LINCOLN CHEMICAL CORPORATION

INDUSTRIAL CHEMICALS ENGINEERED FOR THE METALWORKING & METAL FORMING INDUSTRIES

Metalworking Fluids

CUSTOMER SUPPORT LAB

Our Research & Development lab is very well equipped and staffed with highly qualified chemists and engineers to carry out research and product development, equipment design and to perform customer required testing as needed. Our lab is ISO 9001:2000 certified for design requirements and is an integral part of our customer support activities. Below is a partial list of the equipment and testing available for our customer's benefits!

QUALITY ASSURANCE LAB

As part of our company being ISO 9001:2000 certified, all raw materials and finished products must meet our stringent quality specifications. Every batch of product we make is traceable to its raw materials. All reagents used are certified to the applicable NIST standards and each test we perform complies with the applicable ASTM methods or the generally accepted analytical chemistry methods.

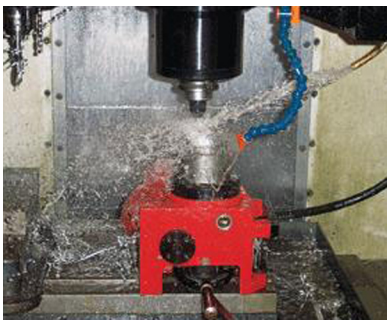
DOCUMENTATION SUPPORT

For further information, recommendations and other regulatory information please refer to the individual Product Data and Material Safety Data Sheets and/or contact Lincoln Chemical.

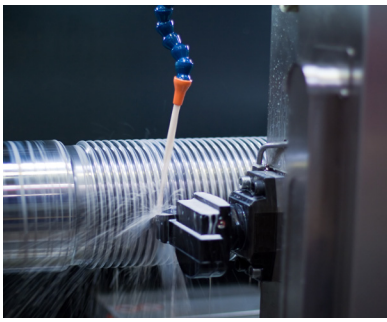
Metalworking or cutting fluids are used in the metal machining industry for a variety of reasons. Improving tool life, reducing heat, improving surface finish and flushing chips from the cutting zone are all important features of a good fluid. Basically, all cutting fluids presently in use today fall into one of five categories:

- Straight oils
- Soluble oils
- Semi-synthetic fluids
- Synthetic fluids
- Neo-synthetic fluids

Straight oils are used in machining operations in an undiluted form. They are composed of a base mineral or petroleum oil and often contain lubricants such as fats, vegetable oils and esters as well as extreme pressure additives such as Chlorine, Sulphur and Phosphorus. Straight oils provide the best lubrication and the poorest cooling characteristics among the cutting fluids.



Soluble oils form an emulsion when mixed with water. The concentrate consists of a base mineral oil and emulsifiers to help produce a stable emulsion. They are used in a diluted form (3 to 20%) and provide good lubrication and heat transfer performance. They are widely used in industry and can be the least expensive to utilize among all cutting fluids.



Semi-synthetic fluids are essentially a combination of synthetic and soluble oil fluids and have characteristics common to both types. The cost, machining performance and heat transfer function of semi-synthetic fluids fall between those of synthetic and soluble oil fluids.

Synthetic fluids contain no oil base and instead are formulated from alkaline inorganic and organic compounds. They usually have additional additives added for corrosion inhibition. They are used in a diluted form (3 to 20%). Synthetic fluids often provide the best cooling performance among all cutting fluids. With the latest technological advanced additives being used, synthetics have become the preferred cutting fluid in most shops.

Neo-synthetics mirrors the superior lubrication characteristics of heavy-duty soluble oils yet maintains the classic environmentally friendly attributes of a synthetic coolant. Neo-synthetics are designed for moderate to heavy-duty machining and grinding of most metals. They are typically low foaming, biostatic metalworking fluids that provide extended sump life and reduced downtime

Corrosion Inhibitors

There are two major types of chemistry used to combat and control corrosion and rust. They are corrosion inhibitors and corrosion preventing compounds (CPCs). We have the most diverse and complete line of corrosion control products available. Our corrosion control products provide a range of prevention compounds for both ferrous and non-ferrous metals, from controlled humidity indoor applications to the most extreme outdoor environments.

