

● Production Locations around the world.

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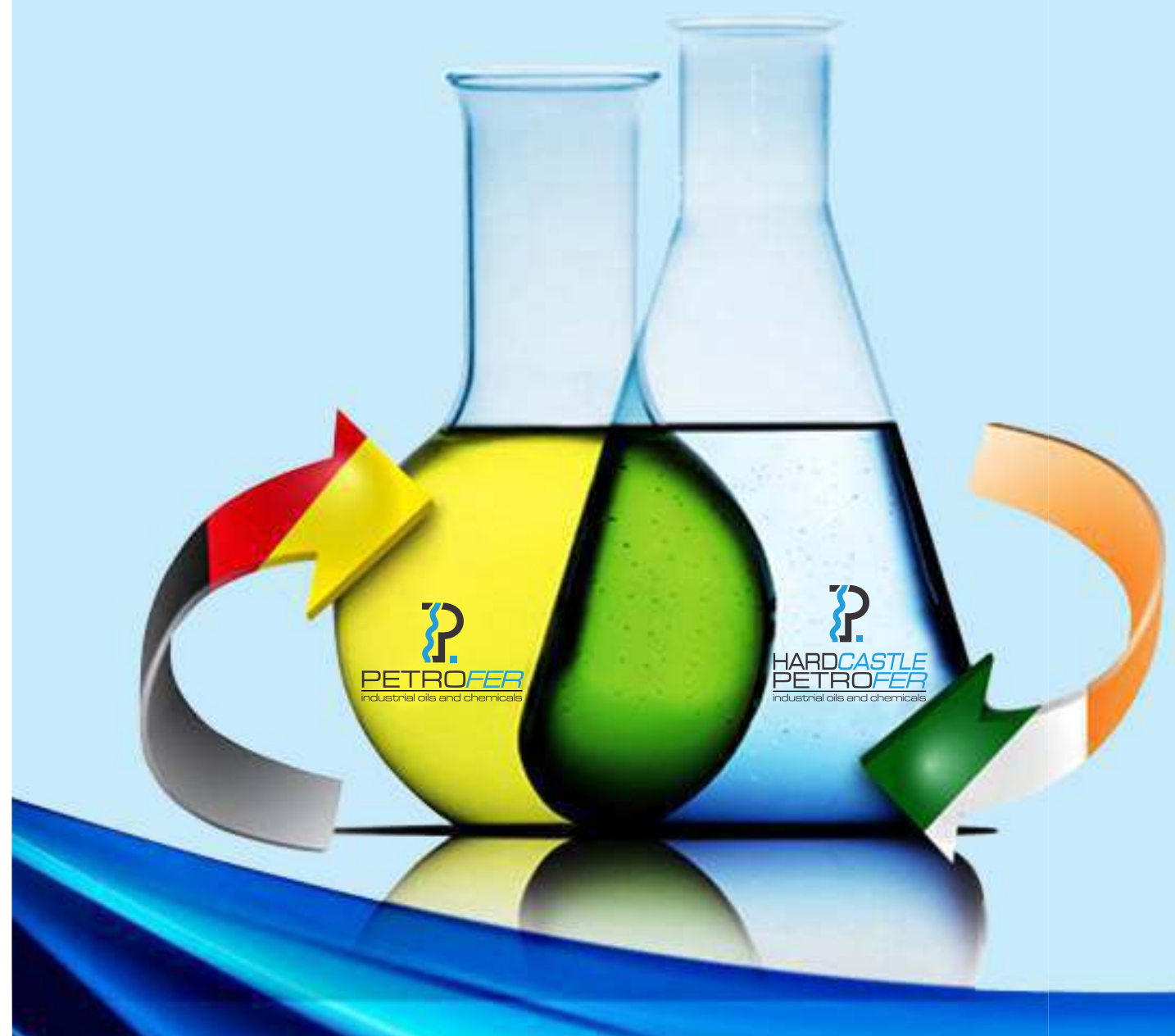
Worldwide Associated Companies

