knoell worldwide registration

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REGISTRATION OF NANOFORMS UNDER EU-REACH

On 3 December 2018, EU-REACH[1] introduced specific requirements for the registration of substances in their nanoforms (Commission Regulation (EU) 2018/1881, mandatory by 01 January 2020). From a regulatory context, the nano-specific information requirements are very demanding. Additionally, standard test guidelines are often not applicable to nanoforms, and new nano-specific test guidelines are still evolving. For these reasons, defining a suitable registration strategy can be particularly challenging. The registration strategy also considers adaptation options, such as grouping and scientifically justified read-across, as well as the substance-tailored design of studies, when applicable.

When you think about registering your nanoform(s) under EU-REACH, it is worth considering the following questions, so that in the end you can conclude: **The registration of a nanoform is much more than only an administrative issue!**

Can I use the data of my bulk form for registering my nanoform?

Although both forms are considered as the same substance, because they are characterised by the same EC and CAS numbers, typically each form has to provide its own:

- Hazard data (study summaries in IUCLID Sections 4-7);
- Hazard conclusions (endpoint summaries in IUCLID Sections 4-7);
- Exposure and risk assessment.

Using bulk form data for registering your nanoform might be possible, if this is scientifically justified. Such justification is rated however as a read-across approach which needs to be practically based upon experimental data/bridging studies for both forms.

Do I need to prepare a separate registration dossier for my nanoform, if I already have registered the bulk form?

No, because the general principle of 'One Substance, One Registration' implemented in REACH specifies that no separate registration can be prepared for nanoforms of a substance when it is also registered in bulk form (non-nanoform). However, the nanoform data needs to be included in the existing registration dossier of the bulk form, forming two datasets in one dossier. Please note that the total tonnage of your bulk and nanoform determines the registration requirements for both (Annex VII – X).

Is there potential for confusion when nano- and non-nanoforms have to 'share' one registration dossier, when they are considered two separate datasets in all other respects?

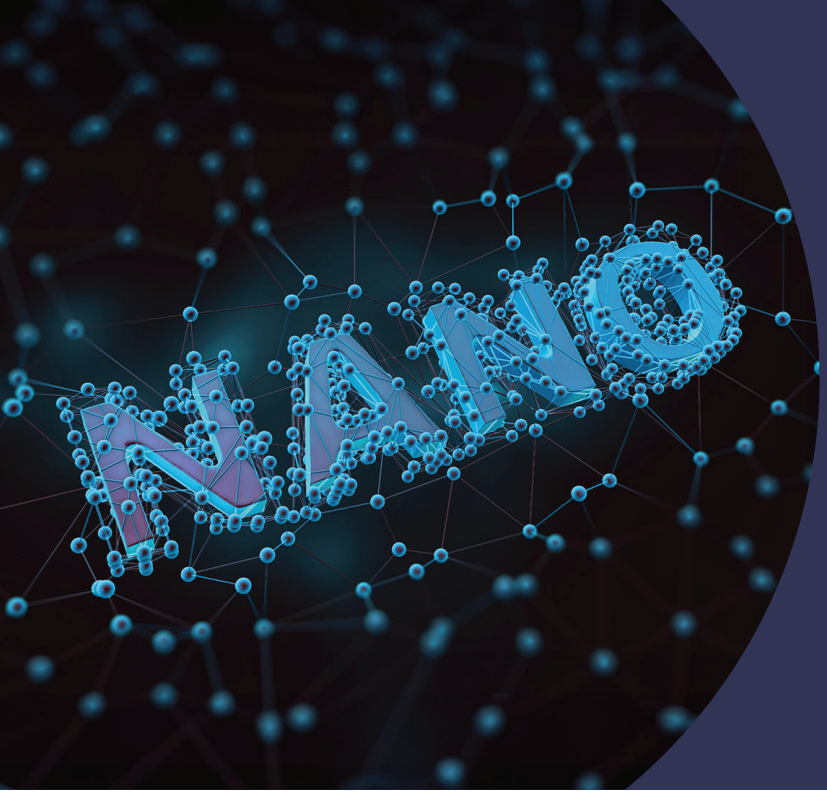
Yes, it can be confusing, but it is required by the EU-REACH Regulation.

