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METACHEM CHEMICAL TRADING L.L.C.

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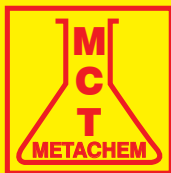
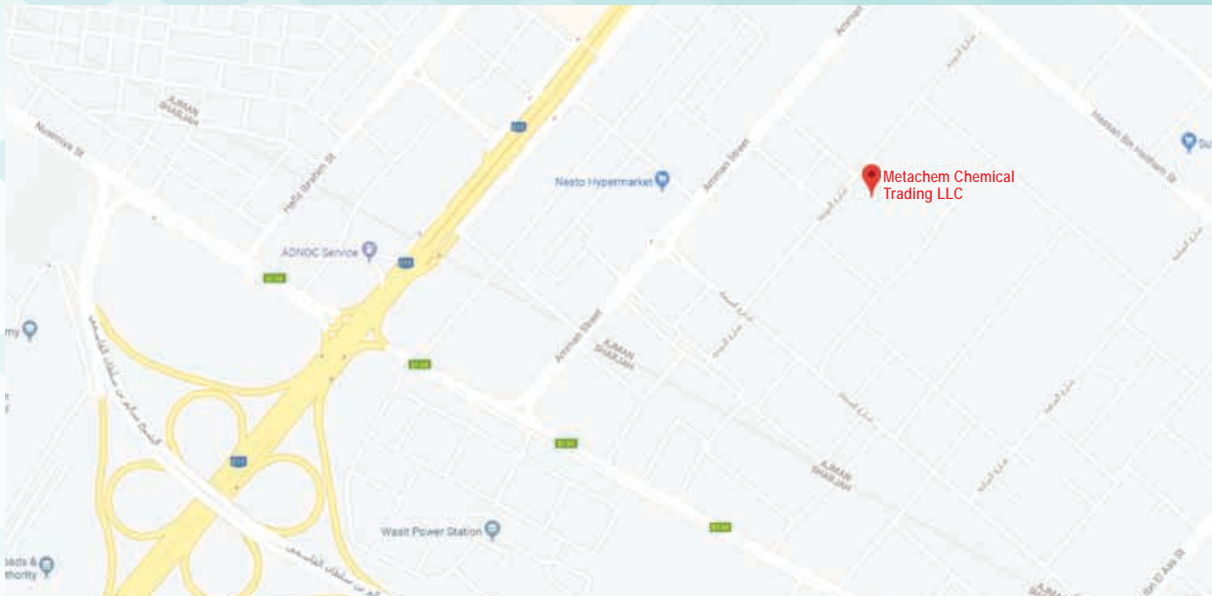
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GEOGRAPHICAL SUPPLY AREA FOR METACHEM CHEMICAL TRADING L.L.C.



METACHEM CHEMICAL TRADING SUPPLY CHAIN .



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COMPANY PROFILE

We would like to introduce ourselves as suppliers for electroplating chemicals and surface finishing products. Metachem Chemical Trading L.L.C. was established in 1994, with the aim to cater the electroplating world and all to do with surface finishing of metals.

Metachem Chemical Trading L.L.C. was established in 1994, with the aim to cater the electroplating world and all to do with surface finishing of metals. We have been the whole and soul distributors of Grauer & Weil chemicals and industrial specialized lubricants.

Grauer & Weil (I) Ltd., since 1957, have been trailblazers and market leaders in the field of manufacturing and supplying electroplating chemicals & industrial lubrications and related products in India as well as overseas.

Our relentless commitment to Research & Developmental activities and the forging of various global alliances has enabled us, offer the most comprehensive range of electroplating chemicals and oils, coolant products, complemented by state-of-the-art equipment's.

Metachem chemical trading L.L.C. deals with various surface finishing technologies, including buffing wheels, buffing soaps, customized emery belts and related equipment's.

Metachem along with Grauer & Weil (India) Ltd are looking forward to the expectation that we will continue to be a technical resource, contributing to the growth & satisfaction to your esteemed organization to achieve the product integrity, quality and cost savings to be competitive in the market place.

With Regards,



SAMEER HASAN



PRODUCT LIST

1. ELECTROPLATING CHEMICALS

- ACID ZINC PLATING
- ALKALINE ZINC PLATING
- ANODIZING
- ANTIQUE ON BRASS
- ANTIQUE ON COPPER
- BRASS PLATING
- BRIGHT NICKEL PLATING
- CADMIUM PLATING
- CHROMATIZATION
- COPPER PLATING
- DECORATIVE CHROME
- ELECTRO - LACQER
- ELECTROLESS NICKEL PLATING
- GOLD
 - FLASH GOLD
 - HARD GOLD
- HARD CHROME
- MECHANICAL GALVANIZING
- PALLADIUM PLATING
- PHOSPHATING
 - IRON
 - ZINC
 - MANGANESE
- PLATING ON PLASTIC
- RHODIUM PLATING
- SILVER PLATING
- TIN PLATING
- COPPER WIRES
- DRYERS
- DUST COLLECTORS
- ETP PLANTS
- FILTER CLOTH
- FILTER SEAL
- FUME SCRUBBERS
- GLASS HEATERS (1KW - 5 KW)
 - 12'' - 36''
- LEAD HEATERS (1KW - 5KW)
 - 12'' - 36''
- OIL COOLED RECTIFIERS
 - INDIA ORIGIN
 - JAPAN ORIGIN
- OVENS
- PLASIC WELDING GUNS
- PLATE FILTER UNITS
 - 5000 LTR/HOUR
 - 10,000 LTR/HOUR
 - 20,000 LTR/HOUR
- PORTABLE BARRELS
- PP BARREL UNITS
- PP SHEETS
- PP TANKS
- PP WELDING RODS
- PPGL SHEETS
- PVC SHEETS
- PVC TANKS
- REFRACTOMETERS
- SEMI AUTOMATIC BARREL UNITS
 - CAN BE CUSTOMIZED.
- STAINLESS STEEL HEATERS
- TEFLON HEATERS (1KW - 5KW)
 - 12'' - 36''
- THERMOMETERS
- THICKNESS METERS
- TITANIUM HEATERS (1KW - 5KW)
 - 12'' - 36''
- TITANIUM WIRES
- ULTRA FILTER UNITS
- ULTRASONIC CLEANING
- VIBRO - POLISHING MACHINES
- YARN CARTRIDGE