- | | |
|-----------------|------------------|
| -Austria | -Malaysia |
| -Belgium | -Mexico |
| -Bulgaria | -Poland |
| -China | -Portugal |
| -Czech Republic | -South Africa |
| -Denmark | -Sweden |
| -Egypt | -Switzerland |
| -Finland | -Slovenia |
| -France | -Spain |
| -Great Britain | -Thailand |
| -Hungary | -Taiwan |
| -Indonesia | -The Netherlands |
| -Iran | -Turkey |
| -Italy | -Ukraine |
| -Japan | -USA |
| -Korea | -Venezuela |

*Products
and
Processes*



Solutions for Metal Processing



An Introduction

Welcome to Hardcastle Petrofer Private Ltd. (HARDCASTLE PETROFER), a joint Venture between the Jantias of HARDCASTLE group and the world renowned PETROFER Germany.

About the Partners.....

HARDCASTLE has made pioneering efforts during its long market presence in the Indian Metal Processing Chemicals field.

HARDCASTLE was the first to introduce advanced technology products such as Polymer Quenchant and Fire Resistant Hydraulic Fluids to the Indian Industry by indigenously manufacturing and supporting the performance through unmatched service back-up.

HARDCASTLE is an approved supplier to an entire spectrum of leading industrial organizations in the Private and Public sectors in India. Many products of HARDCASTLE are already being used by some leading industries on an exclusive basis.

On the other hand, from its origin in Central Europe, PETROFER has developed a worldwide network of associates and distributors to ensure that the needs of its international customers are met completely. PETROFER's commitment to quality assurance and the environment is reflected in its accreditation to the DIN EN ISO 9001, QS 9000, VDA 6.1 and DIN EN ISO 14001 standards.

The excellence of PETROFER's product range is the result of the Company's philosophy of continuous improvement and the dedication of its personnel at its development centre in Hildesheim, Germany.

About us.....

Thus, HARDCASTLE PETROFER is an unparalleled combine of an Indian Company AND a German Company both having served their respective industries for over half a century. They have come together to complement each other's expertise and serve the Indian industry with their combined strength. THE OBJECTIVE - TO EXCEED THE HIGHLY SPECIALISED EXPECTATIONS OF VARIED CUSTOMER NEEDS.

HARDCASTLE PETROFER's Indian manufacturing facilities are located at Sarigam and Kathua. You can always depend on HARDCASTLE PETROFER's team of qualified and experienced chemists and engineers, who will work with you to find the optimum solution to your needs.

HARDCASTLE PETROFER offers products which play a vital role in a wide variety of industrial applications.

1. Heat Treating Quenchants
2. Carburising Chemicals & Heat Treating Salts
3. Diecasting Lubricants
4. Fire Resistant Hydraulic Fluids
5. Metal-working Water-miscible Products
6. Metal-working Non-water-miscible Products
7. Metal Forming And Wire Drawing
8. Industrial Lubricants
9. Rust Preventives
10. Cleaners
11. Forging Lubricants
12. Rolling
13. Specialty Products

Wherever you are, count on HARDCASTLE PETROFER's Expertise, Quality and Dedication

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HEAT TREATING QUENCHANTS

HIQUENCH series of Quenchants are available in a wide range depending on application needs.

HIQUENCH – oil based Quenchants are formulated from refined mineral oils and carefully selected high performance additives to ensure trouble free performance over long periods of time. The rich experience in understanding the application needs of Indian heat treaters has resulted in HIQUENCH series quenching oils to be the automatic choice of our Indian customers.

HIQUENCH Series of Cold Quenching Oils

NORMAL SPEED OILS for tool steels and general applications such as semi-finished products and forged pieces, principally of alloy steels.

MEDIUM SPEED OILS of low viscosity and long tank life, well suited for low / high alloy, tool and die steel grades and most preferred oil of heat treaters.

MEDIUM FAST SPEED OILS for alloy steels, fasteners, carburised parts with good evaporation stability and suitable for use in open and sealed quench furnaces.

FAST SPEED OILS with extra high evaporation stability and rapid breakdown of vapour blanket for high cooling capacity used for lean alloy steels, heavy section parts, plain carbon steel, bearing steels and carburising grades of steels.

