

bilosol® Product Range
Heat/Cooling Media

Bilgram group – trade and production since 1971

The headquarters of Bilgram Chemie GmbH is located in Ostrach, near Lake of Constance.

The company is a distributor of chemicals, cleaning agents, car care products and swimming pool chemicals.



Key figures Bilgram group:

- over 250 employees
- about 6.000 clients
- about 300.000 t quantity turnover
- about 100 storage tanks
- about 200.000 m² total operating area
- about 20 bulk silos



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- All information is nonbinding guidelines

bilosol® N / bilosol® N Geo

The products bilosol® N and bilosol® N Geo are standard colourless to yellowish heat transfer media based on monoethylene glycol for technical applications. bilosol® N Geo is listed in the positive list "LAWA recommendations for water management requirements for geothermal probes and geothermal collectors" and can also be supplied in a bluish colour upon request.
Additional color options are available upon request for bilosol® N. bilosol® N and bilosol® N Geo contain corrosion protection systems that reduce metal loss to just a few µm per year.

bilosol® L / bilosol® L Geo

bilosol® L and bilosol® L Geo are propylene glycol-based, colorless to yellowish heat transfer media and are preferably used in the food processing industry.
In addition, bilosol® L Geo is mandatory for use in areas where special water law requirements exist. bilosol® L Geo is also available in a bluish color and is listed in the positive list "LAWA Recommendations for Water Management Requirements for Geothermal Probes and Collectors."In addition to blue, other color variants are available for bilosol® L upon request. The bilosol® L, bilosol® L Geo corrosion protection system is highly effective and reduces corrosion rates to a few µm of wear per year.

bilosol® HT

bilosol® HT is a blend of various glycols and is characterized by its broader, higher boiling range compared to bilosol® N and bilosol® L. The higher final boiling point of the application solution enables its use in solar thermal systems with standstill temperatures of up to 250°C. Due to the high thermal load on the heat transfer medium, we recommend an annual review of its suitability by our specialist laboratory.

Many of the listed heat/cooling media are available in the following colors:



	Dark blue	Blue	Light blue	Green	Colorless to yellowish	Orange	Red	Dark red
bilosol® N	✔	✔	✔	✔	✔	✔	✔	✔
bilosol® N Geo			✔		✔			
bilosol® L	✔	✔	✔	✔	✔	✔	✔	✔
bilosol® L Geo			✔		✔			

		bilosol® N	bilosol® N Geo	bilosol® L	bilosol® L Geo	bilosol® HT
Plastics						
ABS	Acrylonitrile butadiene styrene Centellen NP (WS3860)	++	++	++	++	++
CR	Polychlorobutadiene rubber	++	++	++	++	++
EPDM	Ethylene-propylene-diene rubber	++	++	++	++	++
FPM	Fluorocarbon elastomers	++	++	++	++	++
NBR	Nitrile rubber	++	++	++	++	++
NR	Natural rubber up to 80°C	++	++	++	++	++
PA	Polyamide	++	++	++	++	++
PB	Polybutene	++	++	++	++	++
PE	Polyethylene	++	++	++	++	++
PE HD	High density polyethylene	++	++	++	++	++
POM	Polyacetal	++	++	++	++	++
PP	Polypropylene	++	++	++	++	++
PTFE	Polyfluoroethylene	++	++	++	++	++
PVC HT	Polyvinyl chloride	++	++	++	++	++
SBR	Styrene-butadiene rubber	++	++	++	++	++
UP	Polyester resins	++	++	++	++	++
VPE	Crosslinked polyethylene	++	++	++	++	++
IIR	Butyl rubber	++	++	++	++	++
Natural fibers						
Hemp		++	++	++	++	++
Metals						
Gray cast iron		++	++	++	++	++
Copper		++	++	++	++	++
Brass		++	++	++	++	++
Tin		–	++	++	++	++
Aluminum		+	+	+	+	+
Stainless steel		++	++	++	++	++
Normal steel		++	++	++	++	++

