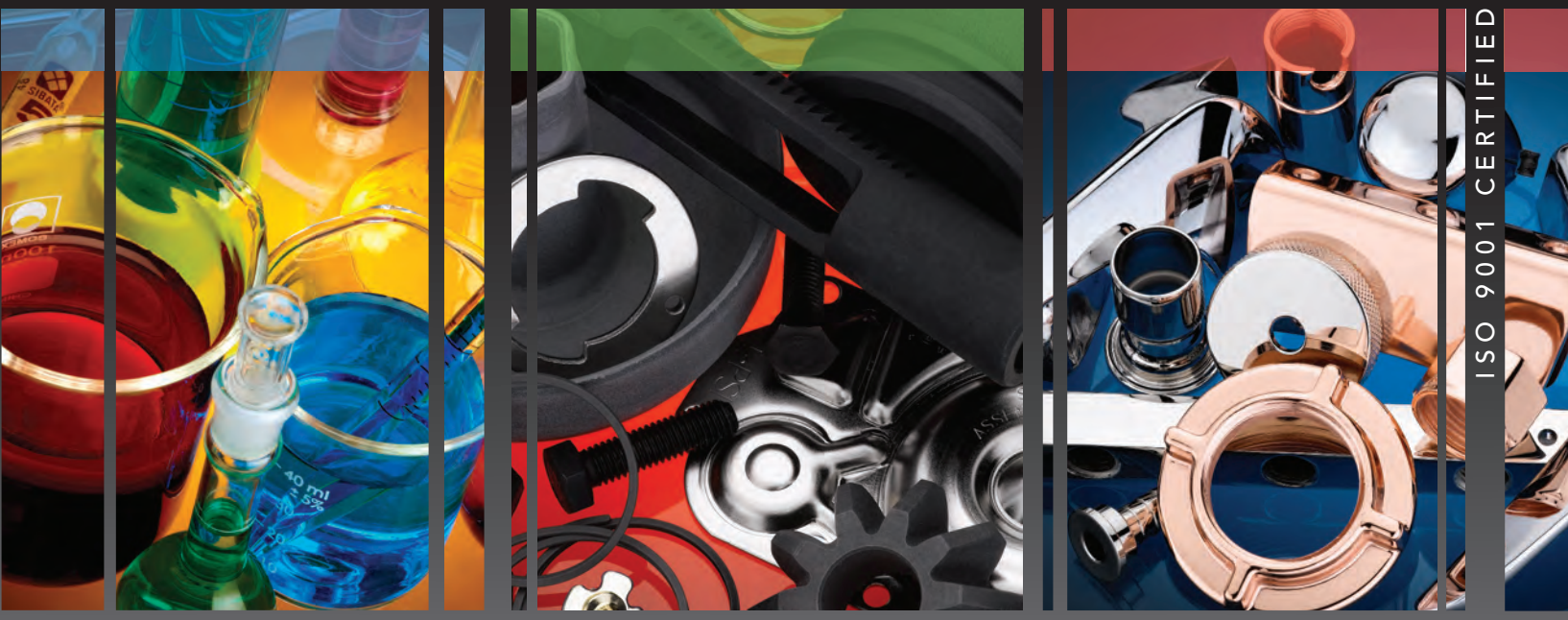
HEATBATH®
CORPORATION



ISO 9001 CERTIFIED

Acid Pickling

Aluminum Finishing

Black Oxide Finishing

Chromate Conversion Coatings

Cleaners

Decorative Plating

Electroless Nickel Plating

Phosphate Coatings

Plating Brighteners

Rust Preventatives

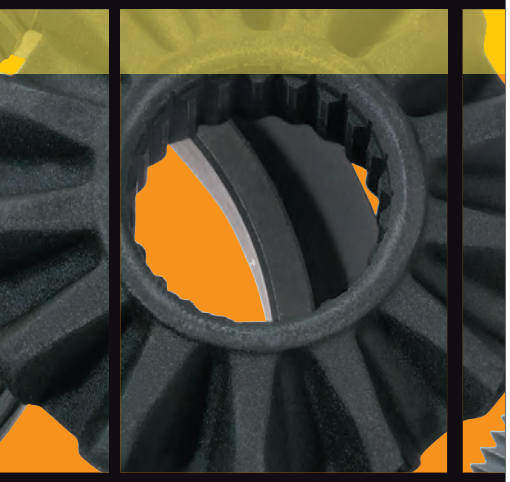
Strippers

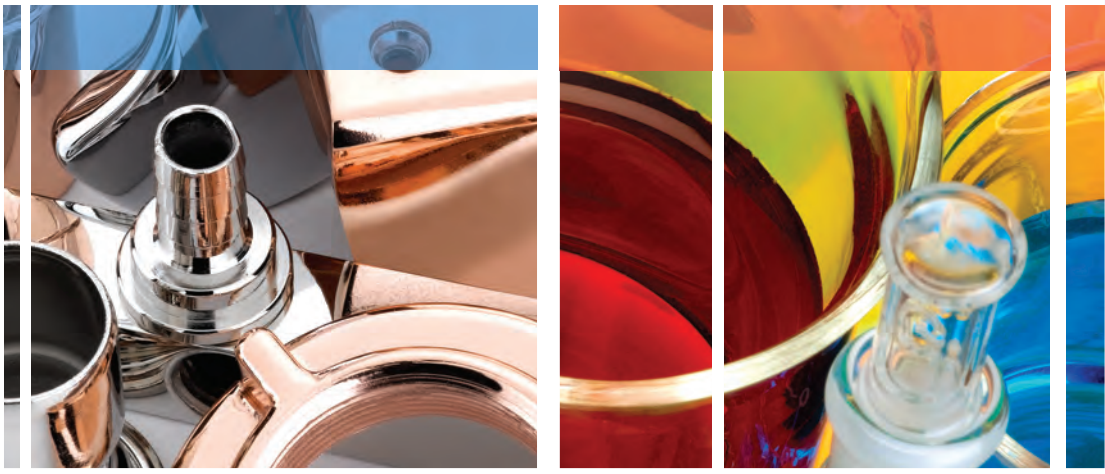
HEATBATH®

ISO 9001 CERTIFIED

QUALITY POLICY

Heatbath is an innovative, leading supplier of advanced specialty chemicals. Our objectives include achieving continual improvement and complete customer satisfaction by developing products to meet the customer's most demanding applications, by manufacturing those products to the highest quality standards and by providing the customer with a full range of support services.





You can depend on the guaranteed reliability of Heatbath Metal Finishing Products.

SINCE 1923, Heatbath Corporation has specialized in the development of new and innovative metal finishing products while maintaining a strong commitment to manufacturing to the highest quality standards. Heatbath actively strives to meet today's environmental and economic challenges without compromising product performance or reducing customer support services.

Heatbath Corporation has three blending facilities located in Indian Orchard, Massachusetts, Detroit, Michigan and Chicago, Illinois. Warehousing facilities are strategically located in principal cities nationwide. Heatbath metal finishing products are blended with only superior raw materials, using advanced batch manufacturing technologies and lean manufacturing principles, resulting in consistent, high quality products and on-time delivery.

Heatbath Corporation has technically trained sales representatives backed by laboratory specialists available for consultation on product choice and assistance with process implementation and control. If you have a metal finishing challenge, allow our team of experts to adapt a metal finishing process or product to meet your particular needs.

ACID PICKLING

Removal of surface rust, heat treat scale, and oxides is a critical step in surface preparation prior to any metal finishing process. Heatbath® Corporation offers a variety of choices for acid pickling including dry acid pickling salts and proprietary acid pickling mixtures - either hydrochloric or phosphoric acid based. Acid inhibitors can be used to control the activity of your acid pickling bath and to prevent undo attack on the base metal. In addition, we have a specialty line of Stainless Steel brighteners and passivates.

ACID PICKLING SALTS

Aricid®
Can be used as a rust remover/descaler prior to phosphating, blackening or plating operations. Also used for removing scale and metal salt buildup from zinc, manganese and iron phosphating equipment.

