effective corrosion inhibitor for aerosol formulations	• Water-dilutable metalworking fluids: Cutting and grinding fluids • Alkaline cleaners • Final rinsing fluids
Cola®Cor EDP	Anionic	Water Soluble	• Polyamine phosphates • Non-foaming • Corrosion inhibitor for metalworking fluids for ferrous and non-ferrous metals in the liquid and vapor phase • Offers extreme pressure wear protection	• Metalworking fluids • Unreactive type fire retardant additives for polymers and plastics • Cement curing retardant • Extreme pressure lubricant • Aerosol can corrosion inhibitor • Plastics flame retardant • Cement curing retardant
Cola®Cor 700	Anionic	Water Soluble	• Blend of alkanolamine borates and amine phosphates • Non-foaming • Offers liquid and vapor phase protection • Effective for cast iron, steel, and non-ferrous metals such as aluminum and copper • Recommended as a replacement for sodium nitrite	• Metalworking fluids • Water-containing aerosol formulations • Coating cans • Process equipment • Metal storage tanks

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Corrosion Inhibitors - Phosphate Esters				
Cola®Cor ACI	Anionic	Water Soluble	• Short-chain alkoxylate phosphate esters • In free acid form • Needs to be neutralized with alkali metal hydroxides or alkanolamines • Corrosion inhibitor for aluminum and ferrous materials • Very low-foaming • Fully water soluble upon neutralization with alkali hydroxides or alkanolamines • Prevents aluminum staining at a pH up to 9.3 • Offers sufficient protection at very low concentrations • Compatible with and synergistic to other corrosion inhibitors	• Synthetic and semi-synthetic metalworking fluids • Alkaline metal cleaners
Cola®Cor KAT	Anionic	Water Soluble	• Phosphate ester blend • Neutralized with sodium hydroxide • Water-soluble corrosion inhibitor for ferrous and non-ferrous metals, i.e. aluminum • Offers corrosion protection for yellow metals including copper, brass, and bronze in alkaline environments • Highly-efficient antistatic agent • Can serve as an emulsifier	• Metal cleaners • Manufacturing of polyester, polypropylene, polyamide or acrylic staple fibers
Cola®Cor THE	Anionic	Oil Soluble	• Alkyl phosphate esters • Neutralized with alkoxylate amines • Ashless, oil soluble corrosion inhibitor • Long lasting rust protection of anti-wear properties • Offers effective boundary lubrication	• Rust preventatives for industrial and steel mill applications • Hydraulic oils • Drawing compounds and rolling oils • Other industrial lubricants
Cola®Cor 900	Anionic	Oil Soluble	• Branched alkyl phosphate esters • In acid form • Needs be neutralized to maintain the emulsion characteristics • Used as a corrosion inhibitor on aluminum alloys and cast aluminum • Readily used in soluble oil formulas or coupled into water-based products such as synthetics and semi-synthetics • Effective in metalworking formulas with a pH range of 8.5-9.5 • Effective EP/AW additives	• Soluble oil, semi-synthetics, and synthetic metalworking fluids • Gear oils
Cola®Cor 910	Anionic	Oil Soluble	• Acid version of Cola®Cor KAT • Water-soluble upon neutralization with alkanolamines and alkali metal hydroxides • Corrosion inhibitor for non-ferrous and yellow metals including aluminum, copper, and brass in alkaline environments • Highly-efficient antistatic agent • Can serve as an emulsifier	• Metalworking fluids • Alkaline metal cleaners • Manufacturing of polyester, polypropylene, polyamide or acrylic staple fibers

