



Cleaners and corrosion protection for metal processing

BECHEM – Lubrication solutions for industry









As the oldest German manufacturer of industrial lubricants, BECHEM is one of the leading producers of high-quality special lubricants and metalworking fluids today.

BECHEM products stand out through innovative formulations in the most diverse industrial applications – in machining and forming for metalworking processes, in coating technology and as for-life lubricants in various technical components.

A strong network of distributors and several national and international production sites ensure that BECHEM products are readily available worldwide.

Tomorrow's technologies. Today.

PROPERTIES

- Good rinsing performance 
- Low foaming 
- Low residue level 
- Resistant to water 
- Corrosion protection 
- Biodegradable 
- Food grade/
Pharmaceutical technology 
- Cleaning agent 

All indications and values correspond to latest knowledge and do not represent any product specification

Optimally cleaned and protected against corrosion

In the metal-working industry, cleaning workpieces and semi-finished products is an important work step during the production process. Insufficient or incorrect cleaning often leads to considerable product deficiencies and faults.

Cleaning and corrosion protection procedures individually tailored to each other can contribute to significant cost reductions and economic efficiency of plant systems.

The selection of the best-possible cleaner depends on the material to be cleaned, the system technology used and the type of impurities. BECHEM coordinates all of the products to be used and takes corrosion protection into consideration already during the first two stages.



» All from one source – The BECHEM system solution generates highest efficiency and performance within your process chain. «

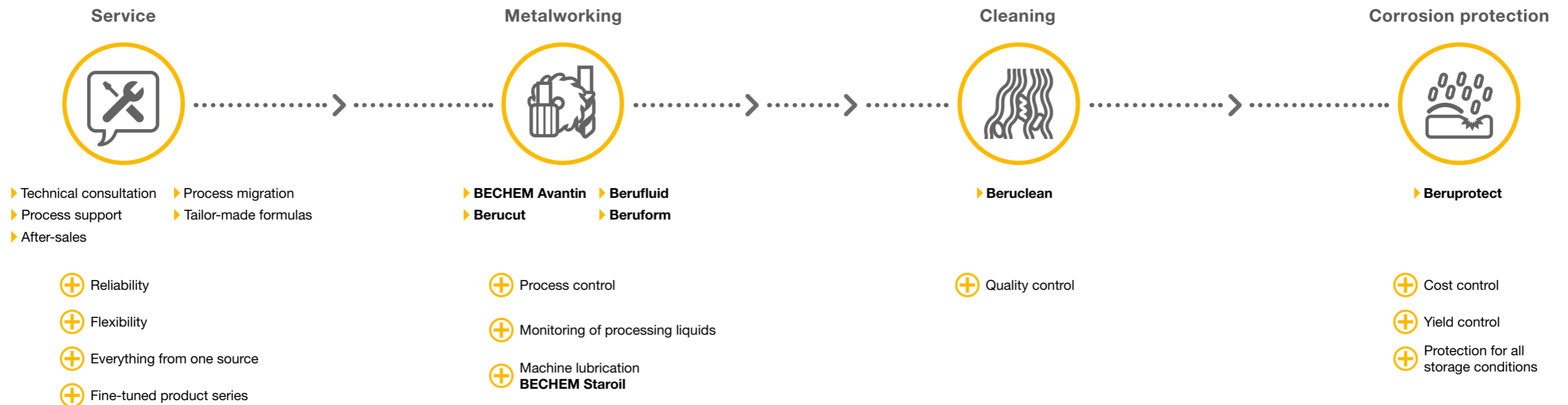
Development expertise and service

At BECHEM technical center, the latest chemical-physical testing and analysis systems are available that are used to characterize lubricants, to monitor their application, to analyze customer problems and finally to develop the appropriate lubricant solutions.

The performance capacity of the products used and the technical service are crucial for the quality of the workpieces. BECHEM specialists have the necessary expertise to provide individual consultation to users and to assess the effectiveness of system solutions.

The BECHEM service department ensures the continuous improvement of processes:

- Inventory taking/on site analysis
- Analytics at the BECHEM technical center
- Development of customized system solutions
- Extensive tests in the work process
- Process-oriented technical implementation
- Optimization of service lives
- Improvement of working conditions for the user



Professional on the workpiece: Beruclean

BEICHEM offers the **Beruclean** series both in aqueous and solvent-based products for the residue-free clean-

ing of any process fluids in metal-working covering a wide range of materials and cleaning processes.

Neutral cleaners

Beruclean neutral cleaners are highly concentrated and therefore very economical in use. Even at high pressure and low temperatures they prevent foaming, have a very good demulsifying effect, an in-process corrosion protection, and provide for a self-cleaning effect in the washing systems. Due to the various application possibilities of **Beruclean** neutral cleaner, the number of products required for the process chain can also be reduced.

