







INA-GL Pvt. Ltd. was established in 1995 to engage in the distribution of various types of industrial tools and equipment, supplying high quality products to esteemed well established companies across India. With 5 years of experience, catering to the world, exporting to other countries in the Middle East, South East Asia & Austria. INA-GL takes pride as one of the leading Engineering products Supplier Company in India, providing expertise with our team through knowledge, delivering an unmatched service to ever demanding engineering industry. Our main goal is to develop good business relationships with our clients, with that, our products are competitively priced and to assist them even further an after service department consisting of a highly qualified technical team will be providing them world class support.



# CERTIFICATION



ISO 9001:2015 QMS-XX-XV-I-IX-1876



ISO 14001:2015 EMS-XX-XVII-VI-1023







### MISSION

To provide quality products at a price that reflects true value along with unparalleled support services by highly trained and well-motivated work force meeting customer expectations and requirements

### **VISION**

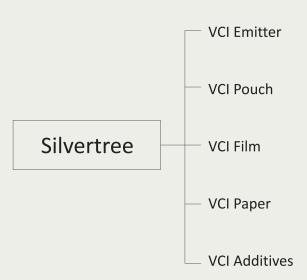
To be the first brand to be greatly admired for its high-quality products, reliable performance and best services in terms of global distinction. Our mission and vision statement consists of the following values. Providing wide range of environmentally friendly VCI (Vapour Corrosion Inhibitor) products Providing high quality products Automotive and industrial lubricants as per international standards at competitive price and offers best after sale service







# **VCI FOR PACKAGING & PROTECTION**



# **VCI FOR PRESERVATION & MAINTENANCE**









# Silvertree TOTAL CORROSION & PACKAGING SOLUTIONS



Silvertree has always been central to its mission and customer satisfaction is its primary goal.

















# **VCI Products**

Products manufactured by Silvertree are broadly classified into different categories:

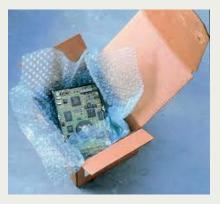
- Rustopaper: Kraft, Poly Coated, HDPE Fabric Laminated Products
- Rustopowder, Rustopowder Tablets, Desiccants / Dehumidifier
- Rust Preventive Oils & Rustojel
- ▶ Rustofilm in Tubes, Sheets and Covers
- ▶ Bio-degradable Synthetic Paper in Rolls, Sheets & Covers
- Rustopliq Water Based Rust Preventive Liquids
- Rust Convertor & Metal Cleaners
- VCI Stretch Film
- VCI Bubble Sheets
- VCI Shrink Film

# **Non-VCI Packaging Solutions**

Silvertreeis also specialised in producing and exporting various polymer / plastic packaging materials of PP / HDPE such as Cement Bags, Jumbo Bags, Fibre Bags, Sling Bags, Ore Bags, PP Container Bags, etc. used in many industries. With excellent Quality Assurance System and advanced testing equipment, we manufacture the products strictly according to National and European Standards.

- ► HDPE Fabric upto 3000 mm, without joint from 110 gsm onwards
- ▶ LDPE Film in Tubes, Sheets, Rolls.
- Stretch film
- Shrink Film
- ► Fire Retardant Poly Products
- Anti Static Film
- ▶ Bubble Sheet









# **Corrosion Solutions Provider**

We undertake a complete turnkey service as a Corrosion Solutions Provider right from processing the raw material to the stage of final dispatch.

Our service comprises in three stages:

**Corrosion Audit** 

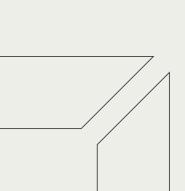
- ▶ Diagnosing and understanding present corrosion related problems
- Suggesting complete rust prevention solution and rationalisation of rust preventive products/ system
- ▶ Helping to implement the same
- Reviewing the implementation periodically

**Corrosion Treatment** 

Storage and Despatch

# **Research and Technology**

Research and Development is an integral part of the INA-GL Pvt. Ltd., with a panel of distinguished scientists and technologists, along with a fully equipped & dedicated Research & Development laboratory.



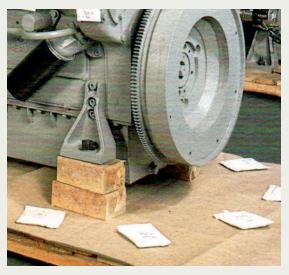




# DESICCANTS



Eco-friendly, non-toxic products like atmospheric conditioners and clay-based dehumidifiers figure prominently amongst products that form an integral part of the Silvertree Packaging System.











SL Seaworthy Packaging System demonstrates how innovation need never stop.

By utilising the inherent strength of SL Organic Vapour Corrosion inhibitor's (SLVCI) in the form of packing material, rust-preventive oils, water-based liquids, gels, desiccants and tablets, this system ensures corrosion-free delivery of high-value engineering components to overseas destinations. Operating at two levels of protection, the system provides a superior barrier material on the outside while conditioning the entrapped atmosphere inside the packing.







- Economical and effective packaging
- Airtight and waterproof packaging
- Savings by eliminating the need for vacuum packaging
- Packaging of merchandise in any shape or size is possible
- ▶ Potential of reuse and recycling
- ▶ 6months to 10 year protection



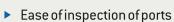




Customs authorities at sea-ports are frequently required to open consignments for a through inspection. Subsequently, if the package is not appropriately sealed, moisture and contaminants are likely to damage the contents. To address this potential problem, SL has introduced a Transparent Seaworthy Packaging System. This facilities an easy view of the package contents, without the risk of damage.

A transparent barrier material enables a quick view of the packed contents without having to undo the package. This solution oriented SL Packaging System has SLVCI Rustofilm as the inner cover and normal LDPE film as the outer cover. Both covers are made of virgin-grade LDPE granules. Silvertree Rustopowder and Silvertree Dehumidifier, placed between the covers, further reduce the level of moisture ingress and protect contents from corrosion.





