



**MINERALS COUNCIL OF AUSTRALIA
SUBMISSION ON THE DRAFT NATIONAL STANDARD FOR
ENVIRONMENTAL RISK MANAGEMENT FOR INDUSTRIAL
CHEMICALS**

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1. INTRODUCTION

The Minerals Council of Australia (MCA) welcomes the opportunity to provide a submission on the draft national standard for environmental risk management of industrial chemicals.

The MCA is the peak industry organisation representing Australia's exploration, mining and minerals processing industry, nationally and internationally, in its contribution to sustainable development and society. The MCA's strategic objective is to advocate public policy and operational practice for a world-class industry that is safe, profitable, innovative, and environmentally and socially responsible attuned to its communities' needs and expectations.

The minerals industry is committed to the use of sound science and risk based approaches to the management of industry products.¹ The MCA supports the aim of the standard to provide a nationally consistent approach to the environmental risk management of industrial chemicals. Important to the minerals sector, the products defined as 'industrial chemicals', including the lists of substances held by NICNAS, go beyond manufactured chemicals and includes naturally occurring mineral products.²

2. CONSIDERATION OF METALS AND METALLOIDS

The MCA acknowledges the draft standard includes explicit recognition of metals and distinguishes their properties from that of organic substances. As previously provided, simply applying the persistent, bio-accumulative and toxic (PBT) assessment criteria would have resulted in a range of metal products being inappropriately scheduled and place unnecessary restrictions on their use and trade.³

The need to account for the unique properties of metals and metalloids has long been recognised by national and international bodies, including the United States Environment Protection Agency's framework for metals assessment.⁴ The minerals industry has also invested significant resources over many years to improve risk assessment methods as covered by a range of industry guidance material including the ICMM's Metal Environmental Risk Assessment Guide (MERAG) and publications by the Society of Environmental Toxicology and Chemistry (SETAC).⁵

Highly relevant to this matter, the OECD has recently released guidance on the incorporation of bioavailability of metals and inorganic metal compounds into chemical ecological risk assessment. This should be carefully considered when scheduling metals under the standard.⁶

3. IMPLEMENTATION

Regulatory context

The MCA supports the object of the draft standard to deliver a nationally consistent approach to risk-based management and prioritisation of industrial chemicals, while allowing for regulatory adaption across jurisdictions. The MCA considers the standard should also deliver outcomes that are cost effective.

¹ 'Sound science' is evidence based and reproducible. It is distinct from opinions on science.

² [National Industrial Chemicals Notification and Assessment Scheme](#), Department of Health, viewed 23 May 2016.

³ Minerals Council of Australia, [Submission on the development of a national standard for environmental risk management for industrial chemicals](#), MCA, 30 May 2016.

⁴ U.S. Environmental Protection Agency's Framework for Metals Assessment (EPA 120/R-07/001) (March 2007)

⁵ International Council on Mining and Metals, [Metals Environmental Risk Assessment Guidance](#), ICMM, London, 2005 and Adams W J, Chapman P M, *Assessing the hazard of metals and inorganic metal substances in aquatic and terrestrial systems: Summary of a SETAC Pellston Workshop*, Society of Environmental Toxicology and Chemistry, Pensacola, USA 2005.

⁶ Organisation for Economic Co-operation and Development, [Guidance on the incorporation of bioavailability concepts for assessing the chemical ecological risk and/or environmental threshold values of metals and inorganic metal compounds](#), OECD, Paris, 19 December 2016.

All levels of government share responsibility for regulating management of industrial chemical safety in Australia, rather than managing the risk. While legislation, instruments and interpretation of standards may vary between administrative authorities the general duty to prevent environmental harm is clear and well established in Acts across all state and federal authorities. Accountability, liability, and ultimately ownership of environmental risks fall to the producers and users of industrial chemicals, while regulators manage compliance with mandated controls.

Implementation design

In line with the 2016 MCA submission and feedback provided during to the recent Department of Environment and Energy (DEE) consultations, further consideration is required on operationalising the standard to provide certainty for users and state government managers. Implementation design, including planning for transition, will be critical to the success of the standard and its acceptance by affected industries and the broader community.

One of the major challenges for the standard is to ensure that the application is consistent at jurisdictional level however it is not yet clear how this will be achieved. The MCA understands guidance will be developed to steer implementation of the standard. Stakeholder input, including that of the minerals industry should be sought in the development of the guidance. The MCA would welcome opportunities to contribute to this process.

Implication to existing regulatory controls

Bulk material handling and processing operations are already highly regulated. In many instances, health and environmental assessments have already been conducted and appropriate controls refined over time to improve risk management. It is unclear if and how these existing operations will be grandfathered or transitioned to new management arrangements.