1.1 ELECTROPLATING EQUIPMENTS

- AIR COOLED RECTIFIERS
 - INDIA ORIGIN
 - JAPAN ORIGIN
- BLOWERS
 - INDIA ORIGIN
 - SPAIN ORIGIN
- BRASS BUS BARS
- BRASS WIRES
- CARBON CARTRIDGE
 - 10'' (1 - 5 MICRONS)
 - 20'' (1 - 5 MICRONS)
- CARTRIDGE FILTER UNITS
 - 5000 LTR/HOUR
 - 10,000 LTR/HOUR
 - 20,000 LTR/HOUR
- COPPER BUS BARS

2. POLISHING WHEELS, SOAPS & EQUIPMENTS.

2.1 POLISHING WHEELS AND PADS.

- BRASS WIRE WHEELS
- COTTON WHEELS
- CUTTING WHEELS
- EMERY WHEELS
- FIBER WHEELS
- FLAP DISKS
- FLAP WHEELS
- GRINDING WHEELS
- HAIR WHEELS
- KHAKI WHEELS
- LEATHER WHEELS
- LOOSE COTTON WHEELS
- M.S. WIRE WHEELS
- MADRAS WHEELS
- MATT FINISH WHEELS
- SCOTCH PAD
- SCOTCH WHEELS
- SILVER FINISH WHEELS
- TRIZAC BELTS

2.2 POLISHING SOAPS AND COMPOUNDS.

- ACRYLIC SOAP
- BLACK SOAP
- BLUE SOAP
- BRASS POLISH PASTE
- BROWN SOAP
- CHALK POWDER
- COLDEX CEMENT
- DIAMOND POLISH PASTE
- EMERY POWDER
 - ALL GRITS AVAILABLE
- GREEN SOAP
- ORANGE SOAP
- PICKLING PASTE
- PINK SOAP
- RED SOAP
- SARESH GLUE
 - FLAKES TYPE
 - POWDER TYPE
- SILVER POLISH PASTE
- WHITE SOAP
- YELLOW SOAP

2.3 POLISHING EQUIPMENTS.

- FLEXIBLE POLISHING MACHINE

| | |
|-------|------|
| POWER | 2HP |
| RPM | 2800 |
| PHASE | 3 |
| SHAFT | INC. |

- PIPE POLISH MADE
- BELT TYPE FLAT BAR POLISH MACHINE
- POLISHING MACHINE BENCH TYPE
 - AVAILABLE IN:
 - 1 HP
 - 2 HP
 - 3HP
 - 5HP
- VIBRO POLISHING MACHINE
 - CAN BE CUSTOM BUILT.

3. ORGANIC AND METAL COATING STRIPPERS.

- CHROME STRIPPER
- COPPER STRIPPER
- GOLD STRIPPER
- NICKEL STRIPPER
- PAINT STRIPPER
- POWDER COATING STRIPPER

4. ACIDS.

- CITRIC ACID 99%
- HYDROCHLORIC ACID 32 -33%
- HYDROFLORIC ACID 60 - 70%
- NITRIC ACID 68%
- OXALIC 99%
- PHOSPORIC ACID 85%
- SULPHURIC ACID 98%

5. CLEANERS.

- FERROUS AND NON-FERROUS.
- ELECTROCLEANERS.
- PICKLING AGENTS AND ADDITIVES.

6. METAL INGOTS.

- ZINC SHG 99.995%
 - ORIGIN: LME BRAND
 - FOR ELECTROGALVANIZING
 - FOR HOT DIP
 - FOR CASTING
- TIN 99.85%
 - ORIGIN: EUROPE
- NICKEL 99.99%
 - ORIGIN: CANADA
- CADMIUM
- LEAD 99.9%
 - ORIGIN: LME BRAND
- COPPER 99.9%
 - ORIGIN: EUROPE
- BRASS ANODE
- SILVER ANODE 99.99%
- PLATINIZED TITANIUM ANODES
- TIN - LEAD ANODES FOR HARD CHROME

7. METAL SALTS.

- CHROMIC ACID
 - ORIGIN: INDIA/RUSSIA
- COPPER SULPHATE
 - ORIGIN: INDIA/EUROPE
- GOLD POTASSIUM CYANIDE
 - ORIGIN: EUROPE/SWISS
- NICKEL CHLORIDE
 - ORIGIN: EUROPE
- NICKEL SULPHATE
 - ORIGIN: INDIA/EUROPE
 - ORIGIN: INDIA
- SILVER POWDER
 - ORIGIN: SWISS/INDIA
- STANNOUS SULPHATE
 - ORIGIN: INDIA/EUROPE
- ZINC CHLORIDE
 - ORIGIN: INDIA/EUROPE
- ZINC DUST
 - ORIGIN: INDIA/USA
- ZINC OXIDE
 - ORIGIN: INDIA/CHINA
- ZINC SULPHATE
 - ORIGIN: EUROPE

8. BASIC CHEMICALS.

- ACETIC ACID
- ACID INHIBITORS
- ACTIVATED CARBON
- ACTIVATED ALUMINA
- ALUMINIUM SULPHATE
- AMMONIUM CHLORIDE
- AMMONIUM HYDROXIDE
- ACETONE
- BLACK JAPAN
- BORAX DECAHYDRATE
- BORIC ACID
- CALCIUM CARBONATE
- CALCIUM CHLORIDE
- CALCIUM HYPOCHLORIDE
- CALCIUM NITRATE
- CAUSTIC SODA LIQUID
- CAUSTIC SODA FLAKES
- CITRIC ACID ANHYDROUS
- COLDEX CEMENT
- DISODIUM PHOSPHATE
- DRY ACID SALTS
- EDTA
- ETHYL ACETATE
- ETHANOL
- FERRIC CHLORIDE
- FERROUS SULPHATE
- FILTER AID POWDER
- FLUX
- FORMALDEHYDE
- FORMIC ACID
- HYDRATED LIME
- HYDROGEN PEROXIDE
- HYDRAZINE HYDRATE
- LIQUID GLUCOSE
- MAIZE STARCH
- METHANOL

- METHYLENE CHLORIDE
- MICA
- MAGNESIUM SULPHATE
- MAGNESIUM CARBONATE
- POTASSIUM CARBONATE
- POTASSIUM CHLORIDE
- POTASSIUM HYDROXIDE
- POTASSIUM IODIDE
- POTASSIUM TITRATE