Corrosion Inhibitors - Arylsulfonamidocarboxylic Acids

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Cola®Cor H	Anionic	Water Soluble upon neutralization	• Arylsulfonamidocarboxylic acids • In free acid form • Ashless corrosion inhibitor for multimetal systems • Low melting-point solid • Very good compatibility with other corrosion inhibitors • Corrosion protection for deep sea pump systems • Need to be neutralized with alkanolamines prior to use	• Corrosion inhibitor for water-based lubricants and functional fluids • High glycol applications • Metal working fluids (semi-synthetic and synthetic) • Wire drawing fluids • Biodegradable water based hydraulic fluids (HFS) • Off-shore and high-pressure applications • Automobile antifreeze
Cola®Cor ASC	Anionic	Water Soluble upon neutralization	• Arylsulfonamidocarboxylic acids • In free acid form • As a solid (m.p. at 106°C) • Ashless corrosion inhibitor for multimetal systems • Very good compatibility with other corrosion inhibitors • Need to be neutralized with alkanolamines prior to use	• Corrosion inhibitor for water-based lubricants and functional fluids • Metal working fluids (semi-synthetic and synthetic) • Wire drawing fluids • Biodegradable water based hydraulic fluids (HFS) • Off-shore and high-pressure applications

Corrosion Inhibitors - Fatty Alkanolamides

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Cola®Cor 600	Nonionic	Oil Soluble	• Fatty acid-DEA alkanolamide based aerosol corrosion inhibitor and emulsifier blend • Especially useful in preventing corrosion in water-based aerosols by forming a stable water-in-oil emulsion	• Corrosion inhibitor for aerosol formulations for no or low VOC content products
Cola®Cor 600B	Nonionic	Oil Soluble	• Fatty acid-DEA alkanolamide based aerosol corrosion inhibitor and emulsifier blend • Especially useful in preventing corrosion in water-based aerosols by forming a stable water-in-oil emulsion	• Corrosion inhibitor for aerosol formulations for no or low VOC content products
Cola®Cor 635	Nonionic	Oil Soluble	• DEA-free fatty acid alkanolamides • Used as a corrosion inhibitor, lubricant, and secondary emulsifier • Offers superior corrosion protection and lubrication properties • Increase emulsion stability, corrosion protection, hard water stability, and storage life	• Synthetic, semi-synthetic, soluble oil metalworking fluids

Corrosion Inhibitors - Imidazolines

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Cola®Cor 93	Cationic	Oil Soluble	• Based on long-chain imidazolines • Ashless, non-staining corrosion inhibitor • Provides long lasting rust protection even under severe conditions • Serves as a detergent in fuel additives	• Rust preventatives • Hydraulic oils • Drawing compounds • Rolling oils • Fuel additives • Other industrial lubricants
Cola®Cor C56	Cationic	Water Soluble	• Quaternarized medium-chain imidazolines • Water-soluble cationic corrosion inhibitor concentrate • Clay stabilizing agent • Soluble in light brines and dispersible in very heavy brines	• Continuous treatment in oil and gas production • Designed for pumps, headers, separators, emulsion treaters, tanks, regulators, compressors, dehydrators, valves and associated equipment • Enhanced oil recovery in acidizing, fracturing and sand control applications
Cola®Cor 100	Ampho-teric	Water Soluble	• Based on short-chain imidazolines • Water-soluble corrosion inhibitor • Applicable for acid or alkaline conditions • Provides resistance against flash rusting in cleaning and metallic applications • Contributes to detergency	• Various metalworking fluids • Detergent applications • Aerosol applications
Cola®Cor V	Cationic	Oil Soluble	• Based on long-chain imidazolines • Salted with long-chain fatty acid • Oil soluble corrosion inhibitor • Specifically designed to provide excellent rust inhibition for greases • Soluble in petroleum lubricant bases and insoluble in water	• Rust inhibitor for grease applications
Cola®Cor CIC	Cationic	Oil Soluble	• Blend of long-chain imidazolines and sulfosuccinate wetting agents • Outstanding corrosion inhibition properties at low concentrations in greases and oil based lubricants • Improves the water resistance of greases	• Corrosion inhibitor for grease • Oil-based metalworking fluid and other industrial lubricant applications
Cola®Zoline O	Nonionic	Oil Soluble	• Neutral, oil soluble, long-chain fatty acid AEEA imidazo-line corrosion inhibitor or precursor • Readily soluble in polar solvents and in hydrocarbons but relatively insoluble in water • Can easily be converted to cationic agents offering performance in wetting, emulsifying, detergency, thickening, moisture displacing, corrosion inhibiting, and anti-static effects	• Agricultural emulsions • Industrial cleaners • Paints and coatings • Plastics • Oil and gas
Cola®Zoline T	Nonionic	Oil Soluble	• Oil soluble, long-chain fatty acid imidazoline corrosion inhibitor or precursor • Readily soluble in polar solvents and in hydrocarbons but relatively insoluble in water • Can easily be converted to cationic agents offering performance in wetting, emulsifying, detergency, thickening, moisture displacing, corrosion inhibiting, and antistatic effects	• Agricultural emulsions • Industrial cleaners • Paints and coatings • Plastics • Oil and gas