ULTRA FAST SPEED OILS for special steel grades and end use applications with high evaporation stability.

WATER WASHABLE QUENCHING OILS containing advanced additive packages with water wash-off characteristics.

SPECIALTY QUENCHING OILS customised to suit specific performance parameters.

HIQUENCH MT Series of Hot Quenching Oils

MARQUENCHING OILS for high-performance hot quenching with excellent ageing stability for a wide range of application requiring good hardening efficiency, distortion control and long service life for small as well as large size components. These oils are suitable for use in sealed quench furnaces as well as open tank quenching applications.

MARTEMPERING OILS for oil tempering of parts with good ageing stability suitable for a range of application temperatures.

SPECIALTY OILS to suit customised performance needs of sophisticated applications.

HIQUENCH P Series of Polymer Quenchants

HIQUENCH P – polymer based Quenchants are made with specially selected polymers so as to ensure long and trouble free service life for induction and flame hardening and tank quenching applications for various grades of steel, castings as well as for solution treatment of distortion prone aluminium sheet for aerospace and components for automotive applications.

Polymer Quenchants of different grades and having **INVERSE SOLUBILITY** suitable for applications requiring intermediate cooling rates suitable for variety of grades of steel as well as for ferrous castings and non-ferrous parts.

Polymer Quenchants having cooling speeds **SIMILAR TO OIL QUENCHING** and having up-concentration phenomenon, which can suit almost all oil quenching grades.

CARBURISING CHEMICALS & HEAT TREATING SALTS

HICARB Series of Carburising Chemicals

CARBURISING FLUIDS which are free of hazardous chemicals and have a long established high performance quality preferred for achieving best carburising results.

CARBURISING (CYANIDE) SALTS for high stability and consistent results.

CARBURISING (NON-CYANIDE) SALTS for start-up under neutral condition, thus providing scope for addition of Cyanide to suit the concentration requirement.

HISALT Series of Heat Treatment Salts

NEUTRAL HARDENING SALTS for pre-heating, austenising, and quenching of high speed steels and marquenching .

AUSTEMPERING SALTS for tempering and drawing of variety of steels including spring steels.

WATER ADDITIVE SALTS for accelerated quenching of plain carbon steels to achieve maximum hardness.

BLACKENING SALTS for surface finishing of components after heat treatment.

BLUEING SALTS for surface finishing to enhance aesthetics in tools, band saws, hack saws.

SALT BATH COVER for preventing surface oxidation in salt baths at high operating temperatures.

SALT BATH RECTIFIER to prevent surface decarburisation and to keep the bath chemically clean.