- ► A double-layered robust system
- Heat-seatable and water-proof package
- 8 to 10 months protection
- Cost effective packaging solution
- Reusable packaging material







Large, unwieldy shipments such as power plants, turbines or heavy machinery that don't fit into shipping containers, travel on the open deck. The SL Open Deck Seaworthy Packaging was conceived to protect such over-sized consignments from the forces of nature, including destructive sea-water splashes. Three layers of barrier materials with an adequate quantity of desiccants for rustprevention and dehumidification minimise moisture condensation inside such large shipments. The outermost layer of this compound package loops to fasten nylon ropes. Nylon ropes along the exterior not only bolster the package but prevent package ballooning due to wind velocity.







- ▶ 360° protection to large shipments
- ► Triple-layered barrier material to sufficiently protect packages.
- Non-toxic, recyclable materials
- Protection to multiple metals
- Compound packages that are easy to dispose of
- ► Cost reduction to the tune of 25-30%







Conventional packaging methods, employed by steel mills to pack MS and GI coils or sheets, are both ineffective and expensive. The use of polythene strips or Hessian cloth, allowing moisture and air to reach the metal surface, eventually leading to corrosion.

superior protection provided by SL Steel Coil packaging system ensures factory fresh condition of coils when delivered to the end user. In addition, this system works out to be much more economical than conventional methods.

SILVERTREE presents a state-of-the-art solution specifically for packaging steel coils. In place of polythene strips, a sheet of multi-layered SLVCI chemical-treated paper is wrapped around the coil as the primary packing material. Based on the product and its destination, a secondary application of edge guard, strapping and metal foil packing may follow. The

SILVERTREE has successfully used this system for about 18 years, when we introduced it to overcome the rusting problem faced by automobile manufactures. Offered then for the first time ever across the globe, SL Steels Coils packaging system has stood the test of time as a pioneering zero defect system.





- ► This method of single sheet wrapping:
  - Minimises metal exposure to moisture
  - Reduces packaging material requirement by 30%
  - Offers major savings in cost owing to the use of lesser material and the ease of disposal
- Anti-corrosive treatment furthermore cures entrapped atmosphere
- Zero-rejection is assured
- ▶ No specialised skills or tools are required.







### **RUSTOFILM**

A co-extruded SLVCI polyethylene film protects Ferrous & Non-Ferrous materials against corrosion.

### **Special Features**

- Dry method to protect and prevent the rust from intruding into the metal
- Recessed areas and interior cavities of the metals are also protected through unique SLVCI ionic action.
- Heat sealable
- Also available in yellow & blue colour
- Available as bags, gusseted bags, tubing and sheeting

In combination with extra barrier material covers like LDPE/HDPE fabric, SLVCI Rustofilm offers an excellent Transparent Seaworthy Packaging System at an economical cost.



### **Special Features**

- Dry protection to metal
- ▶ Also protects recessed areas and interior cavities of the metal parts
- ▶ No residual film or layer on the metal surface due to contact with these products
- Protection during storage as well as transit in severe saline atmosphere as per requirement
- ▶ Protection duration between 6-24 months if required in ambient atmospheric conditions

### Biodegradable Synthetic Paper#

Biodegradable Synthetic Paper from Suprabha has almost all the combined properties of Paper and Plastic. Ordinary LDPE film can allow transmission of moisture (Breathing Phenomenon) which may cause corrosion of the packed item. Suprabha Synthetic Paper due to its unique co-extrusion manufacturing process, and SVCI additives, does not allow moisture molecules to transgress thereby preventing corrosion.

They are ideally suited for overwrapping as well as packaging of semifinished /finished Ferrous, Aluminium, Aluminium Alloy and certain Non-Ferrous metal components.

(Since a field of SLVCI is created inside the package filling up the entire volume, the package can also be a loose fit.)



- Replenishing action of SLVCI vapours ensures protection of the component even if the package is
- punctured or torn Keeps the packed items in factory fresh condition, and ready-to-use
- on delivery Does not contain heavy chemicals like silicones, nitrites, chlorides,
- chromates, phosphates, etc. Products are reusable and recyclable







SILVERTREE Vapour Corrosion Inhibitors or SLVCI protect both Ferrous as well as Non-Ferrous metals from corrosion, SLVCI protection can be administered to metal components through elements of packaging and preservation. Paper is one of the principal elements used in packaging.

Special SLVCI impregnated papers have been developed by SILVERTREE for packaging of metal components. These are plain kraft, polycoated, and multilayered products, ideally suited for overwrapping as well as packaging of semifinished or finished metal components. Suitable for Ferrous, Aluminium, Aluminium Alloy components and or Non-Ferrous metal components such as those made from Copper or Brass. The multilayered sheets are woven HDPE fabric laminated, having adequate strength and waterproofing properties. These sheets when used as protective covers provide moisture-resistant and tear resistant protection to the packed items.

(Since a field of SLVCI is created inside the package filling up the entire volume, the package can also be a loose fit.)



### **Special Features**

- Dry method to protect and prevent moisture and pollutants from attacking the metal
- ▶ Inaccessible areas and microscopic cavities in the metal surface are also protected through unique SLVCI ionic action
- On contact with the metal, the SLVCI paper does not leave any residual film or layer
- SLVCI vapours treat the entrapped atmosphere / moisture inside the package
- Even if the SLVCI layer is disturbed due to opening of the enclosed space, the protective layer gets replenished by the continuous vapourisation of the SLVCI chemicals
- The SLVCI action keeps the packed items factory fresh and in a ready-touse condition till they reach their destination
- ▶ Need-specific protection against rust during storage as well as transit
- Protection in ambient atmospheric conditions of durations between 6 and 24 months or even more if required
- ► Eco-friendly, environmentally safe, and economical
- ► Conform to IS 6263 specifications
- ▶ Does not contain heavy chemicals like silicones, nitrites, chlorides, chromates, phosphates, etc.