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Corrosion Inhibitors - Imidazolines				
Cola®Zoline LM	Nonionic	Oil Soluble	• Oil soluble, medium-chain fatty acid imidazoline corrosion inhibitor or precursor • Readily soluble in polar solvents and in hydrocarbons but relatively insoluble in water • Can easily be converted to cationic agents offering performance in wetting, emulsifying, detergency, thickening, moisture displacing, corrosion inhibiting, and antistatic effects	• Agricultural emulsions • Industrial cleaners • Paints and coatings • Plastics • Oil and gas
Cola®Zoline C	Nonionic	Oil Soluble	• Oil soluble, short to medium-chain fatty acid imidazoline corrosion inhibitor or precursor • Readily soluble in polar solvents and in hydrocarbons but relatively insoluble in water • Can easily be converted to cationic agents offering performance in wetting, emulsifying, detergency, thickening, moisture displacing, corrosion inhibiting, and antistatic effects	• Agricultural emulsions • Industrial cleaners • Paints and coatings • Plastics • Oil and gas, fiberglass treatment
Cola®Zoline TD	Nonionic	Oil Soluble	• Oil soluble, long-chain fatty acid DETA imidazoline corrosion inhibitor or precursor • Readily soluble in polar solvents and in hydrocarbons but relatively insoluble in water • Can easily be converted to cationic agents offering performance in wetting, emulsifying, detergency, thickening, moisture displacing, corrosion inhibiting, and antistatic effects	• Agricultural emulsions • Industrial cleaners • Paints and coatings • Plastics • Oil and gas • Water treatment

Lubricity Additives

Lubricity additives, also known as boundary lubricants or boundary lubricity additives, enhance the lubricity of the fluid by adsorbing on the metal surface to form a film, reducing metal-to-metal friction. These additives typically have a polar group that interacts with metal and tail that is compatible with mineral oil or water.

Colonial's boundary lubricants consist of fatty alkanolamides and complex fatty esters. In alkanolamides, Colonial offers DEA-, DIPA-, and non-secondary amine-based alkanolamides.

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Lubricity Additives - DEA Amides *(Please inquire if not listed below)*				
Cola®Lube 3400	Nonionic	Water Dispersible	• Long chain, non-foaming DEA amides • Lubricity additive • Soluble in naphthenic oils and dispersible in water • Offers corrosion protection and anti-wear properties	• Synthetic and semi-synthetic metal-working fluids
Cola®Lube 3403	Nonionic	Water Dispersible	• Long-chain, naturally derived fatty acid based amides • Lubricity additive • Dispersible in water by forming a chemical emulsion • Offers corrosion protection and antiwear properties	• Synthetic and semi-synthetic metal-working fluids
Cola®Lube 3420	Blend	Water Soluble	• Blend of DEA amides and sulfosuccinates • Exists as clear microemulsions • Commonly used emulsifier for paraffinic and naphthenic oils, lubricants and other additives • Lubricity additive • Contributes to corrosion protection, anti-wear and EP properties	• Semi-synthetic and synthetic metal-working fluids for cutting, drawing, tapping and grinding operations
Cola®Lube 3423	Nonionic	Water Dispersible	• Long-chain, naturally derived fatty acid amides • Used as a corrosion inhibitor, emulsifier, and lubricity additive	• Synthetic and semi-synthetic metal-working fluids • Cleaning fluid formulations
Cola®Lube CD-100	Nonionic	Water Dispersible	• Modified 2:1 DEA amides of long-chain fatty acids • Low foaming; good corrosion inhibition • Lubricity additive • Emulsifier • Corrosion inhibitor for ferrous and non-ferrous materials • Completely biodegradable	• Synthetic cutting and grinding fluids • Drawing compounds