9. LAB CHEMICALS.

- 2-PROPANOL
- ACETIC ACID ALDEHYDE FREE
- ACETIC ACID GLACIAL
- ACETONE
- ACETONITRILE
- BENZENE
- BENZYL ALCOHOL
- CHLOROFORM
- ETHYL ACETATE
- ETHYL METHYL KETONE
- HYDROCHLORIC ACID 35%
- HYDROFLUORIC ACID 40%
- HYDROFLUORIC ACID 48%
- METHANOL
- NITRIC ACID 69%
- PEREHLORIC ACID 70%
- PETROLEUM ETHER 40%
- PETROLEUM ETHER 60% - 80°C
- PHOSPHORIC ACID 60%
- SULPHURIC ACID 98%
- TOLUENE
- TRICHLOROETHYLENE
- XYLENE

10. LAB EQUIPMENTS.

- GLASS BEAKERS
- BOTTLE
- FLORENCE FLASK
- ERLLENMEYER FLASKS
- GLASS FUNNELS
- GRADUATED CYLINDERS
- BURET
- VOLUMETRIC PIPETTE
- THERMOMETER
- MEDICINE DROPPER

11. OILS AND LUBRICANTS.

- RUST PREVENTIVE OILS
- CUTTING OILS
- HYDRAULIC OILS
- HYDRAULIC OILS ANTI WARE
- GENERAL LUBRICATION OIL
- SPINDLE AND CIRCULATING OIL
- SLIDEWAY LUBRICATION
- GEAR OIL
- VANISHING AND DEEP DRAWING OILS
- EDM OIL
- HEAT TREATMENT (QUENCHING OILS)
- COPPER TUBE DRAWING LUBRICANTS.

12. PLATING PLANTS

- CONTINUOUS PLATING PLANT
- ROTOMATIC PLANT
- TRANSPORT WAGONS
- SEMI-AUTOMATIC BARREL UNITS
- AUTOMATIC BARREL UNITS
- AUTOMATIC PLATING PLANTS
- SEMI AUTOMATIC PLATING PLANTS.

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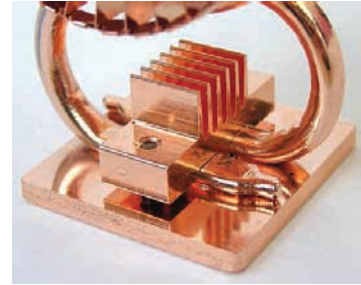
PLATING

1) BRASS PLATING

Brass is an alloy of copper and zinc. It is plated on mild steel, aluminium and zinc based die casting and stainless-steel for decorative applications. It is plated on mild steel to obtain good bonding of steel to rubber. An undercoat of nickel considerably will increase the aesthetic value of brass plated components.

Product of Brass Plating:-

- ZINCO BRASS SALT
- AMMONIUM CHLORIDE



CYANIDE COPPER

Cyanide Copper process is used for undercoats to nickel, as a strike prior to acid copper plating on mild steel and as a base for oxidized finish on steel and other metals. Very useful as a copper strike to acid copper, pyrophosphate or fluborate baths to avoid immersion plating and to provide excellent bonding to top coats.

Product of Cyanide Copper Plating:-

- ROCHELLE COPPER SALT
- SODIUM CONDUCTING SALT



2) COPPER PLATING

- Acid Copper
- Cyanide Copper

Acid Copper: -

Acid copper plating process A, B, C (brighteners) produces highly leveled brilliant, smooth and ductile deposits. It produces uniform brightness at both high and low current density levels. Specially formulated for decorative plating on metal and plastic parts. It provides an excellent undercoat for subsequent nickel and chromium plating.

Product of Acid Copper Plating:-

- COPPER SULPHATE
- CUPRABRIGHT 310 MAKE UP
- CUPRABRIGHT 310 A
- CUPRABRIGHT 310 B

3) CHROME PLATING

Chrome plating in a decorative nickel-chrome system provides a tarnish resistant, pleasing bluish, brilliant, clear deposit on nickel plating. The deposit is hard and therefore resistant to abrasion and wear. Due to these properties, a very thin coating of 0.25 to 0.8 microns of chrome provides a durable and attractive finish. Thick hard chrome deposits are employed where good surface hardness, abrasion, wear resistance and anti-seize properties are desired. Hard Chromium is widely used for gauges, cutting tools, metal forming, drawing dies, machine parts such as piston rings, cylinder liners, crank shafts for marine and aeroplane engines, bearings hydraulic gears, salvage of worn and defective machinery parts, moulds and printing rollers.

Product of Chrome Plating:-

- CHROMIC ACID
- CHROME CONDUCTING SALT



4) CADMIUM PLATING

Electrodeposits of Cadmium are used to protect steel and cast iron against corrosion as it is electronegative to iron. Besides having excellent corrosion protective properties. Cadmium plating is employed in the aircraft industries and electrical industries where it has a specific advantage over zinc. These include low contact potential in contact with aluminum, high lubricity, higher resistance to alkalis and to sea water. Cadmium is widely used on moving parts or threaded assemblies as it has natural lubricity, minimal change in dimension due to low voluminous corrosion products.

Product of Cadmium Plating:-

- CADMIUM BRILIANT SALT
- CADMIUM BRIGHTNER NO. 1
- CADMIUM BRIGHTNER NO. 2



5) **ELECTROLESS NICKEL**

Electroless Nickel (EN) plating is a process of plating Nickel Phosphorous/Boron Alloy by chemical reduction on catalytic metal surface without electric current. Electroless Nickel can be coated on variety of substrates. Electroless Nickel coatings are used in a wide range of industries such as automotive, aerospace, electronics, medicals, chemical processing, oil and gas, etc. Features: Excellent deposit uniformity, Outstanding corrosion resistance, High hardness as that of hard chrome, Low porosity, Solder ability, Excellent wear and abrasion resistance.