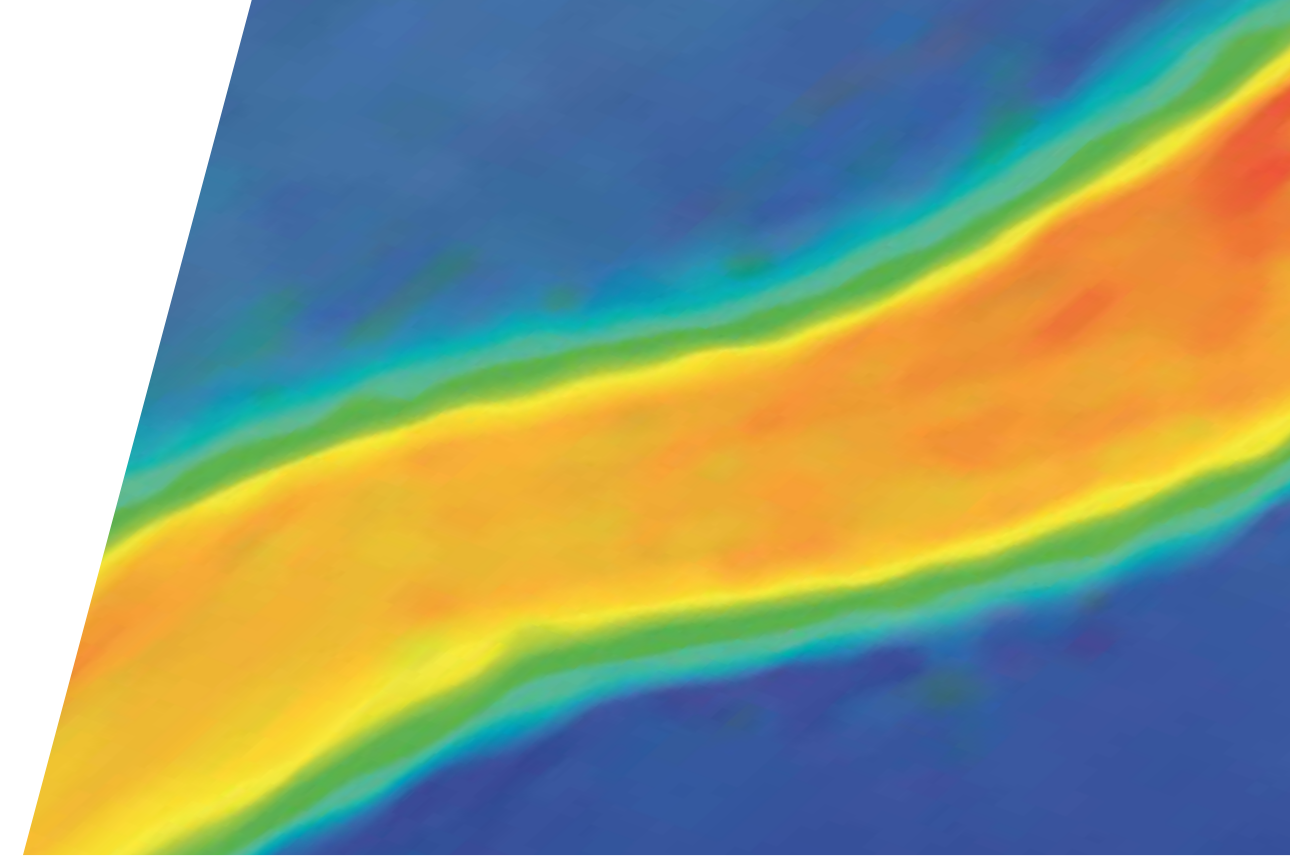
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DIECASTING LUBRICANTS

HILUBRIC Series of products offer comprehensive solution to specific application needs of die casting and sensitive hydraulic systems.

HILUBRIC L Series

WATER-SOLUBLE AND SOLVENT-BASED Diecasting Release Agents for aluminum, zinc and magnesium castings. Provide excellent surface finish & are economical in use.



HILUBRIC PL Series

GRAPHITED AND NON-GRAPHITED Products for diecasting machines for drip-feed lubrication, sprayable or paste-like.

HILUBRIC PP Series

SOLID PISTON-LUBRICANTS having excellent anti-wear properties combined with very low consumption.

HILUBRIC TT Series

SYNTHETIC AND MINERAL OIL BASED Heat Transfer Fluids providing excellent ageing stability and oxidation resistance. Suitable for application in diecasting and plastic injection moulding processes.

HIRUSTAVERT Series

PROVIDES CORROSION PROTECTION of castings and prevents water marks. Also suitable as lubricant during trimming.

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FIRE RESISTANT HYDRAULIC FLUIDS

HISAFE series of Fire Resistant Hydraulic Fluids are most popular in the various industrial segments where a fire hazard exists. These products are manufactured and supplied under categories classified by ISO grades as below:

HISAFE Series

HFA TYPE FLUIDS which are **HIGH WATER BASED FLUIDS** for critical applications such as roof support systems in underground mines.

HFB TYPE FLUIDS which are **INVERT EMULSION TYPE FLUIDS** for applications such as side load dumpers used in underground mines.

HFC TYPE FLUIDS which are **WATER GLYCOL TYPE FLUIDS** for diecasting units, steel plants, foundries, excavators, mines, offshore applications, etc.