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Lubricity Additives - DIPA Amides *(Please inquire if not listed below)*				
Cola®Liquid DC2	Nonionic	Water Dispersible	• A modified 2:1 fatty acid diisopropanolamide • Highly effective detergency • Highly effective wetting capability • Demonstrates controlled foaming	• Hard surface cleaners • Chain lubricants • Vibratory finishing compounds
Cola®Liquid DT2	Nonionic	Water Dispersible	• 2:1 DIPA amides of long-chain, naturally derived fatty acid • Water dispersible • Alkalinity reserve • Good lubricity • Low-foam and stable emulsions in hard water • Oil-in-water or water-in-oil emulsifier	• Synthetic and semi-synthetic metalworking fluids • Soluble oils for stamping, drawing and machining
Cola®Liquid DCT	Nonionic	Water Dispersible	• Modified 2:1 medium-chain fatty acid DIPA amides • Corrosion inhibitor • Viscosity builder • Used as a detergent, wetting agent and emulsifier	• Household and industrial products • Floor cleaners; tire cleaners • All purpose cleaners
Cola®Liquid DCM	Nonionic	Water Dispersible	• Modified 2:1 medium-chain fatty acid diisopropanol-amide • Soil suspension to prevent redeposition • Corrosion inhibition • High detergency for rapid cleaning	• Industrial-strength hard surface cleaners • Alkaline cleaners • Degreasers • Wax strippers

Lubricity Additives - Non-secondary Amine Alkanolamides

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Cola®Lube 3429	Nonionic	Water Dispersible	• AMP-based long-chain fatty alkanolamides • Water-soluble lubricant and emulsifier for aluminum and copper machining fluids • Moderate foaming • Can be easily emulsified and increases metalworking fluid affinity for metal surfaces • Stable at high temperatures • Provides wetting for metal surfaces and is non-staining on aluminum and copper surfaces • Augment formulation bioresistance and is easily waste-treatable	• Synthetic and semi-synthetic metalworking fluids • Microemulsion coolants • Machining and grinding gray iron • Machining fluids for titanium alloys
Cola®Lube 4715	Nonionic	Water Dispersible	• Long-chain fatty acid based DGA amide • Low foaming • Provides lubrication, corrosion protection, antiwear and EP properties • Non-staining to ferrous and non-ferrous metal while providing ferrous corrosion protection to formulations • Thickening property	• Soluble oils, semisynthetic and synthetic metal working fluids • Tapping, broaching, stamping, drilling and grinding
Cola®Lube 3449	Nonionic	Water Dispersible	• AMP-based long-chain fatty alkanolamides • Water-soluble lubricant and emulsifier for aluminum and copper • Moderate foaming • Can be easily emulsified and increases metalworking fluid affinity for metal surfaces • Stable at high temperatures • Provides wetting for metal surfaces and is non-staining on aluminum and copper surfaces • Augments formulation bioresistance and is easily waste-treatable	• Synthetic and semi-synthetic metalworking fluids • Microemulsion coolants • Machining and grinding gray iron • Machining fluids for titanium alloys

Lubricity Additives - Complex Fatty Esters

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Cola®Lube 3430	Nonionic	Oil Soluble	• Polymerized polyol esters • Boundary lubricant • High affinity to multiple metal surfaces • Stabilizes the emulsion and develops a protective colloid • Synergy with EP (PE, SA, CP); non-staining to ferrous and non-ferrous metals • Best for ferrous material machining	• Semi-synthetic fluids and soluble oils • Cutting oils or deep drawing oils • Grinding, stamping, threading, and tapping applications • Good for the machining process of ferrous materials
Cola®Lube 3440	Anionic	Oil Soluble	• Polymerized naturally derived fatty acids • Lubricity booster • Good inhibition of corrosion on steel as well as inhibition of staining on aluminum	• Soluble oils, semi-synthetic, and neat oil metalworking fluids • Synthetic base fluid for rolling emulsions in mineral-oil free formulations • Good for aluminum machining process