Product of Electroless Nickel Plating:-

HIGH PHOSPHOROUS

- GINPLATE NI 425 A
- GINPLATE NI 425 B
- GINPLATE NI 425 C

MEDIUM PHOSPHOROUS

- GINPLATE NI 418 A
- GINPLATE NI 418 B
- GINPLATE NI 418 C

LOW PHOSPHOROUS

- GINPLATE NI 426 A
- GINPLATE NI 426 B
- GINPLATE NI 426 C



6) **BRIGHT NICKEL**

Nickel Plating is the most widely used process in surface finishing technology. It is the work horse of the plating industry; its applications vary from decorative to industrial finishes. The changing patterns of market demand have, in the last decade, shifted the emphasis from aesthetics to quality and durability. We have developed special processes to provide the outstanding properties of corrosion resistance with extremely good aesthetic values. Process technologies involving multi-layer deposits (for eg. our Ductolite System) enables high anti-corrosion standards in the excess of 100 hours of Salt Spray Test (ASTM B 117), at nominal thickness. As one of the largest supplier of the nickel plating additives worldwide, we constantly strive to offer you the best value for money. We invite you to browse through our product/process options to meet your specific requirement and of course, look at our prices - they are a deal.

Product of Bright Nickel Plating:-

- BRIGHT NICKEL SALT
- NICKEL ADDITIVE 220
- NICKEL BRIGHTNER 977
- ANTIPIT NO. 1





7) ANODIZING

Anodizing is an electrolytic passivation process used to increase the thickness of the natural oxide layer on the surface of aluminium parts.

Product of Anodizing Plating:-

- PRE TREATMENT
- SULPHURIC ACID
- COLD SEALING SALT 39
- GOLD DYE
- BLACK DYE
- PINK DYE
- ORANGE DYE
- BLUE DYE



8) PLATING ON ALUMINIUM

The usage of low weight materials has increased substantially replacing mild steel, especially in the automobile industry. The preferred light weight metal is aluminum and its alloy having satisfactory commercial application. Growel offers package technologies for plating on aluminum and its alloys to provide excellent corrosion and wear resistant coating, in conformation of stringent OEM standards. The start-to-finish plating process includes suitable pretreatments and undercoats to minimize surface porosity for improved adhesion, especially suitable for plating on aluminum alloy wheels.

Product of Aluminium Plating:-

- ALZINCATE D / M
- BRIGHT NICKEL SALT
- NICKEL ADDITIVE 220
- NICKEL BRIGHTNER 977
- ANTIPIT NO. 1

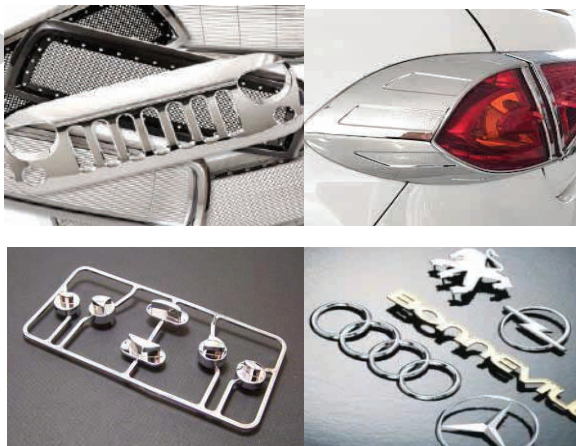


9) PLATING ON PLASTIC

Plating on plastics is technique of electroplating the modern synthetic polymers such as ABS (Acrylonitrile Butadiene Styrene), PPO (Polypropylene oxide), PPC (Polypropylene) etc. The ideal plastic material for plating is ABS since it can be easily molded and plated with substantial adhesion of metallic deposits to plastics. Plated plastics are lighter, stronger and corrosion resistant and are used in automobiles, domestic appliances, plumbing ware, electronic gadgets, imitation costume, jewelry etc.

Product of Plastic Plating:-

- GINPLATE ACTIVATOR 442
- GINPLATE 414 A
- GINPLATE 414 B



10) TIN AND TIN ALLOY PLATING

Tin Plating basically can be categorized into tin plating and tin alloys plating. Tin plating is extensively used for food preservation container, electrical, electronic components and bearing surfaces. Tin-lead alloys are basically designed for electronic industries. Tin-cobalt alloys are used as a substitute to chrome plating.

Product of Tin and Tin Alloy Plating:-

- STANNOLUME SULHPATE
- STANNOLUMECARRIER ADDITIVE
- STANNOLUME CARRIER BRIGHTNER ADDITIVE



11) ZINC AND ZINC ALLOY PLATING

Zinc plating offers an economical option for decorative and industrial finishes on metallic substrates. It is possibly second to only Nickel with respect to plating applications. Recent developments have focused on alloy plating of zinc with iron, cobalt etc. to produce exotic finishes with exceptional resistance to corrosion and high durability. Depending upon the practicality of your application, you can choose from a conventional high cyanide zinc plating process to the most modern chloride or other non-cyanide alkaline based processes which are, more recently preferred, for environmental reasons.

Product of Zinc and Zinc Alloy Plating:-

- ZINCALITE 780 – M
- ZINCALITE 780 – R
- ZINTHOBRIGHT 650 – A
- ZINTHOBRIGTE CLZ 937 BR SALT



Product of Antique Finish Plating:-

- GIBNOL C – 115
- GIBNOL C – 5110
- MAGIC ANTIQUE BLACK



12) ANTIQUE FINISH / PLATING

Antique coating is a quality finish that is very adherent; however, the coating has little corrosion resistance and is used primarily for decorative purposes on items such as architectural hardware and lamps. Finishes as produced by antique chemical do not change color when hot air dried, burnished or lacquered. In addition, the product does produce consistent uniform coatings on large flat surfaces as well as small irregular shapes and is applicable to barrel operations for batch processing. Antique is a popular option on items such as candlesticks, interior fittings and fashion accessories. Antiquing is applied with satine mop and can have a lacquer applied directly.

Typical architectural applications include:

- Door Handles
- Fittings
- Kick Plates
- Light Fittings
- Panel

13) BLACKENING CHEMICALS

Uniform Black coatings of Ferro ferric oxide & cupric oxide are produced on mild steel and copper & copper alloys respectively. Beautiful, shiny black coatings are obtained on buffed or polished surfaces. Flat non-reflective coatings are obtained on etched or sand blasted steel.

