



Special lubricants for the  
fitting industry



**BECHEM**  
LUBRICATION  
TECHNOLOGY



# Special lubricants for the fitting industry

## BECHEM – Lubrication solutions for industry




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

BECHEM products convince by innovative formulations in the most diverse of industrial applications – in machining and forming metal working 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.**

### APPLICATIONS

- Sanitary fittings 
- Industrial fittings 
- Plain bearings 
- Aviation industry 

### ATTRIBUTES

- High loads 
- Low temperatures 
- High temperatures 
- Resistant to water 
- Food grade/Pharmaceutical technology 
- Compatible with plastics 
- Corrosion protection 
- Available in aerosols 
- Product in aerosols 

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

# Development partner for tribological challenges

Intensive research and development as well as state-of-the-art equipment are the vital basis that allows BECHEM to create new, intelligent product concepts for the various, demanding tribological tasks in the fitting industry.

By means of latest chemical-physical test and analysis systems, the BECHEM laboratories characterise lubricants, monitor their application, analyse customers' problems and finally elaborate the suitable lubricant solutions.

This is only one of the many reasons why the BECHEM valve lubricants meet the technical, chemical and constructive requirements of drinking water taps in the household, industry and health sector, as well as of fittings for technical gases and aggressive media.

The analyses of lubricants in the BECHEM laboratories decisively contribute to the reduced development period of products in the fitting industry.



# Certified for multiple use

BECHEM special lubricants for the fitting industry comply with the relevant guidelines and regulations in the drinking water sector (the corresponding approvals for BECHEM products are listed in the tables on pages 8, 9, 10 and 11).

## Lubricant guidelines

(derived from KTW recommendations)

German guidelines for hygienic assessment of lubricants in contact with drinking water (sanitary lubricants). These guidelines, as do the KTW guidelines (KTW stands for "plastics and drinking water" in German), consist of the positive list of usable raw materials for the manufacture of materials and constituents, the compulsory testing processes (migration test process) and the test values with limit value character which need to be observed.

## NSF Standard 61

NSF International is a certification organisation for the sectors of health and environment which is established and accredited in the USA, Canada and Europe. The NSF Standard 61 defines the requirements with regard to chemical impurities and mixtures which are indirectly added to drinking water in the drinking water systems due to the products and materials used.

## WRAS

The Water Regulation Advisory Scheme (WRAS) is the English certification body for products with drinking water contact.

## ACS

The Attestation de Conformité Sanitaire (ACS) is the French certificate for products with drinking water contact. Accredited test laboratories test the lubricants for conformity with the French positive list.



## BELGAQUA

BELGAQUA is the Belgian authority for the water sector. Products with the BELGAQUA certificate may be used in the Belgian drinking water sector.

## BAM

The BAM (Bundesanstalt für Materialforschung und -prüfung) in Berlin is the leading German authority for testing, analysis and approval in material sciences. The BAM tests behaviour in oxygen atmosphere of oxygen valves and units.

## DVGW

The Deutsche Vereinigung des Gas- und Wasserfaches e.V. (DVGW) stands for technical self-administration in the gas and water sector. The technical specifications are the basis for safety and reliability within the German gas and water supplier industries.

## DIN-DVGW test symbol

Only lubricants which have been tested by neutral testing laboratories (e.g. the DVGW research laboratory in Karlsruhe) on the basis of DIN EN 377 or DIN 3536 and then approved with the DIN-DVGW test symbol may be used in gas appliances and fittings.