++	very good resistance
+	good resistance
–	conditionally stable
––	unbeständig

Areas of application

	bilosol® N	bilosol® N Geo	bilosol® L	bilosol® L Geo	bilosol® HT
Temperature range					
Optimal temperature range in °C	min. -50 to max. 190	min. -50 to max. 190	min. -50 to max. 180	min. -50 to max. 180	min. -50 to max. 180
Short-term temperature range in °C	max. 190	max. 190	max. 180	max. 180	max. 180
Renewable power generation					
Biogas plants	✔		✔		
Wind turbines	✔		✔		
Beverage and food industry					
Brewery			✔		
Dairy			✔		
Winery			✔		
Fish and meat processing			✔		
Bakery / Confectionery			✔		
Geothermal systems					
Geothermal probes		✔		✔	
Geothermal probes in water protection areas		✔		✔	
Geothermal collectors		✔		✔	
Lawn, street and footpath heating	✔	✔	✔	✔	
Solar thermal systems					
Flat plate collectors					✔
Evacuated tube collectors					✔
Evacuated tube collectors with reflectors					✔
Manufacturing industry					
Heat recovery/cooling	✔		✔		
machining industry	✔		✔		
Injection molding industry	✔		✔		
Building technology					
Sprinkler systems			special		
Air conditioning systems	✔		✔		
Ice sports surfaces	✔		✔		

Applications

Our heat and coolant transfer media are used in heating systems, air conditioning systems, cooling circuits, ice rinks, solar thermal systems, and much more. Our product range offers the right product for every application.

Food refrigeration



Modern cooling systems ensure that food stays fresh longer and retains its flavor.

Solar thermal energy



Solar thermal energy allows water and living spaces to be heated in an environmentally friendly way – sustainably, efficiently and future-proof.

Geothermal energy



Geothermal energy provides sustainable heat and electricity from the depths of our planet – clean, consistent, and powerful.

Lawn heating



With undersoil heating, the pitch remains playable all year round – for exciting matches and the best conditions.

Corrosion protection

To determine the corrosion protection of antifreeze against various metals and alloys, testing is carried out according to ASTM 1384. Metals and alloys with special requirements are exposed to the antifreeze solution for 336 h, 6 l / h air and 88 °C.
The removal rate of each tested metal or alloy is measured, which is given in g/m².
All measured results are well within the limits (according to ASTM D3306) and show that all bilosol® solutions are suitable for continuous operation.
Our corrosion protection is borate-, nitrate-, and nitrite-free, as well as free of secondary amines and silicates. bilosol® does not contain any CMR substances.

