

*Products
and
Processes*



PetroFer Chemie

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Quality with Accountability



Ever since 1948, the privately owned company, with its headquarters in the North German city of Hildesheim, has set a major goal for itself: to connect people's constantly increasing demands for progress with the most recent technology available.

Today, with over 600 high-quality chemical products, PETROFER is one of the world's leading companies for industrial lubricants, specialised liquids and process technologies, with locations in 42 countries throughout the world.

As a global enterprise, PETROFER utilises its quality and environmental philosophy as a strategic instrument for continuous improvement of its entire spectrum of products and services. This is exactly what has been achieved for many years with PETROFER's integrated management system (IMS).

Thanks to its specialised Chemical Management Programs, PETROFER is capable of meeting individual customer needs, beginning with procurement and logistics through optimised use and extending all the way to waste management, thus can maximising overall potentials for cost savings.

In addition, PETROFER has strived for decades to meet the full range of its customers' wishes through application technology solutions, consistent quality, attractive prices, adherence to schedules and environmental compliance. These approaches are highlighted by its national and international ISO TS 16949 certification in Hildesheim, as well as ISO 14001 and ISO 9001 certifications for all PETROFER sites.

In order to be able to respond specifically to all of its customers' requirements and wishes, PETROFER always works closely with its partners in the industry, because it is only through common understanding and shared know-how that it is possible to optimise processes, test new procedures in actual practice and ultimately develop state-of-the-art products.

PETROFER offers specialised products and specifically adapted solutions for virtually every branch of industry:

- 1 Heat treatment technology, quenching media
- 2 Salt baths and protective pastes
- 3 Diecasting and forging technology
- 4 Fire-resistant hydraulic fluids
- 5 Metal-working water-miscible products
- 6 Metal-working non-water-miscible products
- 7 Metal forming
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Heat treatment technology, Quenching media

Low viscosity high-performance quenching oils

ISOMAX

Very high quenching capability. Primarily used for hardening of unalloyed and alloyed tempering and case-hardening steels to achieve maximum mechanical properties even with large components.

Evaporation stable high-performance quenching oils

ISORAPID

Very rapid and homogeneous cooling of all parts during batch quenching. High evaporation stability. Rapid breakdown of the vapour blanket within the batch. Their use in open quench baths results in lower flame and fume production.

FASTQUENCH

Extremely stable evaporation specialty oils, semi-synthetic; with exceptionally high quenching speed but low distortion.

SYNTHERM

Biodegradable quenching fluids based on synthetic and natural oils with the highest quenching capacity.

High performance hot quenching oils

MARQUENCH

High performance hot quenching oils with the highest ageing stability for a wide range of applications. They set new standards with respect to quenching speed, distortion control and service life. These hot quenching oils can be used for a wide range of temperatures in a variety of furnaces, as well as for larger components. Specialty types for extreme conditions, semi-synthetic.

Quenching oils for vacuum furnaces

VACUQUENCH

Quenching oils for vacuum furnaces with extremely high evaporation stability, low gas absorption capacity as well as fast degassing. For vacuum heat-treatment of all qualities of steel. Optimum results, clean, stain-free surfaces.

Normal speed quenching oils

ISODUR

Quenching oils with slower quenching speeds for the hardening of tool steels, semi-finished products, open forgings, especially of alloyed steels.

Tempering oils and synthetic tempering fluids

ISOTEMP

Ageing-resistant tempering oils for various temperature applications. Use up to 300°C is possible.

SYNTHERM

Synthetic tempering fluids with high ageing-resistance. Easily water-washable. Special version for cooling of salt bath nitrided parts.

Water-washable quenching oils

E-OILS

All quenching and tempering oils can be made water-washable. Thus there is easy cleaning of the hardened components with water. Existing baths can be converted subsequently.

Polymer quenching media, water-miscible

AQUATENSID | AQUACOOOL

Quenching solutions for use in induction and flame-hardening processes as well as in tank-quenching. Also for low distortion cooling of aluminum alloy components after solution annealing.

FEROQUENCH

Oil-like cooling characteristics. For crack-free cooling of high hardenability steels. Quenching without fume and fire - rather than quenching oil. Widespread, reliable in large quenching baths, for gear component weights up to 100 tonnes and more; also for case-hardening steels.

