aqua technik
Gesellschaft für individuelle
Abwasserproblem-Lösungen mbH

Chemical products and services
- FOR ALL FIELDS OF -
water and wastewater treatment

FACTS & FIGURES

MORE THAN
500
PRODUCTS

OWN
ANALYTICAL
LAB

OVER
25 YEARS
OF EXPERIENCE

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OVER 25 YEARS EXPERIENCE IN WASTEWATER TREATMENT

Since its founding in 1990, our company does an important contribution to the treatment of mainly industrial, but also municipal wastewater.

CERTIFIED ACCORDING TO ISO 9001

- Since 2009 AQUA-Technik is certified according to ISO 9001.
- Our services and process operations were verified once in a year by TÜV Süd.

ALL FROM ONE HAND

Wastewater treatment is a technique that is composed of many individual processes and requires perfectly coordinated processes.
To offer our customers the maximum comfort, we supply everything from one single source:

- Actual condition assessment and deficit analyses
- Planning and realization of physico-chemical treatment plants.
- On site technical application support
- Analyses and monitoring
- All chemicals required for treatment
- Technical supervision during plant operation

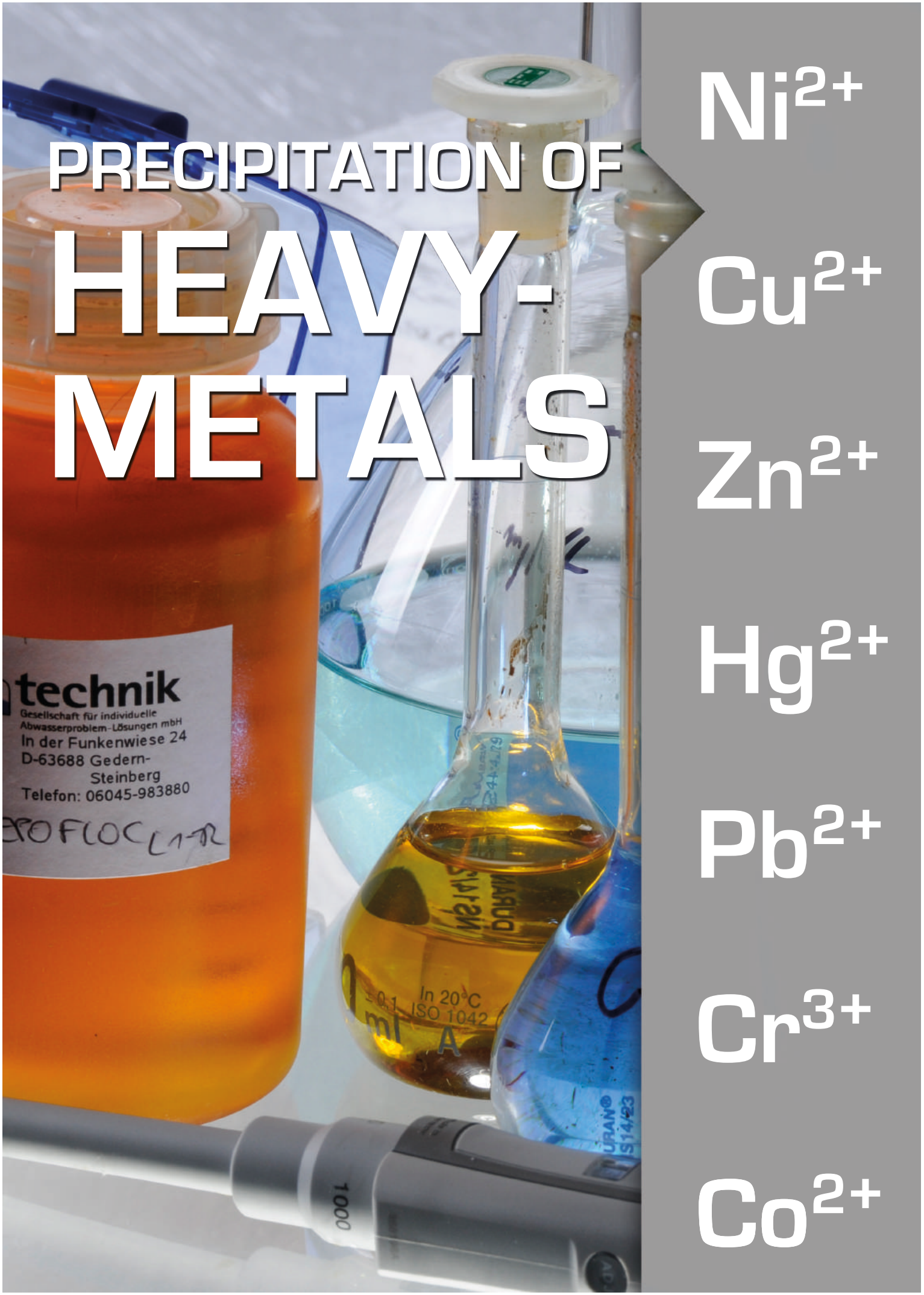
OUR PORTFOLIO

We are specialized on the flocculation and precipitation of dissolved heavy metals from process and waste-waters by using our supreme working heavy-metal-scavenger EPOFLOC L-1R and our Cleanfloc-EPO product series.
Furthermore we supply you with all the products, that are necessary for the advanced wastewater treatment. Such as precipitant for sulphate (non Bariumchloride), Defoamer, aluminium-based precipitants (f.e. PAC). Our products-series AMISINE and Discal offer a efficient solution for boiler-Waters and cooling circuits.

AMONG OUR CUSTOMERS

there are well known companies of the following branches:

- Incineration plants
- Leather ware manufacturers
- Disposal contractors
- Cast iron and steel producers
- Battery manufacturers
- Metal working industries
- Coatings industires
- Automotive manufacturers
- Printers
- Glass and ceramic producers
- Galvanizing industries
- Natural stone manufacturers
- Coal power plants
- Biomass power plants
- Dairies



PRECIPITATION OF HEAVY-METALS

Ni^{2+}

Cu^{2+}

Zn^{2+}

Hg^{2+}

Pb^{2+}

Cr^{3+}

Co^{2+}

Our **heavy metal precipitants** are chelating polymers with a wide range of molecular weights.
All products form strong chelate complexes. These complexes are not soluble in water and mineral acids.
All our products capture the heavy metal ion, even from strong complexing agents such as EDTA, NTA and many more.

EPOFLOC L1-R:

Na-Dimethylditiocarbamate-**free** product!

Highly efficient product that covers a huge range of applications.
Optimum results between pH: 2 – 6
Possible pH range: 2 - 11
Best results with the following metals: Ni, Cu, Cr^{3+}
Good results with the following metals: **Zn, Hg, Cd, Ag, Pb**
+ more

Ni Cu Cr^{3+}

Cleanfloc EPO 13:

Na-Dimethyldithiocarbamate-**containing** product.

Price effective product with wide range of applications.
Optimum results between pH: 2 – 6
Possible pH range: 2 - 11
Best results with the following metals: Ni, Cu
Good results with the following metals: Zn, Hg, Cd + more

Ni Cu

Cleanfloc EPO 82:

Na-Dimethyldithiocarbamate-**free** product!

Best results on the precipitation of Hg and Zn.
Not classified as dangerous good. Eco-friendly product.
Optimum results between pH: 2 – 6
Possible pH range: 2 - 11
Best results with the following metals: Zn, Hg, Pb
Good results with the following metals: Ni, Cu

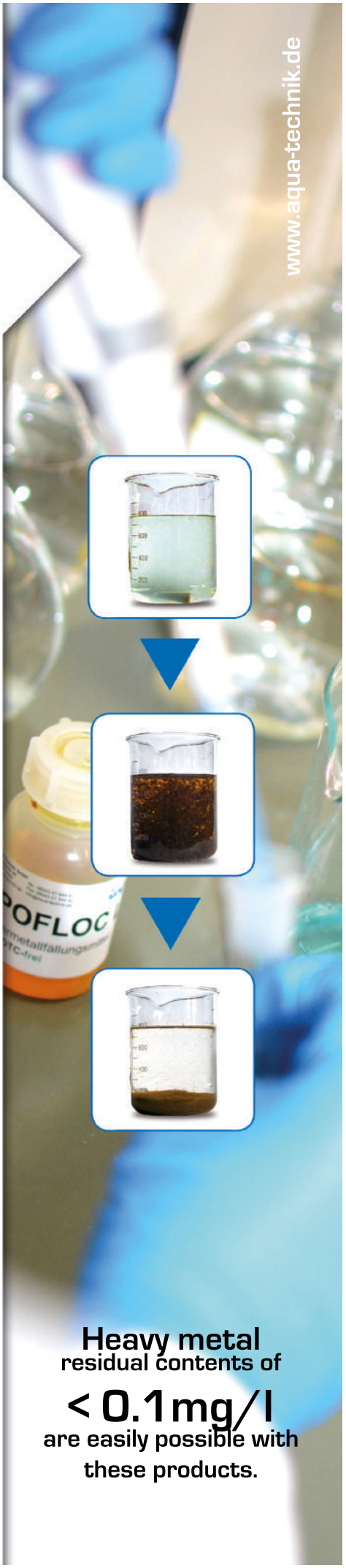
Zn Hg Pb

Cleanfloc EPO 28:

Na-Dimethyldithiocarbamate-**free** product!

