What nanotechnology can learn from green chemistry

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The intersection of nanotechnology and green chemistry presents an excellent opportunity to ensure that both fields can learn from each other, argues John C. Warner in *Green Chemistry* and Letters.

Warner is the President and Chief Technology Officer at the Warner Babcock Institute for Green Chemistry, and often whilst touring visitors around the campus finds himself posed with the question "do you work in nanotechnology?", perhaps linked to the association between high-tech materials science and this area.

He feels that a new science such as nanotechnology is much like a new child trying to learn their native language. Whilst the basic understanding of the language is present to form sentences relating quite complex ideas, the structural understanding of the grammar is not. Soon the child will, somewhat ironically, start using verbs, nouns, and adjectives to learn about verbs, nouns, and adjectives!

He feels that the same can be said for nanotechnology, as often the instrumentation and tools used to study nanomaterials are constructed using nanostructures, and by understanding the rules governing their behaviour, so the scientific field can advance.

In such a new field, he feels that bringing in ideas from green chemistry will help words like 'safety' and 'toxicity' become embedded in the vocabulary of nanotechnology. This is critical to avoid creating materials and processes that have negative consequences – not only being unethical

but also slowing the rate of progress in the field.

More information: John C. Warner. Purpose and intent at the intersection of nanotechnology and green chemistry, *Green Chemistry Letters and Reviews* (2016). DOI: 10.1080/10361146.2016.1230250

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