Made in Germany

nano-ex

Technical Product Information

For the effective removal of nanoparticles from the skin.

nano-ex® is a sophisticated skin cleansing product for use after unwanted contact of nanoparticles with the skin. Effective cleansing of affected skin areas helps against uptake of particles via the skin or subsequent oral uptake as a result of contamination carry-over. nano- ex® binds than 99% of spilled particles and is effective on all nanoscale materials from 4 nanometer. Our skin-compatible formula is free of surfactants and degreasing components in order not to impair the barrier properties of the skin.

	all materials
	for particles > 4 nm
	> 99 % cleansing performance
	soap free
	skin tolerable
e	**50 ml**

Developed by scientists

nano-ex® was developed by nanotechnology scientists at the Leibniz-Institute of Polymer Research Dresden e.V. A patent application has been submitted (EP20171117.3).

Product feature	Benefit
Removes more than 99% of spilled particles from the skin	Significantly reduces the risk of uptake of nanoparticles via the skin or carry-over (e.g. hand-mouth contact).
Handy tube designed for one-time use	Allows storing nano-ex close to the workplace. Appplicable universally in laboratories and production sites. Single use prevents risk of contamination carry-over.
Tube design with sponge applicator	The design allows immediate application without assistance. The washing process with the sponge applicator reduces risk of subsequent contamination of other body parts.
pH-neutral	Maintains the skin's natural protective acid mantle. This layer of the skin surface helps to preserve the natural bacterial balance.
surfactant-free	By avoiding surfactants and substances that are known as ‚penetraion enhancers', the formula of nano-ex helps to preserve the natural barrier function of the skin.
Balanced formula with skin-compatible components	Suitable for all skin types.
Colour indicator	The colour of the gel makes it easy to track during application which parts of the skin the gel was applied to and when it has been completely washed off, thus showing which parts have been cleaned.

Performance

Scientific studies on efficacy were conducted on a pig skin model based on Standard Operating Procedure SOP_SPH_04 (preparation of split skin of defined thickness for use in penetration tests). Nanoparticles lacking fluorescence were labelled with fluorescent dyes according to methods of the current state of research. A defined amount of the respective nanoparticles was applied to the skin and the respective contamination solution was applied after a constant exposure time. This was then rinsed off with cold water. For evaluation, the skin samples were fixed on a plate and characterised using 2D-resolved fluorescence spectroscopy. The intrinsic fluorescence of the skin was subtracted in each case after measuring a reference sample. In order to ensure a broad spectrum of applications, particles of different substance classes were used. Among them: metal, metal oxide and polymer particles. For all these particle types, a decontamination performance of over 99% was found, which is up to 25 times better than conventional soaps in terms of particles remaining on the skin:

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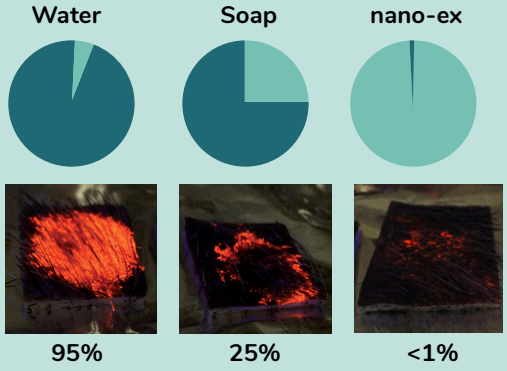
Particles remaining on the skin after washing with:



Caution: Soap and tensides impair the barrier function of the skin and are therefore not suitable to remove nanoparticles from the skin!

For comparison, studies with different exposure times of the nanoparticles were carried out. Even at the highest tested exposure time of 30 minutes, nano-ex® showed a very high performance. nano-ex® achieves optimum performance when applied within 2 minutes after dermal exposure with nanoparticles. We therefore recommend to store nano-ex close to the workplace to ensure quick application.

Information on ingredients

Our nano-ex® formula is based on specific and skin-compatible cosmetic raw materials. The formulation of nano-ex® deliberately avoids the use of surfactants and substances known as 'penetration enhancers'. When working with hazardous substances, products containing degreasing substances (soaps, surfactants, solvents) should be avoided, "as degreasing of the skin can lead to increased absorption of hazardous substances". (cf. TRGS 401) Activated carbon consists of approx. 90 percent highly porous carbon, has a large inner surface and is therefore considered a suitable adsorbent. As an active ingredient, activated carbon is used, for example, in medicines for diarrhoea or poisoning to bind toxins and poisons and prevent them from entering the bloodstream. These properties are also widely used in cosmetic skin cleansing. Our activated charcoal is extracted from natural coconut shells. Clay minerals are naturally derived minerals that are able to bind many substances. The clay minerals kaolin and bentonite are used in nano-ex®.

Consistency

black, unscented, viscous suspension

Application

nano-ex® was developed for immediate use, and can be applied without help:

1. Apply gel generously to contaminated skin area.

2. Rub gel onto skin with the sponge applicator for 5-10s.

3. Rinse with cold water using the sponge until the skin is clean.

To avoid secondary contaminations, each nano-ex® Tube should only be used once. Using the sponge applicator during the washing process ensures hygienic and safe application, by avoiding secondary contamination of other skin parts.

Skin compatibility

The independent dermatological institute dermatest has awarded the skin compatibility of nano-ex® with “excellent”.

ORIGINAL 06 EXCELLENT 2021 dermatest® dermatest-guarantee.com

Durability and storage

nano-ex® can be stored unopened and at room temperature for 24 months. nano-ex® is designed for single use. Multiple applications can lead to contamination carry-over.

Service and support

Upon request, we are happy to send you further information, to carry out an evaluation of your raw materials, and support you in implementing nano-ex® within your institution or company.

Contact

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