Not classified as dangerous good.
Optimum results between pH: 2 – 6
Possible pH range: 2 - 11
Best results with the following metals: Ni, Cu, Co
Good results with the following metals: Co, Zn, Ag, Cr, + more

Ni Cu Co



Heavy metal
residual contents of
< 0.1 mg/l
are easily possible with these products.

ORGANIC FLOCCULANTS

REACTIVE RELEASE AGENTS

„SPLITTING“ AGENTS

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Flocculation is the step in waste-water-treatment where destabilized, colloidal particles are captured and form big agglomerates.

These agglomerates settle quickly and can be removed from the waste water easily.
Our flocculants are polyacryamid-based.

We can offer the whole range from non-ionic over an-ionic to cat-ionic polymers as powder and liquid grade and as water-free emulsions with many different molecular weights.

Especially for dewatering machines, such as Chamber-filter-presses or band-filter presses, there are cross-linked products available.

ANIONIC
Flocculants

Our **Cleanfloc AP-series** is a brand for the an-ionic powder-grade
The liquid grade are called **Cleanfloc AE** and the water-free emulsion type is called **Cleanfloc DW-AE**.

The charge of the an-ionic character is available from 0% to 80% with huge variation of molecular weights.
The an-ionic type is commonly used for inorganic material such as hydroxide slurry, water from natural-stone industry and many more.

CATIONIC
Flocculants

Available as powder grade **Cleanfloc CP series** , as bead (micro-pearls) with our **Cleanfloc BD-series** or as emulsion in our **Cleanfloc CE-series** as well as water-free **Cleanfloc DW-series**.

The cat-ion-activity can be chosen from 0% up to 100% with a lot of variations of the molecular-weight range and several cross-linked specialities.
Cat-ionic flocculants will be used primarily for the flocculation of organic matter, such as slurry from municipal waste-water-treatment plants.

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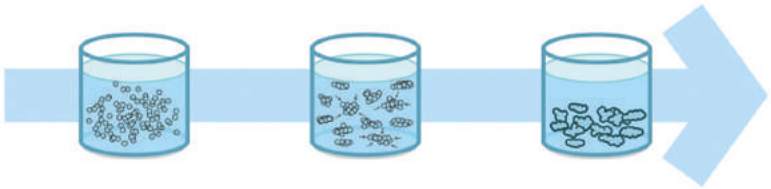
BENTONITE-CONTAINGING „SPLITTING“ AGENTS

Available as powder-grade product with our **Cleanfloc P-series**.

Products of our P-series will mainly be employed to break and flocculate emulsions and to flocculate and precipitate of suspensions containing very fine particles.
P-series products will be applied in the waste-water-treatment of paint and varnish manufacturers as well as in galvanizing plants.

Of course we can built a product for your individual application.
By this you can be sure to purchase the right product for your application.



COAGULANTS

Our **Cleanfloc CS-series** products are short chained products with a cat-ionic charge of nearly 100%, based on poly-amines, polyDADMAC and various mixtures.

Products of the CS-series can be employed on their own or in combination with flocculants.

By using CS-types in a combination with anionic flocculants you may reduce the total costs of your water-treatment in a significant way.

By the very compact and stable flock rised by the combination of both, an-ionic and cat-ionic flocculant the formed slurry will be much easier to dewater and saves your money.

CLEANFLOC AAL 26

Cleanfloc AAL 26 is our highly effective product, combined out of cationic amines and an aluminium based product.

Due to this combination it has got a huge range of applications.

It can be used as a primary flocculant of inorganic wastewater, as flocculant for organically polluted waste water as also for breaking emulsions.
It even can be used as a flocculant for surfactant-containing wastewater.

It can be applied with any kind of flocculant in combination.

Cleanfloc AAL 26 is used in the following industries:

Ceramic manufacturers
Metal processing industry
Construction and tunneling
Drilling industry

Properties:

Appearance:	slightly yellow liquid
Density (25°C):	1,15 . 1,20 g/cm^3
pH:	2,5 - 3,0
Viscosity:	80 m.Pa s
Freezing point:	-10°C
Shelf life:	12 months
Storage temp:	0 - 35 °C

ALUMINIUM-based products for water treatment

Polyaluminium chloride (PAC)

Aluminium-chloride

Aluminium-sulphate

Sodium-aluminate

...