# Silvo LUBRICANTS

**ENGINE OILS** 

SYNTHETIC ENGINE OILS

GEAR TRANSMISSION OIL

— COOLANTS

DIESEL EXHAUST FLUID

BRAKE FLUID

**AUTOMOTIVE GREASES** 

**INDUSTRIAL OILS** 

**INDUSTRIAL GREASES** 

SPECIALITY LUBRICANTS

















# STUBBORN LUBRICANTS FOR TOUGH APPLICATIONS



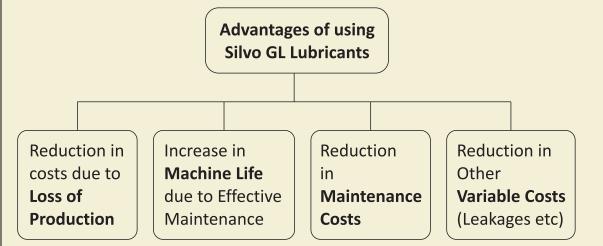




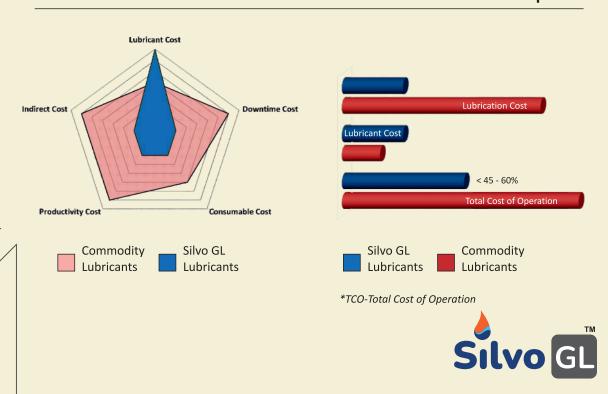
# Silvo GL Lubricants Advantages



45% - 60% TCO. Reduction



## Silvo GL Framework For Reduction in Total Cost of Ownership





# Provide Lubrication Solution that Customers Rely On





### Who are we

Through the high performance speciality lubricants combined with expertise and skill of our industry consultants, we provide sustainable value to our customers..

Competing globally with the giants of the Lubrication world, Silvo GL is proud of its 100% Indian Origin. Our team consists of experts in Product Chemistry and Industry Verticals apart from Geographically focused team members. Thanks to our systematic Quadra Approach that guides us to develop a perfect lubrication solution that can smoothen out all the roughs without creating avoidable friction to other operations.









Safety

Consumption

**Productivity** 

**Utilization** 

Its about bringing Competitive Advantage to our customers







**Customized, Effective, High Performance Products** 

**Superior, Cost Effective, Green Solutions** 

**Most Advanced R&D Facilities** 

**STRONG Customer Collaborations** 























# 50% - 70% Equipment Failures are related to Improper Lubricant condition

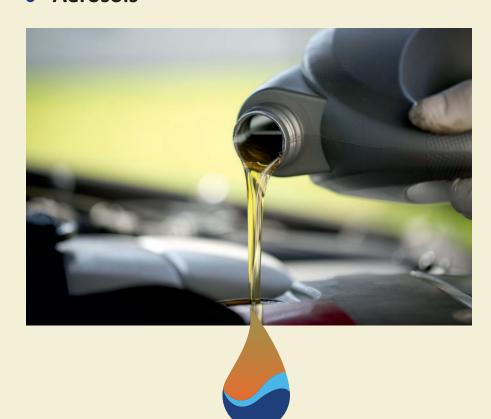
- High Up-front Investment in Plant Machinery
- Mission-Critical Components for Producing Goods
- **Each Machine having Unique Lubrication Needs**
- Fluctuating Operating Environments (Pressure, Temperature, Speed etc.)
- Any Breakage causes immediate Production Stoppage







- **Lubricating Greases**
- Lubricating Oils
- Antifriction Coatings
- Corrosion Management Products (Rust Preventives, Cleaners etc.)
- **Antiseize Compounds**
- Aerosols









# The unit has state of art facilities for the following line of manufacturing:

- ♦ Grease Manufacturing
- Oil Blending
- Aerosol Manufacturing
- Corrosion Preventive Formulations & Cleaners etc.
- Other allied products such as Emulsions, Coatings, Metal Working Fluids etc















# For Your Machinery







### **Rust Preventive Oils**

It is important to undertake the necessary preventive steps before rust promoting nuclei infiltrate into your metal components. Silvo-GL offers both, film forming and non film forming rust preventive oils.

### Antioxidegel

Silvo-GL Antioxidegel is a ready-to-use petroleum jelly based rust preventive gel. Upon application a tenacious film is created on the machined surface. The vapours released by chemicals create a protective vapour barrier that keeps corrosion promoting agents like moisture and oxygen away. Ideal to use on partly machined large castings received from vendors, fabricated items, welded joints etc

# Advantages of SLVCI Rust Preventive Oils over traditional Rust Preventive Oils

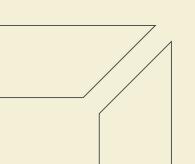
Traditional Rust Preventive Oils work on the principle of Contact Inhibition. If the oil film is disturbed in handling, the exposed area catches rust, which subsequently spreads to the areas beneath the oil layer.

SLVCI Rust Preventive oils work on the principle of both Contact and Vapour Corrosion Inhibitions. As a Contact Inhibitor, they form a film on the metal surface, forming an effective barrier between the metal surface and the atmosphere. The SLVCI chemicals blended in the oil release continuous vapours into the air over the oil. In case the oil film is disturbed in handling, the vapours released by the chemicals from the neighboring areas create a vapour barrier, thus protecting the metal surface. The vapours also migrate to the recessed areas of the component, where physical application of oil is not possible.

Silvo-GL also offers a special SLVCI concentrate for oils. Most suitable for use with hydraulic oils, gear oils, lubricating oils and also MTO & kerosene. To be used at 0.25% to 1.0% concentration

### **Special Features**

- Protection to Ferrous and Non-Ferrous metals except brass and cadmium
- Special properties to neutralise acid in the atmosphere or transferred by the finger prints on to the metal surface
- De-watering properties to de-bond the water from the wet surface of the component
- Non-hazardous, eco-friendly and environmentally safe
- Non-toxic and mild fragrance makes it ideal for in-plant use
- Conforms to IS-1674 specifications
- Provides protection to Ferrous as well as Non-Ferrous metals
- Even in adverse conditions of 100% Relative Humidity, the recessed areas of the metal surface are also properly protected
- Protection from rust during storage, both indoor as well as outdoor
- Economical and easy to use
- Protected areas of the component do not require cleaning/degreasing while assembling, thereby saving time and effort
- Easy to clean using common degreasers if necessary
- Components when additionally wrapped in SILVERTREE Antioxidepaper can offer longer period of protection