Aricid® B
A completely water-soluble powder consisting of a mixture of acid salts, activators, inhibitors and surface activating agents. Replacement for liquid hydrochloric and sulfuric acids. Easier and safer to ship, store and use.

Aricid® C
An organic, mildly acidic powdered mixture. Ideally suited for descaling applications where hydrogen embrittlement is of concern.

Aricid® F
Fluoride bearing replacement for extremely dangerous Hydrofluoric Acid. This dry powder is safer to ship, store and handle.

Pictax® A-80
A blend of acids, surfactants and activators. Uniquely formulated for the activation of electrodeposited copper.

Pictax® Classic
A granular, free-flowing powder used for uniform pickling and surface activation prior to plating operations. Used on steel, zinc die-castings, copper, brass and on nickel prior to chrome plating.

HYDROCHLORIC ACID PICKLING

Everite II
A strong acid for the removal of rust, scale and oxides from ferrous metals. Contains inhibitor for minimizing attack on the base metal. Typically used by immersion and at room temperature.

Rust Remover 4
A hydrochloric acid based pickle, which contains an inhibitor to prevent attack on the base metal especially where longer immersion times are needed to remove heavy rust or scale. Has an incorporated wetting agent for better load penetration and more efficient drainage upon exiting the processing tank.

PHOSPHORIC ACID PICKLING

Destain B
A phosphoric acid, detergent-type metal cleaner and rust remover for use on all metals except zinc, cadmium and magnesium. Includes an inhibitor to prevent attack on base metal. Used by immersion.

Destain C
A phosphoric acid-detergent plus solvent metal cleaner and rust remover. Does not contain inhibitors.

Phosit
A multi-purpose phosphoric acid based mixture containing surfactants to reduce drag out losses and afford better rinsing. Removes rust and scale from steel, activating the base metal for subsequent phosphate coating. Can be used to deoxidize copper and brass parts.

ACID PICKLING ADDITIVES

Acid Inhibitor SL
An inhibitor used for non-oxidizing acids. A unique blend of organic ingredients in liquid form. Allows the pickling acid to penetrate and dissolve oxides and scale while preventing attack and pitting of the base metal. Reduces the danger of hydrogen embrittlement.

Acidall 1607
Effective for increasing the activity of sulfuric acid as the iron content builds. Allows for longer tank life and reduced acid consumption. For use in operations that do not employ acid recovery.

Pictax® 4600 ADT
Added to hydrochloric or sulfuric acid to enhance scale removal and reduce smut. Decreases fuming of the acid with a thin foam blanket and extends tank life.

Wetaid® 1521
A liquid foaming agent used in non-oxidizing acids to produce a stable, creamy foam layer that retards fumes and reduces acid drag out.

Wetaid® 1744
A liquid wetting agent used as a fume suppressant in acid solutions. Lowers surface tension to promote solution drainage and reduce drag out.

SCALE CONDITIONERS

Diverscale 299
Diverscale 299 is a non-electrolytic descaler for carbon and alloy steel. This mixture of strong alkali and oxidizer is used to transform acid insoluble oxides to their acid soluble form for subsequent removal in acid.

Permic
A balanced formula of alkali and oxidizer that is easier to charge, control and maintain than conventional caustic/permanganate mixes. Has a buffer incorporated into the formula for longer bath life and less sludge.

Permic XP
Like Permic, but contains an increased amount of permanganate for applications with more acid drag over or less rinsing capacity.

STAINLESS STEEL BRIGHTENERS/PASSIVATES

DS-9® Products
A variety of formulations used for brightening and passivating Stainless Steel. DS-9 produces a bright specular finish on AISI 300 Series Stainless and results in a uniform surface with a nickel rich, non-reactive grain structure that resists rust. DS-9 produces a visually pleasing surface on 200 and 400 Series without the use of current. Exhibits minimal metal removal to hold tight dimensional tolerances. Can be used on Inconel and Kovar alloys.

ALUMINUM FINISHING

A diverse line of pre-treatment materials for every phase of Aluminum Finishing. Cleaners...ecologically safe and supplied in liquid or powder form. Used in both immersion or spray applications. Etchants...for a uniform etch and controlled microfinish. Deoxidizers...to remove smut and scale quickly and efficiently. Chromate Conversion Coatings...for better paint adhesion and increased resistance to corrosion. Zincates...for enhanced plate adhesion. Sealants...for aluminum anodizing operations.

CLEANERS

Alu-Kleen 36
A mild, slightly acidic cleaner concentrate for aluminum and aluminum alloys. This mixture of organic acids and detergents will remove a variety of cutting oils and drawing compounds.

Alu-Kleen 1157
A highly efficient, non-etch soak cleaner for aluminum. Incorporated surface-active agents and inhibitors allow for complete removal of soils and oils without etching or discoloration of the aluminum surfaces.

Alu-Kleen 1586
A non-etch, mildly alkaline cleaner for aluminum. Can be used in both spray and immersion applications. Incorporated corrosion inhibitors prevent oxidation of surfaces after cleaning.

D909
An outstanding, caustic-free cleaner ideal for cleaning aluminum, brass and zinc die-castings. Excellent wetting and dispersing characteristics make this product an ideal choice for cleaning a wide variety of soils. Hard water tolerant and free rinsing.

ETCHANTS

Alum-Etch 3
An alkaline etchant material used to produce a fine, uniform, etched surface on all aluminum alloys. Exceptional solution life. A brighter, finer, more even etch is produced in short processing cycles. Eliminates sludge or scale build up in tanks or on heating coils. This aluminum etchant is phosphate free and biodegradable.

Alum-Etch 1161
A liquid cleaner and aluminum etchant that is effective in removing mill oils, drawing compounds, shop dirt and extrusion lubricants at low temperatures. This aluminum etchant can be used either by spray or immersion and is especially effective in cleaning aluminum coil and extrusions prior to chromating.

Chem Alum Etch 400
A granular, alkaline product for producing a fine satin etch on aluminum and its alloys. This aluminum etchant has an outstanding sequestering action to prevent build up of scale on tank walls and heating coils. Effective over a broad range of operating parameters.

DEOXIDIZERS

Chem Alum Deox 61/62
A two-component deoxidizer system used to remove scale and oxides from titanium. Produces a bright matte finish. Excellent leveling action for a clean polished surface with no intergranular attack and resistance to staining. This deoxidizer is also used for high silicon aluminum alloys and castings.

Chem Alum Deox 350
A non-chrome desmutter and deoxidizer for wrought and extruded aluminum alloys. Prepares the aluminum surface for welding or conversion coating.

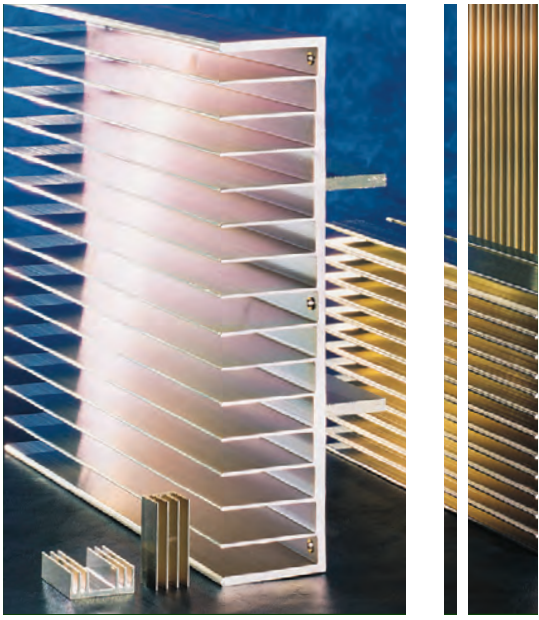
Chem Alum Deox 514
This chrome containing product has excellent "hold over times" when used to deoxidize prior to resistance welding. Used to desmut after etching, prior to chromating, anodizing or bright dip operations.