ALUMINIUM based PRODUCTS for WATER- / WASTEWATER TREATMENT

Our **Cleanfloc BK- und BKB - Series** contains aluminium basesd products for water- and wastewater treatment.

- **Polyaluminiumchloride (PAC)**

Cleanfloc BK 40	5,6% Al	11% Al_2O_3
Cleanfloc BK 40 H	9% Al	17% Al_2O_3
Cleanfloc BK 83	8% Cl	23,5% Al_2O_3

  These products are suitable as coagulant and flocculant as also for treatment of drinking- or swimming pool-water.

- **Aluminium chloride**

Cleanfloc BK 01		
Cleanfloc BK 02	11,1% Al_2O_3	ca. 24% Cl

  Cleanfloc BK 01 and BK 02 are very good as a flocculant for the treatment and purification of groundwater, surface water and wastewater.

- **Aluminium sulfate**

Cleanfloc BK 4S	17 - 18,0% Al_2O_3
Cleanfloc BK 4L	8,1% Al_2O_3

  These products are suitable as coagulant and flocculant. They can be used for the treatment of drinking- or swimming pool-water.

- **Sodium aluminate**

Cleanfloc BK 7	7% Al	13,2% Al_2O_3
Cleanfloc BK 10	10% Al	19,0% Al_2O_3

  Cleanfloc BK 7 and Cleanfloc BK 10 are products for P elimination in municipal wastewater treatment plants. Used as precipitants and flocculants, the products provide an effective and economical alternative to aluminum chloride and polyaluminiumchloride.

- **PAC + Polyelektrolyt Blends**

  Cleanfloc BKB - Series

  The products of Cleanfloc BKB - series include mixtures of the entire portfolio of our PAC and our flocculants. So the advantages of both product groups were combined.

  Treat your wastewater with a unique!
  We are able to create a product to your individual needs.

SULFATE REMOVAL

$[SO_4]^{2-}$

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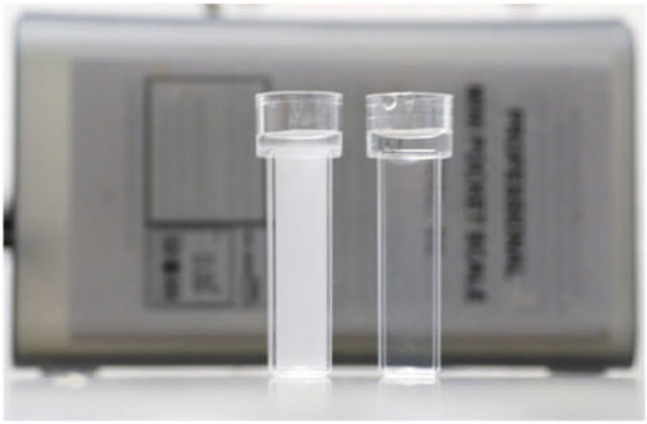
The products of the Cleanfloc SA-series were particular designed to reduce the SO_4^{2-} - content from waste-water.

To precipitate 1.000 g of SO_4^{2-} about 1.000 g of the precipitant will be needed.

Added to the waste-water at a sour pH and subsequent adjustment of the pH, the precipitant works reliable on SO_4^{2-} removal.
Normally the content of SO_4^{2-} will be reduced to residual contents of under 10 ppm.
Anyway the residual SO_4^{2-} content will be depending on the dosage of the precipitant.

Further advantages of the method:
- Most of the heavy metals will precipitate too.
- Good filtration ability of the slurry and very simple usage of the method.

Left ⇨ **Sulfate containg water BEFORE treatment.**



⇦ **Right** **Sulfate containing water AFTER treatment.**

The sulfate was precipitated with Bariumchloride ($BaCl_2$) as Bariumsulfate ($BaSO_4$) to get visual:

Bariumchloride was also added, but there is no reaction..
So there is no sulfate left!

Sulfate content before treatment:
approx. **3990mg SO_4^{2-}/l.**

Sulfate content after treatment:
approx. **1mg. SO_4^{2-}/l.**

The products of Cleanfloc SA - series based on aluminum and various amines. They are not classified as dangerous good according to transport regulations and contain no hazardous or toxic ingredients.

COOLING WATER CONDITIONING

with products of the DISCAL series

The **DISCAL - series** was developed as hardness stabilizer for use in Cooling systems.

It prevents mainly the precipitation of calcium carbonate and has excellent dispersing effect with salts of low solubility, such as calcium sulfate, calcium oxalate and magnesium hydroxide.

DISCAL 54 P

The use of DISCAL 54P is designed for Cooling systems with high degrees of hardness (RYZNAR index <4).