PRODUCT	PRODUCT
ACETALDEHYDE 99+% (00071)	AESCULIN 98%
ACETALDEHYDE 99+% (8.00004)	AGAROSE TYPE IV (A3643)
ACETALDEHYDE DIETHYL ACETAL 99% (A13701)	AGAROSE TYPE II MEDIUM EEO (A6877)
ACETO ACETANILIDE	AGAROSE ELECTROPHORESIS (33006)
ACETONITRILE 99.9+% HPLC GRADIENT GRADE (34851)	AGAROSE PURE
ACETONITRILE 99.9+% AMD CHROMASOLV (34896)	AGAROSE ULTRAPURE FOR ELECTROPHORESIS (5510UA)
ACETONYL ACETONE 97+% (B25686)	BETA-ALANINE 99% (1008)
ACETYL CARNITINE HYDROCHLORIDE 99%	BETA-ALANINE 99%
ACETYL CHOLINE CHLORIDE 99%	DL-ALANINE 99%
ACETYL CHOLINE IODIDE 98% (A11694)	L-ALANINE 98+% (A7627)
O-ACETYL CHOLINE PERCHLORATE 98% (44003 2G)	L (+)-ALANINE 99% FOR BIOCHEMISTRY (1007)
N-ACETYL L-CYSTEINE 99%	L-ALANINE 99% PURISS CHR
N-ACETYLIMIDAZOLE 98% (L00137)	L-ALANINE 99%
ACETYLTHIOCHOLINE IODIDE 99+% (01480)	L-ALANYL-B-NAPHTHYLAMIDE PURE
ACID FUCHSIN	ALBUMINE BOVINE (A1099)
cis-ACOTINIC ANHYDRIDE (217808)	ALBUMINE BOVINE 96+% (A4503)
ACRIDINE ORANGE (A6529)	ALCIAN BLUE 8 GX (A5268)
ACRIDINE ORANGE FOR MICROSCOPY (01660)	ALCIAN BLUE 8 GX
ACRIDINE ORANGE	D-ALDOSTERONE 85+% (A6628)
ACRYLAMIDE 99%	ALGINIC ACID (05550)
ACTIDIONE 99% (C8855)	ALGINIC ACID SODIUM SALT (63944)
ADENINE 99%	ALIQUAT 336
ADENIN+E SULFATE 99%	ALIZARIN CYANINE GREEN
ADENOSINE 5-DIPHOSPHATE (A0127)	ALIZARIN RED S (A5533)
ADONITOL 99+% (A5502)	ALIZARIN RED S (13005)
ADONITOL 99+% (02240)	ALIZARIN YELLOW 2G INDICATOR (32603)
ADONITOL 99+% (38002)	ALIZARIN YELLOW GG INDICATOR
ADONITOL 99+%	ALKALI BLUE 6B





PRODUCT	PRODUCT
ALLANTOIN 98.9+%	AMMONIUM (META)TUNGSTATE HYDRATE (14328)
ALLOXAN TETRAHYDRATE 99% (64333)	AMMONIUM METAVANADATE 98%
ALLOXANALLYL CHLORIDE (27059)	AMMONIUM MOLYBDATE 98%
ALUM CARMINE (22869)	AMMONIUM MONOVANADATE 99% GR (1226)
ALUMINIUM SULFATE-18-HYDRATE (11044)	AMMONIUM PERRHENATE 99%
AMBERLITE IR 45	AMMONIUM PHOSPHATE DIBASIC 99% AR (30402)
AMBERLITE IRA 410AMBERLITE MB1 (55007 LV)	AMMONIUM PHOSPHOMOLYBDATE
AMBERLITE MB3 (A7518)	AMMONIUM PURPURATE AR
AMIDO BLACK 10 B ELECTROPHORESIS 80% (1167)	AMMONIUM REINICKATE 96% (7552)
AMIDO BLACK 10 B	AMMONIUM SULFAMATE 99+% (09960)
4-AMINO ANTIPYRINE 99%	AMMONIUM SULFATE SPECPURE
4-AMINO BENZOIC ACID 99+% (15141)	ANILINE BLUE WATER SOLUBLE FOR MICROSCOPY (32703)
4-AMINO BENZOIC ACID 99%	ANISOLE (A4405)
4-AMINO N-BUTYRIC ACID (0397520)	ANTHRACENE TECHNICAL (26017)
4-AMINO N-BUTYRIC ACID (37012)	ANTHRONE 98%
2-AMINO 5-CHLORO BENZOPHENONE	ANTIMONY (V) CHLORIDE 99% (11111)
2-AMINO ETHANOL 99+% (15014)	ANTIMONY POTASSIUM TARTRATE PURRIS AR
2-AMINO ETHYL ISOTHIOURONIUM BROMIDE HBR (A5879)	ANTIMONY TELLURIDE
2-AMINO 4-METHYL PHENOL 98% (821675)	ANTIMONY TRICHLORIDE GR (7838)
2-AMINO 2-METHYL 1,3-PROPANDIOL 98% (801464)	D-ARABINOSE 99%
2-AMINO 3-METHYL PYRIDINE 95+% (A75633)	L (+) ARABINOSE 99+% (A3256)
1-AMINO 2-NAPHTHOL 4-SULFONIC ACID 98%	L-ARABINOSE 99%
AMINO PHYLLINE	ARACHIDIC ACID 99+% (A3631)
3-AMINO 1-PROPANOL 99% (A76400)	L-ARGININE 99% (1542)
AMMONIUM BISMUTH CITRATE-10-HYDRATE (10301)	L-ARGININEL-ARGININE 99%
AMMONIUM CERIC SULFATE DIHYDRATE 99% GR (2273)	L-ARGININE HYDROCHLORIDE 99%
AMMONIUM FLUORIDE 95+% TECHNICAL (01105)	ARGININO SUCCINIC ACID BARIUM SALT (A6006)
AMMONIUM HYDROGEN FLUORIDE 98% (01207)	ARSENIC TRIOXIDE 99.8% AR