Product of Blackening Finish Plating:-

- GIBNOL S – 34
- GIBNOL C – 115
- GIBNOL C – 5110
- INSTA BLACK – 33
- MAGIC ANTIQUE BLACK



14) CHROMATIZATION

Chromate conversion coatings are produced on various metals by immersion or electrochemical treatment with chromates along with other chemicals. These coatings provide exceptionally good corrosion resistance, depending upon the composition of chemicals and the film thickness. Additionally, chromating brightens zinc and cadmium electrodeposits and also improves paint bonding. Chromating on zinc deposits produces different colored finishes from clear blue bright, yellow iridescent, black and olive green which have different corrosion resistant properties.

Product of Chromatization:-

- SURPICKEL 506
- GINTHOX AL 990
- GINTHOX Q560
- GINTHOX 995
- OLIVE GREEN 958



15) PHOSPHATING CHEMICALS

Phosphating serves as an excellent pre-treatment before painting & as a base for impregnation with enamels, paints, lacquers, oils & waxes. It is specially applied to ferrous metals, also used for zinc & aluminium to enhance the corrosion resistant & helps in improving adhesion of topcoats

Product of Phosphating:-

- SURFIX ZN 603
- SURFIX MN 641 / 643
- SURFIX FE 691
- SURFIX MPT 1



16) ELECTROPHRETIC PLATING (LACQUER)

Clearlyte is a water-based lacquer which gives a clear protective coating on metal articles. Clearlyte is cathodically electrodeposited. After curing the deposit, excellent gloss and image clarity is obtained. Components can be transferred directly from the final electroplating process stage through rinses to clearlyte without the need for an intermediate drying state. Clearlyte shows an excellent throw into recesses and gives uniform deposit thickness. No runs and tears are observed and high corrosion and chemical resistance are obtained.

Product of Electrophretic (Lacquer):-

- GROCLEAR GWC ELECTROPHRE LACQUER
- RINSE AID





17) MECHANICAL GALVANIZING PROCESS

Mechanical zinc plating is accomplished by tumbling small parts in a drum with zinc and proprietary chemicals. Small iron and steel parts – usually limited in size to about 8-9 inches micron 80 to 100 um (150- 200 mm) and weighing less than one pound (0.5 kg) – are cleaned and flash copper coated before loading into a plating barrel. The barrel is then loaded with proprietary chemicals, glass beads and activators and tumbled. During tumbling, the glass beadspeen zinc powder onto the part. Once finished, the parts are dried and packaged, or post-treated with a passivation film, dried, and packaged.

As mentioned, mechanical plating can only be applicable to small parts limited to the capacity of the drum. Furthermore, the materials must be simple in design to ensure peening to all surfaces. Mechanical zinc plating is most commonly used on high-strength fasteners and other small parts not suitable for hot-dip galvanizing.

Product of Mechanical Galvanizing:-

- GROMECH MECHZINC PRECONDITIONE
- GROMECH MECHZINC CU FLASH
- GROMECH MECHZINC ACCELARATOR
- GROMECH MECHZINC DEFOAMER



18) PRECIOUS METAL PLATING - GOLD,SILVER,RHODIUM,PALLADIUM & GOLD BRUSH PLATING

• **GOLD**

Gold can be electroplated from acid, alkaline and neutral solution either as hard or soft, dull or bright deposits. Gold is extremely corrosion resistant and has a very low contact resistance. The important decorative use of gold is in costume jewelry, cutlery, watch cases, pen cases, spectacle frames. The colour of the gold can be varied.

• **GOLD BRUSH PLATING**

A closely related process is brush electroplating, in which localized areas or entire items are plated using a brush saturated with plating solution. The brush, typically a platinized titanium body wrapped with an absorbent cloth material that both holds the plating solution and prevents direct contact with the item being plated, is connected to the anod of a low voltage direct current power source, and the item to be plated connected to the cathode. The operator dips the brush in plating solution then applies it to the item, moving the brush continually to get an even distribution of the plating material.

Product of Gold Plating & Gold Brush plating :-

- GPC
- GOLD ADDITIVE – P
- GOLD ADDITIVE – C
- GOLD BRUSH PLATING SOLUTION





• **SILVER**

Electroplated Silver which was developed primarily for use on hollowware, flatware, tableware and jewelry has proven its usefulness in both decorative and functional applications. Its conductivity makes it ideal for the electronics and electrical industry. It is also used for light reflector and engine bearings. Silver has been successfully substituted for expensive gold in the electronics metallic lead frames.

Product of Silver Plating :-

- SPC
- SILVER BRIGHTNER NO. 1
- SILVER BRIGHTNER NO. 2

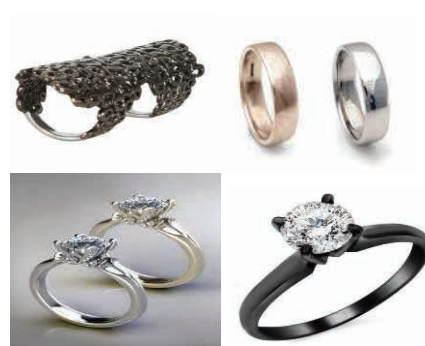


• **RHODIUM**

It acts as a barrier layer over bright or satin acid copper to replace the use of nickel. The deposit prevents metal migration to the surface. Our products of Nickel Free technology are the practical solution to the problem of nickel allergy.

Product of Rhodium Plating :-

- **RHODIUM CHEMICAL**

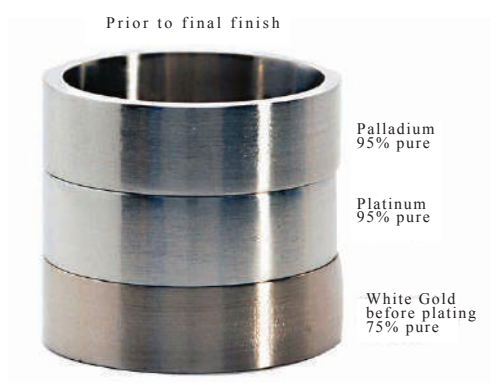


• **PALLADIUM**

It acts as a barrier layer over bright or satin acid copper to replace the use of nickel. The deposit prevents metal migration to the surface. Our products of Nickel Free technology are the practical solution to the problem of nickel allergy.