Phosphate Esters

Wear and Extreme Pressure Protection Additives

Phosphate esters are well-known, multifunctional lubricant additives. They exhibit outstanding performance in corrosion and stain inhibition, wear and extreme pressure protection, and emulsification. Additionally, they can also offer detergency, hydrotroping, surface wetting, and boundary lubrication.

Phosphate esters have been widely used in metal cutting and grinding fluids, rolling oils, hydraulic fluids, lubricating oils, rust preventatives, and gear oils.

Colonial Chemical provides a comprehensive class of phosphate esters in free acid form or the alkali metal hydroxide or amine salts for applications in metalworking and metal cleaning.

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Phosphate Esters				
Cola®Lube 3404	Anionic	Oil Soluble	• Alkyl phosphate esters • In free acid form • Water soluble upon neutralization • Corrosion protection • Extreme pressure wear protection agents • Wetting agents	• Metal working fluids (emulsions, neat oil) • Rolling oils and emulsions • Fire-resistant hydraulic fluids (HFD, HFD-U) • Gear oils • Oilfield • Ink dispersants • Alkaline cleaning agents • Dispersing agent in pigment pastes • In metal pigment pastes the ester acts as a corrosion inhibitor • Surface treatment for the printing and coating industry
Cola®Lube 3406	Anionic	Water Dispersible	• Phenoxy phosphate esters • Water soluble upon neutralization with alkali metal hydroxides or alkanolamines • Very low-foaming • Extreme pressure properties; rust protection • Surface wetting	• Synthetic metalworking fluids, especially for grinding fluids • Alkali metal cleaners
Cola®Lube 3407	Anionic	Water Dispersible	• Long-chain alkoxylate phosphate esters • Soluble in paraffinic and naphthenic oil • Water soluble upon neutralization with alkali metal hydroxides or alkanolamines, or by the incorporation of water-soluble co-surfactants • Extreme pressure and lubricity additive • Wetting agent and corrosion inhibitor	• Synthetic, semi-synthetic, and soluble oil formulations • Useful in cutting, grinding, rolling oils, and liquid drawing compounds
Cola®Lube ZUN	Anionic	Oil Soluble	• Blend of short- and long-chain alkyl phosphate esters • Release agent in polyester resin molding operations that require external heat, such as matched metal die, compression and pultrusion	• Molding of unsaturated polyester resins, externally heat cured molding operations • Pultrusion molding of fiberglass reinforced polyester resins
Cola®Fax 3390	Anionic	Water Soluble	• Potassium hydroxide neutralized phosphate esters of branched alkyl ethoxylates • Improve gloss and color acceptance in waterborne latex paints • Functions as a supplemental dispersant to reduce pigment flocculation • Serves as a corrosion inhibitor in paint and coatings	• Waterborne latex paints and universal colorants