PRODUCT	PRODUCT
ARSENAZO I AR	BATHOCUPROIN 99%
ASCORBYL PALMITATE	BATHOPHENANTHROLINE 99% AR
L-ASPARAGINE 98+% (A0884)	BENTONITE (B3378)
L-ASPARAGINE MONOHYDRATE 99%	BENZALKONIUM CHLORIDE 98.7% (12060)
DL-ASPARTIC ACID 99+% (A9131)	BENZALKONIUM CHLORIDE 50% (B20760)
DL-ASPARTIC ACID 98.5%	BENZALKONIUM CHLORIDE 50%
CHROMATOGRAPHICALLY HOMOGENEOUS (37021)	BENZALKONIUM CHLORIDE 95%
DL-ASPARTIC ACID 99%	BENZ (B) ANTHRACENE 97+% (12093)
L-ASPARTIC ACID 98+% (A9256)	BENZENE D6 NMR SPECTROSCOPY 99.5% (1789)
L-ASPARTIC ACID 99%	BENZENE SPECTROSCOPY 99.8% (1779)
AURAMINE O (28003)	BENZETHONIUM CHLORIDE 99%
AURAMINE O	BENZHYDROL 98%
2-AZACYCLO OCTANONE (A 9463-8)	BENZIDINE DIHYDROCHLORIDE
AZOBIS ISOBUTYRONITRILE	BENZIDINE SULFATE AR
AZOCARMINE G	BENZIMIDAZOLE (B9131)
AZOCARMINE GFM	BENZOGUANAMINE
AZOLITMIN (1597)	BENZONITRILE 99% (60049)
AZOMETHIN H MONOSODIUM SALT HYDRATE AR (11635)	BENZO F QUINOLINE GR (6216)
AZUR II (67295)	a-N-BENZOYL L-ARGININE 99+% (12870)
AZUR II (34006)	N-BENZYL METHYLAMINE
AZUR IIBARIUM CHLORANILATE 98.5%	5-BENZYLOXYGRAMINE 98% (B27609)
ARBARIUM CHROMATE 98+% PURE (12208)	BERYLLIUM OXIDE ANHYDROUS 98% (1825)
BARIUM DIPHENYLAMINE SULPHONATE (20008)	BES BUFFER 99%
BARIUM DIPHENYLAMINE SULPHONATE 98% AR	BILIRUBIN 99.8% AR
BARIUM HEXAFLUORO SILICATE	BIOTIN 99%
BARIUM PERCHLORATE ANHYDROUS	2-BIPHENYL CARBOXYLIC ACID 98%2,
BARIUM PERCHLORATE HYDRATED REAGENT	2-BIPYRIDYL 99% AR
BARIUM TITANATE	BIS BENZIMIDE H 33258 98+% (14530)





PRODUCT	PRODUCT
BIS (BENZONITRILE) PALLADIUM (II) CHLORIDE (20.790.32)	2,3-DIMETHYL SUCCINIC ACID
BIS CYCLOHEXANONE OXALYL DIHYDRAZONE 99% AR	DIMETHYL SULFIDE 99+% (41625/471577)
BIS-2-ETHYL HEXYL SEBACATE (84820)	DIMIDIUM BROMIDE 99%
BISMUTH GRANULAR	DIMIDIUM BROMIDE DISULPHINE BLUE (19189)
BISMUTH SUBNITRATE	3,5-DINITRO BENZOIC ACID 98+% (41950)
N-O-BIS TRIMETHYLSILYL ACETAMIDE 95+% (128910)	3,5-DINITRO BENZOIC ACID
N,N-DIMETHYLACETAMIDE 99.8+% HPLC (38842)	3,5-DINITRO BENZOIC ACID 99%
DIMETHYL ACETYLENEDICARBOXYLATE 99% (D138401)	2,4-DINITRO PHENYL HYDRAZINE AR
DIMETHYLAMINE HYDROCHLORIDE 99% (126365)	2,4-DINITRO PHENYL HYDRAZINE
P-DIMETHYL AMINO BENZYLIDENE RHODANINE	2,4-DINITRO TOLUENE 99%
4-DIMETHYL AMINO CINNAMALDEHYDE 99%	DINOCAP TECHNICAL PESTANAL (45452)
2-DIMETHYL AMINO ETHANOL 99+% (15448)	1,3-DIOXOLANE 99% (14292)
DIMETHYL AMINO PHENYL AZO-P-ARSENIC ACID	DIPHENHYDRAMINE HYDROCHLORIDE
DI-[4-(DIMETHYLAMINO)PHENYL] METHANE (13127)	DIPHENYL BENZIDINE 99%
3-(DIMETHYLAMINO)-1-PROPANOL 98% (3643)	DIPHENYL CARBAZIDE 98% AR (33152)
4-DIMETHYL AMINOPYRIDINE 99%	DIPHENYL CARBAZIDE 98% AR
DIMETHYL BENZENE SULFONIC ACID	DIPHENYL CARBAZONE AR (33153)
N,N-DIMETHYL BENZIDINE	2,2-DIPHENYLGLYCINE 98% (B22650)
5,6-DIMETHYL BENZIMIDAZOLE 99+%	DIPHENYL GLYOXIME
DIMETHYL CARBONATE 99% (62527)	DIPHENYL HYDANTOIN
N,N-DIMETHYLCYCLOHEXYLAMINE 99+% (40070)	2,5-DIPHENYLOXAZOLE SCINTILLATION GRADE (PPO) 99%
DIMETHYL FORMAMIDE UV SPECTROPHOTOMETRIC	2,2-DIPHENYL 1-PICRYLHYDRAZYL (D9132)
DIMETHYL METHYLMALONATE 99% (340286)	2,3-DIPHOSPHOGLYCERIC ACID (D6006)
N,N-DIMETHYL 1-NAPHTHYLAMINE 99% (36438)	DIPICRYLAMINE
N,N-DIMETHYL OCTYLAMINE (225295000)	2,2-DIPYRIDYL 99% AR
N,N-DIMETHYL P-PHENYLENE DIAMINE OXALATE 99%	DISODIUM PHENYL O-PHOSPHATE
DIMETHYL POLYSILOXANE DMPS-V	DISULPHINE BLUE
DIMETHYL POPOP 98% (P3879)	5,5-DITHIOBIS 2-NITROBENZOIC ACID 99+%





