deconex®
CIP alu-pro

Neutral special cleaner with broad material compatibility for applications in the pharmaceutical industry

Liquid, surfactant-free.
For spray cleaning in CIP systems and automatic washers or for manual cleaning.

Application

deconex® CIP alu-pro is suitable for residue-free and validated cleaning in the production of pharmaceutical ingredients and medicines under GMP conditions.

We recommend deconex® CIP alu-pro particularly in situations where high material compatibility is required. For instance, for the efficient cleaning of objects and parts made from anodised aluminium.

deconex® CIP alu-pro is used in:
- pharmaceutical industry
- chemical industry
- biotechnology
- cosmetics industry

deconex® CIP alu-pro is a special cleaner for automatic and semi-automatic cleaning in CIP and COP processes, in spray processes or for flooding of production equipment.

deconex® CIP alu-pro can also be used for the manual cleaning of small parts.

Properties

deconex® CIP alu-pro has the following special features:
- liquid
- pH-neutral
- rinses residue-free
- manually and mechanically applicable
- non-foaming in spray cleaning processes
- compatible with aluminium and anodised aluminium
- can be used without a neutralisation step
- silicate-free
- surfactant-free
- suitable for validated cleaning: fully documented according to cGMP; toxicological assessment reports are available

Mixed loading and reprocessing of objects made from aluminium, plastics, stainless steel and glass, e.g. in the automatic washer, is possible without any problems.

Ingredients

Buffer substances, chelating agents

Dosage

The optimum dosage depends mainly on the type and degree of contamination, the cleaning equipment used and the cleaning process. The use of deionised water improves the cleaning properties and reduces the required amount of cleaner.

deconex® CIP alu-pro is mostly used at concentrations of 5 – 20 mL/L.

Instructions for use

Due to its composition deconex® CIP alu-pro ensures optimum cleaning results for sensitive materials. The special formulation prevents corrosive attack on the treated surfaces and thus prolongs the lifetime of the cleaned product. Ideal for items made from aluminium and different aluminium alloys, as well as challenging, anodised aluminium parts.

In principle, all water resistant types of oxidised aluminium can be cleaned with deconex® CIP alu-pro. In view of the range and variety of types of anodised aluminium, for safety reasons we recommend to test the resistance of anodised aluminium against deconex® CIP alu-pro **at the operating temperature**. Please also check our instructions for cleaning anodised aluminium on page 3.

The addition of deconex® CIP surf for the elimination of particularly stubborn residues shows excellent results.

When using deconex® CIP alu-pro a subsequent neutralisation step is not necessarily required. Neutralisation, for example with deconex® CIP fresh, can, however, significantly shorten the rinsing steps and time. If cleaning is performed using tap water, the acidic rinsing removes any potential residues of mineral and metallic ions.

After cleaning rinse thoroughly with deionised or purified water. Sufficient rinsing ensures residue-free surfaces.

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Residue analysis / cleaning validation

To confirm residue-free cleaning, we offer suitable analytical methods and will be pleased to advise on how to perform these in practice. Comprehensive PDE (Permitted Daily Exposure) reports are available as a basis for a toxicological risk assessment.

deconex® CIP products are outstanding and completely documented. The extensive documentation package supports and facilitates the validation process.

Material compatibility

Suitable for:
Aluminium, under certain process parameters anodised aluminium such as ARC-20, G.H.A.®, Hard Anodised/PTFE, HART-COAT®-GLATT (25 µm), HART-COAT® (30 µm, 50 µm), Trenn Coat® 10 MD, MICRALOX®, stainless steel, borosilicate glass, polyethylene (HDPE), polypropylene (PP), polyvinyl chloride (PVC), polyamide (PA), Teflon® (PTFE), Plexiglas® (PMMA), polycarbonate (PC).

deconex® CIP alu-pro is not suitable for anodised aluminium surfaces not resistant to water.

For materials not mentioned above we recommend specific compatibility testing, or please consult Borer Chemie AG.