# Best features for highest performances

BEICHEM special lubricants are important construction elements in the fitting industry. Depending on the product category, our lubricants for drinking water taps fulfil the following criteria:

## Chemical-physical

- Prevention of migrating lubricant components (verification by TOC measurement)
- Compatibility with elastomers, e.g. NBR and EPDM
- No tension crack formation in plastics, e.g. ABS, POM, PPE/PS, PSU, PBT, PA, PP and SAN
- No non-ferrous metal discolouration
- Prevention of tribo-chemical influences by additives
- Prevention of corrosion, erosion and hard deposits on metal sealing surfaces (protective function)
- Prevention of erosion and hard deposits on plastic and ceramic surfaces

## Physiological-microbiological

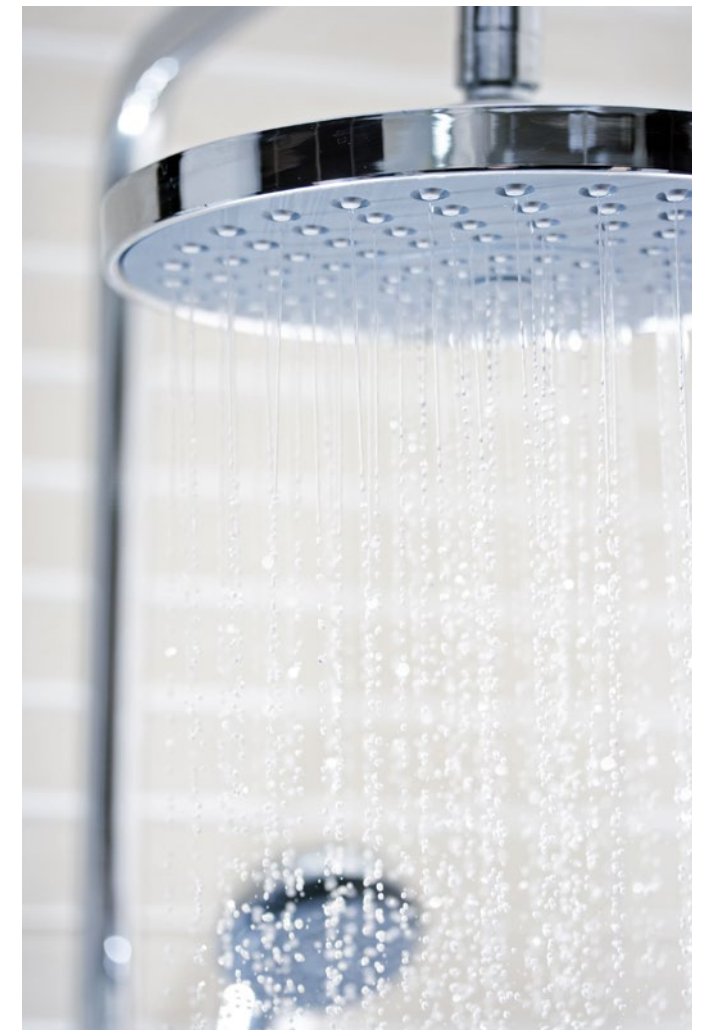
- No medium for microorganisms (verification by MDOD test or oxygen consumption)
- Odour, taste and foaming tendency of drinking water is not negatively affected
- The lubricants are free of toxic ingredients (current state of legislation)

## Mechanical-dynamic

- Reduction of frictional resistance during switching operations (torque reduction)
- Low-wear operation on frictional contacts from metal (no abrasive wear)
- Maintenance of switching capacity of construction elements with rubber-elastic sealing surfaces (no “sticking”)
- Prevention of stick-slip in valve tops at high torques (tested at 500,000 load changes)
- Regulation of ceramic valves and cartridges with constant, low torques over a wide temperature range
- High wash-out resistance at standard flow speeds of around 3 m/s

## Gas taps

- Emergency sealing at worn primary sealing systems (natural gas pipelines)
- Improvement of secondary sealing effect of “soft-sealed” fittings