PRODUCT	PRODUCT
DITHIOERYTHRITOL (DTE) 99%	ESTRONE (8966)
DITHIOOXAMIDE 98%	ETHIDIUM BROMIDEETHION PESTANAL (45477)
DL-DITHIOTHREITOL 99+% (D9779)	DL-ETHIONINE (E0751)
DITHIOTHREITOL (DTT) 99%	2-ETHOXYBENZAMIDE 98% (800122)
DOCUSET SODIUM (D1685)	ETHYL BENZENE 99% (L05908)
DODECYL ACRYLATE (01786)	ETHYL BROMOACETATE 98+% (A10448)
DODECYLAMINE 98% (803527)	ETHYL CELLULOSE N 20
DL - D O P A 99%	N-ETHYL DIISOPROPYLAMINE 99% (A11801)
L-DOPA 99+%	ETHYL METHYL KETONEETHYL OLEATE 98%
DOTRIACONTANE 97%	4-ETHYL PYRIDINE 97+% PURE (04800)
DOWEX - 1 (1 X 4-400)	3-ETHYL PYRIDINE (231)
DOWEX 2-X8 AR (1909)	EUDRAGIT L-100
DULBECCO'S MODIFIED EAGLE'S MEDIUM (D5671)	EUDRAGIT RL- 100
DULCITOL (5990)	EUDRAGIT RL- PM
DULCITOL (2685370)	EUDRAGIT S-90
DULCITOLDURCUPAN - ACM (44610)	EUDRAGIT S-100
DIDYMIUM OXIDEDYSPROSIUM OXIDE 99.9%	EUROPIUM OXIDE 99.9%
EARLE'S BALANCED SALTS (E2888)	FAST RED GG SALT
N-EICOSYL TRICHLOROSILANE (S08600)	FAST VIOLET B SALT FOR MICROSCOPY (44780)
ELLMAN'S REAGENT 99+%	FERRIC HYDROGEN SULFATE SOLUTION
ENDOSULFAN ETHER PESTANAL (36673)	FERRIC PERCHLORATE HYDRATE (326348)
ENDOSULFAN SULFATE PESTANAL (36676)	FERROIN SOLUTION REDOX INDICATOR (34531)
EOSIN YELLOW MICRO	FERULIC ACID
EOSIN YELLOWDL-EPHEDRINE HYDROCHLORIDE (E2875)	FIBRINOGEN (BOVINE FRACTION) 85+% (F4000)
ERIOCHROME CYANINE AR (32752)	FISKE-SUBBAROW REDUCER (46345)
ERIOCHROME CYANINE RESCULINE 98%	FLUORESCEIN ISOTHIOCYANATE ISOMER (F1628)
17A-ESTRADIOL 98+% (E8750)	
17B-ESTRADIOL 17-HEMISUCCINATE (E9252)	





PRODUCT	PRODUCT
FLUORESCENT BRIGHTER 28 (C.I.No. 40622) (F6259)	B-GLUCURONIDASE (G0876)
1-FLUORO 2,4-DINITROBENZENE 99% (A11871)	L-GLUTAMIC ACID 99+%
5-FLUOROURACIL 99%FORMALDEHYDE 35% AR (33220)	DL-GLUTAMIC ACID
FORMIC ACID 98-100%	DL-GLUTAMIC ACID MONOHYDRATE CHR 99+% (49480)
3-FORMYL RIFAMYCIN SV (627)	DL-GLUTAMIC ACID MONOHYDRATE (37104)
D(-)-FRUCTOSE (15760)	L-GLUTAMIC DECARBOXYLASEL-GLUTAMINE 99+% (G3126)
D-FRUCTOSE	L-GLUTAMINE 99+% CELL CULTURE TESTED (G5763)
FUCHSIN ACID	L (+) GLUTAMINE 99+% (49420)
FUCHSIN BASIC	L-GLUTAMINE PURISS CHR
P-FUCHSIN HYDROCHLORIDEA-D (+) FUCOSE (F2127)	L-GLUTAMINE
FUMARIC ACID (8.00269.2500)	L-GLUTAMINE 99%
FUMARIC ACID POTASSIUM SALT (F5627)	GLUTATHIONE REDUCED 99%
FURFURYL ALCOHOL 97+% (48100)	GLYCINE CHR 99+% (50050)
GADOLINIUM OXIDE 99.99%	GLYCINE PURISS CHR
D-GALACTOSE 98%	GLYCINE 99%
GALLIUM (III) NITRATE HYDRATE 99.9% (289892)	GLYCOLIC ACID 70% (420603)
GENTAMICIN SULFATE SALT (G3632)	GLYCOLIC ACID 67% (L14980)
GENTION VIOLET B (1400)	GLYCYRRHETINIC ACID (4185)
GERMANIUM DIOXIDE EL. 99.999%	GLYOXAL 40% (15520)
GERMANIUM TETRACHLORIDE (48850)	GLYOXAL BIS 2-HYDROXYANIL 97% AR
GIEMSA'S STAIN	GLYOXYLIC ACID 50% (15580)
GIEMSA'S STAIN	GRAMS IODINE (34034)
D-(+)-GLUCORONIC ACID Y-LACTONE 99+% (851450)	GRAPHITE FINE POWDER (15553)
D-GLUCORONIC ACID SODIUM SALT 99%	GUANIDINE HYDROCHLORIDE 99% (60332)
D+GLUCOSAMINE HYDROCHLORIDE	GUANIDINE SULFATE SALT 97+% (51000)
D (+)-GLUCOSE ANHYDROUS (G5000)	GUANINE 99%
D-GLUCOSE ANHYDROUS MAR (0719220)	GUANINE HYDROCHLORIDE AR
GLUCOSE 1-PHOSPHATE POTASSIUM	GUANINE HYDROCHLORIDE 99%