What additional data do I need in order to establish a robust registration strategy of my nanoform, and when do I need this information?

The following information on your nanoform(s) is needed before a final registration strategy can be established:

- Nanoform characterisation parameters, such as particle size distribution, shape, aspect ratio, surface area, description of surface functionalisation or treatment, and other morphological characterisations like crystallinity and information on assembly structure. These parameters are also needed if you want to define the boundaries of a 'set of similar nanoforms'.
- Information on the water solubility, dissolution rate in environmental and relevant biological fluids, dispersion stability, and dustiness. The (bio)availability, fate and (eco)toxicity of nanoforms is driven to a huge extent by these parameters and therefore they need to be considered while developing a registration strategy.
- In addition, information on the life cycle of your nanoform (what is your nanoform used for and in what way is it handled during production, formulation, packaging, and final use? Is it used as powder or is it always contained in a liquid medium?) are often important in establishing a registration strategy.

[1]Regulation (EC) No. 1907/2006



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I have several nanoforms characterised by the same EC and CAS numbers, how can I handle this enormous data demand?

- REACH allows for the registration of a group of nanoforms, in a 'set of similar nanoforms', either by a single registrant or by several registrants.
- For the registration of a 'set of similar nanoforms' by one or several registrants, the collection of characterisation data of these several nanoforms (composition, particle size, surface functionalisation, shape, morphological character, surface area) among the potential registrants is required. This confidential data could be collected and handled by a third party like knoell.
- A justification is required to demonstrate that any variation within the defined boundaries of the 'set of similar nanoforms' does not affect the hazard profiles and exposure considerations of the nanoforms in the set. For this justification, data on the water solubility, dissolution rate in environmental and relevant biological fluids, dispersion stability, and dustiness, as well as on biological reactivity (e.g. detection of reactive oxygen species (ROS)) would be useful.

There is no nano-specific test guideline available for filling a data gap, does this mean that I do not need to fulfil the data requirement?

No, it doesn't. The lack of a suitable standard, OECD harmonised or otherwise generally accepted test method is not a valid justification for not addressing a specific information requirement. ECHA's expectation is: 'As long as no standard methods are available, detailed description and justification of the method including adequate controls (and reference materials, if possible) is required.' This means that testing your nanoforms to cover the relevant endpoints is required anyway, and the methods should be thoroughly described and documented.

Our Nano expert team can support you and discuss with you some considerations relevant to specific parameters and study designs.

Is there any consequence/impact of the revised definition of nanomaterial published by the EU commission in June 2022 on the already registered nanomaterials under REACH, or on the substances not yet updated for being nanomaterials?

The revised definition on nanomaterials included additional parameters to be considered when classifying a substance as a nanomaterial. As an example, a substance with an elongated shape having two external dimensions smaller than 1 nm and the other dimension larger than 100 nm, is to be considered as nanomaterial as per the new 2022 definition.

However, REACH legislation has not been updated accordingly and the revision of the European Commision's nanomaterials definition does not impact the current definition of a nanoform used in REACH. Currently, the nanoform definition found in REACH Annex VI must be applied to determine the requirements applicable under REACH.

There are many additional questions that could arise when preparing the registration of your nanoform(s). When it comes to a 'set of similar nanoforms', it is becoming even more complicated. Therefore, it is important to have a team of experts at your side who are always up to date and can support you regarding regulatory services, nanomaterial characterisation, physico-chemical properties, toxicology, ecotoxicology, and many more topics.

knoell: your go-to partner for registration – worldwide

Think globally, act locally. Our strength is to be where it matters: with sites in Europe, Asia, and North America and an extensive network of cooperation partners, we combine global know-how with local experience and intercultural knowledge. Our dedicated teams support you in all phases of registration, from planning right through to the market launch of your product and beyond.

Contact us at **info@knoell.com**

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