Deoxide® D
Removes oxides, heat scale and smut from aluminum and its alloys. Excellent for aluminum castings with high silicon content. Used at full strength, room temperature and is effective with very short immersion times. This aluminum deoxidizer contains no chromium.

Deoxide® NC-9
A non-chromated deoxidizer compound for aluminum. Removes oxides from aluminum surfaces prior to spot welding. Highly effective on smut and removes heat scale formed in heat-treating and forging operations.

CHROMATE CONVERSION COATINGS

Alchrome® 2
A chromate conversion coating for use on aluminum and its alloys. Chromate films from light yellow to dark golden are produced. Provides excellent corrosion resistance and paint bonding properties. Meets MIL-DTL-5541F and MIL-DTL-81706B and is on the Qualified Products List for Class 1A coatings. This chromate conversion coating can be used in both immersion and spray applications.



Alchrome® 16
A two-component system that produces chromate conversion coatings on aluminum alloys ranging from light iridescent gold to tan. Contains no complex cyanide compounds. Achieves excellent protection and serves as a paint base. Can be used on zinc and cadmium surfaces for colorless to iridescent coatings. This chromate conversion coating can be used by spray or immersion.

Alchrome® Tri-Tec
Trivalent chromium product used for a protective chromate conversion coating on aluminum and its alloys. Contains no hexavalent chromium. A single component product used by spray or immersion with color ranging from clear to light blue.

BLACK OXIDE FINISHING

New technologies and innovative product applications are expanding opportunities for today's black oxide finishers. Heatbath® Corporation formulates, manufactures, markets and services a comprehensive line of proprietary Pentrate® black oxide products to achieve the blackest possible finish with maximum corrosion protection and abrasion resistance. For use on steel, zinc, stainless steel, copper, cast and malleable irons, Heatbath's black oxide formulations are available in both liquid and powder forms. Supplementary products for the black oxide finishing of powdered metal, assemblies and silver soldered components are also available.

Divercoat LR
Produces a pale yellow to golden iridescent chromate conversion coating on aluminum and its alloys. Forms a corrosion protective film with low electrical resistance. Conforms to MIL-DTL-5541F and MIL-DTL-81706B. Included on the Qualified Products List for immersion applications Class 1A and Class 3.

ZINCATES

Altrazinc NC
A non-cyanide zincate for aluminum. This immersion zinc coating promotes exceptional adhesion between the aluminum substrate and the subsequent electroplated deposit. Altrazinc NC can be used prior to electroless nickel or decorative plating of aluminum substrates.

ANODIZING ADDITIVES AND SEALANTS

Chem Alum AnoAdd 9000
Produces a harder coating from sulfuric acid anodizing baths while using less time, energy and refrigeration. Excellent for use prior to any electrolytic coloring process. Will not yellow. Used at 1-4% by volume.

Chem Alum Seal 1000LF
A highly effective, mid-temperature anodize sealant compound for use on a wide variety of aluminum alloys that have been clear or color anodized. Low foaming. Penetrates voids and provides added corrosion resistance. This anodize sealant does not smut, powder or yellow.

Chem Alum Seal 1090
A sealing compound for use on a wide variety of aluminum alloys that have been clear or color anodized. Used at 160-190°F with agitation.

SPECIALTY PRODUCTS

Metsil 1296
A silicated liquid product commonly used after vacuum impregnation of aluminum castings to inhibit corrosion and prevent discoloration. Also used after aluminum chromate or chrome phosphate conversion coatings. Metsil 1296 does not contain chromium.

FERROUS METALS

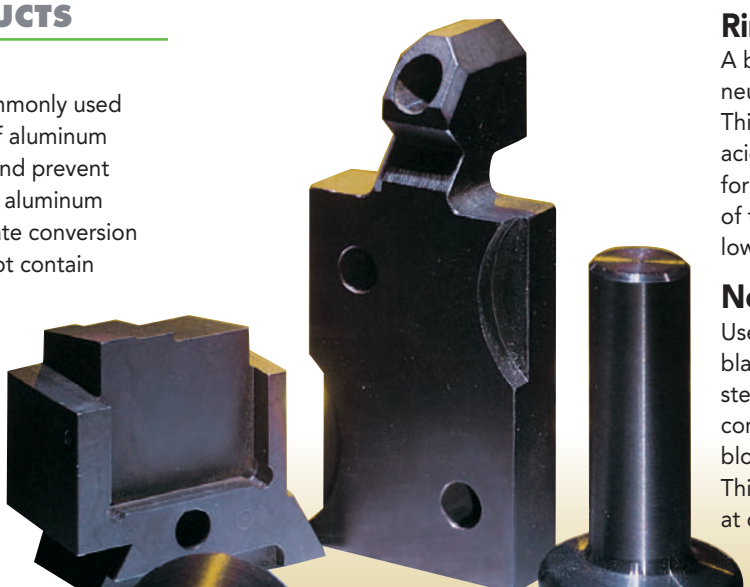
Pentrate® Ultra
Black oxide used for the deepest black finish on steel. Produces a uniform black oxide finish with no rub off or dimensional change. Low drag out reduces operating costs. Contains rectifiers to remove non-ferrous contamination. This premium black oxide product has incorporated inhibitors for the control of colloidal iron build up in the operating bath. Pentrate Ultra meets or exceeds all government specifications, including MIL-DTL-13924D for Class 1 black oxide coatings.

Pentrate® Ultra Liquid
Liquid version of Pentrate Ultra.

PX®-5
A black oxide for stainless steel, cast and malleable iron with a unique balance of alkali and oxidizers. Operates at 250-260°F. Meets the requirements of MIL-DTL-13924D for Class 4 black oxide coatings.

PX®-5-L
Liquid version of PX-5.

Kwik-Blak® LT
A room temperature black oxide process that saves energy and time. Produces a deep black finish when used at 10-15% by volume. Bath can be filtered for extended service life.



Pentrate® Touch Up
Used to repair scratches or imperfections on previously blackened steel parts.

NON-FERROUS METALS

Durablack Liquid
A highly concentrated alkaline product used to blacken copper. Operates at 220°F. Alloys of copper can be blackened when Durablack Pre-Dip L is used.

Durablack Pre-Dip L
Conditioning step needed prior to blackening copper bearing alloys in Durablack Liquid. Completely compatible with Durablack Liquid - no rinsing is required between stages.

Zinol® 1436
A lustrous black conversion coating on zinc plate and zinc die-castings providing an attractive appearance and excellent corrosion resistance when used in conjunction with a protective seal.

Pentrate® EE-2
Used to blend silver soldered joints with the black oxided steel surface. Operates at 180-190°F.

POWDERED METAL AND ASSEMBLIES

Rinse Kleen 1020
A buffered, mildly acidic material used for neutralization of residual black oxide salts. This rinse additive does not contain chromic acid. Improved wetting characteristics allow for penetration into crevices and blind holes of the black oxided parts. Effective at very low concentrations, just 1-3 oz./gallon.

No Bleed II
Used to displace entrapped or absorbed blackening salts from deep crevices, joints of steel assemblies and from powdered metal components after blackening. Carbonate bloom or bleed out can be eliminated. This hot oil is most effective when operated at or above 250°F.

CHROMATE CONVERSION COATINGS

Heatbath® Corporation supplies a complete line of chromate conversion coatings. Duracoat® and Chromax® products are specifically formulated to provide outstanding color and corrosion protection along with long tank life and ease of operation. A wide range of chromate conversion coatings are available: blue-bright, iridescent, golden yellow, olive drab, matte black and bronze. High performance trivalent chromate conversion coatings are available for applications where hexavalent chrome containing coatings are prohibited.

TRIVALENT CHROMATE CONVERSION COATINGS

Duracoat® 1523
A single dip trivalent chromate conversion coating treatment for a blue bright finish on zinc plated parts. Can be used in automatic or manual lines, for rack or barrel processing and is effective even over alkaline non-cyanide zinc deposits.