Hydrocarbon cleaners

Beruclean hydrocarbon cleaners are particularly well-suited for cleaning organic contaminants, such as oil or grease, due to their high solvent power. BEICHEM cold cleaners are virtually free of aromatic compounds and are characterized by a narrow boiling range, low consumption and short drying times. For environmentally sensitive areas we recommend the readily biodegradable cold cleaning agent Beruclean ECO.

Mild and highly alkaline cleaners

In ultrasonic, spray and immersion cleaning processes, mild alkaline **Beruclean** cleaning agents can be used for non-ferrous metals, zinc and aluminum, highly alkaline Beruclean cleaning agents are recommended for ferrous metals.

Acid cleaners

The acid-based cleaners of the **Beruclean series** are particularly suitable for cleaning stainless steel and ceramic materials. Due to their high dissolving power they enable the removal of calcifications and other acid-soluble impurities.

Influencing factors when choosing the right cleaner

An optimal cleaner affects the factors of time, temperature and costs.



Cleaners

PRODUCT	Kinematic viscosity (mm ² /s at 40 °C)	Flash point (°C)	Description
Beruclean S 4033 	1,6	≥ 62	Mixture of aromatic free hydrocarbons, narrow fraction, dries quickly, almost no smell
Beruclean ECO 	1,8	≥ 70	Universal cold cleaning agent, free of aromatic compounds, almost no smell, readily biodegradable according to OECD 301 F, H1 registered, halal and kosher certified
Beruclean 4027 	2	≥ 100	Universal cold cleaner with good cleaning effect, VOC-free, low aromatic compounds, almost no smell, good corrosion protection
Beruclean S 114 ECO 	4,2	≥ 180	Cold cleaning agent based on renewable raw materials, removes oils, resins, greases, high flash point, slight protection against corrosion

Cleaners based on synthetic hydrocarbons

PRODUCT	pH-value 5 per cent	Examples of application	Processes	Description
Beruclean 5000 	8,7	Steel, grey cast iron	Immersion, spray, flood injection and ultrasonic cleaning as well as passivation (+50 °C to +70 °C for all processes)	Neutral cleaner, excellent dust-carrying capacity, very good corrosion protection, optimal cleaning results
Beruclean 5005 	10,2	Steel, grey cast iron	Immersion, spray, flood injection and ultrasonic cleaning as well as passivation (+50 °C to +70 °C for all processes)	Neutral cleaner, low foaming, excellent dust-carrying capability, excellent corrosion protection, excellent cleaning results especially for oil and ultrafine particles
Beruclean 5110 	9,0	Iron, steel, cast iron, aluminum, non-ferrous metals	Immersion, spray and flood injection cleaning as well as passivation (+20 °C to +70 °C for all processes)	Surfactant-free neutral cleaner, applicable from +20 °C in the low temperature range, excellent high pressure stability, low application concentration, very good corrosion protection
Beruclean 5124 	8,8	Aluminum, non-ferrous metals	Immersion, spray, flood injection and ultrasonic cleaning as well as passivation (+50 °C to +70 °C for all processes)	Neutral cleaner, low foaming, excellent dust-carrying capability, very good corrosion protection, optimal cleaning results, demulsifying
Beruclean 5200 	9,5	Non-ferrous metals, aluminum, steel	Immersion cleaning starting at +40 °C, special cleaning agent for ultrasonic cleaning	Neutral cleaners for non-ferrous metals and steels, suitable to remove residues of all types as well as oils and greases, excellent temporary corrosion protection
Beruclean 5030 	9,4	Steel, cast iron, aluminum, non-ferrous metals	Spray cleaning (+30 °C bis +60 °C), Ultrasonic cleaning (+30 °C bis +70 °C), Immersion cleaning (+30 °C bis +80 °C)	Universally applicable, mildly alkaline aqueous emulsion cleaner based on mineral oil for steel and cast iron materials, suitable for aluminum and non-ferrous metals
Beruclean 111 EHF 	13	Steel and ferrous materials	Immersion, spray and ultrasonic cleaning (+50 °C to +80 °C for all processes)	Universal highly alkaline aqueous cleaning agent for steel and ferrous materials
Beruclean 3849 	1,5	Stainless steel, glass, ceramics	Immersion degreasing (+30 °C to +80 °C), manual cleaning, diluted in high-pressure cleaners	Liquid, phosphorous cleaning concentrate, removes organic and inorganic deposits, cleaning of acid-resistant materials, anti-bacterial effect

Concentrates for aqueous cleaning

Basis for perfect protection: Beruprotect

Extreme corrosion influences act on the manufactured components, such as semi-finished products or vehicle components, during long international transport routes and storage times. BECHEM offers the **Beruprotect**

Dewatering Fluids

Dewatering fluids are used for drying metal parts after treatment in an aqueous medium, such as after surface finishing in electroplating, after treatment in hardness salt solutions or after treatment with water-mixed cooling lubricants. The oily, waxy or Vaseline-type film that forms protects against corrosive atmospheric influences and, to a limited extent, also against mechanical stresses.