Quenching emulsions

AQUANOL

Smoke-free operating emulsion for quenching of work pieces during induction and flame-hardening processes. High bacterial-resistance as well as good corrosion protection. Special applications also for tank quenching.

BLACKYNOL WL

Emulsion for cooling of tempered components. The oxide coating on work pieces develops a deep black, glossy appearance which imparts very good corrosion protection.

Water additive quenching salts

AQUARAPID

For quenching of unalloyed steels to achieve maximum hardness. Prevention of soft spots. Produce surface colours of silver, light grey and black.

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Salt baths and protective pastes

Hardening and high-speed steel baths

HS

Salt baths for austenitising of structural-, case-hardening- and quench and temper steels as well as for pre-heating stages for hardening of high-speed steels.

NEUTROSAL

Regenerator for hardening salt baths to prevent decarburisation.

SINOXAL

Salts for high-speed steels for high temperature stages, with exceptional protection against decarburisation.

Carburising and nitriding baths

CARBOGEN

CARBORAPID

CARBOMAX

Stable one- and two-salt carburising baths, easy to operate and particularly economical.

CARBOTECT

Special carbon-coating for carburisation baths and cyanide hardening baths.

NITROGEN

Nitriding salts for nitriding baths used for tool steels.

NITROG B

NITROG R

Cyanide-free nitriding salts with regenerator for nitrocarburising of quench and temper steels and tool steels.

High temperature salt baths

AS

Nitrite-free and nitrite-containing high temperature salt baths for quenching, for treatment in the bainitic stages and for tempering of steel. Also for solution annealing of aluminium alloys.

GS

High temperature salt baths for quenching and annealing of high-speed steels and tool steels.

Blackening and burnishing baths

SFS 500-E

Oxidising quenching bath following NITROG nitrocarburising treatment with outstanding corrosion and wear protection.

SFS

Salt baths for simultaneous tempering and blackening of tools made of high speed steels or tool steels.

BLACKY

Blackening baths for iron and steel components, with operating temperatures around 150°C. Nitrite-free versions are available.

Special salt baths

CLEANING SALT RS

Salt baths of various compositions for the removal of paint, plastic and rubber residues from dies, racks and components or for removal and dissolving of sand residues from cast components.

HEAT TRANSFER SALTS

Nitrite-free and nitrite-containing versions for rubber vulcanisation and other heat transfer processes.

Carburising and nitriding protective pastes

SURFATECT

Innovative water-based and conventional solvent-based protective pastes for partial protection against carburisation or nitriding of steel components in a gas atmosphere. The residues of each of the protective pastes are removed easily either in aqueous cleaning solutions or mechanically following treatment.

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Diecasting and forging technology

Diecasting release agents

DIE-LUBRIC

Water-soluble and water-free release agents for diecasting of aluminum, magnesium and zinc alloys. Wax-containing and wax-free qualities as well as biostable formulations for application in central systems. Special products for novel spray-coating methods.

Piston lubricants

PISTON-LUBRICANT

Graphite-free and graphited oils and pastes.

PISTON-POWDER

Solid lubricants enabling a clean environment and minimum consumption.