LINCOLN CHEMICAL CORPORATION

The Leader In Service

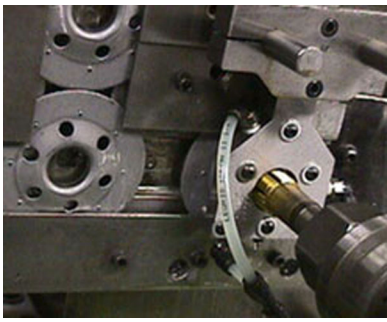
Metal Forming Compounds

Drawing, Stamping, Bending and Blanking Compounds
We have a complete line of metal forming compounds designed to provide solutions for a variety of operations. Our stamping, forming, bending and blanking compounds are formulated with a balance of boundary and extreme pressure lubricants while providing the clinging and film qualities needed for formability, extended tool and die life, and excellent surface finish.

These products can be applied by flood, spray, swab, roller, or other conventional methods. Our products are well tested and proven in many high-speed progressive stamping and drawing operations. We have a wide variety of products for use in most forming and drawing shops. We offer straight and soluble oils, as well as synthetic, semi-synthetic and neo-synthetic products. Our compounds are perfect for the following operations:

Stamping & Extrusion	Blanking & Piercing
Swaging & Crimping	Coining & Embossing
Ironing, Drawing, & Rolling	Forming & Fin Forming
Punching, Slitting, & Perforating	Spinning & Flow Forming
Tube Forming & Bending	Wire Drawing
Exotic Metal Forming	High Speed Can Making

Vanishing Fluids
We have a wide range of vanishing fluids designed specifically for the metal stamping industry. Our vanishing fluids are typically designed to be used in non-cleaning systems and are paintable. Most are also miscible with refrigerants such as R-22, R-134-A and 400 series.



Deep Drawing Compounds
Deep drawing technology is used in a wide range of production processes, from the automotive industry to manufacture automotive parts and filters to many other industries making items such as stainless steel sinks, fire extinguishers, munitions shells, refrigeration and air compressor housings, compressed air and gas cylinders, pots, and many more items that can be found almost anywhere. These difficult drawing operations require peak performance compounds with good hold-down characteristics. Our compounds help prevent wrinkling and bursting while providing excellent lubrication which permits superior metal flow. They are ideal for difficult-to-draw objects such as deep cylinders and most bowl type items. We have a short list of our heavy-duty deep drawing compounds listed below.

Heavy Duty Drawing Paste: Pigmented, Extreme Pressure Fortified

Hydrocarbon oils with heavy EP additives: Chlorinated, Sulfochlorinated, Sulphurised

Water Soluble: Hydrocarbon oils with heavy EP additives, Chlorinated, Sulfochlorinated, Sulphurised

IN-HOUSE EQUIPMENT

- 7 Stage Pilot Spray Washer
- Agitated Immersion Washers
- Powder Paint Booth
- Industrial Cure Oven
- Liquid Paint System
- Salt Spray Cabinets
- Humidity Chamber
- Electronic & Analytical Balances
- Conductivity & pH Meters
- Scanning Electron
- Atomic Force Micrography

TESTING CAPABILITIES

- Conversion Coating Weights
- Paint Adhesion Testing
- Paint Adhesion Measuring
- Dry Film Thickness
- Impact Test
- Conical Mandrel Test
- Film Hardness Test
- Salt Spray Test
- Total Dissolved Solids
- Total & Active Acid Test
- Alkalinity Test

CUSTOMER SERVICE

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Learn more about Lincoln Chemical and take a tour of our manufacturing, blending, & testing facilities.

ISO 9001: 2008 CERTIFIED