EXCARBONITE® 12

Decoating of CrN and DLC

coating

- Cr, CrN
- AlCrN
- DLC (Cr, Si)
- Si3N4, TMS

surfaces

- HSS High Speed Steels
- Tooling steels
- Stainless steels
- Titanium

Description

EXCARBONITE®12 is a versatile, softly oxidizing decoating product and for this especially most suitable for corrosion sensitive tooling steels like 100CrMn6 or 1.2379 coated with a CrN or a DLC/Cr resp. DLC/Si layer.

EXCARBONITE®12 is also most suitable fort he smooth and cost-efficient cleaning of PVD racks and fixturings.

One secial feature of this product is the decoating of binary coating systems like DLC/Cr or DLC/Si in a 1-step reaction. This enables one not only to decoat customized or spacy machinery parts but also bulk quantities of the Automotive Industries, at least due to the high bath capacity.

EXCARBONITE® 12 is available in 10 kg bucks.

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EXCARBONITE® 12

Entschichten von CrN und DLC

Bath preparation

EXCARBONITE®12 is suitable especially for substrates made of HSS or tooling steels like 1.2067 (100Cr6), 1.2379, 1.3345 as well as for stainless steel and Titanium. For materials as not mentioned above one should do investigations for resistability by own.

EXCARBONITE®12 is as a powdery product to be dissolved simply into mild alkaline solution (for example of Sodium Hydroxide). Then bath is ready to work. Decoating already takes place at room temperature, the decoating ratio can be increased, however, remarkably if bath is heated up to max. 40℃.

Decoating

The tools and components to be decoated now can be immersed free of oil or fat into so prepared and heated up solution. The reaction can be speeded up predominantely by an intermediate treatment with ultra-sound either in the decoating tank itself or in a separate ultrasonic cleaning bath for approx. 5 – 30 minutes all 2 or 3 h.

This proceeding can be repeated likely in order of thickness of coating and recommended exposure. The overall duration will be reduced as well as already partially dissolved particles are removed by this process and underlaid coatings are exposed again to decoating solution. Finally after accomplished decoating parts are to be rinsed simply with water and dried by hot air afterwards.

Duration

Referring to a 2 micron coating and under optimal conditions of machinery the overall duration of decoating is usually for CrN or AlCrN approx. 1-2h, for DLC/Cr or DLC/CrN about 2-10h.

The duration can be reduced by increasing the bath temperature to 50℃. However, the life span of bath can be effected, too.

Basicly if application and proceeding being proper it doesn´t matter how long toolings and components are exposed to solution as even at longer treatment no Chromium leech will take place also on High Chrome containing (cold working) steels. So one can operate any decoating during the night or even during weekend easily even the effective decating duration is much shorter.

Bath life span / bath control

Bath control is mainly limited to compensation of small evaporation losses by adding water again.

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A resharping of bath is achievable one time by adding further 50g/liter EXCARBONITE®12 to bath and prolongues it´s life span by 25% to 50%.

Usual capacities (ca. 150 tools D10*70 in a 20 liter bath) allows between 5 and 10 batches each filling.

Working safety

Operating with EXCARBONITE®12 is very safe if application proceeds in proper and in full accordance with instructions as given herein. The results are always reproducible; overboiling or development of combustible vapours or gases cannot occur due to lack of any Peroxide Compound inside.

Do not overheat solution above 50°C; consider the instructions as given in MSDS sheet for EXCARBONITE®12.

For all operations with UNICERAL® 108 (decoating, maintanence) suitable protection clothes (eye protection, resistable skirts and gloves) are to be weared.

Environmentals

Waisted solutions always contains (cancerogenic) Chromium VI due to decoating reaction/ablation of Chrome which however can be eliminated quantitatively by a simply to operate treatment afterwards.

Lower pH of solution (pH > 12) to pH 6 by adding carefully small amounts of concentrated Sulfuric acid (50-96% technical grade) and under continuous stirring and pH control (movable measuring instrument or checking pH sticks). Then add small quantities of 5g/liter of solid Sodium Dithionite under stirring to solution and keep on stirring for further 30 minutes. After accomplished reduction of Cr VI Cr III as well as all other metal iones starts to drop down as a dark brown precipitate (2-4% of total volume). After 3 days period of deposition is finalized (separation water/solid state precipitate), the water phase above should be of clear and transparent appearance, in any case without any yellowish discoloration (shows presence of unreduced Cr VI!!). Still present Cr VI can be detected by checking sticks (MERKOQUANT Cr VI) easily. If water phase free of any Cr VI it can be drained into sewage or put into waisted Alkaline cleaning solutions (please consider the local valid Environmental rules; if not please repeat treatment as described above; however a quantity of 2g/liter of Sodium Dithionite is sufficient then.

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