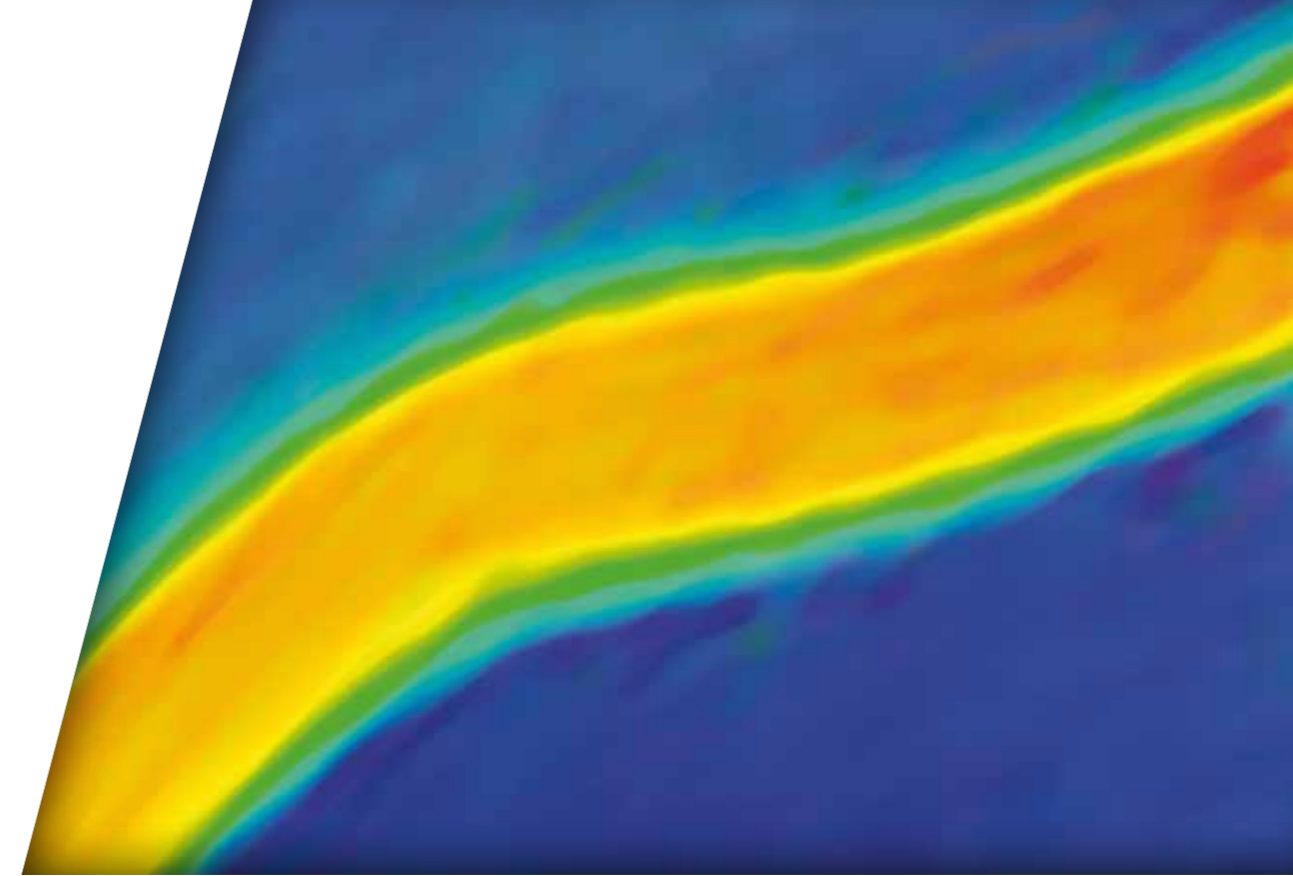
PGS

Powder dosage device for the application of solid lubricants.

Heat transfer fluids

TRANSTHERM

Synthetic and mineral-oil based heat transfer fluids with outstanding thermal stability.



Additional products for the diecasting industry

WAYLUBRIC

Lubricating oils for central lubrication systems.

TEMPLUBRIC

Ladle coatings and speciality formulations for prevention of corrosion between backing and dies, also enabling easier dismantling of equipment.