# Lubricants for drinking water applications

		TECHNICAL DATA				APPLICATIONS										APPROVALS										Properties
PRODUCT		Thickener/ base oil	NLGI-grade	Service temperature range [°C]		Valve taps, classic	Valve taps, ceramic taps	Single lever taps, ceramic sealing disc <sup>1)</sup>	Shower heads	Thermostats, temperature regulators	Tap cocks, cocks	Ball cocks	Strand valves	Flushing valves	Pressure reducers	O-rings, gaskets	Glands	Assembly and wind-up devices	DIN-DVGW test symbol	NSF Standard 61	Lubricant guidelines (according to KTW)	WRAS	ACS	BELGAQUA	tgM	
Lubricating greases	<b>Berulub FO 34</b> 	PTFE/Silicone oil	0 - 1*	-40	+160		•	•	•			•	•		•		•		•	•	•	•	•			For-life lubrication of hot and cold water taps, suitable for material combinations plastic/plastic, plastic/metal, ceramic/ceramic and ceramic/plastic, high adhesive strength and water resistance
	<b>Berulub Sihaf 2</b> 	PTFE/Silicone oil	3	-40	+160		•	•	•			•		•	•		•	•	•	•	•	•	•	•	•	For equipment related to food and drinking water such as air and rotary diffusers in filling machines and ceramic seals in mixing valves, NSF-H1 certified, Halal and Kosher certificate
	<b>Berulub Sihaf 1</b> 	PTFE/Silicone oil	1	-40	+160		•	•	•			•		•	•		•		•	•	•	•	•			See <b>Berulub Sihaf 2</b> , however NLGI grade 1
	<b>Berusil CDG 352</b> 	PTFE/Silicone oil	2	-40	+150		•	•	•					•	•		•		•	•	•	•	•			For-life lubrication of hot and cold water taps, suitable for material combinations plastic/plastic, plastic/metal, ceramic/ceramic and ceramic/plastic, high adhesive strength and water resistance
	<b>Berusil FO 25</b> 	Gel/Silicone oil	2 - 3*	-40	+160				•					•	•	•				•						Multipurpose grease for rubber-elastic seals and plastic bearings, hot and cold water resistant, extremely good high and low-temperature resistance
	<b>Berusil FO 26</b> 	Gel/Silicone oil	2 - 3*	-40	+160				•			•		•	•	•				•						See <b>Berusil FO 25</b> , however with higher base oil viscosity and better sealing effect
	<b>Berusoft 30</b> 	Special calcium complex soap/ PAO	2	-30	+150	•	•			•	•	•	•	•			•		•	•	•	•	•			Long-term lubrication of material combinations non-ferrous metal/ non-ferrous metal, plastic/plastic and plastic/metal with a wide service temperature range, e.g. for single lever taps and thermostats
Lubricating oils	<b>Berulub FU 5</b> 	Gel/PAO	2	-20	+100	•					•		•						•	•	•	•				Short-fibred multipurpose grease to lubricate non-ferrous metal bearings and sanitary hot and cold water taps, resistant to oxidation
	<b>Berusil SM 350</b> 	Silicone oil		-40	+150										•		•					•				Very good plastic and elastomer compatibility, good wetting performance, thermally stable, resistant to oxidation, NSF-H1 certified, Halal and Kosher certificate
	<b>Berusil SM 2000</b> 	Silicone oil		-50	+180										•		•				•	•				For plastic bearings and gears which require a high base oil viscosity, high viscosity index, resistant towards water, NSF-H1 certified
	<b>Berusil P 140 Spray</b> 	Silicone oil		-40	+150										•		•						•			Suitable for non-ferrous metals, plastics and elastomers, extremely low evaporation losses in high temperature range, physiologically harmless, neutral in odour and taste, NSF-H1 certified

<sup>\*</sup>Value indicates unworked penetration   <sup>1)</sup>with ceramic sealing and regulating discs



» Tailored to the specific service conditions, BECHEM lubricants contribute to extended lifetime of fittings. «