Corrosion protection oils

Corrosion protection oils are used to apply oily protective films of different strengths. Oily films form on the treated workpieces as protective barriers against moisture and corrosive components in the ambient air. Dry or oily-wet parts are therefore preserved for temporary storage. The corrosion protection effect of the pure oil film is enhanced considerably by modern additives for long-term indoor storage and transport. Humidity and other traces of water are partly absorbed by the protective film before they can penetrate to the base material and cause corrosion. BECHEM corrosion protection oils are also suitable for untreated ferrous metals as well as for galvanized or phosphated material.

product range, specially tailored to these requirements. They include solvent, oil and water-based products for various applications of temporary corrosion protection.

Corrosion protection concentrates

BECHEM corrosion protection concentrates are nitrite-free, water-soluble or emulsifiable corrosion inhibitors, which are used directly after the treatment of iron workpieces in water-mixed cooling lubricants. The processed workpieces are immersed in emulsions, which clean off the rest of the machining emulsion as well as metal shavings, salt residues and other impurities. After drying, a film is formed that protects the workpieces against corrosion. Wax emulsions leave behind particularly uniform and strong anti-slip films when the parts are immersed in a hot bath. The film thickness can be regulated via the application concentration.

BECHEM additives are added to process baths, such as coolant circuits or cleaning baths, in order to improve the corrosion protection or to prevent a non-ferrous metal corrosion. In addition to the post-conservation of processed parts, BECHEM solutions are used for the neutralization of etchant residues.



Beruprotect: Ideal corrosion protection in the event of long transport routes and storage times

Corrosion protection

PRODUCT	Kinetische Viskosität (mm²/s) at 40 °C		Flash point (°C)	Type of film/ thickness	Period of protection internal storage	Period of protection external storage	Description
	-	≥ 62					
Beruprotect DW 	-	≥ 62	-	-	2-3 days	-	Water displacer for spotless drying of workpieces
Beruprotect DW 5 V 	-	≥ 62	vaseline-like, 0,7 µm	-	2-3 months	-	Excellent dewatering properties, very thin, vaseline-type, non resinifying film, free of aromatic hydrocarbons and heavy metals
Beruprotect DW 12 V 	-	≥ 62	vaseline-like, 1 µm	-	9-12 months	3-6 months	Universal product, compensates acidic ingress after galvanic processes, forms a thin, vaseline-type and stable film, excellent dewatering properties, free of aromatic hydrocarbons and heavy metals
Beruprotect DW 20 M 	-	≥ 62	ölig, 3 µm	-	6-9 months	2-3 months	Good dewatering properties when displacing aqueous process agents, forms an oily, bright film, impregnation oil for sintered metals, free of aromatic hydrocarbons and heavy metals
Beruprotect 25 S 	-	≥ 62	vaseline-like, 3 µm	-	9-12 months	3-6 months	Good creeping properties, forms a high-performance film, free of aromatic hydrocarbons and heavy metals, dries quickly, easy to degrease
Beruprotect 30 W - 35 W 	-	≥ 62 ≥ 100	waxy 4 µm	-	12-15 months	6-8 months	Very strong waxy corrosion protection film for highest requirements to temporary rust prevention, suitable for overseas transports, good dewatering properties, free of aromatic hydrocarbons and heavy metals
Beruprotect M 6 - M 80 	6 20 40 50 80	≥ 100 ≥ 155 ≥ 170 ≥ 170 ≥ 150	oily	-	2-3 mos. 4-5 mos. 6-8 mos. 8-10 mos. 10-12 mos.	2-3 mos. 3-4 mos. 5-6 mos.	From the low-viscous anti-corrosion oil with good creeping properties to preserve small parts and bulk material, up to the polishing and anti-corrosion oil with forming properties, suitable to preserve band material and straighten steel bars and tubes