ISOTECT

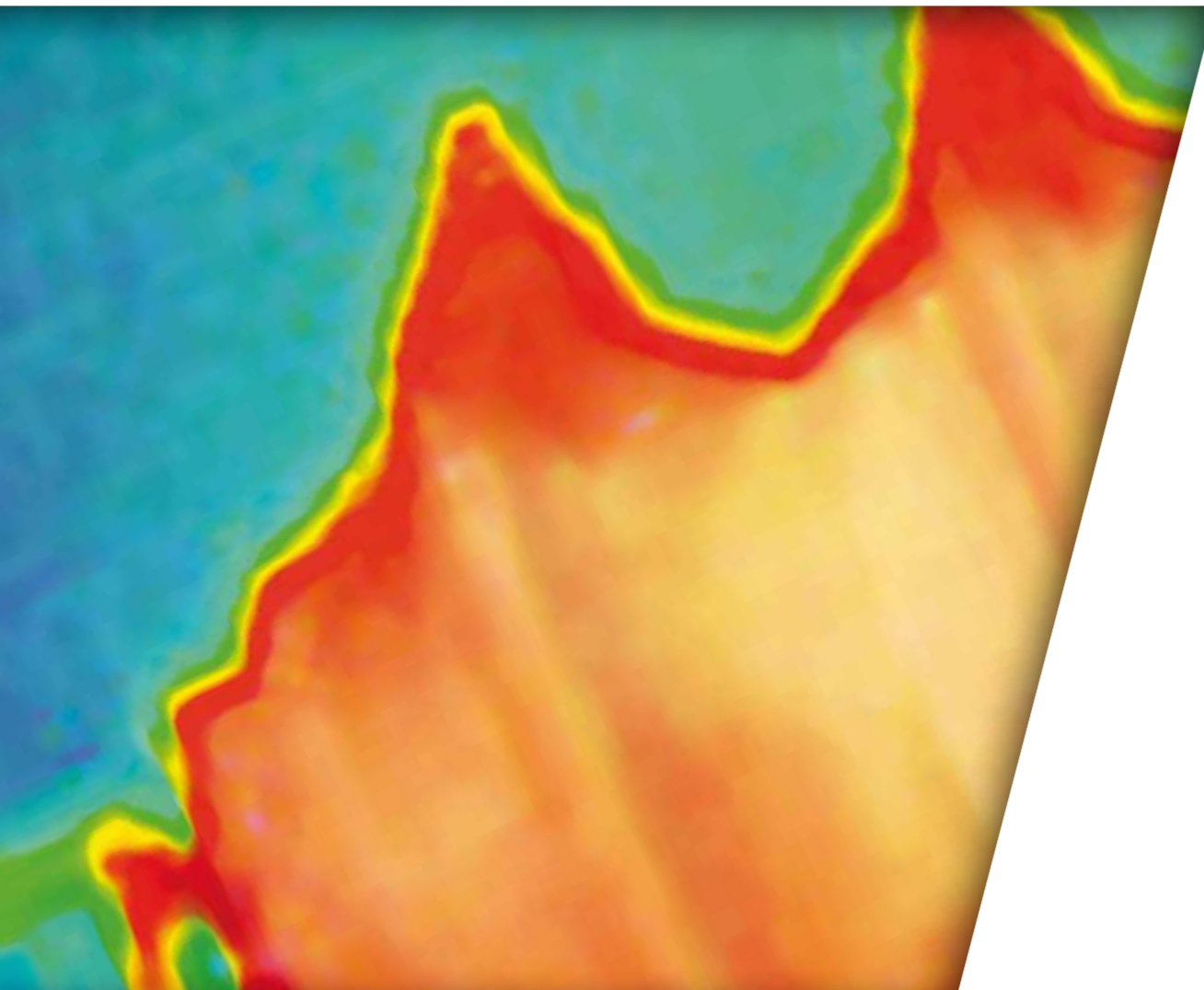
Corrosion protection emulsion used in cooling tanks; avoids staining and oxidation of cast parts. Also used as a lubricant for trimming components.

Forging lubricants

DIE-FORSENT

Water-miscible and water-free lubricants for die forging and hot pressing. Graphite-containing and graphite-free qualities. Special products for circulating systems in automatic forging machines.

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Fire-resistant hydraulic fluids

Fire-resistant hydraulic fluid types HFC and HFDR

ULTRA SAFE 620 (water-glycol HFC)

ULTRA SAFE 1120 (phosphoric acid ester HFDR)

Fire-resistant fluids for use in hydraulic equipment operating in fire hazard areas such as diecasting and forging shops, steel works, glassworks, rolling mills, and also in mining operations, excavators, vehicles, etc.

Fire-resistant hydraulic fluid types HFA and HFDU

HYDROCOOL (HFA)

High water content multi-purpose fluids (HFA) with outstanding anti-wear and corrosion protection.

ENVOLUBRIC HE 46 and 68 (ester HFDU), FM APPROVED

Increased safety in comparison with mineral oils through substantially higher flash points and reduced fire reactivity.