HFD TYPE FLUIDS-DU Series ANHYDROUS ESTER FLUIDS for aluminium, steel industries, etc.

-DR Series PHOSPHATE ESTER FLUIDS for aluminium, steel industries, glasswork, etc.

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METAL WORKING, WATER-MISCIBLE PRODUCTS

HICUT Series of Water Soluble Cutting Coolants

WATER SOLUBLE TYPE cost economical cutting coolants which are hardwater stable. These coolants are suitable for machining and grinding of steel, cast iron and aluminium.

HICUT AND HICUT BIO Series of Semi-synthetic And Bio Stable Cutting Coolants

EMULSION TYPE bio-stable semi-synthetic and environment friendly coolants for a longer sump life and suitable for a wide range of applications including machining, grinding, hobbing, broaching, tapping and drilling of steel, cast iron, aluminium and non-ferrous materials.

HIGRIND Series of Synthetic Cutting And Grinding Coolants

SYNTHETIC COOLANTS for grinding and machining of steel, cast iron, aluminium and non-ferrous materials including special coolants for grinding of HSS and Carbide tools and for glass grinding.

HIGRIND LAP Series of Lapping Compounds And Premixed Lapping Pastes

Suitable for lapping of gears and other precision components requiring high degree of surface finish and dimensional accuracy.



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METAL-WORKING NON WATER-MISCIBLE PRODUCTS

HICUT N Series

Cutting oils for general and arduous machining operations including hobbing, grinding, drilling, tapping, broaching, deep hole drilling, cold heading and thread rolling application. Products with or without active sulfur and with or without chlorinated additives are available.

HICUT HONE Series

Oils for honing and super-finishing and lapping of steel and aluminium.

HICUT EDM Series

Oils for EDM cutting, roughing and finishing of tools and dies.





METAL FORMING AND WIRE DRAWING

The range of products for metal forming operations and wire drawing lubricants includes neat oils, emulsions, synthetic products & pastes. Our products are specially developed to meet the process requirements thereby ensuring highest productivity and quality for the user in these operations.

HIDRAW Series

Medium to high viscosity **DEEP DRAWING NEAT OILS**, emulsions and synthetic lubricants for a broad range of applications, e.g. for fine blanking of clutch plates, deep drawing of wheels and flanges, fuel tanks, etc.

Emulsions & synthetic lubricants for medium, fine and ultra fine wire drawing of copper and copper alloys.

Special Neat oils and emulsions for drawing of steel cord & stainless steel wires.

High Performance neat oils for wire drawing of aluminium and aluminium alloys.

HIFORM Series

MULTI-FUNCTIONAL NEAT OILS and extrusion lubricants for cold and warm forging operations on various materials. Also suitable for forming operations on preheated materials.

Low to medium viscosity, odourless drawing oils, self-evaporating and thermal degreasing types used for forming of fins & tubes for radiators, heat exchangers used in climate control applications for automobiles, electrical steel laminations for motors and transformers. Also suitable for micro lubrication.



INDUSTRIAL LUBRICANTS

HILUBRIC Series of Industrial Lubricants are manufactured to meet the lubrication requirements of a very wide range of industrial applications.

These lubricants are available in various viscosity grades & meet the requisite DIN standards.

HILUBRIC AW, HLP, HLP-HN Series

Premium grade, high quality mineral base **HYDRAULIC OILS** having anti-aging and anti-wear properties through specialised additive technology.

Available in ISO VG grade 15 – 100 & conform to DIN 51524 part 2 quality standards.

HILUBRIC WL Series

SLIDE WAY OILS formulated from high quality base oil and unique combination of additives. Are stick-slip free & have high capacity to absorb the pressure. Most suitable for horizontal slide ways of machine tools, ball screws, linear guides, translating screws as well as headstocks.

Available in ISO VG grade 46 – 320 & conform to DIN 51517 quality standards.

HILUBRIC N Series

SPINDLE OILS formulated with low viscosity specialty oils having very good corrosion resistance & lubricating characteristic suitable for high speed spindles in machining and grinding applications.

Available in ISO VG grade 2 – 15 & conform to DIN 51517 part 2 CL type quality standards.