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Phosphate Esters				
Cola®Fax 3389	Anionic	Water dispersible	• Branched alkoxylate phosphate esters • The acid version of Cola®Fax 3390 • Emulsifier for the emulsion polymerization of monomers like pure acrylic, styrene-acrylic acid esters and vinyl acetate • Improves stability of the monomer emulsion • Low coagulum formation during polymerization • Control the particle size of the polymer dispersion • Improves viscosity of the polymer dispersions • Improve gloss and color acceptance in waterborne latex paints • Functions as a supplemental dispersant to reduce pigment flocculation	• Emulsion polymerization • Waterborne latex paints and universal colorants
Cola®Fax 3376	Anionic	Water Soluble	• Phosphate esters of alkylphenyl ethoxylates • Extreme pressure wear protection, emulsifying, lubricating, antistatic, detergency and corrosion inhibiting properties • Low friction coefficient phosphate, rust protection for ferrous and non-ferrous metals • Reduced surface tension in high electrolyte solutions	• Water-soluble metal working lubricants and synthetic cutting fluids • Emulsion polymerization • Industrial cleaners • Herbicide and insecticide emulsifiers
Cola®Fax 3383	Anionic	Water Soluble	• Potassium neutralized phenoxy phosphate esters • Ultra low foaming • Hydrotrope and/or solubilizer • Extreme pressure and antiwear agent • Corrosion inhibitor • Boundary lubricant	• Low-foaming alkaline cleaners
Cola®Fax 3396	Anionic	Water Soluble	• Sodium hydroxide neutralized phenoxy ethoxylate phosphate esters • Low foaming • Offers lubricity, corrosion inhibition and high electrolyte compatibility, scale inhibition • Hydrotrope	• Metal cleaners • Chain lubricants • Corrosion inhibitors
Cola®Fax 3611	Anionic	Water Soluble	• Phenoxy phosphate esters • Low flash foam aromatic ethoxylated phosphate esters • Good stability in alkaline formulation • Provides effective hydrotroping properties in highly built liquid detergent formulations • Particularly useful as a solubilizer for nonionics and other surfactants in high electrolyte applications • Used as wetting agent • Excellent hard surface detergency • Low and high pH stability • Biodegradable	• Metal cleaning • Rinse aids in auto dish washing • Ion exchange resin cleaners • Pigment dispersions • Pulp and paper • Textile processing • Excellent hydrotrope for metal and CIP cleaning where very low foam is essential, carpet, food processing cleaning
Cola®Fax 3660	Anionic	Water Soluble	• Short-chain alkyl phosphate esters • Provides good wetting, detergency, hydrotroping, and electrolyte stability • Fully biodegradable • Corrosion inhibitor, anti-wear properties, surface wetting	• Metal cleaners • Industrial cleaners • Metalworking Fluids

Ether Carboxylates

By structure, ether carboxylates are chemically combined nonionic and anionic surfactants. Their structures and performance attributes are customizable by properly selecting hydrophobic alkyl chains and hydrophilic alkoxylate chains. Their unique structures enable their multifunctionality for emulsification, dispersing, surface wetting, corrosion inhibition, and lubrication. Additionally, ether carboxylates help stabilize emulsions against electrolyte and hard water and thus increase the lifetime of water-dilutable metalworking fluids. In general, they have low to medium foaming tendency and are biodegradable. They have been extensively used in metalworking fluids, i.e., soluble oils, semi-synthetic, rolling emulsions, hydraulic fluids, cleaners, enhanced crude oil recovery, personal care, paint and coatings, and some concrete applications.

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Ether Carboxylates				
Cola®Carb B2C	Anionic	Water Soluble	• Short-chain ether carboxylic acid • In free acid form • Extremely low foaming wetting agent • Stable to high acid and alkali • Need to be neutralized with alkanolamines and alkali hydroxides • Offers formulation flexibility	• Metalworking fluids • Metal cleaning • Bottle washing • Steam cleaning • Wax stripping • Cleaning of food plants and handling areas
Cola®Carb BEA	Anionic	Water Soluble	• Sodium hydroxide neutralized Cola®Carb B2C • Extremely low foaming wetting agent • Stable to high acid and alkali conditions • Need to be neutralized with alkanolamines and alkali hydroxides	• Metal cleaning • Bottle washing • Steam cleaning • Wax stripping • Cleaning of food plants and handling areas
Cola®Carb H4C	Anionic	Water Soluble	• Short alkyl chain ether carboxylic acid • Solubilizer • Stabilizer • Electrolyte stability • Outstanding hard water stability • Soil dispersing properties • Foam control • Rinsing and cleaning chemical stability • Hydrotropic	• Water-dilutable metalworking fluids • Metal cleaners
Cola®Carb C9C	Anionic	Water Soluble	• Short-alkyl-chain and long-EO-chain ether carboxylic acid • Low foaming • Hydrotropic properties • Overall physico-chemical stability • Support the corrosion prevention • Hard water stable • Acid, alkaline, electrolyte stable • Reduces foam stability when used with foaming surfactants • Solubilizer for metalworking fluids	• Water-dilutable metalworking fluids • Metal cleaners