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Metal-working water-miscible products

Metal-working fluids, mineral oil-containing

EMULCUT / ISOPAL

Highly stable, emulsifiable universal coolants with very good corrosion protection and high performance. Used for general machining through to difficult metal-cutting operations. Specially formulated coolants for aluminum components requiring high quality surfaces. Also sometimes suitable as HFA hydraulic fluids.

Coolants, mineral oil free

ISOCOOL

Mineral oil free, water-soluble coolants with good long-term stability for general machining and grinding of ferrous and non-ferrous metals.

Grinding fluids, mineral oil free

ISOGRIND

Water-soluble coolants with especially good wetting and rinsing properties for all types of grinding operations.

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Metal-working non-water-miscible products

Universal cutting oils and high performance grinding oils

ISOCUT

Cutting oils for simple to arduous metal cutting operations providing high efficiency, long tool life and excellent surfaces.

ISOCUT R

Grinding oils with outstanding performance, low oil mist formation, and excellent efficiency at high grinding speeds.

ISOCUT VG

Multifunctional oils for metal cutting of steel, light and non-ferrous metals. Applicable as efficient cutting and grinding oils in various viscosities and also suitable for machine lubrication and for hydraulics.

ISOCUT T

High performance cutting oils for difficult metal cutting applications. Special combinations of additives produce a high performance and long tool life. Optimised for deep hole drilling using single lip, ejector and BTA processes and also suitable for honing operations.

ISOCUT BA

High performance oils for vertical and horizontal broaching; internal, external and chain applications.

ISOCUT E

Universal cutting oils suitable for difficult operations with a broad range of applications because of their renewable ingredients.

ISOCUT M

Minimal quantity lubricants for various applications.

Honing- and Lapping oils

SUPERFIN

Honing and lapping oils with excellent filtration and rinsing characteristics for optimum surface quality with high cutting loads. Suitable with diamond, corundum, and other honing tools for working with steel, cast (malleable iron), non-ferrous and light metals as well as chrome-plated surfaces. As well as the viscosity, the product range is formulated with respect to reduction of honing dust, ageing-resistance and prevention of oil mist production. The oils are available with sulphur deactivators and cobalt inhibitors.

High performance concentrates, electrical discharge machining oils

PINGINOL

Paste-like to low viscosity high performance concentrates for difficult cutting and forming applications.

DIELEKTRIKUM

Water-clear, aromatic free electrical discharge machining oils for rough machining and finishing; odourless and oxidation stable.



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Metal forming

Oils, emulsions, dispersions, synthetics and pastes

The range of products for metal forming operations includes neat oils, emulsions, dispersions, synthetic products and pastes. Our products are individually developed to meet any requirements for metal forming processes thus guaranteeing the user the highest productivity and quality in these operations.



Wire drawing

DRAWLUB C-, ST- and TD-Series

Emulsions, neat oils, pastes and synthetic lubricants for wire and profile drawing of copper, copper alloys, steel cord and stainless steel.

ISOLUBE 4600-Series and MG-grease

High performance neat oils and drawing compounds for wire drawing of aluminium and aluminium alloys.

Cold forming

ISOFORM

Dispersions, multi-functional neat oils as well as traditional extrusion lubricants for cold- and warm-forming operations on various materials. HT-series is suitable for forming operations on pre-heated materials.

Sheet forming

ISOLUBE V 70- AND 3400-SERIES

Low to medium viscosity, odourless drawing oils, self-evaporating and thermal degreasing types; also used for stamping and profiling. Suitable for micro-lubrication.

ISO-MILL K9- AND CB-SERIES

High performance lubricants and additives for various cold- and hot-rolling operations, e.g. cold rolling neat oils for roll-forming of sections and seam-welded tubes as well as hot-rolling emulsions for aluminium on continuous casting mills.

DRAWLUB TD-, TDV-, M-, S- AND 3000-SERIES

Medium to high viscosity punching and deep drawing neat oils, as well as water-based pastes, solutions, emulsions and dispersions for a broad range of applications, e.g. for fine-blanking of clutch plates or for deep drawing of stainless steel flanges. Partly suitable for micro-lubrication.