Product of Palladium Plating :-

- **PALLADIUM CHEMICAL**



ELECTROPLATING EQUIPMENTS

1). AIR COOLED RECTIFIERS

| VOLTS | AMPS | PHASE |
|-------|--------|--------|
| 0-12 | 20-500 | SINGLE |



2). OIL COOLED RECTIFIERS

| VOLTS | AMP | PHASE |
|-------|-------------|---------|
| 0-12 | 500-5000 | 3 PHASE |
| 0- 24 | 1000 - 2000 | 3 PHASE |



3). PLATE FILTER UNITS

| PLATE FILTER UNIT | PLATES 24 -52 , 3500 – 20,000 LITER PER HOUR (3PHASE) |
|-------------------|---|
|-------------------|---|



4). CARTRIDGE FILTER UNITS

| | |
|-----------------------|---|
| SINGLE CARTRIDGE UNIT | 1500 LITERS PER HOUR – 2000 LITERS PER HOUR |
| DOUBLE CARTRIDGE UNIT | 3500 LITERS PER HOUR – 6000 LITERS PER HOUR |



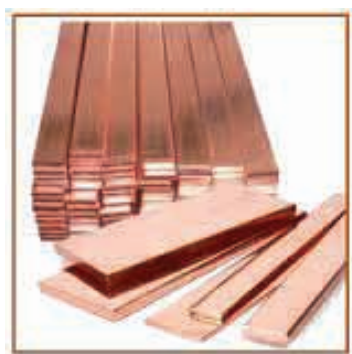
5). ULTRA FILTER UNITS



6). BLOWERS



7). COPPER BUS BARS



8). BRASS BUS BAR



9). GLASS HEATERS

All size available. Ranging from 1 KW to 5 KW and from 12 Inch. To 36 Inch.



10). TEFLON HEATERS

All size available. Ranging from 1 KW to 8 KW and from 12 Inch. To 36 Inch.



11). LEAD HEATERS

All size available. Ranging from 1 KW to 5 KW and from 12 Inch. To 36 Inch.



12). TITANIUMN HEATERS

All size available. Ranging from 1 KW to 5 KW
and from 12 Inch. To 36 Inch



13). STAINLESS STEEL HEATERS

All size available. Ranging from 1 KW to 5 KW
and from 12 Inch. To 36 Inch



14) PP TANKS

Can be custom made.



15) PVC TANKS

Can be custom made.



16) ETP PLANTS

Can be custom made.



17) PORTABLE BARRELS

Can be custom made.

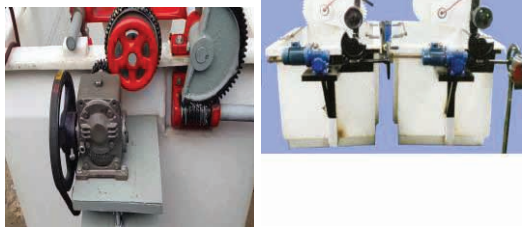


18) PLATING PP BARREL UNIT

Can be custom made.

20) DRYERS

Can be custom made.



21) ULTRASONIC CLEANING

Can be custom made.



19) DUST COLLECTOR

Can be custom made.



22) VIBRO – POLISH MACHINE

Can be custom made.



POLISHING MACHINE

POLISH MACHINE

| POWER | 1HP | 2HP | 3HP | 5HP |
|-----------------------|--------|--------|--------|--------|
| RPM(ROTATIO N/MIN) | 2800 | 2800 | 2800 | 2800 |
| PHASE | 1 | 1 | 3 | 3 |
| SPINDLE | DOUBLE | DOUBLE | DOUBLE | DOUBLE |



FLEXIBLE SHAFT MACHINE 2 HP



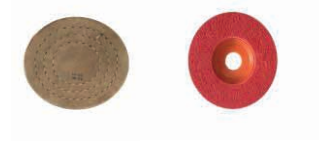
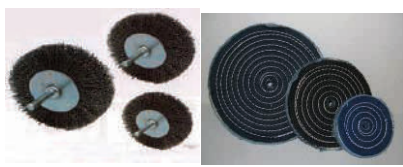
POLISHING WHEELS AND EQUIPMENTS

- **GREEN SOAP** – Mirror finishing of SS
- **WHITE SOAP** – Buffing of SS
- **BLUE SOAP** – High gloss for SS
- **BLACK SOAP** – Removing of grinder marks for various metals
- **YELLOW SOAP** - Polishing of Brass and Aluminum
- **PINK SOAP** – High gloss for all metals
- **ORANGE SOAP** – Polishing of Aluminum
- **RED SOAP** – Multipurpose buffing soap for all metals
- **ACRYLIC SOAP** – For acrylic polishing
- **BROWN SOAP** – Buffing for all metals
- Emry powder all grits

| | | | | | |
|-------|-----|-----|-----|-----|-----|
| GRITS | 40 | 60 | 80 | 90 | 120 |
| | 220 | 320 | 400 | 600 | 800 |

- **SARESH GLUE** – (Flakes type and Powder type)
- **Coldex cement**
- **FIBER WHEELS** – For removing the grinding marks for all metals
- **COTTON WHEELS** – For buffing surface all metals
- **LOOSE COTTON WHEELS** – Cheap wheels for buffing
- **HAIR WHEELS** – for removing the mill scale and rust from surface
- **M.S. WIRE WHEEL** -
- **BRASS WIRE WHEEL** -
- **MADRAS WHEELS** wheels for buffing all metals

- **SCOTCH WHEELS** – For providing heairling finishes on the metals.
- **LEATHER WHEELS** – General purpose wheels for polishing.
- **FLAP WHEELS** – Various grades to remove grinding marks and provide smooth surface
- **KHAKI WHEELS** – General purpose wheels
- **EMBRY BELTS**
- **CHALK POWDER**
- **PICKLING PASTE**
- **TRIZAC BELTS** – To be used on the air operated polishing machines to provide buffing on the surface
- **MATT FINISH WHEELS**
- **SCOTCH PADS**
- **FLEXIBLE SHAFTS**
- **SILVER FINISH WHEELS**
- **DIAMOND POLISH PASTE**
- **ELECTRO POLISHING** – Mirror finish for SS



