

NANOCARBON SCRUB: DEEP CLEAN, PURE POWER, ZERO TOXINS

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Introduction:

The increasing use of chemical-based cleaning products in personal care and industrial applications has raised concerns regarding human health and environmental sustainability. Conventional scrubs contain harmful substances such as microplastics, synthetic chemicals, and toxic agents, leading to skin irritation and ecological damage.

Nanotechnology has emerged as a transformative solution across industries. Activated nano-carbon, due to its high surface area and adsorption capacity, has shown effectiveness in removing impurities, toxins, and pollutants. It has been widely used in water purification and air filtration systems.

Objectives:

1. To develop an eco-friendly cleaning product using nano-carbon technology.
2. To eliminate harmful chemicals and microplastics from conventional scrubs.
3. To enhance cleaning efficiency through high adsorption properties.
4. To create a dual-purpose product for personal and industrial applications.

Methodology:

The project is carried out in multiple stages including material selection, formulation, testing, and evaluation. Initially, research is conducted on existing cleaning products and their limitations. Eco-friendly base materials such as natural gels and plant-based binders are selected. Activated nano-carbon particles are chosen as the key ingredient due to their adsorption capacity. In the formulation stage, nano-carbon is synthesized or sourced from sustainable materials like coconut shells and mixed with selected bases in controlled proportions. Various formulations are prepared to optimize texture and performance. Prototype development involves converting the formulation into usable scrub forms such as gels or pastes. Laboratory testing is conducted to evaluate cleansing efficiency, adsorption capability, and safety. Skin compatibility tests ensure non-toxicity.

Result and Conclusion:

In conclusion, the Nano Carbon Scrub was successfully developed as an eco-friendly and effective cleaning solution. The product demonstrated strong adsorption capability, removing impurities and toxins efficiently. It performed comparably to conventional chemical-based scrubs while ensuring safety and non-toxicity.

The absence of harmful chemicals and microplastics makes it environmentally sustainable. User feedback confirmed good usability, consistency, and satisfaction. The project proves that nano-carbon technology can be effectively utilized to create a safe, efficient, and sustainable cleaning product for both personal and industrial use.

References:

1. Smith, J., "Applications of Activated Carbon in Environmental Cleanup," *Journal of Environmental Science*, 2020.
2. Brown, R., "Nanotechnology in Skincare and Cosmetics," *International Journal of Nanoscience*, 2021.
3. United Nations Environment Programme, "Microplastics and Environmental Impact," 2019.
4. Lee, K., "Sustainable Materials in Cleaning Products," *Green Chemistry Journal*, 2022.

Future Scope:

The future scope of this project includes:

1. Development of advanced formulations with herbal and antimicrobial additives.
2. Large-scale production and commercialization of the product.
3. Expansion into applications such as water purification, healthcare, and industrial cleaning.