Industrial lubricants

Hydraulic oils H, HL, HLP, HLP-D

ISOLUBRIC VG

Special and general purpose hydraulic oils based on high quality base oils. High ageing and wear resistance through specialised additive technology. High viscosity index (VI) gives good viscosity temperature performance. ISOLUBRIC HLP grades comply with DIN ISO 51 524 T 2 and are thus suitable for transmissions. ISOLUBRIC VG oils are also available as zinc-free versions in all ISO-VG classes. ISOLUBRIC HLP-D detergent hydraulic oils have optimum water absorbency.

Bio-degradable hydraulic fluids

SYNTOLUBRIC

ENVOLUBRIC

Hydraulic fluids based on natural and synthetic materials.

Types HE-TG, HE-PG, HE-ES, HE-PR

Gear oils

GEARLUBRIC

Gearlubric oils conform to DIN/ISO 51 524 T 3 and provide outstanding EP-characteristics and corrosion protection; the products are applicable in all industry sectors.

Slideway oils

WAYLUBRIC

Exceptionally adhesive products with high load carrying capability, thereby allowing optimum anti-stick-slip properties. Good corrosion-protection and water-repellent. Available in ISO-VG classes 32, 46, 68, 100, 150, 220, 320. Special lubricants also available for the textile and paper industries. Also useful for oil-lubricated open gears. Available in ISO-VG classes 68, 100, 220, 320.

Spindle oils

SPEEDLUBRIC

Especially low viscosity specialty oils for lubricating high speed spindles in machining, grinding, textile and sewing applications. Ageing-resistant and corrosion protected. Available in ISO-VG classes 2-22.

Special greases

GREASE

High performance greases for industrial applications, also water-repellent.

HAFTOL

For corrosion prevention. Protection for tool fixtures and all equipment parts, water-repellent.



Rust preventives

Rust preventive oils

ISOTECT

A series of highly-effective rust preventives for inter-operational protection, suitable for all industrial areas and transportation. Wax and oil-based protective film characteristics according to requirements.

Rust preventives, water-miscible

ISOTECT E

Water-miscible corrosion protection concentrates that produce stable emulsions in high temperature applications. Following evaporation of water from aluminum cast components, there remains a sealed, adherent protective film on the surface of the workpiece.

AQUAPLUS

Water-soluble synthetic corrosion inhibitors which are effective at low concentrations.

Dewatering fluids

DEWATER

Corrosion preventives with dewatering properties and various film types. Chemically polar-active additives displace moisture and create a protective coating (wax- or oil-based).

Special products

BLACKYNOL

Proven corrosion preventives for hardening operations and for the protection of phosphated and blackened workpieces. Suitable for intermediate and final protection. Cost effective concentrates.

KORROSOLV

Rust remover with extreme penetration capability for fast solution of deeply rusted screws, nuts, and sockets. Treated components are provided with prolonged corrosion protection.

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Maintenance and cleaning

Industrial cleaners

FEROCLEAN

For cleaning of metallic surfaces, PETROFER offers a broad range of industrial cleaners. Developed using the latest findings from research and technology while taking into account ecology and occupational safety, these products satisfy the requirements of all modern cleaning applications. PETROFER cleaners ensure long service life with low maintenance. PETROFER offers tailored cleaners, whether as individual products or as custom-designed system solutions for manufacturing processes.

FEROCLEAN N NEUTRAL CLEANERS

For cleaning of metallic surfaces for in-line production, inter-stage and final cleaning. Fluid products with excellent temporary corrosion protection. They create no salt residues and consequently are often applied in single-stage cleaning systems without rinsing. PETROFER neutral cleaners have excellent demulsifying properties so that there is good separation of the oil removed from the components.

FEROCLEAN A ALKALINE CLEANERS

These are used whenever there is a high cleanliness of metallic surfaces required, e.g. prior to galvanizing or enamelling, and where difficult deposits, such as oxidised oil, fat and pigment residues need to be removed.

FEROCLEAN L HYDROCARBON CLEANERS

As an alternative to halogen-hydrocarbon based cleaners, PETROFER offers cold cleaners based on hydrocarbons, which are VOC-free products. These are odourless and contain no chlorine, fluorine or aromatic compounds. Hydrocarbon cleaners are used exclusively for degreasing.

