



REACH
Compliant

**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.

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

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, hydrotrope, 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®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®Lube 3407	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 metalworking fluids

Product Name	Ionic Character	Solubility	Chemistry, Properties and Performance Attributes	Applications
Phosphate Esters				
Cola®Lube 3445	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

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.

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 - Complex Fatty Esters				
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

Lubricity Additives - DIPA Amides				
Cola®Liquid DL	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 DM	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 D0	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

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 alkoxyate 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 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	• Metal working industry - Metalworking fluids (emulsions, semisynthetic, synthetic) - Rolling emulsions • Fire resistant hydraulic fluids (HFA-S) • Industrial and institutional cleaning • Cleaning/washing agents and disinfectants
Cola®Carb HC49C	Anionic	Water Soluble upon neutralization	• Short-chain alkyl ether carboxylate blend • Low-foaming • Hydrotropic properties • Hard water stable • Acid and alkaline stable	• Water-dilutable metalworking fluids • Oil and gas • General detergents and cleaners
Cola®Carb TCAM	Anionic	Water Soluble upon neutralization	• Hard water tolerance • Corrosion protection • Solubilizing and dispersing properties	• Metalworking fluids • Rolling emulsions • Fire resistant hydraulic fluids (HFAS) • Oil-based and water-based industrial lubricant formulations
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 metalworking 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 formulations	• 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 formulations • Powerful in lime soap dispersion • Stabilizer with good emulsifying properties, strong improvement of hard water stability (lime soap dispersing agent), moderately improves lubricity	• Metalworking fluids: i.e. cutting fluids • Cleaners • Personal care • Industrial fluids and lubricants (hydraulic fluids)

Ether Carboxylates

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 O2C	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 O5C	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 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



Contact us today.

One of our customer service representatives or technical advisors will be happy to help you locate the right product you need with specifications, formulations and product samples upon request.

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