

DOTZ NANO GRAPHENE QUANTUM DOTS PASSES DERMATOLOGICAL SAFETY EVALUATION

- **Dotz Nano Graphene Quantum Dots (GQDs) successfully passed dermatological safety evaluation performed by Selvita Ltd.**
- **Evaluation included both skin irritation and skin corrosion testing.**
- **Selvita Ltd is regarded as one of the largest drug discovery companies in Europe.**
- **Results showed that Dotz Nano's GQDs successfully demonstrated negative test results in both *in vitro* Skin Irritations tests and Skin Corrosion tests.**

Dotz Nano Limited ("Dotz Nano" or the "Company"), a nano-technology company focusing on the development, manufacture and commercialisation of graphene quantum dots (GQDs), is pleased to announce that it completed and successfully passed independent dermatological safety evaluation studies on its GQDs. The studies examined toxicity issues and analysed the potential effect of Dotz Nano's blue GQDs on skin irritation and skin corrosion.

The Safety Evaluation Studies were performed by Selvita Ltd, of Poland, regarded as one of the largest drug discovery companies in Europe. The studies were performed during September 2017.

Commenting on the new development, Dotz Nano's CEO Dr. Moti Gross, stated: *"Once again, this is an important step in the commercialisation of our GQDs relating to the question on the toxicity level of GQDs. We are extremely pleased to have concluded this Dermatological Safety Evaluation study, that we believe will be very helpful in the commercialisation of our GQDs in various applications. Several of our targeted applications require this determination of dermatological lack of toxicity, specifically in optical brighteners for detergents, dyes and colour for textiles and additional applications."*

"Together with our previous Oral Administration Test and the current Dermatological Evaluation Tests, we can safely say that the GQDs are non-toxic and are suitable for use in a variety of human contact applications."

"Although blue GQDs were the subject of testing, since this would be the GQDs used as an optical brightener, there is no reason to believe that these result can't be applied to our other GQDs colours."

"As stated previously, our objective is to bring to the market the next generation of nanoparticle markers produced from inexpensive, non-toxic graphene quantum dots and at approximately ten times the production yield compared to conventional quantum dots. Graphene quantum dots allow superior benefits to products and applications, and we look forward to the potential commercialisation and implementation of our GQDs in the textile and optical brightener industries."

Dermatological Safety Evaluation

The studies were completed using reconstructed human derived epidermal keratinocytes, which were cultured to form a multilayered mode of the human epidermis. The EpiDerm™ was provided by MatTek Corporation. *In vitro* methods are slowly replacing testing done on animals.

Skin irritation refers to the production of reversible tissue damage in the skin following the application of a test substance. In Skin Irritation Tests the inserts of human epidermis EpiDerm™ (EPI-212) were treated with 30 µl (liquid) or 25 mg (solid substance) of tested and control substances. The incubation period lasted 60 min. After incubation, inserts were carefully rinsed and transferred to a fresh medium for 24 hours and then after medium replacement for the next 18 hours. In the next step tissue viability was assessed in MTT assay. Mitochondrial dehydrogenases from living cells reduce MTT to formazan - insoluble product. Formazan is extracted with Extracting Solution (isopropanol) and spectrophotometric measurement at 570 nm is performed. The tests were performed using Test Acceptance Criteria as described in OECD guideline 439, Good Laboratory Practices (GLP) requirements and MatTek protocol for *in vitro* Skin Irritation Test.

Skin corrosion refers to the production of irreversible damage to the skin manifested as visible necrosis through the epidermis and into the dermis, following the application of a test chemical. The OECD 431 Test Guideline provides an *in vitro* procedure allowing the identification of non-corrosive and corrosive substances and mixtures in accordance with UN GHS. The assessment of skin corrosion potential of chemicals has typically involved the use of laboratory animals (OECD Test Guideline 404). For ethical reasons, *in vitro* methods slowly replace tests on animals. Based on this fact Selvita S.A. adapted and validated Skin Corrosion Test by using tissue model - RhE (EpiDerm™). In Skin Corrosion Tests, commercially available inserts of human epidermis EpiDerm™ (EPI-212) were used. Inserts were treated with 50 µl (liquid) or 25 mg (solid substance) of tested and control substances. Incubation periods last respectively 3 minutes and 1 hour. After, incubation inserts are carefully rinsed. In next step tissue viability was assessed in MTT assay. Mitochondrial dehydrogenases from living cells reduce MTT to formazan- insoluble product. Formazan is extracted with Extracting Solution (isopropanol) and spectrophotometric measurement at 570 nm is performed.

Based on the studies done, both the Skin Irritation Test and Skin Corrosion Test demonstrated a negative result for the tested GQDs.

About Selvita.

Selvita is regarded as one of the largest drug discovery companies in Europe. The company has two primary focus areas: to serve the drug discovery market as a customer centric provider of high quality, integrated drug discovery services, and as a drug discovery company engaged in the research and development of breakthrough therapies in oncology. The company was established in 2007 and currently employs over 400 scientists, among which 30% are PhDs. Selvita is headquartered in Krakow, Poland, with a second research site in Poznan, Poland and foreign offices located in Cambridge, MA and San Francisco Bay Area, in the US, as well as in Cambridge, UK.



About Dotz Nano

Dotz Nano Limited (ASX: DTZ) is a technology company focusing on the development, manufacture and GQDs. Its vision is to be the premier producer of GQDs by producing and supplying high quality GQDs for use in various applications including medical imaging, sensing, consumer electronics, energy storage, solar cells and computer storage.

To learn more about Dotz Nano please view the website and our corporate video via the following link: www.dotznano.com

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