RISK ASSESSMENT FOR USE OF NANODIAMOND PARTICLES

This risk assessment only covers risks specific to the use of nanodiamond particles and should be read in conjunction with other relevant risk assessments (*e*.*g*. COSHH Standard Assessment).

Hazards:

\* Nanodiamond particles coming into direct contact with the skin may travel into the organism through the skin pores; though research shows that nanodiamond “do not induce inflammatory or cytotoxic responses such as ROS production, morphological alterations, viability changes, or cytokine production in a wide variety of cell lines including, but not limited to, macrophages, fibroblasts, and epithelial cells” [[[1]](#footnote-1)], the effects of nanodiamond particles used for non-medical purposes has not been researched fully.

\* Inhaling the nanodiamond particles may cause inflammation of the lungs [[[2]](#footnote-2)].

Risks:

The risks associated with nanodiamond particles are generally unknown. Inhalation may cause inflammation of lungs. The risk of health effects due to diamond nanoparticles penetrating skin is not known but this should be treated as a possibility.

Precautions:

\* Protective gloves should be worn when handling the nanodiamond solution and diamond dust.

\* When necessary, dust masks should be worn when handling the diamond dust.

Training Requirements:

None.

Risk Remaining:

Unknown.

Emergency Procedures:

In case of contact with skin, wash immediately with soap and water.

If breathing difficulties or persistent coughing arise after use of nanodiamond particles, seek medical attention.

1. Amanda M. Schrand et al., [Nanodiamond Particles: Properties and Perspectives for Bioapplications](http://www.informaworld.com/smpp/content~content%3Da910822117~db%3Dall) [↑](#footnote-ref-1)
2. Robert Silbajoris et al., [Nanodiamond particles induce I1-8 expression through a transcript stabilization mechanism in human airway epithelial cells](http://www.informaworld.com/smpp/content~content%3Da908820218~db%3Dall~jumptype%3Drss) [↑](#footnote-ref-2)