# Lubricating greases for special applications

	PRODUCT	TECHNICAL DATA				APPLICATIONS										APPROVALS						
		Thickener/ base oil	NLGI-grade	Service temperature range [°C] <sup>1)</sup>		Thermostats, temperature regulators	Tap cocks, cocks	Ball cocks	Strand valves	Flushing valves	Pressure reducers	O-rings, gaskets	Glands	Gas appliance and controlling devices	Oxygen machine parts	Oxygen pressure reducers and valves	Assembly and wind-up devices	DIN-DVGW test symbol	BAM "oxygen" test	Properties		
Lubricating greases for technical gases	<b>Berulub OX 40 EP</b> 	PTFE/Silicone oil	3*	-30	+200									•	•	•		•	Elastomer lubricant for oxygen fittings and other oxygen plant components, for oxygen pressure surges up to 40 bar at +60 °C operating temperature, e.g. in medical sector			
	<b>Berulub OX 100 EP</b> 	Inorganic pigments/PFPE	2*	-30	+200 +250									•	•	•		•	Lubricant for oxygen fittings and other oxygen plant components, for oxygen pressure surges up to 140 bar at +60 °C operating temperature, e.g. in aerospace sector, exceptional plastic and elastomer compatibility, NSF-H1 certified, Halal certificate			
	<b>Berulub PG 3 F</b> 	Polyurea/ Synthetic oil combination	3	-20	+150			•						•		•	•		Cream-coloured, solid lubricant containing high and low-temperature grease to lubricate tap cocks and sealing elements, as well as gas taps, distributors, supply lines and controlling devices in gas equipment in domestic installations			
	<b>Berulub Sihaf 2</b> 	PTFE/Silicone oil	3	-40	+160	•		•		•	•	•		•		•	•		For equipment related to food and drinking water such as air and rotary diffusers in filling machines and ceramic seals in mixing valves, NSF-H1 certified, Halal and Kosher certificate			
	<b>Berutox VPT 54-2</b> 	PTFE/PFPE	2	-30	+230		•	•								•	•		Longlife lubrication, reduction of friction and wear, high thermal and chemical resistance, very good oxidation resistance, excellent elastomer and plastic compatibility even in case of vacuum and radiation, resistant against solvents and aggressive chemicals			
Lubricating greases for aggressive media	<b>Berutemp FH 28 G</b> 	Polyurea/PAO	1	-40	+200		•	•	•			•	•						Completely synthetic grease, resistant against hot and cold water, steam, aqueous alkaline and acidic liquids, high corrosion and wear protection, contains graphite			
	<b>Berutox VPT 64 BN 3</b> 	PTFE/PFPE	3	-20	+280 +300		•	•			•					•			Lubrication of fittings and machine elements under the influence of aggressive media, exceptionally stable against thermal and chemical decomposition, compatible with plastics and elastomers			
	<b>Berutemp 500 T 2</b> 	PTFE/PFPE	1 - 2	-20	+260		•	•								•			Long-term lubricating grease, even under vacuum, radiation, solvents and aggressive chemicals, exceptional plastic and elastomer compatibility, extremely thermally stable, NSF-H1 certified, Halal and Kosher certificate			
Other lubricants	<b>Berulub Hydrohaf GR</b> 	Bentonite/Ester	1 - 2	-10	+140	•		•	•	•	•	•				•			Longlife lubrication of hot and cold water taps, resistant to oxidation, good plastic and elastomer compatibility, good adhesion, water resistant, prevents stick-slip			
	<b>Berulub Hydrohaf 2</b> 	Bentonite/ Polyglycol	2	-10	+150	•		•	•	•	•	•				•			Lubrication of hot and cold water taps, especially suitable for material combinations metal/elastomer and non-ferrous metal/non-ferrous metal, good plastic and elastomer compatibility			
	<b>Berulub PAL 3</b> 	PTFE/Ester	3*	-20	+150	•	•	•					•						For material combinations plastic/plastic, plastic/metal and non-ferrous metal/non-ferrous metal, avoids stick-slip, even at high surface pressure, also available as spray			

\*Value indicates unworked penetration <sup>1)</sup> Value in grey indicates a possible short-term maximum temperature

» Proven quality worldwide –  
BECHEM lubricants for the fitting industry. «



# Lubrication solutions for industry



**CARL BECHEM GMBH**

Weststr. 120 · 58089 Hagen · Germany · Phone +49 2331 935-0 · Fax +49 2331 935-1199 · [bechem@bechem.de](mailto:bechem@bechem.de) · [www.bechem.com](http://www.bechem.com)