Dewatering Fluids

Corrosion protection oils

PRODUCT	Type of film/ thickness	Period of protection internal storage	Period of protection external storage	Description
Beruprotect WM 190 M 	oily	depending on service concentration up to 12 months	-	Water-miscible anti-corrosion concentrate, service temperature range +20 °C to +60 °C, forms an oily, self-repairing film with creeping properties
Beruprotect WM 3620 W 	waxy	depending on service concentration 2-9 months	depending on service concentration 1-3 months	Wax/oil dispersion, can be applied undiluted or diluted with water at temperatures up to +60 °C, forms a waxy, stable film
Beruprotect Spray 	waxy, solid, approx. 20-30 µm	up to 3-4 years	up to 2 years	Solvent containing protective wax for long-life rust prevention, excellent adhesive properties, also suitable for salt water atmosphere
Berulub ECO GD 40 Spray 	oily	-	-	Multifunctional spray, readily biodegradable acc. to OECD 301 C, acid and resin free, almost no smell, suitable as rust solvent, protection against corrosion, cleaning and maintenance agent, water repellent, good creeping properties
BECHEM High-Lub SW 2 Spray 	-	up to 2 years	up to 1 year	Universal lubricant and long-life protection against corrosion even in case of contact with salt water, good water resistance, very high wear protection thanks to EP-additives

Water miscible corrosion protection

Spray

Beruclean – the cleaning agent for the highest of demands



Beruclean 3050 ECO – for the cleaning of industrial floors, machines and vehicles

BECHEM also offers a product range of high-performance machine and floor cleaning agents, besides the complete range of fully matched process fluids, industrial cleaning agents and corrosion protection agents for the metals-processing industry.

The products in the **Beruclean** series top the highest of demands that are posed for efficient cleaning systems for technical equipment and industrial floors in production halls. **Beruclean** cleaning agents make a compelling case by virtue of their high quality, optimized performance characteristics and excellent efficiency.

The special cleaning agents that are compatible with basic and other materials enable an effortless removal of industrial soiling and effective cleaning and care of industrial floors, equipment, engines, vehicles and machines. They can be used on concrete, sealed and coated floors, as well as smooth floor surfaces such as slabs, tiles or plastic. By virtue of their high separation force, they are

particularly well suited for cleaning up organic deposits such as oils, fats, waxes or tars while going easy on the surface. Products of the **Beruclean** series do not attack aluminum, cast iron or steel surfaces.

The **Beruclean** cleaning agents have been developed specifically for scrubber vacuum machines as well as high-pressure and steam jet tools, but they are also ideal for manual cleaning processes. Ingredient substances that are sparing on resources and a low-consumption formulation guarantee the maximum of efficiency and excellent cleaning results.

For coolant changes, new fillings and maintenance of your installations, BECHEM offers various system cleaners. Benefit from the expertise and extensive technical service of the BECHEM application engineers who will be pleased to provide professional advice with regard to your production processes.



Beruclean 3050 is very good for the residue-free cleaning and care of sealed and coated floors

PRODUCT	Processes	Examples of application	Description
Beruclean 3050 	Steam jet tools, manual cleaning	Steel and iron materials, aluminum, slabs, tiles, plastic surfaces, industrial floors, engines, vehicles, machinery	Mildly alkaline high-performance and special cleaning agent for industrial soiling, neutral to varnishes, rubber seals, plastics, textiles and aluminum, high efficiency because of very low consumption
Beruclean 3050 ECO 	High-pressure tools, scrubber vacuum machines, manual cleaning	Steel and iron materials, aluminum, slabs, tiles, plastic surfaces, industrial floors, engines, vehicles, machinery, cleaning of filling equipment	Mildly alkaline high-performance and special cleaning agent for industrial soiling, neutral to all surfaces, high efficiency because of very low consumption
Beruclean 5220 	Diluted in cleaning tools, manual cleaning	Stainless steel, glass, ceramics, removes organic and inorganic deposits, cleans acid-resistant materials, cleaning of filling equipment, suitable for the food industry	Liquid, phosphor-acid cleaning concentrate, removes lime and has anti-bacterial effect because of the very low pH-value
Beruclean H1 Spray 	Spray cleaning (spraying also possible while spray can is held upside down)	Removes oil and fat soiling of any kind and any varnishes and paints that are not fully hardened yet, cleans brake and coupling parts	Fat solvent and brake cleaning agent, dissipates without residues, very good corrosion protection, H1 registered
Beruclean S 4033 	Immersion and flood injection cleaning, manual cleaning, condensation cleaning	Degreasing of metal parts and semi-finished products, for cleaning equipment, tools, engines, tank systems, chains, vehicles, removal of processing oils that are not mixed with water, corrosion protection media and waxes	Mixture of carbon hydrates free from aromatic compounds, narrow boiling range, dries quickly, almost no smell, sprayable

The product-specific instructions on use must be observed.

Cleaning agent for manual and mechanical cleaning

Carbon hydrate cleaning agent for manual cleaning