HILUBRIC GR Series

Mineral base lead free **GEAR OILS** having very good extreme pressure characteristic as well as load carrying properties.

Available in ISO VG grade 46 – 680 & conform to DIN 51517 part 3 CLP type standards.

HILUBRIC GR SYN HC Series

Special quality high performance **SYNTHETIC GEAR OILS** with enhanced additive package.

Offer maximum protection for grey staining (micro pitting). Suitable for all types of enclosed gears & toothing which are subjected to heavy mechanical loading & higher operating temperature conditions.

Available in ISO VG grade 150 – 460 & conform to DIN 51517 part 3 CLP (HC) standards.

HILUBRIC TT-1

High performance mineral oil base **HEAT TRANSFER OIL** for closed loop & indirect heating system for various industrial process having higher heat transfer rate & good oxidation stability.

HILUBRIC SYN TT Series

SYNTHETIC HEAT TRANSFER FLUID having excellent oxidation stability and heat transfer characteristics.

RUST PREVENTIVES

HIRUSTAVERT Series offers wide & highly effective range of Rust Preventives ranging from Oil, Solvent & Water base for inter-operational protection & final packing suitable for all metals.

HIRUSTAVERT O Series

OIL BASED Rust Preventives for end of the line and final packing applications.

HIRUSTAVERT S Series

SOLVENT BASED Rust Preventives for in-process as well as for end of the line applications. Available in oily, plastic, polymeric as well as dry film types. Special rust preventive for effective finger print neutralization.

HIRUSTAVERT DW Series

SOLVENT BASED Rust Preventives with dewatering properties and available in various film types. Chemically polar active additives displace moisture and create a protective coating for short to medium term rust protection.

HIRUSTAVERT WD Series

WATER EXTENDABLE Rust Preventives for in-process / end of line applications. VOC free products offer the flexibility to choose optimum concentration to achieve the desired protection and help in reducing the variety of rust preventives normally used.



CLEANERS

For cleaning of metallic surfaces, we offer a broad range of industrial cleaners. These products have been developed using the latest findings from research and technology, considering ecological and occupational safety concerns so as to meet the requirements of all modern cleaning applications.

HICLEAN Series

NEUTRAL CLEANERS for cleaning of metallic surfaces for inline production, inter-stage & final cleaning. Provide excellent temporary corrosion protection and do not leave salt residues on components. Excellent demulsifying properties to ensure good separation of the oil from the components. Also available neutral cleaners suitable for high pressure cleaning units.

ALKALINE CLEANERS for cleaning of components requiring high degree of cleanliness, e.g. prior to final assembly and where difficult deposits such as oxidized oil, thick oils need to be removed.

SOLVENT CLEANERS free of odour, chlorine, fluorine or aromatic compounds. Hydrocarbon cleaners used exclusively for degreasing.

Special products such as **DIP CLEANERS** with excellent corrosion protection are also available. All purpose cleaners for workshops used for shop floor cleaning and machine cleaning complete our extensive product range.



FORGING LUBRICANTS

HILUBRIC FW Series

WATER EXTENDABLE graphite containing and graphite free lubricants for hot and warm forging of ferrous and non-ferrous materials.

HILUBRIC OG Series

NON-WATER-MISCIBLE graphite containing lubricants for hot forging of ferrous and non-ferrous materials.

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ROLLING

HIROLL Series

SYNTHETIC AND NATURAL ESTER BASED Rolling Oils for cold rolling of steel sheets of various thickness & width. Used as water based emulsions in reversing and tandem mills. Products are available to suit various steel grades such as mild steel, hard steel, tin plate galvanizing grades, DD / EDD grades, silicon steels, etc.

HICLEAN L Series

LIQUID TYPE Cleaners for mill cleaning; Effective in removing mill scales, rust and dirt.

HIRUSTAVERT Series

RUST PREVENTIVE OILS for applications after pickling with HCl/H₂SO₄ and for final coating line; having very good acid fume resistance characteristics.