Duracoat® Tri-Black
Produces a trivalent black chromate conversion coating on zinc and zinc alloy electrodeposits. This four-component bath has enhanced color and excellent corrosion resistance when used with Duracoat Tri-Black Sealer. Working solutions are very stable and will tolerate high amounts of dissolved zinc without compromising coating quality.

Duracoat® Tri-V Yellow Dye
Specially formulated colorant, which converts clear/blue trivalent chromate conversion coatings to attractive yellow.

Quin-Pas 12
An all-trivalent chromate conversion coating for zinc. Bath is easy to control and operates over a wide range of parameters. Contains no peroxides. Imparts a clear blue coating with no evidence of yellowing.

Triumph 3000
A highly corrosion resistant trivalent blue chromate for use over zinc electroplate. Maintains a consistent blue color throughout the life of the bath.

Triumph Plus
Produces a superior corrosion resistant trivalent blue chromate conversion coating over zinc electroplate. Provides over 100 hours of salt spray protection. Has longer bath life and is more tolerant to metallic impurities.

HEXAVALENT CHROMATE CONVERSION COATINGS

Chromax® 4101 YL
A concentrated chromate conversion coating producing uniform gold to appealing iridescent bronze colored coatings over zinc plated parts. Unsurpassed corrosion protection combined with ease of handling.

Chromax® 4106 YL
Produces brilliant, stain free, clear iridescent and golden chromate conversion coatings for zinc and cadmium plate. The exceptionally stable bath provides coatings with excellent corrosion resistance. High tolerance for metal contamination results in extended bath life.

Duracoat® 1237
A heavy-duty chromate conversion coating for zinc plate and zinc die-castings. Produces brilliant clear, iridescent and golden chromate conversion coatings. A versatile product achieving the most protective and deepest color coatings at low concentrations and the brightest color coatings at higher concentrations.

Duracoat® 1405
An economical, golden yellow chromate conversion coating for electrodeposited zinc. Especially suited to alkaline non-cyanide and acid chloride zinc deposits. Used at 1-5% by volume and with very short immersion times.

Duracoat® 1192
An inexpensive single dip chromate conversion coating for producing a blue bright finish on parts plated in low cyanide and alkaline non-cyanide zinc plating baths.

Duracoat® XCL Blue
A long dilution chromate conversion coating used for producing a blue bright coating on zinc-plated parts. Can be used for manual and automatic barrel and still plating applications. Provides protection of parts for shipping and storage. The coating formed is receptive to dyes.

Duracoat® Star Black
A simple two-component formula for producing a black chromate conversion coating on zinc or cadmium plate. Short immersion times result in attractive, corrosion resistant, uniform coatings.

Duracoat® OD
A scratch resistant, olive drab chromate conversion coating that improves corrosion resistance and is an excellent base for paint. Works equally well in both manual and automated plating lines. Used on zinc and cadmium plated deposits as well as on zinc die-castings. A two-component product.

Duracoat® OD-6
A one-component, olive drab chromate conversion coating that produces a hard, resistant finish that is quite lustrous when applied over bright plate. Attractive as a final finish or used as a base for paint or lacquer.

SPECIALTY CHROMATE CONVERSION COATINGS

Duracoat® 4-4
A chromate bright dip used to produce a clear bright corrosion resistant finish on copper and brass. Eliminates the fuming usually associated with conventional mixed acid bright dips.

Duracoat® 47
A clear chromate conversion coating for silver and its alloys used to prevent tarnishing and to provide corrosion resistance.

Duracoat® 540BF
A protective chromate conversion coating for zinc die-castings. Removes burrs and produces a highly chemical polished surface. Can be used to brighten castings prior to treating with a yellow chromate.

Duracoat® Cad-Brite B Liquid
An economical chromate conversion coating used for producing clear bright finishes on electrodeposited cadmium. Coatings are non-iridescent and require no leach. Excellent for use in both barrel and still plating installations.

ZnAlloy® Ni Bronze 11A
Produces a bronze/yellow chromate conversion coating on zinc-nickel plate over a wide range of alloy compositions. Used by immersion in a mildly agitated bath at concentrations ranging from 2-10% by volume depending on the finish desired.

ZnAlloy® Sn15
A yellow chromate conversion coating for conventional tin-zinc plating systems where the deposits are 70% Tin / 30% Zinc. Produces a corrosion resistant coating in both rack and barrel plating applications.

CLEANERS

Our high performance line of metal cleaners has been developed for the efficient and economical removal of heavy accumulations of soils. Formulated for soak, electrolytic and spray applications. For use on both ferrous and non-ferrous metals. Heatbath® metal cleaners are available in liquid and powder form and are recommended based on your specific cleaning requirements and waste treatment challenges. Additional metal cleaning products available include buffing compound removers, alkaline derusters, burnishing compounds and detergent additives.

SOAK CLEANERS

D909
An outstanding caustic-free cleaner ideal for cleaning aluminum, brass and zinc die-castings. Excellent wetting and dispersing characteristics make this product an ideal choice for cleaning a wide variety of soils. Hard water tolerant and free rinsing.

Makerclean 3546
A heavy-duty, non-phosphated emulsifying alkaline soak cleaner. Exhibits long operating life and can be used in black oxide, plating and phosphate lines.

Multi-Kleen 1568
A moderately alkaline, non-silicated soak cleaner. Contains a rust inhibitor for temporary corrosion protection. Ideal for single stage cleaning applications. Also used as a floor cleaner.

Nuvat® Classic
Having tremendous soil tolerance, this multi-metal cleaner remains effective and rinses completely even under heavy soil loads. Contains co-solvent. Ideal for barrel processing.

Spectrum® 240
Containing buffers and inhibitors, this cleaner is safe for use on all metals. Complexing agents are incorporated for improved cleaning and control of water hardness.

Uni Kleen® 58DA
High caustic and chelated workhorse with extra detergency. This cleaner is effective over a wide range of operating temperatures and concentrations. Recommended for high production phosphate and plating lines.

Uni Kleen® 88
A non-caustic, non-silicated cleaner. Completely free rinsing and an ideal choice for use in manganese phosphate lines.

Uni Kleen® 1293
Non-silicated, highly chelated cleaner that is effective in removing most soils including both chlorinated and sulfurized drawing and rolling lubricants. Splits soils for easy removal with skimmer. Also available in a liquid form.

Uni Kleen® 1705
A highly alkaline cleaner especially formulated for stripping zinc phosphate and stearate lube. Exceptionally long service life. Can also be used in spray applications.

ELECTROLYTIC CLEANERS

Ampeer
This cleaner is specifically formulated to remove buffing compounds and oils from zinc die-castings by anodic cleaning. Built in reducing agent for hexavalent chromium to eliminate potential pitting and poor throwing power in subsequent plating operations. Buffered for extended bath life.

Electro-Kleen 1448
A highly alkaline combination soak and electrolytic cleaner. This versatile product is free rinsing and has increased tank life.

Maxamp® BN
This electrolytic cleaner efficiently operates over a wide range of concentrations, temperatures and current densities for use on both ferrous and non-ferrous metals. Contains no phosphates.

Maxamp® Classic
Provides maximum gas scrubbing action on parts with the application of minimal current, resulting in overall process cost reduction. Non-chelated and contains a defoamer.

Maxamp® NNT
A highly alkaline electrocleaner with excellent conductivity and detergent for a controlled foam blanket. This silicated cleaner has added ingredients for smut removal.

Spectrum® HD-EC
Can be used as both a soak and electrolytic cleaner. Formulated to split oils. Soak cleaning can be boosted with the addition of Spectrum® DA. High detergency and excellent wetting.

SPRAY CLEANERS

Multi-Kleen 1573
A spray cleaner with exceptional performance when used to remove quench oils. Splits oils to the surface for skimming or overflow, increasing bath life. Contains rust inhibitors for temporary indoor corrosion protection. Can also be used as a floor cleaner.

Multi-Kleen 1740
A spray cleaner designed to clean and impart temporary indoor rust protection in one step. Removes quench oils at low concentrations and at temperatures as low as 100°F. Contains no silicates or chelators.