In addition to these product lines, special products such as emulsion cleaners - with excellent corrosion protection for spray applications and dip tanks - are available. All-purpose cleaners for workshops for floor cleaning and emulsifiable cold cleaners complete the extensive product range.

Maintenance products for water-miscible systems

FEROSEPT

Bactericides and fungicides for protection against bacterial and fungal infestations of water-based solutions and emulsions.

FEROCLEAN CS

System cleaners with combined disinfecting and cleaning effects for machine tools and heat treatment systems. Suitable for use during machining operations.

CONTRAFUM

A range of defoamers for water-miscible coolants and quenching media.

SABOCLED

For determination of bacterial counts in water-miscible media.

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Chemicals for the paper industry

Chemicals specific for tissue production

COTAC I RELEASE-AGENT

Creping agents for use on Yankee cylinders for control of tissue quality, protection of the cylinders and to increase the lifetime of the scraper blades.

SOFTLAYER

A softener for use in the paper pulp and for spraying on the felt.

DE-COTAC

An additive for reconditioning of paper waste.

ISOGRIND PAP

A fluid for regrinding steel scrapers.

ISOCUT PAP

A cutting fluid for use in the area of converting.

EMBOSSING ROLLER OILS

Lubricants for embossing rollers in the area of converting.

SPRAY-EQUIPMENT

Dosing pumps and mixing equipment for application of Yankee coating chemicals.

Chemicals for the entire paper production process

ISOFOAM

De-aerators and defoamers for treatment of the water circuits in paper making machines.

FEROCLEAN RFS

Cleaners for the discontinuous cleaning of wires and felts and for systematic cleaning of the water circuits.

FEROCLEAN LIME

A lime inhibitor.

FEROCLEAN CS

Special product for biocidal treatment of primary and secondary circuits and additive tanks.

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Speciality products

Glass machining concentrates

ISOGRIND G

For milling, grinding and polishing of optical glass, photo-optic lenses, automotive glass, and similar speciality applications.

Solar and semi-conductor industry

SAWLUB

A line of products for cutting wafers from brittle materials such as silicon. Glycol based for mixing into a slurry. Very easily cleaned and recyclable.

SAWLUB ID

Products for cutting of brittle materials with inner-diameter diamond blades (ID sawing). Usable as a loss lubricant or in circulating systems.

SAWLUB DW

Process fluids with good flushing performance for cutting of silicon with diamond wire.

Products are also available for the cleaning of silicon surfaces following the wafer manufacturing process.

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Dosage and test equipment

PETROMIX

Drum mounted and wall-mounted devices that operate on the water-jet pump or rotary pump principle with the capability of producing 800-1600 l/h as mixing devices for water-miscible products.

PGS

Powder dosing device for solid piston lubricants.

HAND REFRACTOMETER

Optical precision device for quick and accurate concentration determination of water-miscible media.

COLORIMETER

Absorption colorimeter for concentration measurement of release agent emulsions used in the diecasting industry.

PH-METERS

For direct electrical measurement of the pH value in aqueous systems.

TITRATION UNIT CLEANERS

Titration unit for concentration determination of aqueous industrial cleaners.

