



Nanotechnology Advisory Group
7th Meeting – 10 May 2011

Agenda Item 5

Exposure review of specific nanoforms of existing chemicals: proposed consultancy

Purpose

To

- advise members of NICNAS's proposed engagement of a consultant to seek market intelligence on nanoforms of existing chemicals in Australian commerce;
- the intention to have the consultant develop exposure scenarios for the four nanomaterials of interest to NICNAS;
- seek assistance from members to determine interest from industry and research organisations in assisting the consultant in progressing this work.

Background

NICNAS is interested in obtaining information on nanoforms of existing chemicals in Australian commerce (i.e. the conventional form is on the Australian Inventory of Chemical Substances). This market intelligence will inform our nanotechnology related activities in the future.

NICNAS is currently undertaking hazard assessments on four nanoforms of existing chemicals of particular interest, namely; zinc oxide, titanium dioxide, cerium oxide and silver. In order to make a risk determination for these substances, hazard and exposure information are required.

In order to develop realistic risk determinations and avoid use of conservative defaults (in the absence of exposure information), NICNAS is proposing to obtain exposure data on, and develop exposure scenarios for, these four nanomaterials through the commissioning of a consultancy. The consultancy will examine current information (such as literature sources, market surveys and information obtained from businesses and research organisations) to determine how these chemicals are used.

It is envisaged that this work will identify existing exposure scenarios relevant to these nanomaterials, where available. If relevant, the consultancy may consider the

availability of scenarios specific to conventional forms of these chemicals or to other nanomaterials used in a similar manner.

We anticipate that as a first step, a scoping study will be undertaken for these four nanomaterials, and a report provided to NICNAS. NICNAS will then determine the specific exposure scenarios to be developed. Once the scenarios are finalised, NICNAS could apply actual or modelled data (when available) to them to produce predicted levels of a particular nanomaterial in air, water, on skin, etc.

Depending on the outcomes of this consultancy, it may be possible for NICNAS to utilise these exposure scenarios in the risk assessment of other nanomaterials used in a similar manner in the future.

The NICNAS funds allocation under the 2010-11 National Enabling Technologies Strategy, includes funds for this consultancy.

NICNAS recognises that other areas of government are undertaking work which may be relevant to this proposed consultancy. It is NICNAS's intention to collaborate with the Department of Sustainability, Environment, Water, Populations and Community, Safe Work Australia, NSW Department of Environment, Climate Change and Water, to obtain information and data relevant to this consultancy.

Issues

To maximise the immediate utility of these scenarios to the nanoforms of zinc oxide, titanium dioxide, cerium oxide and silver, as well as the longer term applicability of the scenarios to other nanoforms of existing chemicals, NICNAS will:

- provide the consultant with data it has collected to date through the NICNAS voluntary calls for information (see [Attachment 1](#)), as well as links to databases of consumer products containing nanomaterials and published information commissioned through the activities of other government agencies where relevant – it is acknowledged that the consultant will need to supplement this volume and use information with data obtained from specific businesses working with these materials;
- provide guidance on a scoping study which will review the literature on any existing nano specific exposure scenarios, then evaluate additional existing conventional scenarios that could be adopted or adapted to suit their use for these four specific nanomaterials.
- advise on the scenarios for these four chemicals to be developed for occupational, consumer and environmental exposures.

An example of inputs into the development of exposure scenarios and associated assumptions is provided at [Attachment 2](#) to illustrate the above concepts.

We anticipate that the consultant will need to seek information from the industry to supplement the literature review and market surveillance and test the results of this review against the Australian use situation.

NICNAS seeks the assistance of members in identifying companies and research organisations that introduce nanomaterials to assist in this work.

Recommendations

That members;

- **note** the intent to engage a consultant to obtain market intelligence on nanoforms exiting chemicals in Australian commerce;
- **note** the intent to have the consultant develop exposure scenarios for the four nanomaterials of interest to NICNAS;
- **advise** of possible interest from specific research organisations and businesses in working with the consultant to progress this work.

Action Officer

Matthew Gredley
Head, Reform Program
Phone: 02 8577 8873
Email: matthew.gredley@nicnas.gov.au