

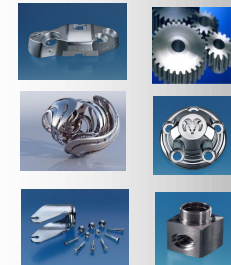
*Kimya Dünyaya Hakim Bizde Kimyaya
Die Chemie beherrscht die Welt und Wir die Chemie
The chemistry dominates the world and we the Chemistry
CL-AK Technology GmbH
Specialist for Galvano Chemicals
Certificate to
DIN ISO 9001 and 2008*

CL-AK Technology GmbH

Innovative Economically Efficient Decorative Functional Environment-friendly

*CL-AK Technology GmbH and its Partner's stand for
electroplating of the latest generation*

*-For greater economy and efficiency
-decorative and functional innovation
-environmental*



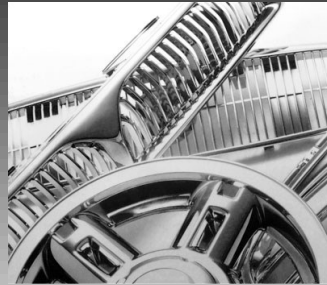
Strong International Partnership's

World Wide in 27 Country's

-In ASIA

-In SOUTH AFRIKA

-IN SOUTH AMERIKA and USA



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Overview



CL-AK Technology GmbH operates worldwide with leading Companies of surface engineering has set itself the goal new economically efficient ecologically and to develop as little stressful process for the field of surface treatment

On the following pages we will show you an overview of our process



<i>Content</i>	<i>Page</i>
<i>Before-after treatment</i>	<i>0.3-0.5</i>
<i>Activation</i>	<i>0.5</i>
<i>Phosphating</i>	<i>0.5</i>
<i>Zinc process</i>	<i>0.6</i>
<i>Passivation / Sealer</i>	<i>0.6</i>
<i>Tin / Tin alloy process</i>	<i>0.7</i>
<i>Silver process</i>	<i>0.7</i>



<i>Copper process</i>	<i>0.8</i>
<i>Nickel process</i>	<i>0.9</i>
<i>Bright Chrome process</i>	<i>1.0</i>
<i>Hard Chrome process</i>	<i>1.0</i>
<i>Aluminium process</i>	<i>1.1</i>

We also offer basic chemicals of kind,

Please contact us, we look forward to

CL-AK HISTORY

In 2001, some experts decided with many years of international experience in electroplating to start your own business

CL-AK VISION

We offer quality high-quality, specialized products in combination with technical and analytical services to, are geared specifically to the needs of our customers

We have world-wide in 27 countries very strong partner representation

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Hard & Decorative Chrome



CL-AK BRIGHT CHROME-TOP

Specially developed for the automotive
It consists of two additives.

CL-AK HARD CHROME HNF

Fluoride-free hard chromium process with
a very high efficiency



CL-AK HARD CHROME HNF-TOP

Fluoride-free hard chromium process with
an additional anode corrosion inhibitor

CL-AK WHITE CHROME CPP-III
CL-AK BLACK CHROME DCP-III &
CL-AK TRIVALENT CCP

Specially developed for the automotive and
for Decorative parts.



CL-AK PROTECTOR BA

PFOS free wetting agent, used for prevention
of sprays biodegradable

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pre-treatment

CL-AK D-1

Powdery, emulsifying dip degreaser for
pretreatment for metal, zinc die casting
and non-ferrous metals. CL-AK D-1
is also used as so-called film remover

CL-AK D-2

Powdery, emulsifying immersion
degreasing of iron and non-ferrous
metals at low temperatures

CL-AK D-3

Powdery demulsifier immersion degrea-
sing for the degreasing of iron and
non-ferrous metals

CL-AK D-4

Degreasing liquid highly alkaline dip
and spray for the treatment of ferrous
materials with temporary corrosion
protection

CL-AK D-5

Liquid highly alkaline, silicate contain-
ing product for the treatment of all
common materials, including aluminum

CL-AK D-6

liquid and weak alkaline, emulsifying
immersion degreasing for iron,
non-ferrous metals, aluminum and zinc
die casting Also used as
ultrasonic cleaner



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pre-treatment



CL-AK UTS-100

Liquid, weak alkaline, Ultrasonic degreasing for the prior treatment of iron
Zinc die casting and non-ferrous metals

CL-AK EL-101

Powder product for the electrolytic degreasing of Iron, non-ferrous metals and zinc die casting
the product contains silicate

CL-AK EL-102

Powdered foam-free product for the electrolytic degreasing of ferrous and non-ferrous metals.
Also suitable for immersion and spray methods
the product is ultrafiltrationsfähig

CL-AK EL-103

Powdered phosphate-free product for electrolytic degreasing of iron and Buntmettalen

CL-AK D-200

Liquid, acid immersion degreasing for iron and brass materials can also be used in ultrasonic cleaning systems.