PRODUCT	PRODUCT
GUANINE SULFATE AR	HYAMINE HYDROXIDE SOLUTION (M1756)
HATU 99+% FOR PEPTIDE SYNTHESIS	HYDRANAL -BUFFER ACID (34804)
HBTU 99+% FOR PEPTIDE SYNTHESIS	HYDRANAL -COMPOSITE 1 (34827)
HEMATOXYLIN FOR MICROSCOPY (H3136)	HYDRANAL -COMPOSITE 2 (34806)
HEMATOXYLIN FOR MICROSCOPY (51260)	HYDRANAL -COMPOSITE 5 (34805)
HEMATOXYLIN	HYDRANAL -COMPOSITE 5K (34816)
HEMATOXYLIN CERTIFIED STAIN	HYDRANAL -COULOMAT A (34807)
HEPES BUFFER 99%	HYDRANAL -COULOMAT AD (34810)
HEPTAFLUORO BUTYRIC ACID 99% (A14907)	HYDRANAL -COULOMAT AG (34836)
1-HEPTANE SULFONIC ACID SODIUM SALT 99% (15278 2J)	HYDRANAL -COULOMAT AG (34836)
HEPTENOPHOS PESTANAL (45523)	HYDRANAL -COULOMAT AG-H (34843)
HEXAMETHYLENE TETRAMINE 99.5+% AR	HYDRANAL -COULOMAT AG-OVEN (34739)
(33233)HEXANE 95+% (52780)	HYDRANAL -COULOMAT AF 7 (34829)
N-HEXANE 99+% ACS (32293)	HYDRANAL -COULOMAT AK (34820)
2,5-HEXANEDIONE 97+% (B25686)	HYDRANAL -COULOMAT C (34808)
1-HEXANESULFONIC ACID SODIUM SALT 99% (6097)	HYDRANAL -COULOMAT CG-K (34821)
HISTAMINE ACID PHOSPHATE	HYDRANAL -COULOMAT E (34726)H
DL-HISTIDINE 99%	YDRANAL -KETOSOLVER (34738)
L-HISTIDINE 99+% (53320)	HYDRANAL -MEDIUM K (34698)
L-HISTIDINE PURISS CHRL-HISTIDINE 99%	HYDRANAL -SOLVENT (34800)
L-HISTIDINE MONOHYDROCHLORIDE MONOHYDRATE 99%	HYDRANAL -TITRANT 5 (34801)
L-HISTIDINE MONOHYDROCHLORIDE MONOHYDRATE 99%	HYDRANAL -WATER STANDARD 0.1 (34847)
HISTOPAQUE -1077 (10771)	HYDRANAL -WATER STANDARD 1.0 (34828)
HOAT 99+%	HYDRANAL -WATER STANDARD 5.0 (34813)
HOBT ANHYDROUS 99+%	HYDRANAL -WATER STANDARD 10.0 (34849)
HOBT HYDRATE 99+%	HYDRAZINIUM DICHLORIDE PURE 99+% (4601)
HOLMIUM OXIDE 99.9%	HYDRINDANTIN 98%HYDRIODIC ACID 57%
HYAMINE 1622 99%	HYDROBROMIC ACID 48+% ACS (30209)





PRODUCT	PRODUCT
HYDROCORTISONE ALCOHOL	HYPOXANTHINE 99+% (H9377)
HYDROCORTISONE HYDROGEN SUCCINATE CRS	HYPOXANTHINE AR
4-HYDROXYACETANILIDE 99% (822325)	HYPOXANTHINE 99%
4-HYDROXYACETOPHENONE 98+% HPLC (54180)	IMIDAZOLE 99.5+% AR (56750)
4-HYDROXY BENZALDEHYDE (0841)	IMIDAZOLE 99%
HYDROXY ETHYL CELLULOSE	2-IMIDAZOLIDINETHION PESTANAL (45531)
3-HYDROXY FLAVONE	IMMERSION OIL FOR MICROSCOPY
4-HYDROXY ISOPHTHALIC ACID 99% HPLC (H0257)	INDANE-TRIONE HYDRATE REAGENT
HYDROXYLAMINE SULFATE GR (4617)	INDIGO CARMINE AR FOR MICROSCOPY (32667)
HYDROXYLAMINE SULFATE (28524)	INDIGO CARMINE (801300)
HYDROXYLAMMONIUM SULFATE GR (4617)	INDIGO CARMINE
HYDROXYLAMMONIUM SULFATE AR	3-INDOLE ACRYLIC ACID (I1625)
HYDROXY NAPHTHOL BLUE ACS	INOSINE 99%
HYDROXY NAPHTHOL BLUE	INOSINE 99%
17-A-HYDROXY PROGESTERONE 95+% (H5752)	INOSINIC ACID (INOSINE 5-PHOSPHONIC ACID) 99%
TRANS-4-HYDROXY L-PROLINE 99+% (56250)	INOSITOL 98% (38044)
L-HYDROXY PROLINE 99%	INOSITOL 99%
HYDROXY PROPYL CELLULOSE	INSOLUBLE ALCOHOL DEHYDROGENASE (A0761)
HYDROXY PROPYL BETA-CYCLODEXTRIN	INT 99%
HYDROXY PROPYL METHYL CELLULOSE 6CPS	INULIN (4733)
HYDROXY PROPYL METHYL CELLULOSE K4M	IODIC ACID AR (10134)
HYDROXY PROPYL METHYL CELLULOSE 15CPS	IODINE GREEN
HYDROXY PROPYL METHYL CELLULOSE	IODINE MONOCHLORIDE 98+% (03116)
2-HYDROXY PYRIDINE 1-OXIDE (HOPO) 98+% (56413)	IODINE TRICHLORIDE AR (10136)
8-HYDROXY QUINOLINE AR	IODOFORM 99%
8-HYDROXY QUINOLINE 99%	IODOPHENOL BLUE
8-HYDROXY QUINOLINE SULFATE	IPTG 99+%
HYPOPHOSPHOROUS ACID 30% (04420)	IRIDIUM TRICHLORIDE





In the drilling applications, the most commonly used drilling fluids are water-based fluids. Water-based fluids are the first fluids of choice for drilling applications because of their cost effective, environmental friendly and non-hazardous nature. However, these fluids are ineffective when dealing with water-sensitive shale that can lead to shale hydration, consequently wellbore instability is compromised. The geological occurrences which is watersensitive may require oil-based and synthetic-based fluids.

Despite its effectiveness, oil-based drilling fluid can give negative impact to environment when the pollutant is discharged and subsequently dispersed to the sea. The ester-based drilling fluids take attention as alternative fluids in the drilling applications of water-sensitive geological occurrences such as shale formations. They are a new class of materials used to provide safe and cost-effective technology for drilling oil and gas wells. Their enhanced drilling performance decreases drilling time and provides advantaged safety, human health, and, in some cases, environmental performance above diesel oil fluids.