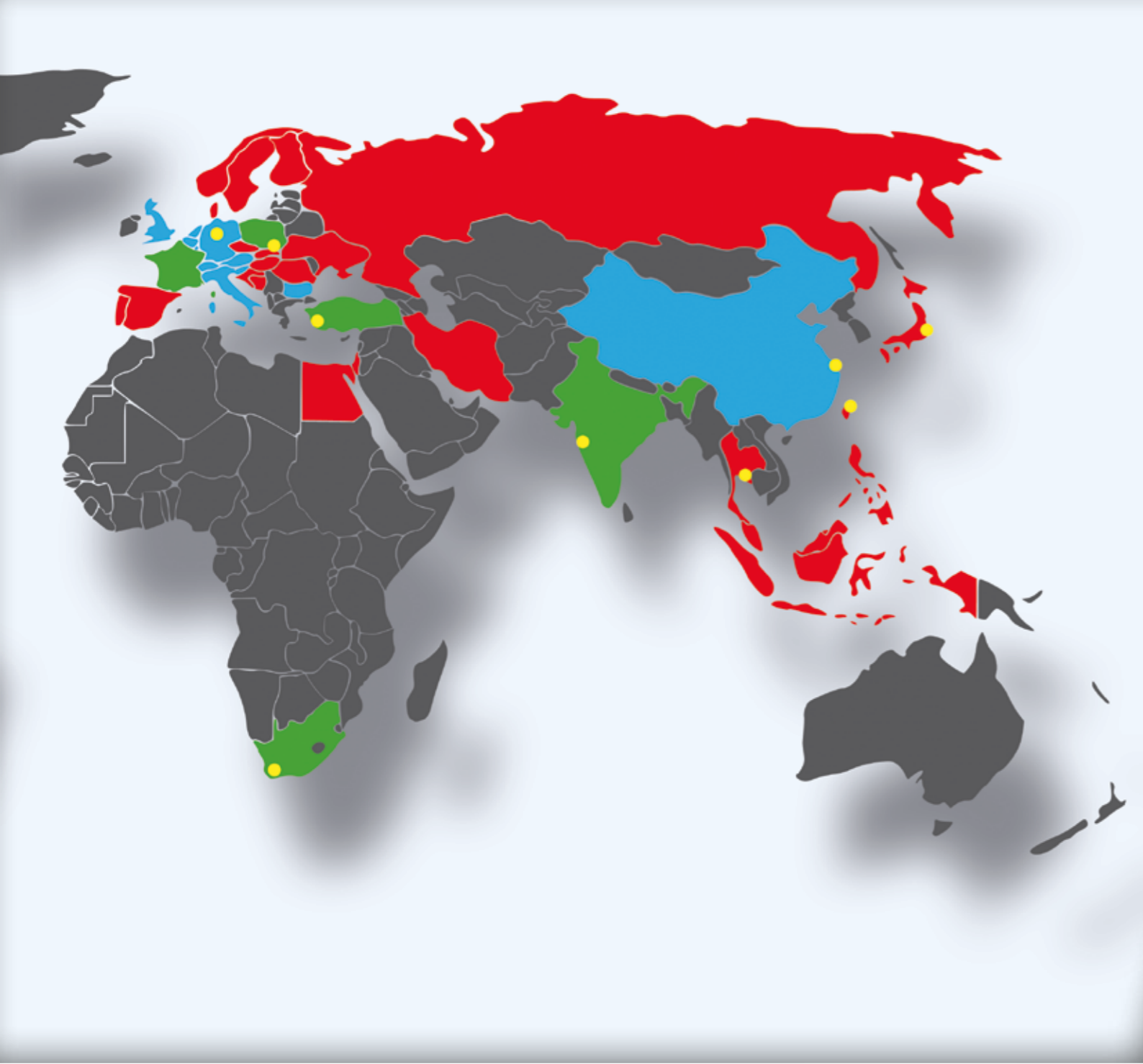
QUENCHANT TEST DEVICE

Testing device (Meinhardt system) for determination of quenching efficacy of quenching media on site.

We also offer special solutions for the most diverse issues in dosing, testing and monitoring of products.

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Petrofer Production Locations around the world

- Argentina*
- Brazil*
- China
- Germany
- India
- Japan*
- Mexico
- Poland
- South Africa
- Taiwan*
- Thailand*
- Turkey
- USA*

* under license

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Petrofer Organisations around the world

Subsidiary Companies, Joint Ventures, Licensees and Distributors

- | | | | | |
|---------------|--------------|----------------|-------------|----------|
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| Benelux | India | Croatia | Iran | Serbia |
| Bulgaria | Poland | Czech Republic | Israel | Slovakia |
| China | South Africa | Brazil | Japan | Slovenia |
| Great Britain | Turkey | Chile | Malaysia | Spain |
| Italy | | Denmark | Norway | Sweden |
| Mexico | | Egypt | Philippines | Taiwan |
| Switzerland | | Finland | Portugal | Thailand |
| | | Hungary | Romania | Ukraine |
| | | | | USA |