Power Wash Cleaner 1124
An economical, non-silicated, alkaline spray cleaner for use on ferrous metals. Effectively removes even heavy soils at low concentrations.

Power Wash Cleaner 1530
A heavy-duty, sodium hydroxide based cleaner. Splits oils. Effectively removes machining lubricants, stearate soaps and residual zinc phosphate coatings.

Spectrum® PB
A concentrated spray cleaner formula with a unique combination of wetting agents for efficient removal of a wide variety of soils, even when used at lower concentrations and operating temperatures.

BURNISHING COMPOUNDS

Burnek 22
An economical, mildly alkaline burnishing compound for use in barrel finishing operations. Develops high luster in minimal operating time. Dissolves readily and rinses completely, providing a water spot free surface.

Rollgleam
Used for ball burnishing or self-tumbling brass, bronze, copper, nickel, aluminum, silver or gold. This versatile burnishing compound is mildly alkaline, non-silicated and non-chelated.

ALKALINE DERUSTERS

Derustal® 1160D
Ideal for cleaning, removing rust or stripping zinc phosphate coatings. Eliminates the dangers of hydrogen embrittlement and surface etch associated with acids. This alkaline deruster can be used in spray applications.

Ferron
A highly alkaline, chelated product used for rust and scale removal. No attack on the base metal and no fuming as often encountered with acid pickling operations.

BUFFING COMPOUND REMOVERS

Power Wash Cleaner BCR
A mildly alkaline buffing compound remover safe for use on all metals. Emulsifies soils and contains no phosphates or silicates. Can be used in soak, spray and agi-lift operations.

Nuvat® S-55
A primary soak cleaner for use in immersion applications. Contains no phosphates, petroleum or chlorinated solvents.

DETERGENT ADDITIVES FOR METAL CLEANERS

Spectrum® DA
A moderately alkaline detergent additive containing a co-solvent and multiple detergents and wetting agents. Used in soak cleaning applications. Emulsifies soils.

Wetaid® 19
Used in alkaline cleaners, detergent iron phosphates and some acid systems. This detergent additive reduces surface tension for improved cleaning and more efficient drainage. Emulsifies soils.

Wetaid® 1559
Has defoaming properties and can safely be used in spray applications or in electrocleaners. This detergent additive acts as a rinse aid to decrease water spotting.

DECORATIVE PLATING

Heatbath® Corporation offers a complete line of products for decorative plating. Versatile copper system applications range from strikes for adhesion, conductive coatings, masking for heat-treating, level and ductile deposits for buffing, or a final bright finish. Single additive and matrix nickel systems can be combined to meet the most stringent corrosion resistance requirements and visual standards. Choose a chrome additive for exceptional covering power and cathode current efficiency. All decorative plating products are formulated to be easy to control and performance tested for even the most difficult applications.

COPPER BRIGHTENER SYSTEMS

CuChem 800 and 810
Cyanide Copper
A versatile copper brightener system used as a copper strike prior to other plating applications. Can also be used as a stop-off prior to case hardening operations. These proven additives can be used in sodium, potassium or mixed salt baths.

CuChem 777
Acid Copper
A dye-free copper brightener system with good temperature tolerance. Provides outstanding bright deposits and exhibits excellent leveling. Produces ductile deposits that are easy to buff.

CuChem ACD 725 Process
Acid Copper
This dye-based copper brightener system offers superior leveling and excellent low current density performance. Easy to buff.

CuChem Roto I Process
Rotogravure
An extremely stable acid copper process providing a uniform appearance and hardness for rotogravure operations. This copper brightener system can be adjusted to control hardness.

NICKEL BRIGHTENER SYSTEMS

Lustra-Ni® 402
Semi Bright Nickel
An excellent leveling semi bright nickel brightener system used under a bright nickel deposit to double the corrosion resistance. Has superior low current density coverage. Extreme ductility makes it ideal for plating on plastics. Has excellent tolerance for metallic impurities such as iron, zinc and copper.

Lustra-Ni® 430
Semi Bright Nickel
A single component semi bright nickel brightener system offering improved brightness and leveling over a higher current density range.

Lustra-Ni® 270
Bright Nickel "Index or SAS System"
A very bright and highly leveled single component nickel brightener system that is well suited for applications with strict visual requirements.

Lustra-Ni® 242
Bright Nickel "Index or SAS System"
Industry proven nickel brightener system offers improved brightness and leveling with excellent engineering properties. Exhibits good ductility. The working solution can be easily purified without requiring costly decants.

Lustra-Ni® 234S
Bright Nickel "Index or SAS System"
This uniquely balanced nickel brightener system offers optimum performance in barrel plating applications. A single component system with good leveling.

Dymaxion 285
Bright Nickel "Pyridine System"
The superior leveling obtained from this nickel brightener system allows for ultra-bright deposits with minimal plating thickness.

Lustra-Ni® 204FE
Nickel Iron Alloy
A visually pleasing, extremely ductile, bright nickel-iron deposit containing 15-35% iron. Can be used as an alternative to bright nickel plating. Offers excellent chromium receptivity.

Lustra-Ni® 332PN
Particle Nickel
Use this process over bi-layer or tri-layer nickel deposits. Co-deposits inert nickel wafers that substantially improve corrosion resistance to meet the stringent requirements of exterior applications.

Lustra-Ni® 315
High Sulfur Nickel Strike
Produces a sacrificial corrosion layer between the bright and semi bright nickel layers. Significantly enhances corrosion resistance of the base metal.

CHROME BRIGHTENER SYSTEMS

Chrome Catalyst 501
Hexavalent Chromium Additive
A liquid catalyst additive for decorative chrome brightener systems designed for exceptional covering power. Used to increase cathode current efficiencies and operational current densities without staining.

ELECTROLESS NICKEL PLATING

Heatbath®'s Nitec® electroless nickel plating products include Low-Phos, Mid-Phos and High-Phos electroless nickel plating formulations; each engineered to satisfy your specific electroless nickel plating performance requirements. Nitec coatings provide extraordinary corrosion protection, exceptional wear resistance and excellent solderability at minimum plate thickness. Heatbath's electroless nickel plating products are manufactured to the highest quality and performance standards in the industry. RoHS compliant electroless nickel formulations are available. Realizing that each plating line is unique, Heatbath Corporation can custom formulate an electroless nickel product to meet your specific processing needs and coating requirements.

HIGH-PHOS ELECTROLESS NICKEL (10-13% PHOSPHORUS)

Nitec® 8200
High phosphorus electroless nickel, which produces a semi-bright plate. Coating provides maximum corrosion resistance with minimal deposit thickness. Passes RCA nitric acid test. RoHS Compliant.

Nitec® 8500
High phosphorus electroless nickel. Bath pH is automatically controlled with normal replenishment additions. RoHS Compliant.

MID-PHOS ELECTROLESS NICKEL (5-9% PHOSPHORUS)

Nitec® Viro-Brite
Cadmium and lead free electroless nickel plating process. Produces a mirror bright finish. Deposits contain 6-10% phosphorus. Bath exhibits excellent stability and high tolerance for metal impurities. Consistent deposition rates. RoHS Compliant. Also available as a pH regulated formula.

Nitec® 9200
Mid phosphorus electroless nickel designed for bath stability and process simplicity. Produces an extremely bright finish with a high rate of deposition.