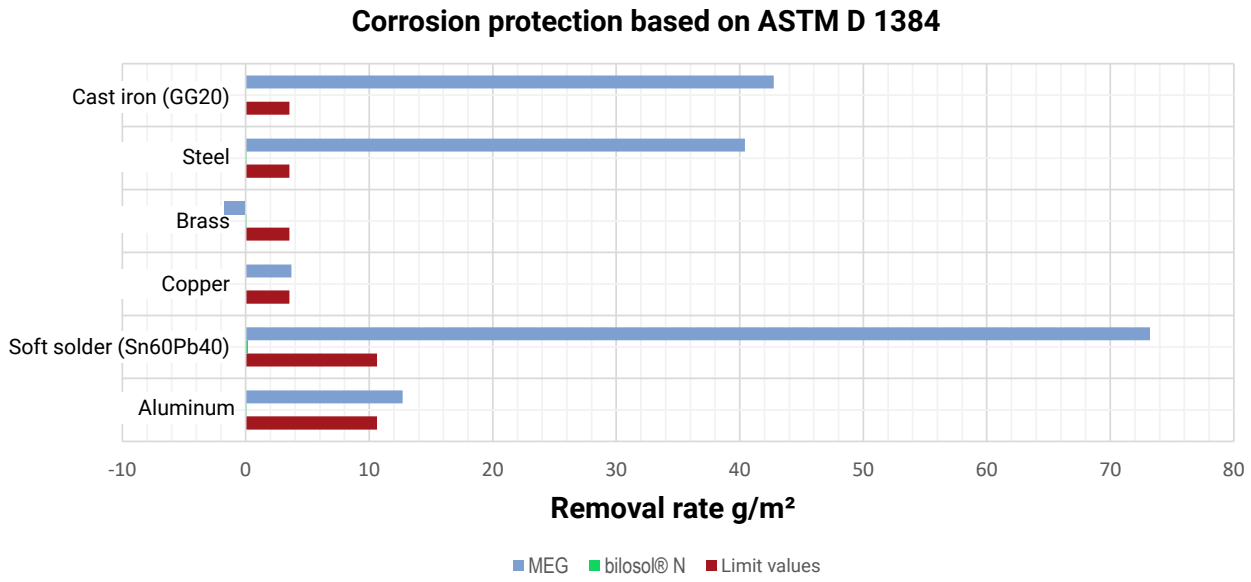




Image left: Test plates of pure monoethylene glycol compared to bilosol® N (image right). Top left: copper; top center: brass; top right: soft solder (Sn60Pb40); bottom left: aluminum;
bottom center: gray cast iron GG20; bottom right: steel.

Ready-to-use solutions

Frost protection[1]	bilosol® N / bilosol ® N Geo	bilosol® L / bilosol® L Geo	bilosol® HT
-35 °C	bilosol® N -35 °C	bilosol® L -35 °C	–
-30 °C	bilosol® N -30 °C	bilosol® L -30 °C	bilosol® HT -28 °C
-25 °C	bilosol® N -25 °C	bilosol® L -25 °C	–
-20 °C	bilosol® N -20 °C	bilosol® L -20 °C	–
-15 °C	bilosol® N -15 °C	bilosol® L -15 °C	–
-10 °C	bilosol® N -10 °C	bilosol® L -10 °C	–

Additional ready-mixed products are available upon request. Please contact us.

Application concentration for mixing the concentrate

Frost protection[1]	bilosol® N / bilosol® N Geo		bilosol® L / bilosol® L Geo		bilosol® HT	
	Concentrate	Water	Concentrate	Water	Concentrate	Water
	kg	kg	kg	kg	kg	kg
-50 °C	–	–	–	–	100,0	0,0
-45 °C	–	–	–	–	96,5	3,5
-40 °C	–	–	–	–	91,5	8,5
-35 °C	54,3	45,7	54,0	46,0	86,5	13,5
-30 °C	50,3	49,7	49,0	51,0	80,0	20,0
-25 °C	45,7	54,3	45,0	55,0	73,0	27,0
-20 °C	40,5	59,5	40,0	60,0	66,5	33,5
-15 °C	33,5	66,5	33,5	66,5	56,0	44,0
-10 °C	25,5	74,5	26,0	74,0	43,0	57,0
-5 °C					25,0	75,0

[1] To ensure safety, we recommend selecting a concentration at least 3 °C lower than the lowest expected process temperature.
A minimum concentration of 20 % v / v in water is required to achieve adequate corrosion protection.

Miscibility of heat transfer media

bilosol® Heat transfer media can in principle be mixed with products of the same raw material basis and with water in any ratio. However, incompatibility between corrosion protection systems can occur in rare cases. Therefore, it is recommended to conduct a preliminary test to check miscibility. To do this, mix both media and observe whether the mixture becomes cloudy. If no clouding occurs, it can be assumed that the mixture is compatible.

Demineralized or alternatively softened water with a chloride content of < 50 mg / L is recommended as dilution water.

Due to the lower surface tension of bilosol® N; bilosol® N Geo; bilosol® L; bilosol® L Geo, and bilosol® HT compared to water, corrosion products and limescale deposits can be released from system components when systems are first filled. Therefore, we recommend cleaning the system with bilosol® System Cleaner Extra to remove metallic corrosion products and any limescale deposits during initial filling and when completely draining systems. Alternatively, detached deposits can be removed from the system after refilling by circulating filtration of the entire system volume. To ensure the effectiveness of the corrosion protection system, heat transfer fluid concentrations below 20 % must be avoided. At lower heat transfer fluid concentrations, the dilution water dilutes the corrosion protection system below the effective concentration.

Handling, storage, shelf life and disposal

When handling bilosol® heat / cooling media, the usual occupational safety precautions for handling chemicals must be observed. Details can be found in the respective safety data sheet.
bilosol® L and bilosol® HT are free of secondary amines, borates, nitrate, nitrite, and silicates. The shelf life of bilosol® heat / cooling media is 5 years when stored in a dry place and protected from direct sunlight. Observe the applicable legal regulations for disposal.