Chemical / physical data

pH value	1 g / 100 g in DI-water	approx. 7.0
Density	concentrate	1.20 g/mL
Appearance	concentrate	clear, colourless

Availability

Please ask your local representative about available container sizes.

Additional information

Containers, screw caps and labels are made from recyclable polyethylene.

For information concerning safety at work, storage and waste/effluent disposal, please consult the corresponding safety data sheet.

Benefit from our expertise! Please contact us for practical information regarding your specific application.

deconex® CIP products for the highest demands

deconex® CIP products have been specially developed for validated cleaning.

Our products and services allow a customised, optimally adapted and effective process.

Request more information by e-mail to: lifesciences@borer.ch

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Information regarding cleaning of anodised aluminium

Anodised aluminium

Aluminium metal is highly reactive. In nature a thin oxide layer forms a protective barrier on the metal surface, preventing it from corroding away. The natural aluminium oxide layer is however only a few nanometres thick. Parts made from aluminium and aluminium alloys are anodised to increase the thickness of the oxide layer for better corrosion resistance.

Typical commercial anodisation processes create a uniform but porous aluminium oxide coating. Nanopores allow the oxide layer to grow beyond its natural thickness. These same nanopores will however later allow water or chemicals to permeate the protective layer and initiate corrosion. To obtain an impermeable and corrosion-resistant coating the pores have to be sealed.

Industry is constantly developing increasingly complex anodising technologies, leading to widely variable properties in the anodised aluminium.

Quality aspects

The physical properties of oxide coatings are determined by their composition, thickness and microstructure. Some of the many factors which influence the later performance of the anodised coating include: different types of aluminium alloys, a wide range of anodising and sealing methods, doping of the oxide layer with additional chemical compounds and other surface treatments (e.g. colouring, lubricating), different coating thicknesses, the degree of crystallinity, the number and size of nanopores, etc.

Consequently, the durability of the coating when subjected to different conditions cannot easily be predicted.

Cleaning precautions

Some precautions have to be taken when cleaning anodised aluminium. The oxide coating is susceptible not only to strong alkaline and acidic conditions but also to other process parameters, like the concentration of the cleaning agent, exposure time or temperature.

If, for example, the same cleaning product is used at an elevated temperature, without sufficient rinsing subsequent to the cleaning step, or over a prolonged period, a corrosive attack on the underlying aluminium may be induced. Possible causal mechanisms leading to this corrosion are the extraction of sealants and/or staining chemicals, thermal microcracking and the opening of ion exchange channels etc.

Certain coatings tend to even crack just from the thermal stress when exposed to purified water of a temperature above 70 °C – 80 °C. Freshly anodised coatings are also known to cause problems, although the resistance of the oxide layer can sometimes be improved by ageing methods.

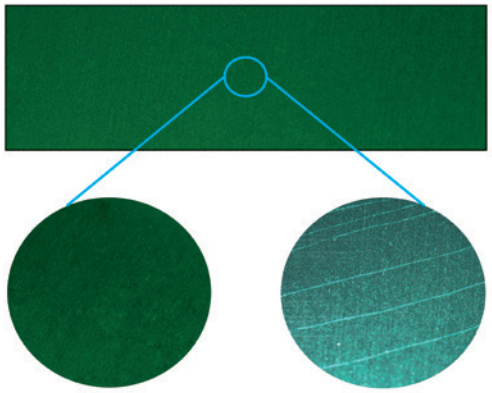

Fig.: An anodised aluminium surface before treatment and after 5 minutes in purified water at 70 °C

With respect to all these issues, it is not possible to recommend a general cleaning process for anodised aluminium. In order to find the most suitable cleaning process, we recommend you perform your own compatibility tests, or contract Borer Chemie AG to request development of appropriate processes. For further information on this topic please don't hesitate to contact us at any time so that we can work together on achieving optimum results. Please get in touch with us regarding the professional cleaning of your anodised aluminium parts.

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