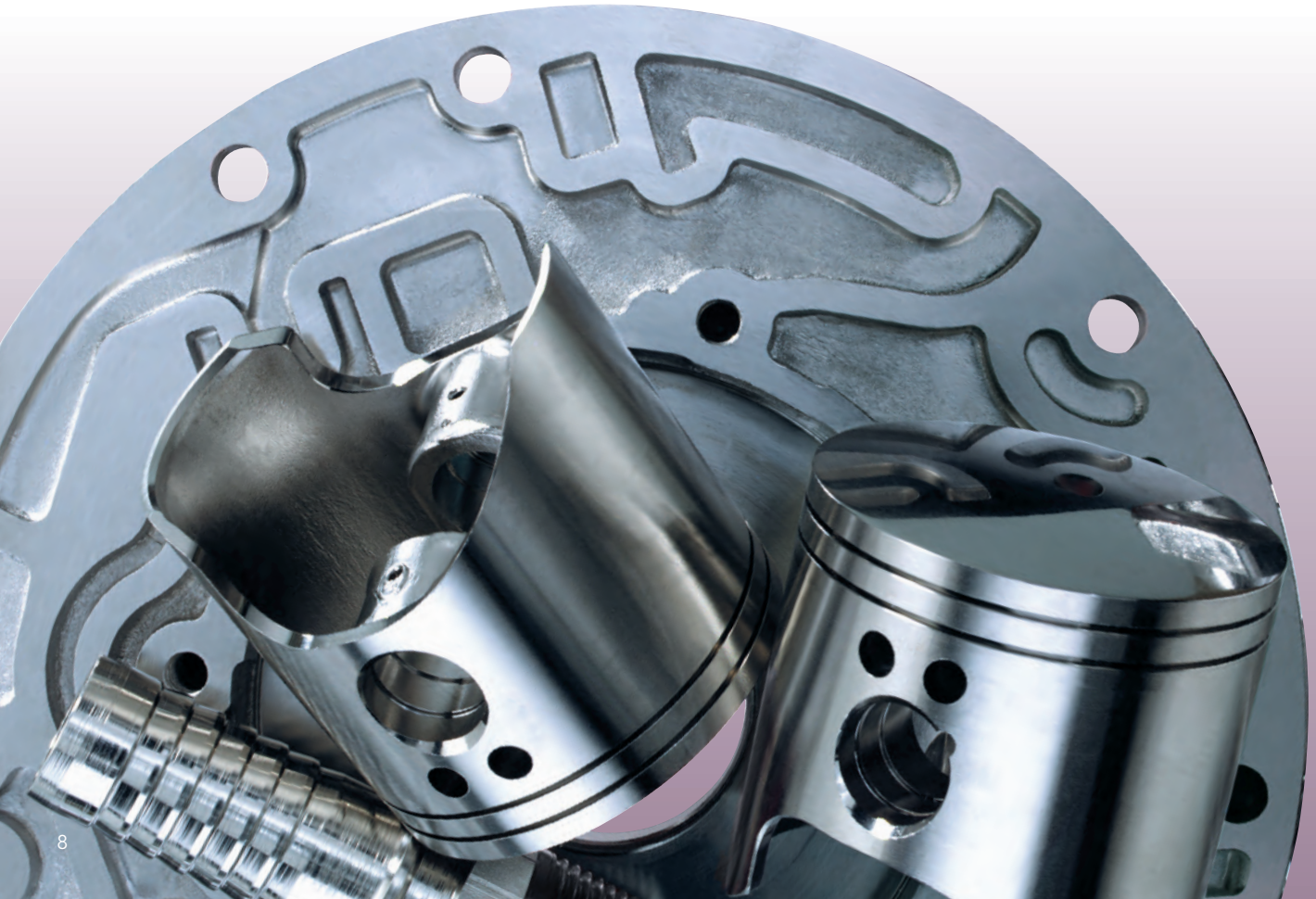
Nitec® 9500
Same as Nitec 9200 but pH is automatically controlled with normal replenishment additions.

LOW-PHOS ELECTROLESS NICKEL (1-4% PHOSPHORUS)

Nitec® 5300
Low phosphorus electroless nickel plating process for a semi-bright uniform deposit. Excellent as-plated hardness and wear resistance. Coating has high corrosion resistance and superior solderability.

SPECIALTY ELECTROLESS NICKEL PRODUCTS

Nitec® ALK-EN II
Produces a thin nickel-phosphorus deposit. Used as an undercoat to be plated over for increased adhesion, solderability and corrosion resistance. RoHS Compliant.



PHOSPHATE COATINGS

Heatbath® Corporation provides a comprehensive line of phosphate coating products. Combine our technical expertise for product selection with our "total line responsibility" approach for service to ensure the highest quality phosphate coatings, which meet or exceed your process requirements for break in cold forming, corrosion protection or adhesion properties.
Please find an overview of just a few of the many phosphate coating choices offered in our innovative lines of manganese, zinc and iron phosphates along with information regarding supplemental products used for grain refinement, as sealants, or for producing black phosphate coatings.

HEAVY ZINC PHOSPHATE COATINGS

Phos Dip® 52AJ
A highly concentrated heavy zinc phosphate formula developed for the highest coating weight requirements, in excess of 3000 mg/ft^2 depending on the base metal and pretreatment used. Produces consistently uniform coatings.

Phos Dip® 1263
A heavy-duty, corrosion resistant zinc phosphate coating bath having a high tolerance for iron in solution. Produces a fine-grained, uniform finish with minimal sludge generation. Heavy zinc phosphate coating weights range from 1000-2500 mg/ft^2. Also available as Phos Dip® 1263NM, an environmentally friendly version which contains no heavy metal accelerator.

Ultraphos 1200
A heavy zinc phosphate coating bath used by immersion, which achieves zinc phosphate coating weights in excess of 2000 mg/ft^2. Provides excellent corrosion protection on ferrous metal parts when used with rust preventative oil.

Ultraphos 1224
A medium to heavy zinc phosphate coating bath with a high tolerance for iron in solution. Coating weights range from 1000-2500 mg/ft^2, depending on the operating parameters chosen. Can be used at operating temperatures as low as 150°F. Approved for GMW3179 Code G when used with Lab Oil 100WT.

Ultraphos 1500C
A highly concentrated, economical heavy zinc phosphate coating bath. Has excellent corrosion protection when used with rust preventative oil on ferrous metal parts. Zinc phosphate coating weights of 2000+ mg/ft^2 are easily obtained. When used with Lab Oil 100WT, is approved for Specification GMW3179 Code G.

ZINC PHOSPHATE GRAIN REFINER

Phosphate Conditioner 4
A titanium based compound for surface activation and grain refinement of zinc phosphate coatings. Used as a conditioning pre-dip to produce a smooth, uniform crystal.

MANGANESE PHOSPHATE COATINGS

Phos Dip® M-22
Heatbath®'s premier manganese phosphate coating, used to reduce wear and prevent galling of moving parts. Meets or exceeds the requirements of MIL-DTL-16232 for Type M coatings. An immersion process typically used with a grain refining pre-dip. Operating temperature 200°F. Achieves coating weights of 1500+ mg/ft^2.

Phos Dip® M-28
A non-nickel version of Phos Dip M-22 for use in applications where nickel in effluent is prohibited.

Phos Dip® M-33
A stable manganese phosphate coating bath that operates iron-free and at 180°F. Produces a smooth, uniform microfinish with minimal attack on the base metal. Reduces friction in bearing applications. Coating weight is 700+ mg/ft^2. A grain refining pre-dip is preferred.

Ultraphos 1000
Ultraphos 1000 is used in applications where wear is a constant factor for consideration. The resultant manganese phosphate coating readily absorbs lubricating oils for fast break-in. Prevents scuffing, galling and seizing of metal components. Provides corrosion resistance when used with rust preventative oil. Meets MIL-DTL-16232 and produces coating weights in excess of 1500 mg/ft^2.

MANGANESE PHOSPHATE GRAIN REFINERS

Phosphate Conditioner MGR
Used just prior to the manganese phosphate coating bath, the conditioner activates the ferrous metal surface and promotes the deposition of a smooth, uniform coating. Using a conditioning step often eliminates the detrimental effects of strong alkaline or acid pre-cleaning. Highly recommended for job shop applications. No heat needed. Air agitation is recommended.

Phosphate Conditioner MGR II
Like the Phosphate Conditioner MGR, but produces an even finer grained, ultra smooth, manganese phosphate coating. Used at just 0.5 oz./gallon.