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SPECIALTY PRODUCTS

GLASS MACHINING CONCENTRATES for milling, grinding and polishing of optical glass, photo-optic lenses, automotive glass, and similar speciality applications.

SOLAR & SEMI CONDUCTOR INDUSTRY PRODUCTS for cutting of brittle materials such as silicon wafers. Glycol based products, very easily cleaned and recyclable.

WOOD SAWING PRODUCTS for wood sawing applications using band saw. Improved saw life & productivity.

SYNTHETIC MOULD OILS for continuous casting machine.

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INTERNATIONALLY ACCLAIMED PETROFER BRAND PRODUCTS ARE NOW AVAILABLE IN INDIA!!!

HEAT TREATING QUENCHANTS

Accelerated high performance quenching oils ISOMAX
Accelerated quenching oils with high evaporation stability ISORAPID;
FASTQUENCH; SYNTERM
Hot quenching oils MARQUENCH
Quenching oils for vacuum furnaces VACUQUENCH
Normal speed quenching oils ISODUR
Tempering oils and synthetic tempering fluids ISOTEMP; SYNTERM
Water-washable quenching oils E-OILS
Polymer Quenchants AQUATENSID; AQUACOO; FERQUENCH
Quenching emulsion AQUANOL; BLACKYNOL WL
Water additive salts for accelerated quenching AQUARAPID

HEAT TREATING SALT BATH AGENTS

Hardening and high-speed steel bath HS; NEUTROSAL; SINOXAL
Carburizing and nitriding salt baths CARBOGEN; CARBORAPID; CARBOMAX;
CARBOTECT; NITROGEN
Hot Quenching salt baths AS; GS
Blackening and black-finishing baths SFS; BLACKENING BATH
Special salt baths REINIGUNGSSALZ RS; HEAT TRANSFER SALTS
Carburization protection and anti-nitriding pastes SURFATECT

DIECASTING AND FORGING

Forging lubricants DIE FORGENT
Diecasting release agents and piston lubricants DIE-LUBRIC; PISTON-
LUBRICANT; PISTON-POWDER
Special products for the diecasting industry TRANSTHERM; TEMPLUBRIC

FIRE-RESISTANT HYDRAULIC FLUID

ULTRA-SAFE 620; ULTRA-SAFE 1120;
HYDRO-COOL; EVOLUBRIC HE

METAL CUTTING WATER-MISCIBLE PRODUCTS

High mineral –oil based coolants EMULCUT
Semi-synthetic coolant ISOPAL
Mineral-oil-free coolants ISOCOOL
Mineral-oil-free grinding fluids ISOGRIND; ISOGRIND G
(Glass Grinding and Polishing)

METAL CUTTING NEAT OILS

General-purpose cutting oils, including biodegradable types ISOCUT VG;
ISOCUT E
High performance cutting oils ISOCUT; ISOCUT R;
Honing and lapping oils SUPERFIN; ISOLAP
High-performance cutting concentrates PINGINOL

METAL FORMING, DRAWING, ROLLING

Drawing oils, pastes and emulsions DRAWLUB; ISOLUBE

INDUSTRIAL LUBRICANTS

Hydraulic Oils H, HL HLP, HLP-D ISOLUBRIC VG
Biodegradable hydraulic fluids TRIBOLUBRIC; SYNTOLUBRIC; ENVOLUBRIC
Gear Oils GEARLUBRIC; MOLYGEAR
Adhesion oils and slide-way lubricant WAYLUBRIC
Spindle oils SPEEDLUBRIC
Special grease GREASE; HAFTOL

RUST PREVENTIVES

Corrosion protection oils ISOTECT
Water-miscible rust preventives ISOTECT E; AQUAPLUS
Dewatering fluids DEWATER
Specialized products BLACKYNOL

CLEANING AND MAINTENANCE

Industrial cleaners water-miscible FEROCLEAN S, A and N
Industrial cleaners solvent-based FEROCLEAN L
Maintenance of water-miscible coolants FEROSEPT; CLEANSEPT;
CONTRAFUM; SABOCLED



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MANUFACTURING & MARKETING LOCATIONS



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