

PERCORAL[®] 22



For Decoating Carbide, HSS and DLC

applications

- EXCARBONITE 12
- FERRO DEC 56
- UNICERAL 108
- cleaners
- ultrasonic cleaners
- suitable for all metals

Description of product

PERCORAL[®] 22 represents a high-efficient and universally applicable anti corrosion protection for all (Ultrasonic-) cleaners, metal etching bathes and decoating solutions. It is especially suitable in latter case as an additive to decoating solutions of EXCARBONITE 12 and FERRO DEC 56 as it also speeds up remarkably the decoating reaction itself.

PERCORAL[®] 22 is a perfect anti corrosion inhibitor for CARBIDE, TOOLING STEEL, COPPER, BRASS, ALUMINA, TITANIUM and lots of other metallic substrates.

PERCORAL[®] 22 is a liquid product dissolvable unlimited into aqueous solutions. Full anti corrosion protection is achieved in most cases already when using very low concentrations between 0,5-1%.

PERCORAL[®] 22 is available in 10kg cans..

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Applications

PERCORAL[®] 22 is most suitable for following decoating processes:

- **HSS decoating TiN, AlTiN** in combination with FERRO DEC[®] 56 (speed-up and anticorrosion effect)
- **DLC, WCC or WCH** on steel or carbide with Cr, Ti or Si as adhesion layer in diluted or pure H₂O₂ (30-50%)
- **Carbide Scrap decoating** in combination with FERRO DEC[®] 56 (speed-up and anticorrosion effect)
- For anti corrosion protection in **ultrasonic cleaners** or **metal etching bathes**

Decoating solutions set up with PERCORAL[®] 22 are to be heated up to between 60 and 95°C depending on using diluted (for example in combination with FERRO DEC[®] 56) or pure H₂O₂.

The averagely achievable stripping ratios are between 0,4 and 2 micron an hour if using optimal equipment.

Waisted solutions containing PERCORAL[®] 22 can environmentally be treated like those of neutral or mild alkaline solutions.

Merkmale

- 1.) *Korrosionsschutz für nahezu alle Substrate wie HSS, PM-Stähle, Werkzeugstahl, Hartmetall, Kupfer, Messing, Titan und Aluminium*

PERCORAL[®] 22 enthält starke oberflächen-aktive – **rein organische** - Inhibitoren, die durch eine extrem dichte Filmbildung das Substrat gegen Korrosion (z.B. 100CrMn6) oder Cobalt-Auswaschung (Hartmetall, PM-Stahl) vollständig schützen. Der Korrosionsschutz ist so effizient, dass man PERCORAL[®] 22 selbst für die Schnellentschichtung von Hartmetall-Schrott hervorragend verwenden kann. Die vollständige Entschichtung erfolgt in wenigen Minuten, ganz gleich, ob es sich dabei um eine TiN-oderr AlTiN-Beschichtung handelt – ohne Substratangriff!

- 2.) *Beschleunigung Entschichtungsreaktion*

PERCORAL[®] 22 fungiert nicht nur als perfekter Korrosionsschutz, sondern kann z.B. in Kombination mit FERRO DEC[®] 56 oder EXCARBONITE[®] 12 vielfach auch insbesondere die Entschichtung von HSS und Werkzeugstählen sowie Hartmetall (Schrott) deutlich beschleunigen :

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	Without	PERCORAL® 22
HSS Entschichtung TiN 2µm	30 min	20min
HSS Entschichtung AlTiN 2µm	60 min	35 min

Special features

1). *Anti-corrosive effect on nearly all substrates like HSS, carbide (also scrap!), copper, brass, Alumina, Titanium and others*

PERCORAL® 22 contains strong surface-active – purely organic!- compounds to protect substrates against corrosion (100Cr6) or leech-out (Cobalte in carbide; PM steels or HSS-E) by covering surface with a thin but very dense film. The inhibition is so efficient that one can use PERCORAL® 22 also for a rapid decoating of *scrap*-carbide – in a so called NACO batch. The decoating accomplishes within few minutes regardless if simple TiN or more resistant AlTiSiN – without any substrate´s damage!

2.) *Speeding up decoating reaction*

If using PERCORAL® 22 as additional component to decoating bath decoating will be speeded up to 1.5 – 2 times faster than without due to the strong and reactive ingredients as shown for example by figure below for decoating HSS without and with booster PERCORAL® 22:

	Without	PERCORAL® 22
HSS decoating TiN 2µm	30 min	20min
HSS decoating AlTiN 2µm	60 min	35 min

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Set up of bath

All values as given are referring to 1 liter solution:

	PERCORAL® 22	H2O2 (30-50%)
<i>Speed up HSS decoating</i> (for example by FERRO® DEC 56)	100ml	100ml
<i>Anti corrosion</i>	25 – 50 ml	100 – 1.000ml (pure)
<i>NACO process</i>	250 - 500 ml	pure

Prepare decoating bath either by pure H2O2 or by HSS decoater like FERRO DEC 56, EXCARBONITE 12 as described in application data sheet; then add PERCORAL® 22 in quantities as recommended above. PERCORAL® 22 is easily dissolved into water.

Afterwards – if required - heat up solution as described in application data sheet.

Decoating

put already cleaned toolings or components (free of oil and fats) into (heated) solution containing PERCORAL® 22 covering them completely; please consider that filling level can drop a little due to evaporation effects; in this case refill bath simply again with water or H2O2.

Please use always only trays and baskets made of Carbon steel if decoating Carbide; those made of Stainless Steel are not suitable for this application.

After decoating take out parts from bath and rinse them properly with water (city water sufficient); please clean also cooling channels throughout with rinsing water; dry with hot air (80-120°C).

Using PERCORAL® 22 in a NACO process dissolve PERCORAL® 22 in same amount of H2O2 (30-50%). We recommend only to set up in a greater vessel (than used volume) most minimum of bath volume which even covers parts due to vigorous reaction to be expected. Then add as a starter 5-10ml / l of a 50% NaOH to decoating solution which immediately starts to bubble a lot and which will overboil after certain time (due to amount of NaOH as given). After boiling over activity is fully consumed.

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Stripping ratios

Referring to a 2 micron coating and to optimal technical conditions the overall decoating time for a TiN is 20-40 min, for AlTiN approx. 0,5 - 1h; Chrome as part of coating or nanostructured coatings can effect remarkably the duration of decoating. The same is valid for carbon coatings like DLC/Ti or DLC/Si in which the accessibility of soluble phases (Ti, Si) is restricted by being covered with chemically inert layers (DLC).

When using PERCORAL[®] 22 in a NACO process duration can be limited to few minutes due to vigorous reaction even it is very efficient in stripping ratios (2µm within few minutes!). To avoid extreme steaming a high-efficient aspiration system is required.

Working safety

Operating with PERCORAL[®] 22 is basicly as safe as when using decoater without PERCORAL[®] 22 and if application proceeds in proper and in full accordance with instructions as given herein. The results are always reproducible; overboiling or development of remarkable vapours or gases only can occur when using PERCORAL[®] 22 in a NACO batch.

Environmentals

When using only in pure H₂O₂ waisted solutions can be drained directly into sewage. In combination with HSS decoater like FERRO DEC 56 they have to be treated as special waiste, in case of combination with EXCARBONITE 12 please follow up environmental adviseds as given in data sheets of EXCARBONITE 12.

All environmental treating should take place in accordance to local environmental government rules. In any case, the precipitate is to be cared for as special waste.