CALCIUM MODIFIED ZINC PHOSPHATE COATINGS

Phos Dip® R-2-LT
Typically used as a base for paint or rubber bonding, corrosion protection or break-in lubrication. This microcrystalline calcium modified zinc phosphate coating has a built in grain refiner and achieves coating weights in the range of 300-500 mg/ft^2. Used by immersion, this product meets Federal Specification TT-C-490 for Type I coatings.

Phos Dip® R-2
Spray process also meeting Federal Specification TT-C-490 for Type I coatings. Calcium modified zinc phosphate coating weights range from 150-500 mg/ft^2.

Phos Dip® R-700
Calcium modified microcrystalline zinc phosphate. Obtains coating weights slightly higher than Phos Dip R-2-LT. This product offers ease of operation and stable bath chemistry.

Ultraphos 1300
Used for both spray and immersion processing, this calcium modified zinc phosphate achieves coatings ranging from 150-600 mg/ft^2. An excellent base for solid film lubricants. Enhances paint adhesion and can be used for break-in, anti-wear applications.

COLD FORMING ZINC PHOSPHATES

Phos Dip® 38
This zinc phosphate coating withstands the deepest draws and most severe deformation. Contains a unique phosphate/nitrate ratio and increased metal catalyst. Produces the most uniform, tight-grained zinc phosphate coating with coating weights 10-15% higher than other nitrite accelerated baths. A great choice for shaped wire and all cold heading applications. Can be used in both strand and batch processing lines.

Phos Dip® 47-XD
This economical zinc phosphate is preferred for tube drawing, stamping, forming and extruding operations. Specifically formulated for high production facilities. Reduces die wear and affords faster drawing speeds. A dependable bath used for consistent, high quality phosphate coatings.

Phos Dip® 10B
This single component zinc phosphate bath has built in iron control. Bath is easy to operate and ideal for round hole reductions. Advantages include operation at lower concentrations and shorter immersion times.

REACTIVE AND NON-REACTIVE LUBRICANTS

Drylube 2000
Reactive stearate lubricant for use over zinc phosphate and oxalate coatings. Excellent film strength will withstand the most severe drawing and heading operations. Melts quickly into the working bath. Charged at concentrations as low as 2-4 oz./gallon.

Drylube 1500 Series
A line of non-reactive lubricants that contain different amounts of stearate soap blended into varying carrier chemistries. These coatings reduce build up at the dies, provide corrosion protection and aid in coil compaction. Choose from Drylube 1500, 1503 or 1505.

IRON PHOSPHATE COATINGS

Morphos® 101LTF
Produces an amorphous iron phosphate coating on steel, galvanized steel and aluminum surfaces which acts to enhance adhesion of paint or powder coat. This single component product simultaneously cleans and phosphates. Used in both 3 and 5-stage spray washers. Used at concentrations of 1-3% by volume. Coating weights of 35+ mg/ft^2 meet the requirements of Federal Specification TT-C-490 for Type II coatings.

Morphos® 101F
Similar to Morphos 101LTF, but formulated for use in immersion applications.

PRE-PAINT PHOSPHATE SEALERS

Phoseal® 2
A pre-paint phosphate sealer that is a mixture of chrome compounds and acids used in the final hot water rinse in pre-treatment operations. Meets the requirements outlined in MIL-DTL-16232. Dramatically improves both corrosion resistance and paint bonding properties of the base metal.

Phoseal® 25
A non-chrome containing pre-paint phosphate sealer used by spray or immersion. Added to the final hot water rinse in pre-treatment operations. Used at 1/2 pint per 100 gallons. Operating pH of 8.0-8.5 is recommended.

BLACK PHOSPHATE COATINGS-PRE-DIPS

Phos Dip® BZP 4
Phosphate Pre-Dip used to obtain a deep black zinc phosphate finish. Concentrated for maximum economy. Added in very small volumes to your own acid solution. Additional BZP products are also available in acid pre-mixed form.

Ultrablack 9074
Produces a matte black, uniform finish when used prior to zinc phosphate. Used with hydrochloric acid, the Ultrablack 9074 is added in very small increments to maintain consistently dark coatings.

PLATING BRIGHTENERS

Heatbath® Corporation offers a broad range of high performance zinc plating brighteners for cyanide, non-cyanide, acid chloride and mixed chloride zinc plating baths. For barrel and rack applications and for manual and automatic lines. Produce brilliant zinc deposits directly from plating bath. Minimize waste disposal problems without sacrificing quality. Excellent throwing power and adhesion properties, high stability, complete solubility, low consumption, long life and low cost.

ACID CHLORIDE ZINC PLATING

Lustra-Zinc® PCZ 770
Produces brilliant, uniform zinc deposits over a wide range of current densities. Has superior covering power. Plates difficult substrates such as cast and carbonitrided steels. This zinc plating brightener system has outstanding high temperature performance and stability.

Lustra-Zinc® PCZ 780
This zinc plating brightener contains superior free rinsing additives. Ideal for large volume barrel zinc plating lines. Operates at low zinc metal concentrations which results in less drag out and lower waste treatment costs. This zinc plating bath is less susceptible to iron contamination.

Lustra-Zinc® PCZ 5200
Zinc plating brightener produces brilliant zinc deposits over a wide temperature and zinc metal concentration range. Higher burn-free range which makes this zinc plating brightener ideal for rack lines operating at high current densities. This zinc brightener system is stable at high temperatures.

ALKALINE ZINC PLATING

Lustra-Zinc® ACF 4000
Improved low current density covering and throwing power. This zinc plating brightener is excellent for plating parts with deep recesses. Exceptional ductility at high current densities allowing for greater deposit thickness or for post plate shaping or crimping.

Lustra-Zinc®ACF 5000
This zinc plating brightener produces bright, ductile, blister-free zinc deposits with good plate distribution. Plate brightness is comparable to acid chloride deposits. Excellent performance in both high and low zinc metal systems. Contains no chelators.
Very economical to use.

MIXED CHLORIDE ZINC PLATING

Lustra-Zinc® AC 380
This zinc plating brightener contains superior free rinsing additives. Ideal for high volume barrel zinc plating operations. Zinc deposits have excellent receptivity to both hexavalent and trivalent chromate conversion coatings. This zinc plating bath is less susceptible to iron contamination.

Lustra-Zinc® AC 4030
This zinc plating bath operates at high temperatures – up to 120°F. Contains built-in "stress reliever" that produces ductile deposits allowing for a greater plating thickness. Extremely tolerant to iron and organic contamination.

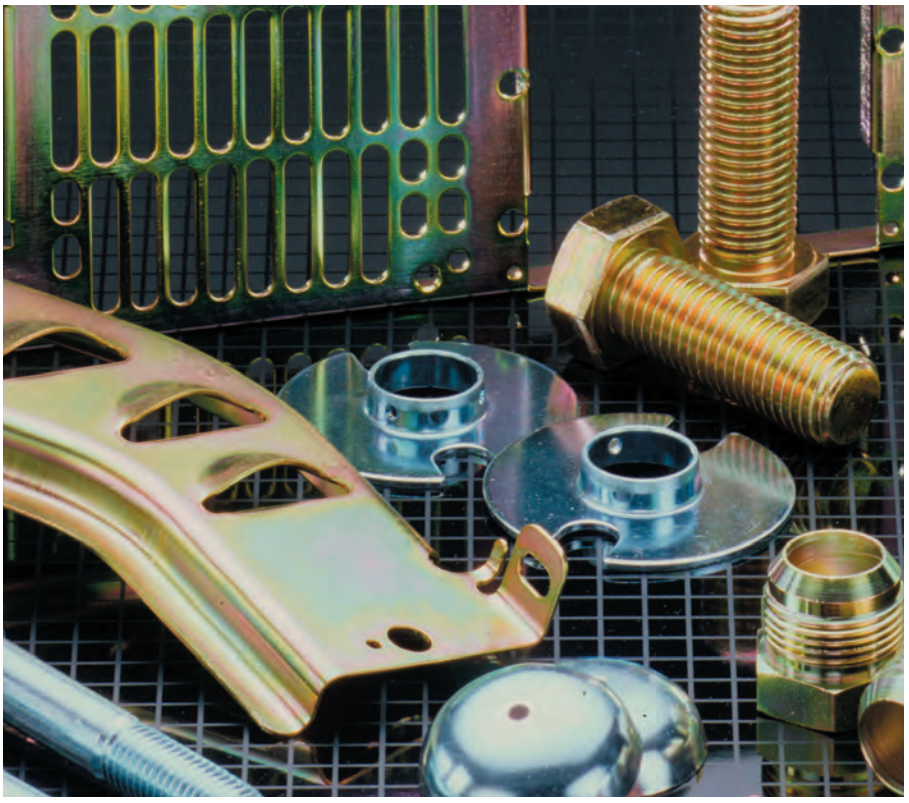
Lustra-Zinc® AC 4040
Produces brilliant uniform zinc deposits over a wide range of current densities. Operates at lower zinc metal concentrations which reduces drag out costs. This zinc plating brightener performs well in both barrel and rack operations.