### **DRILLING FLUIDS**

Drilling fluids are any fluids which are circulated through a well in order to remove cuttings from a wellbore. The fluid is pumped down the drill string, through the nozzles of the bit, and returns back up the annulus between the drill string and the wellbore walls, carrying the cuttings produced by the bit action to the surface. The main function is to clean the hole while drilling but the drilling fluid also serves to cool the bit, provide power to the mud motor and measuring-while-drilling tool, support the walls of the hole and control the well pressure (prevent the well from flowing).

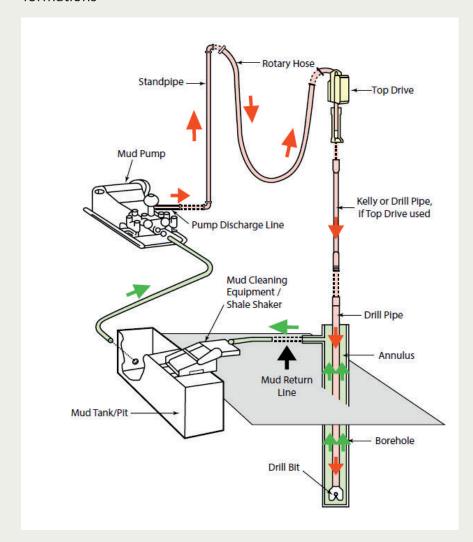
The drilling fluids commonly used for the drilling of geothermal wells, and the advantages and disadvantages of each was highlighted.

# Silvertree DRILLING & MINING CHEMICALS



The principal functions of drilling fluid are to:

- Control subsurface pressures, maintaining well control
- Remove drill cuttings from beneath the bit and circulate them to the surface
- Maintain wellbore stability, mechanically and chemically
- Transmit hydraulic energy to the drill bit and downhole tools
- Cool and lubricate the drill string and bit
- Allow adequate formation evaluation
- Provide a completed wellbore that will produce hydrocarbons
- Suspend or minimize the settling of drill cuttings or weight material when circulation is stopped, yet allow the removal of drill cuttings in the surface fluids processing system and form a low permeability, thin and tough filter cake across permeable formations



Basic Land rig circulating system

# Silvertree DRILLING & MINING CHEMICALS



## Importance of the drilling fluid

The performance of the drilling fluid is critical to everyone involved with the operation and to all aspects of the drilling operation. The drilling fluid is the primary means to keep the well from blowing out and it is responsible for keeping the hole in good condition such that drilling operations can continue to the desired depth. Drilling and completion fluids are one of the most important parts of the well construction process and ultimately the performance of the fluid will determine the success or failure of the operation. The responsibility of the proper selection and application of the drilling fluid is held jointly between the fluids supplier, the drilling contractor and the operator.

## **Categories of drilling fluids**

There are three broad categories of drilling fluids:

- Pneumatic fluids, which use compressed air or gas, foam and aerated muds
- WBMs, which use water or brine as the base fluids
- NAFs, which use oil or other non-aqueous base fluids called OBMs or SBMs

## **Classification of Drilling Fluids**

The drilling fluids are generally classified under three distinct classes such as water-based drilling fluids, oil-based drilling fluids and synthetic-based drilling fluids.

- The water-based fluids are used to drill approximately 80 % of all wells. These fluids may be fresh water, seawater, brine, saturated brine, or a formate brine. The water-based fluids fall into two broad categories such as nodispersed and dispersed.
- The oil-based drilling fluids were developed and introduced in the 1960s to help the drilling problems. They are formulated with diesel, mineral oil, or low-toxicity linear olefins and paraffins. Barite is used to increase system density, and specially treated organophilic bentonite is the primary viscosifier in most oil-based systems.
- The synthetic-based drilling fluids were developed out of an increasing desire to reduce the environmental impact of offshore drilling operations, but without sacrificing the cost effectiveness of oil-based systems.

For the successful drilling of oil and gas drilling, the drilling fluids are essential materials. The drilling fluids are complex mixtures formed from solids, liquids, chemicals, and sometimes even gases. From the chemical point of view, they can assume aspects of suspension, colloidal dispersion or emulsion, depending on the physical state of the components. The drilling fluids are generally classified under three distinct classes such as water-based drilling fluids, oil-based drilling fluids and synthetic-based drilling fluids

# Silvertree DRILLING & MINING CHEMICALS



**Drilling Powder Polymer (DCP-85)** Polymer is a higher molecular weight powder polymer containing partially hydrolyzed polyacrylamide/polyacrylate (PHPA) copolymer, is used primarily as a viscosifier and borehole stabilizer to prevent reactive shale and clays from swelling and sloughing.

PRODUCT	AVAILABLE PACK
Drilling Polymer Powder	25 Kg HDPE Bags
Liquid Emulsion	25 kg/ 50 Kg & 200 Kg Barrels
Drilling Detergent	25 kg/ 50 Kg & 200 Kg Barrels
Dust Supperrsant	25 kg/ 50 Kg & 200 Kg Barrels
Drilling Liquid Foam	25 kg/ 50 Kg & 200 Kg Barrels
Xanthan Gum	25 kg Bags
PAC- LV (API 13A-17)	25 kg Bags
PAC R (API 13A-18)	25 kg Bags
CMC LV	50 Kg Bags
CMC HV	50 Kg Bags
Shale Inhibitor	-
Caustic Soda	50 Kg Bags
Calcium Chloride	50 Kg Bags
Calcium Carbonate	50 Kg Bags
Sodium Sulphate	50 Kg Bags
Sodium Carbonate	50 Kg Bags
Soda Ash	50 Kg Bags
Potassium chloride	50 Kg Bags
Potassium Lignites	50 Kg Bags
Potassium Carbonate	50 Kg Bags
Magnesium Chloride	50 Kg Bags
Magnesium Oxide	50 Kg Bags
Bentonite	50 Kg Bags
Oxygen Scavengers	-
Vanadium Inhibitor	230 Kg Barrels





- + 91 73564 77666
- info@ina-gl.com
  sales@ina-gl.com
  marketing@ina-gl.com
- www.ina-gl.com