CL-AK D-201

Liquid, acidic inflammation based on phosphoric acid for ferrous metals



Nickel-process

CL-AK BRIGHT NICKEL SP-TOP

High leveling bright nickel process without PPS

- high leveling
- very good scattering
- high brightness
- very economical
- no bending & no chipping

CL-AK BRIGHT NICKEL SP-BR

High leveling bright nickel process on PPS base excellent for barrel plating

- high leveling
- very good scattering
- high brightness
- very economical
- no bending & no chipping

CL-AK BRIGHT NICKEL SP-MR

high Leveling bright nickel process, very good scatter, excellent for barrel plating without PPS

CL-AK SATIN NICKEL 1,2,3,5-SP & AE
Decorative matt nickel process, which is available in several variants of the method

CL-AK MP-NI-309

Microporous nickel process provides an excellent corrosion protection

Acid Copper process

CL-AK CU-BRIGHT TOP-ONE

Acid bright copper process,
which was developed specifically for
the plastics processing

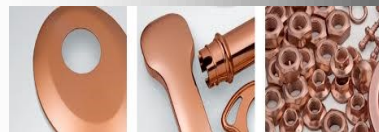
- high leveling
- very good scattering
- high brightness
- very economical
- no bending & no chipping



CL-AK BRIGHT COPPER EP 30

Acid bright copper process,
which was developed specifically for
the metal processing

- high leveling
- very good scattering
- high brightness
- very economical
- no bending & no chipping



CL-AK ALK: BRIGHT COPPER NC

Alkaline cyanide free copper process
which is operated with the copper
anodes

Excellent for direct metallization
of most aluminum alloys without
zincate



pre-treatment

CL-AK-300

Liquid surfactant mixture is used as a
cleaning booster used for ultrasonic and
immersion degreasing

CL-AK-301 (cleaning amplifier)

Liquid surfactant mixture is used as an
amplifier for ultrasound and dip

CL-AK -302

Liquid surfactant and inhibitor mixture as
Pickling additive for metal pretreatment

activation

CL-AK-500

acid, powdery, ammonia-free product for
the activation of zinc die casting Brass and
copper before from electroplating

CL-AK-501 (pickling)

Fluoride dry acid for activation of brass,
zinc die casting and copper prior to plating



Zinc-Process (Alk. Zinc and Acid Zinc)

CL-AK Alk. Zinc Brilliant G

- high leveling
- very good scattering
- high brightness
- very economical



CL-AK Acid Zinc AT

- high leveling
- very good scattering
- high brightness
- very economical



Passivation/Sealer

CL-AK Blue

Liquide trivalent blue passivation
 cobalt free and with kobalt as well as
 also fluoride free process,
 even so called thick film process



CL-AK Yellow

liquide trivalent Yellow passivation
 for zinc layers of alkaline, cyanide and
 acid electrolytes.

Sealer

CL-AK Sealer

Various types are available such as
 silicon polymer or acrylic-based



Silver process

CL-AK Bright Silver ST

Bright white, brilliant precipitation built
 solely on organic additives.

CL-AK Bright Silver Stab

Besides, the deposits are pore-free
 and, as a consequence, have higher
 tarnish resistance. The hardness of the
 deposits is in the range of 110-120 HV.
 The electrical conductivity is the same
 as that for natural silver.

For these reasons, the organic brighteners
 are extremely popular for decorative



CL-AK Antitarnish Top & Nano Top-1

is a medium based on nanobiotechnology
 for protecting silver against tar-
 nishing. Special nanopolymers adsorb
 on the silver surface and cross-link to
 form a protective layer of a few nano-
 meters which is invisible due to its low
 layer thickness. Treated surface will be
 protected from tarnish effect for a pro-
 longed period.