Service and monitoring

In general, bilosol® heat transfer media can be used for many years. Nevertheless, regular annual inspections are recommended to maintain the functionality of the heat transfer medium. We would be happy to advise you by evaluating samples returned to us.
However, the statements made refer only to the sample received. Statements made by us regarding the continued usability of the heat transfer medium assume the proper condition and operation of the system. When changing products, existing corrosion or deposits may lead to unforeseeable interactions, for which we assume no liability.

☎
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Quality assurance

All bilosol® products from Bilgram were developed in-house for use as cooling and heat transfer fluids. Innovations in the field of corrosion protection are immediately incorporated into further developed bilosol® formulations. Our products are subject to continuous production and quality controls by our in-house quality assurance laboratory based on our certified quality assurance system according to DIN EN ISO 9001.

- All corrosion tests are carried out in accordance with ASTM D1384

Return of used glycols

If you need to return used glycol, please contact us. We'll be happy to help.

		bilosol® N / N GEO	bilosol® L / L GEO	bilosol® HT
Parameter	**Unit**			
Active ingredient base		Ethylene glycol	Propylene glycol	Glycol
Appearance		clear liquid	clear, hygroscopic liquid	clear, hygroscopic liquid
pH-value (20 °C)		7,5 - 9,0	8,5 - 9,5	8,5 - 9,5
Density (20 °C)	**g/ml**	1,11 - 1,12	1,03 - 1,06	1,03 - 1,06
Boiling point (1013 mbar)	**°C**		151	
Refractive index nD 20		1,430	1,430	
Reserve alkalinity	**ml 0,1 n HCl/10 ml**	10 min.	10 min.	10 min.
Flash point	**°C**	117	103	103
Ignition temperature	**°C**	410	420	420
Temperature class		T2	T2	T2
GHS Symbol			label-free	label-free
ADR		not assumed	not assumed	not assumed
WGK		1	1	1
Biodegradability		good	good	good
Free from		CMR. RoHS substances, nitrite, nitrate, silicate	CMR. RoHS substances, nitrite, nitrate, silicate	CMR. RoHS substances, nitrite, nitrate, silicate

LAWA-Listing

bilosol® N Geo and **bilosol® L Geo** are on the LAWA Positive List.

- Check out the link:

aquatop® Vacuum salt tablets

- high-purity evaporated salt
- slow, uniform dissolution
- free from impurities
- easy handling and dosage
- long shelf life
- Tablet form
- coarse regeneration salt according to DIN EN 973 for water softening systems

▶ Pal. 99 PE-bags	10 kg
▶ Pal. 40 PE-bags	25 kg
▶ BIG BAG	500 kg
▶ BIG BAG	800 kg



Heating water VDI 2035

Characteristics:

Heating water VDI 2035 is a ready-to-use heating water for heating systems. It contains no secondary amines, no nitrites, and no phosphates. It is biodegradable.

Areas of application:

The demineralized water-based fluid, in combination with a corrosion inhibitor, meets the requirements of VDI Guideline 2035. It protects all metals commonly used in heating systems (such as copper, brass, and steel) and prevents deposits and layer formation.

Material resistance:

All metals commonly used in heating construction (such as copper, brass and steel) are protected.

Important ingredients and labeling:

The substance is classified as non-hazardous according to Regulation (EC) No. 1272 / 2008 [CLP].

Storage:

Keep container tightly closed. Store in a cool place. Store between 10 °C and 15 °C.

Storage instructions:
Keep away from food and drinks.

Heating water VDI 2035



▶ IBC	1000 L

Technical data	
Appearance	colorless, clear
Density (20 °C)	0,990 – 1,015 g/cm³
Electrical conductivity	< 15 µS/cm
pH-value	> 8,1



Demineralized water

Demineralized water in various qualities

Standard goods

Appearance:	clear, colorless
Conductivity:	max. 15 µS/cm

General information

Demineralized water that can be used to dilute glycol heat transfer fluids or as heating water. Fill and top-up water for hot water heating systems according to VDI 2035.

Service

- Expert advice and support in the use of our products
- Delivery with own fleet possible
- Delivery is made in canisters, IBCs or tank trucks



Water that understands your heating system.

rechner.bilgram.eu

Use our specially programmed calculator to determine your frost protection and make concentration adjustments in your system.
If you have any questions or concerns, please contact us, we will be happy to assist you.

YOUR IDEA, OUR SOLUTION

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