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Ether Carboxylates				
Cola®Carb TDC	Anionic	Water Soluble	• Branched alkyl chain, medium EO chain ether carboxylic acid • Anionic stabilizer with optimal dispersing performance • Help increase the lifetime of water-dilutable metal-working fluids • Outstanding hard water stability and optimal lime soap dispersing power • Support of the corrosion prevention • Cleansing action • Mild anionic surfactant with hard water tolerance • Improves the storage stability of amphoteric formula-tions	• Metalworking fluids: cutting fluids • Alkaline cleaners • Personal care
Cola®Carb TDC-H	Anionic	Water Soluble	• Branched alkyl chain, medium EO chain ether carboxylic acid • Mild anionic surfactant with hard water tolerance • Improves the storage stability of amphoteric formula-tions • Powerful in lime soap dispersion • Stabilizer with good emulsifying properties, strong improvement of hard water stability (lime soap dispers-ing agent), moderately improves lubricity	• Metalworking fluids: i.e. cutting fluids • Cleaners • Personal care • Industrial fluids and lubricants (hydraulic fluids)
Cola®Carb M7C	Anionic	Water Soluble	• Branched medium chain and medium EO chain ether carboxylic acid • Medium to low foaming tendency • Good emulsification and dispersing properties • Excellent emulsification properties • Electrolyte and hard water stable • Outstanding lime soap dispersing properties	• Metalworking fluids • Fire resistant hydraulic fluids (HFAS) • Rolling emulsions
Cola®Carb 02C	Anionic	Water Soluble	• Long alkyl chain and short EO chain ether carboxylic acid • Excellent emulsification properties • Electrolyte and hard water stable • Low foaming • Good corrosion protection	• Metalworking fluids (emulsions, semisynthetic, synthetic) • Fire resistant hydraulic fluids • Rolling emulsions • Enhanced crude oil recovery
Cola®Carb 05C	Anionic	Water Soluble	• Long alkyl chain and medium EO chain ether carboxylic acid • Offers hard water stability and high limesoap dispersing power • Chemically stable • Supports corrosion prevention • Combined non-ionic and anionic emulsifier for use in metalworking fluids and dispersing lime soap • Provides cleansing and lubricating action	• Water-dilutable metalworking fluids (emulsions, semi-synthetic, and synthetic) • Fire resistant hydraulic fluids (HFA-S) • Rolling emulsions
Cola®Carb 08C	Anionic	Water Soluble	• Long alkyl chain and medium EO chain ether carboxylic acid • Excellent emulsification properties • Electrolyte and hard water stable • Very good lime soap dispersing properties low-medium foaming tendency	• Metalworking fluids • Rolling emulsions • Fire resistant hydraulic fluids (HFAS) • Oil-based and water-based industrial lubricant formula-tions

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Ether Carboxylates				
Cola®Carb OXC	Anionic	Water Soluble	• Long alkyl chain and long EO chain ether carboxylic acid • Moderate to high-foaming ether carboxylic acid with excellent emulsification and dispersing properties • Electrolyte and hard water stable • Very good lime soap dispersing properties	• Metalworking fluids • Rolling emulsions • Fire resistant hydraulic fluids (HFAS) • Oil-based and water-based industrial lubricant formulations
Cola®Carb TCAM	Anionic	Water Soluble	• Blends of ether carboxylic acids • Low to medium foaming tendency • Excellent emulsification properties • Electrolyte and hard water stable • Exceptional lime soap dispersing properties	• Metalworking fluids • Rolling emulsions • Fire resistant hydraulic fluids (HFAS) • Oil-based and water-based industrial lubricant formulations

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