CADMIUM PLATING BRIGHTENERS

Lustra-Cad LH-50
A liquid cadmium plating brightener for cyanide cadmium plating solutions used in manual, semi-automatic and automatic barrel or rack plating installations to produce cadmium plate of unequalled brightness, especially in low current density areas.

TIN PLATING BRIGHTENERS

Lustra-Tin SN
A stable, leveling, bright acid tin plating brightener system that produces brilliant tin electrodeposits. Exhibits excellent solderability from both rack and barrel plating operations.



RUST PREVENTATIVES

Explore our complete line of carefully formulated and tested rust preventative post treatments for use after zinc phosphating, manganese phosphating, zinc plating, black oxide finishing or cleaning to provide unsurpassed protection against corrosion. We offer rust preventative oils, both water displacing and emulsifiable, along with waxes, lacquers and water based rust inhibitors. Available as dry-to-the-touch finishes as well as high gloss and oily films. Each rust preventative formulation has been extensively tested in 5% Neutral Salt Spray according to ASTM B-117.

EMULSIFIABLE OILS

Lab Oil 72-D
Emulsifiable oil with excellent wetting characteristics, especially over bare or blackened steel. Provides excellent corrosion protection over a wide range of dilutions. For use in immersion applications. Use heated.

Lab Oil 100
Provides maximum corrosion protection when applied over heavy zinc phosphate coatings. Excellent emulsifying properties and tolerance to drag in. This emulsifiable oil contains no barium compounds. Recommended operating temperature 140-180°F.

Lab Oil 100WT
Like Lab Oil 100, but with an added wax component for increased lubricity. This emulsifiable oil provides excellent corrosion protection with a non-oily finish. Meets the requirements of GMW3179 Code G.

Soluble Oil
Economical emulsifiable oil, miscible in water, having moderate rust preventative properties. Ideal for use over blackened or phosphated parts.

Ultramate® 2400
This emulsifiable oil contains a wax component for a dry-to-the-touch film over phosphated work. The wax constituent also adds to lubricity and increases corrosion protection.

WATER DISPLACING OILS

Parkote 505-C
This solvent-based oil is an excellent choice for parts in storage. Flash point 105°F.

Pen Dip® A
A water displacing oil recommended for use when a dry-to-the-touch finish is required. Excellent for precision parts packaged in paper or plastic. A barium-free product providing good corrosion protection. Flash point 145°F

Pen Dip® Super
Superior water displacing properties and unsurpassed corrosion protection. Wets completely and leaves an attractive shine on blackened parts. Flash point 105°F.

Pen Dip® 264
High flash point oil at 265°F. Ideal for in-process or final protection where high humidity is present. Non-staining.

Pen Dip® 300
A heavy-duty rust preventative. Results in a semi-oily film that resists both humidity and corrosion. A barium free water displacing oil. Flash point 145°F.

WAX EMULSIONS

Black Wax 14-A-2
A wax emulsion that produces a hard, smooth, dry, black film. Provides moderate corrosion protection and can be used full strength or cut 50% with water. For use on all base metals.

Clear Wax 16
Like the Black Wax 14-A-2, but colorless.

Durawax
A wax emulsion with excellent coverage. Hard, shiny dry film that when applied over black oxide achieves in excess of 400 hours of corrosion protection when subjected to 100% Relative Humidity (ASTM D-2247). Can be used full strength or cut 50% with water. Durawax is also available with black or ultraviolet dye added.

RUST INHIBITORS

Rust Inhibitor V
This water-based rust inhibitor passivates steel surfaces and produces an invisible, dry, organic film that will resist exposure to humidity. Mildly alkaline with no nitrites. Incorporated surfactants enhance wetting characteristics for thorough coverage.

Rust Inhibitor 1438
Fast drying liquid rust inhibitor commonly used after cleaning, pickling, plating or phosphating. Does not contain nitrites. Used at 1-5% by volume and heated to 140-160°F to help facilitate drying. Leaves a non-measurable film that does not affect the original brightness or luster of the part.

Rust Inhibitor 1565
A nitrite free rust inhibitor for steel and cast iron. Completely water soluble and compatible with most paints.

Rust Inhibitor 1567
An alkaline nitrite based rust inhibitor for superior in-house corrosion protection on ferrous surfaces. Contains no amines. Excellent choice for use between machining operations or after vibratory finishing.

RP Inhibitor 500P
Highly concentrated powdered rust inhibitor for use on ferrous metals. Can be used by immersion or spray at concentrations as low as 0.5 oz./gallon. Provides excellent indoor corrosion protection. Contains nitrites.

SPECIALTY TOPCOATS

Watershed®
Extremely versatile, water-soluble specialty rust preventative topcoat for use wherever water is in contact with steel. Contains surfactants that reduce surface tension and accelerate the shedding of water from all surfaces. Non-staining and leaves no water spots on electroplated surfaces. Used at varying concentrations based on the application, typically 3-5% by volume.

Duraseal NC
Sealer for use on electroplated zinc, cadmium or aluminum. This topcoat sealer greatly improves the salt spray protection to white corrosion when used over both trivalent and hexavalent blue chromates on zinc deposits. Use at 5% by volume and 130-140°F for best results.

Laq-Dip
Water based acrylic lacquer formulated to provide a clear, corrosion and scratch resistant finish on nickel, chrome, brass or zinc plated parts. Contains no solvents. This specialty rust preventative topcoat can be used by spray or immersion. Film can be readily stripped in an alkaline cleaning solution.

STRIPPERS

Heatbath® Corporation offers a variety of aqueous strippers for electrodeposited coatings, paint and electroless nickel coatings. Cyanide-free products and products which are safe for use on various base metals.

Chromlift Liquid
Remove hard or decorative chrome from ferrous or nickel substrates. This electrolytic stripper exhibits minimal attack on the base metal.

Cu-Strip L
Liquid product used to remove copper from ferrous alloys. Non-cyanide and non-electrolytic.

Diverstrip 4993 ZN
Used to strip zinc electroplate from steel. This single component product leaves a smut-free surface.

Durastrip® A-1
Strip lacquer, enamel or phenolic coatings from steel. Highly alkaline. Operated at 200-210°F.

Nistrip 910
Remove electrodeposited and electroless nickel coatings from steel. Non-cyanide. A two-component system.

Q-Strip 100
Strip electrodeposited nickel, copper, brass, tin, zinc, zinc-lead, lead, cadmium and silver from steel. Used with sodium cyanide.

Q-Strip 105
Remove electrodeposited and electroless nickel from steel. A one-component, powdered product containing no cyanide or amines.

Q-Strip 107
Strip electrodeposited nickel from brass, copper, zinc die-cast, silver and gold. A non-smutting immersion process.

Q-Strip 210
Remove copper and nickel electrodeposits and electroless nickel from stainless steel and aluminum. A liquid concentrate used with sulfuric acid.

Heatbath

CORPORATION

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