So DISCAL 54P shows even at low doses and under difficult conditions (90 °C and 500 ppm $CaCO_3$) excellent anti-scaling and dispersing properties.

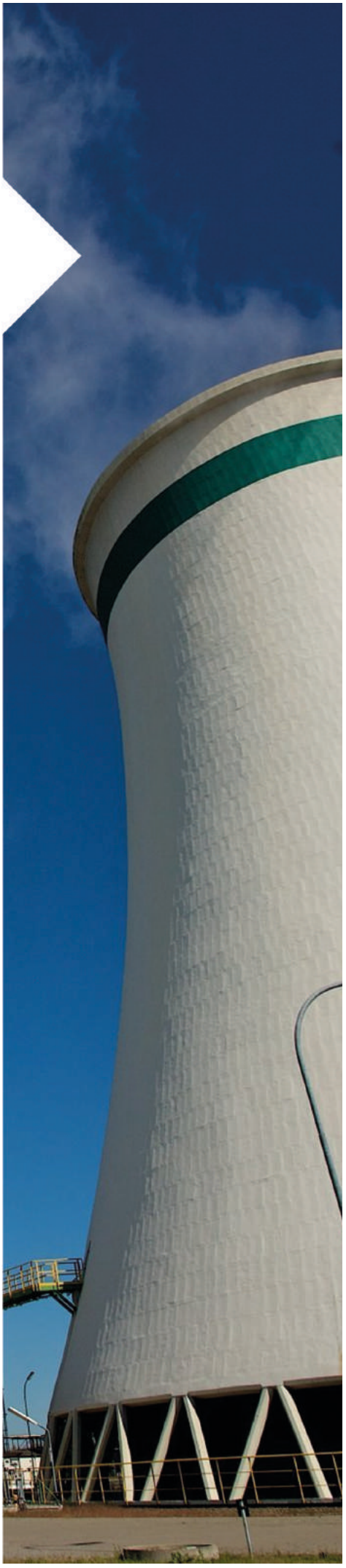
In particularly high content of calcium ions and high alkalinity DISCAL 54 P can not prevent the precipitation of calcium carbonate, but can cause the formation of amorphous crystal structures, which are finely dispersed present and will not cause any build up of disposits.

This advantage makes DISCAL 54P effectively in open cooling systems with very hot surfaces.
Due to the fact, that the amorphous precipitated calcium cristals were not homogeneous present in the system, it may cause a apparent loss of calcium in the analysis to a up to a level of 25- 30% of the theoretical value.

DISCAL 54 P has got, even at high temperatures and pH values, excellent stabilizing properties.
Compliance with the correct concentration of DISCAL 54P guarantees covering free heat exchanger surfaces in the cooling system.

A practical example shows that a corrosion rate of 0.4-0.7 is easily accessible at the following water composition:

500 ppm Ca2+ as $CaCO_3$
500 ppm Mg2+ as $CaCO_3$
250 ppm m-alkalinity as $CaCO_3$
28 ppm DISCAL 54 P
pH 8
RYZNAR-Index 4,5



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BIOLER WATER-CONDITIONING with the AMISINE - Series

The reducing components of AMISINE - series are hydroxylated amines. In addition to the oxygen-carrying component, the products contain a perfectly balanced blend of volatile vapor alkalizing amines, which increase the pH of the steam and possibly neutralize existing CO_2.

REDUCING CAPACITY:

The products of AMISINE - series feature high oxygen binding capacity and a strong reducing effect against metallic surfaces and attending metal oxides. The products form a homogeneous, stable magnetite-film, which is very firmly attached to the metal surface.
Even low doses prevent the formation of oxides.
This crystallizes the magnetite-film without faults and anomalies. The velocity of the oxygen binding increases proportionally to the temperature and is practically spontaneously at temperatures above 100 °C.

EQUILIBRIUM COEFFICIENT:

In the parts of the system in which condensation begins, the partition coefficient is slightly below the equilibrium.
Thus, the product is in two phases, allowing an excellent protection of all metal surfaces.
At high temperatures, such as those found in boilers with medium and high pressures,
the distribution coefficient shifts proportional to the temperature in the direction of balance.

THERMAL STABILITY:

The thermostable products of AMISINE - series get into the steam inside the boiler, while retaining all the properties at the time of vapor condensation.
The decomposition of the product takes place at temperatures of 350 to> 500 ° C.
As decomposition products are produced:
ammonia, nitrogen, water and volatile hydrocarbons, which are easy to eliminate as incondensible gases through the condenser or by the thermal degasser.

ALKALIZING EFFECT:

All products are alkaline. Since they are volatile in steam, they bring about a pH increase in the total steam condensate circuit.

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over 25 years (since 1990)

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