

Statement on the publication „Literature study on the uses and risks of nanomaterials as pigments in the European Union“¹

The European Observatory for Nanomaterials (EUON) published a study concerning the uses and risks of nano-sized pigments in the EU market. In our view, the outcome of the study neither reflects the market situation nor leads to suitable conclusions on the knowledge gaps in the hazard and risk assessment.

The registration date for the smallest tonnage band passed, all pigments and fillers on the European market are registered according to the REACH legislation and have necessarily provided all required data. The term knowledge gap as stated in the "Literature study on the uses and risks of nanomaterials as pigments in the European Union" is therefore not comprehensible at least not for those products being present in significant tonnages as defined by REACH.

The vast majority of pigments and fillers have been produced for several decades in effectively the same chemical proposition and particle size distribution. It must be stated again that the 100 nm limit in the nanomaterial definition is highly artificial and has no basis for distinguishing between two realms of different effects in chemistry or physics.

In case of pigments the colorimetric properties are determined significantly by the interaction of light with the pigment particles. To be a suitable pigment therefore the material typically has a particle size in the range of the wavelength of visible light and thus of several hundred nanometers.

So the very reason of their long standing traditional uses places the size of many conventional pigments and fillers near the 100 nm limit. A certain fraction of particles with a size smaller than 100 nm is technically unavoidable.

Together with typical measurement inaccuracies, which are exacerbated by the specifics of the EU proposal for a nanomaterial definition, this necessarily leads to ambiguities in classification. Especially as is it difficult to ascertain unambiguously that a pigment or a filler is not a nanomaterial.

Additionally, for nearly a century it has been an industrially established practice to produce one substance in different particles sizes to obtain pigments of different colour shades. In this case one substance may be on the market in "bulk" as well as in "nano". The vast majority of pigments and fillers have no nano-specific uses and applications in the paint industry remain unchanged for decades.

As most toxicological effects for insoluble particles are assumed to be dependent on the specific surface area, it has been a long standing practice to do almost all tests on the material with the smallest particle size and highest specific surface area. This was pursued when forwarding data for REACH and other regulatory purposes.

¹ published on the webpage of the European Nanoobservatory,
<https://echa.europa.eu/-/study-finds-knowledge-gaps-in-risk-assessment-of-nano-pigments>

With regard to the mentioned study it seems that due to that fact and due to the information collected from literature and several nano product registers a lot of inorganic and organic pigments were considered and listed as nano-sized pigments. Neither the selection of the studies nor those of the materials reflect the reality of the market.

Contrary to its own claim, the mentioned study fails to differentiate clearly which material is specifically marketed for the nano-specific use and which for pigment use. National nano inventories, which use a comparably broad definition for a nanomaterial with the same methodical weaknesses as that of the EU commission, are of poor evidence for a nano-specific use. As also mentioned in the study, due to the uncertainties there is a tendency to consider them all as nanomaterials/nanosized pigments as a precautionary move.

The manufacturing and application of pigments and fillers are done under established and controlled conditions with materials and machineries which are common. This necessarily implies that the possible exposure of the employees is also examined.

From our point of view the main important point is the lack of readily available, easy to perform and commonly accepted measurement methods to determine whether a material is a nanomaterial according to the EU recommendation or not. In conjunction with the deviating nanomaterial definitions used in the different regulatory sectors and the disability to differentiate between nano-specific and pigment use, the study inevitably fails to draw a realistic picture on so called nano-sized pigments.

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About Eurocolour:
EUROCOLOUR is the umbrella organization for manufacturers of pigments, dyes and fillers in Europe. Eurocolour is a sector group of CEFIC.