**POLISHING
MACHINE
& EQUIPMENT**

**METAL SALTS
&
METAL INGOTS**



Cadmium 99.95%



Nickel 99.9%



Lead 99.9%



METAL INGOTS

Zinc 99.995%



Tin 99.85%



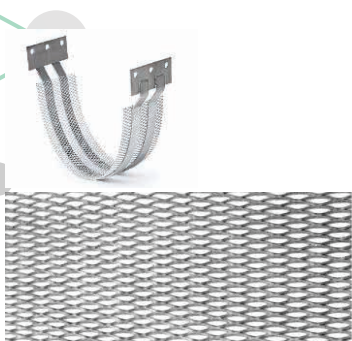
Copper 99.9%



Brass 99.9%



Platinized Titanium anodes



Tin – lead anodes



METAL SALTS

| NAME | ORIGIN | PACKING |
|-----------------------|----------------------------|----------------------|
| STANNOUS SULPHATE | INDIA/EUROPE | 5 KG – 10 KG – 25 KG |
| GOLD POWDER (G.P.C) | INDIA/EUROPE/SWISS | 1 GRAM – 100 GRAM |
| ZINC SULPHATE | EUROPE | 25 KG |
| NICKEL SULPHATE | INDIA/EUROPE | 5 KG – 10 KG – 25 KG |
| NICKEL CHLORIDE | EUROPE | 5 KG – 10 KG – 25 KG |
| CHROMIC ACID | INDIA/RUSSIA/USA | 50 KG |
| SILVER POWDER (S.P.C) | INDIA/EUROPE/GERMANY/SWISS | 1 KG – 2 KG |
| ZINC DUST | INDIA/EUROPE/USA | 1 KG – 25 KG - 50 KG |
| ZINC CHLORIDE | INDIA / EU | 25 KG |
| ZINC OXIDE | INDIA/CHINA | 25 KG – 50 KG |
| ROCHELLE COPPER SALT | INDIA | 5 KG – 25 KG – 50 KG |
| COPPER SULPHATE | INDIA/EUROPE | 25 KG |

LAB CHEMICALS AND EQUIPMENTS

• LAB CHEMICALS

| NAME | PACKING |
|--|---------|
| 2-Propanol, A.R. | 2.5 LTR |
| Acetic acid aldehyde free, A.R. | 2.5 LTR |
| Acetic acid glacial, A.R. | 2.5 LTR |
| Acetone, A.R. | 2.5 LTR |
| Acetonitrile, A.R. | 2.5 LTR |
| Benzene, A.R. | 2.5 LTR |
| Benzyl alcohol, A.R. | 2.5 LTR |
| Chlorobenzene, A.R. | 2.5 LTR |
| Chloroform, A.R. | 2.5 LTR |
| Ethyl acetate, A.R. | 2.5 LTR |
| Ethyl methyl ketone, A.R. | 2.5 LTR |
| Hydrochloric acid abt.35% pure, A.R. | 2.5 LTR |
| Hydrofluoric acid 40% pure, A.R. | 2.5 LTR |
| Hydrofluoric acid 48% pure, A.R. | 2.5 LTR |
| Methanol, A.R. | 2.5 LTR |
| Nitric acid min. 69% pure, A.R. | 2.5 LTR |
| Ortho - Phosphoric acid abt. 88%, A.R. | 2.5 LTR |
| Perchloric acid about 60%, A.R. | 2.5 LTR |
| Perchloric acid about 70%, A.R. | 2.5 LTR |
| Petroleum ether 40 - 60°C, A.R. | 2.5 LTR |
| Petroleum ether 60 - 80°C, A.R. | 2.5 LTR |
| Sulfuric acid abt 98% pure, A.R. | 2.5 LTR |
| Toluene, A.R. | 2.5 LTR |

| | |
|------------------------|---------|
| Trichloroethylene A.R. | 2.5 LTR |
| Xylene, A.R. | 2.5 LTR |

• LAB EQUIPMENTS

**FOR YOUR LAB ENQUIRIES
AND DETAILS PLEASE CONTACT
US**

INDUSTRIAL LUBRICANTS AND SPECIALITY OILS

• RUST PREVENTIVE OILS

| NAME | DESCRIPTION | PACKING |
|-------------------|---|-----------------|
| GRODAL RPSB 101C | DEWATERING TYPE RUST PREVENTIVE WHICH PROVIDES EXCELLENT RUST PROTECTION FLIM, LONG TERM PROTECTION | 30LTR – 210 LTR |
| GRODAL RPSB 101 M | LOW VISCOSITY DEWATERING RUST PREVENTIVE FOR TEMPORARY PROTECTION | 30LTR – 210LTR |
| GRODAL 106 P | PREMIUM QUALITY, DEWATERING RUST PREVENTIVE LEAVES OILY FLIM ON COMPONETS | 30LTR – 210LTR |

| | | |
|-------------------------------|--|--------------------|
| GRODAL 106 H | HIGH QUALITY, DEWATERING RUST PREVENTIVE WHICH PROVIDES EXCELLENT CORROSION INHIBITION FILM. THICK OILY FOR HIGH PROTECTION | 30LTR – 210 LTR |
| GRODAL RPOB 10 | HIGH QUALITY OLD BASED, RUST PREVENTIVE OIL, PROVIDES EXCELLENT CORROSION INHIBITION FILM. LONG LASTING PROTECTION UPTO 1 YEAR | 30LTR – 210LTR |
| GRODAL RPWB 100/200/300 | EXCELLENT RUST/CORROSION POTECTIVE AND IS NITRATE FREE, WATER SOLUBLE RUST PREVENTIVE LONGER SUMP LIFE. | 30LTR – 210LTR |
| GRODAL RPOB 20 | OIL BASED THICK RUST PREVENTIVE FOR METAL SHEETS | 30LTR – 210LTR |

| | | |
|---|--|---------------------|
| GRODAL SYNCUT1/ 2 | GREEN COLOR, SYNTHETIC CUTTING OIL MAINLY FOR GRINDING OPERATIONS | 30LTR – 210LTR |
| GRODAL SSCUT 10/20/30 | SEMI SYNTHETIC CUTTING COOLENTS FOR MACHNING , GRINDING ETC. OPERATIONS. EXCELLENT SURFACE FINISH | 30LTR – 210 LTR |
| GRODAL STAR CAST | LOW OIL CONCENTRATIO N SEMI – SYNTHETIC CUTTING OIL | 30LTR – 210LTR |
| TODAL SOL 133 | HIGH LUBRICITY WORKING FLUID FOR BRASS AND COPPER METAL | 30LTR – 210 LTR |
| GRODAL STCUT 13/15/22/32/ 46/100 | NEAT CUTTING OILS FOR MACHNING, THREADING AND GRINDING OPERATIONS | 210LTR |
| GRODAL STCUTMIL L22 | CHLORING FREE, INACTIVE SULOHR TYPE, HIGH PERFORMANCE NEAT CUTTING OIL DESIGN FOR MACHNING ON HARD METALS. CAN BE USED FOR FERROUS AND NON FERROUS METLS | 30 LTR – 210 LTR |

CUTTING OIL/ COOLENTS

| NAME | DESCRIPTION | PACKING |
|--------------------|---|-------------------|
| GRODAL CUTSOL D | SOLUBLE CUTTING OIL FOR 300 PPM HARD WATER AND FOR GENERAL PURPOSE MACHNING OPERATION | 30LTR - 210LTR |

HYDRAULIC OILS

1. GRODAL HYDRA

| | | | | | |
|-------|-----|-----|-----|-----|-----|
| GRADE | 12 | 22 | 32 | 46 | 68 |
| | 100 | 150 | 220 | 320 | 460 |

ISO – VG HYDRAULIC OILS WITH ANTI – OXIDANT, ANTI RUST AND ANTI WEAR ADDITIVES BASED ON ZINC

2. GRODAL HYDRA AW

| | | | | | |
|-------|-----|-----|-----|-----|-----|
| GRADE | 12 | 22 | 32 | 46 | 68 |
| | 100 | 150 | 220 | 320 | 460 |

THESE OILS ARE FORMULATED WITH ADDITIVES OF ANTI WEAR AND RECOMMENDED FOR USE IN HYDROLIC SYSTEMS, MACHINE TOOLS AND GEAR BOXES

3. GRODAL HYDRA SC

| | | |
|-------|----|----|
| GRADE | 46 | 48 |
|-------|----|----|

ISO – VG HYDRAULIC SUPER CLEAN OIL HAVING NAS NO IS 6 WITH ANTI RUST, ANTI OXIDANT, AND ANTI WEAR ADDITIVES BASED ON ZINC.

4. GENERAL LUBE

| | | | | | |
|-------|-----|-----|-----|-----|-----|
| GRADE | 12 | 22 | 32 | 46 | 68 |
| | 100 | 150 | 220 | 320 | 460 |

5. GRODAL SPINDLE AND CIRCULATING OIL

| | | | | | |
|-------|-----|-----|-----|-----|-----|
| GRADE | 12 | 22 | 32 | 46 | 68 |
| | 100 | 150 | 220 | 320 | 460 |

6. GRODAL WAY

| | | |
|-------|----|----|
| GRADE | 46 | 48 |
|-------|----|----|

GOOD ADHESION TO PREVENT SLIDE AND SLIP MOTION AND RECOMMENDED FOR SLIDEWAY OF MACHINE TOOLS

• GEAR OIL

1. GRODAL GEAR

| | | |
|-------|----|-----|
| GRADE | 90 | 140 |
|-------|----|-----|

INDUSTRIAL GEAR OIL WITH SAE VISCOSITY.

2. GRODAL GEAR

| | | | | | | |
|-------|----|-----|-----|-----|-----|-----|
| GRADE | 68 | 100 | 150 | 220 | 320 | 460 |
|-------|----|-----|-----|-----|-----|-----|

INDUSTRIAL GEAR OIL WITH ISO VISCOSITY. HEAVY DUTY MULTIPURPOSE GEAR OIL WHERE API GL 4 IS RECOMMENDED.

VANISHING AND DEEP DRAWING OILS

| NAME | DESCRIPTION | PACKING |
|-----------------|--|---------|
| GRODAL ALSB 107 | VANISHING OIL FOR PUNHING AND EXPANDING OF ALUMINIUM WITH CORROSION PROTECTION | 210 LTR |
| GRODAL CUSB 107 | VANISHING OIL FOR COPPER WITH CORROSION PROTECTION | 210 LTR |

INDUSTRIAL
LUBRICANTS
& SPECIALITY OILS

| | | |
|---------------|--|---------|
| GRODAL DE 120 | IT IS DESIGNED FOR DRAWING AND DEEP DRAWING OF FERROUS AND NON FERROUS METAL | 210 LTR |
| GRODAL DE 161 | IT IS DESIGNED FOR DEEP DRAWING OF STEEL WITH ANTI RUST PROPERTY. | 210 LTR |
| GRODAL DE 600 | IT IS DESIGNED FOR DEEP DRAWING FLUID DESIGN FOR FERROUS METAL | 210 LTR |

| | | |
|-------------------|--|------------------|
| | CORROSION PROTECTION. | |
| GRODAL RAPID SALT | IT IS ADDITIVE FOR WATER QUENCHING SYSTEMS THAT ELIMINATES SOFT SPOTS WHICH OCCUR NORMALLY IN WATER. WIDE CONCENTRATION RANGE CONTROL. | 25KG – 50KG BAGS |

EDM OIL

ELECTRIC DISCHARGE MACHINE OIL AVAILABLE IN 210 LTR DRUM AND 30 LTR PACKING

COOPER TUBE DRAWING FLUIDS

| | | |
|----------------|--|------------------|
| GRODAL TUB 300 | THESE SYNTHETIC OILS ARE SPECIFICALLY DESIGNED FOR DRAWING OF COPPER PIPES. THEY ARE ALSO SUITABLE FOR INNER DRAWING AND ARE FREE FROM MINERAL OILS, SULPHUR CHLORINATED ESTERS. | 30LTR AND 210LTR |
|----------------|--|------------------|

HEAT TREATMENT OILS AND LUBS

| NAME | DESCRIPTION | PACKING |
|--------------------------|---|--------------------|
| GRODAL TERMQUENCH S/M/F | IT'S A QUENCH OIL MADE FROM REFINED PETROLEUM OIL OF HIGH FLASH AND LOW VOLATILITY. HIGH OXIDATION STABILITY. SLOW/MEDIUM/FAST RATE OF COOLING. | 30LTR AND 210 LTR |
| GRODAL POLY QUENCH 10/12 | IT IS A WATER SOLUBLE POLYMER QUENCHANT FOR USE IN INDUCTION AND FLAME HARDNING, SAFE, NO FIRE HAZARD AND GOOD | 30 LTR AND 210 LTR |