As raised in the DEE consultation, the intersection between existing practices and the new standard is unclear. The MCA understands the standard is intended to be applied prospectively. This should be clarified in the implementation guidance. This will be critical to industries operating under existing arrangements or controls, specifically as it relates to long term storage or containment of material (e.g. tailings storage facilities).

Alignment with other obligations – Minamata Convention on Mercury

Should the government choose to ratify the Minamata Convention on Mercury, this will bring a range of additional commitments and controls on mercury and mercury containing substances. The focus of which will be emissions to air, land and water. It will be important to clarify how the standard will align with these future commitments to phase down mercury.

For example, the prohibition under the standard on the use, storage and disposal of mercury may impact on mercury reduction initiatives. However technologies that reduce mercury emissions to air (an objective of the convention) may result in the production of waste mercury needing to be managed. Accordingly, it is important the standard does not conflict with those commitments.

As a further example, it is noted that in phasing down the use of mercury containing products including the current use of mercury containing pesticides will need to be reconciled with the exclusion of agricultural chemicals from the risk management standard (explanatory document p.12).

Timeframes for Assessment

The risk management process will be a significant body of work to complete. This will need to be properly resourced to provide timely outcomes for risk owners. Accordingly, consideration should be given to defining timeframes for assessment.

Communication of the standard

In addition to guidance, a clear communication strategy should also accompany the implementation of the standard. Risk-based assessment and management are not always well understood and it will be important to ensure public perceptions are managed

4. GENERAL COMMENTS

Clear terminology around risk

The terminology in the standard may confuse users on defining risk. As read, the notion of 'consequence' could be misinterpreted as 'risk'. To address this, the MCA recommend the definitions in the standard should be further clarified and align with the description provided in the Environmental Risk Assessment Guidance Manual for Industrial Chemicals.⁷

Recognition of the receiving environment (environmental context)

Risk management measures should be appropriate to specific use and the receiving environment. This is particularly important in the case of bulk minerals. For example, a mineral concentrate with a defined aquatic toxicity stockpiled at a port will require controls to prevent release to the marine environment but the very same material stored in an arid region will not require the same level of control.

In line with the MCA submission on the 2016 discussion paper, environmental context is central to determining appropriate controls. While it is noted that location specific considerations has been included in the explanatory document (section 7.5), this should be further articulated within both the standard and the explanatory document.

Linkages with other standards

The MCA supports ensuring the standard is consistent with contemporary international practice including the Strategic Approach to International Chemicals Management (SAICM) and the OECD. However there is a need to consider how the standards 'fits' with related approaches, as provided below.

Health Standards

The MCA considers there should be further recognition of the linkages between environmental and health risk management as these fields are often inter-dependent. There is a need to ensure consistency between standards, particular if environmental risk management information is to be included in safety data sheets.

International Standards Organisation (ISO)

The proposed standard could be improved by providing links to the ISO31000 risk management standard. The ISO standard provides guidance on processes for managing risk, including the measurement of system and control performance.⁸

OECD Guidance on incorporation of bioavailability concepts into metals risk assessment⁹

The MCA recommends that OECD approach be evaluated for potential inclusion within the standard and any explanatory guidance. The OECD document addresses implementation of bioavailability assessment for water, sediment and soil compartments through the selection of relevant ecotoxicity data.

Recognition of voluntary initiatives

Risk management advice should recognise voluntary industry codes and initiatives, where these have been implemented by companies. For example, the international cyanide code is a leading global initiative, recognised for its comprehensive cyanide management and auditing process.¹⁰ However, while it is important the advice recognises industry driven initiatives where they satisfy risk

⁷ Environment Protection and Heritage Council, [The Environmental Risk Assessment Guidance Manual for Industrial Chemicals](#), Commonwealth of Australia, 2009

⁸ International Standards Organisation, [ISO 31000 – Risk Management](#), ISO, Geneva, 2009

⁹ Organisation for Economic Co-operation and Development, [Guidance on the incorporation of bioavailability concepts for assessing the chemical ecological risk and/or environmental threshold values of metals and inorganic metal compounds](#), OECD, Paris, 19 December 2016.

¹⁰ ICMI, [International Cyanide Management Code](#), Washington, viewed 25 May 2016

management requirements, it is equally important the advice does not result in mandating compliance with what are voluntary programs.

5. SPECIFIC COMMENTS ON THE DRAFT STANDARD

The MCA provides the following specific comments on the draft standard.

Inclusion of explanatory and implementation aspects

The MCA considers practical implementation aspects (including those within the explanatory document) should be included in the risk management standard.

Glossary of Terms

The MCA considers there is a need to further clarify certain terms provided in the glossary to the standard. The MCA suggests the following:

Bioavailability and metal ions

With the inclusion of 'bioavailability' and 'metal ions' in the standard, it is recommended that definitions of these terms be included in glossary.

Chemical substance

- **Chemical element** – listed on Periodic Table and by definition occurs in its simplest form and therefore cannot degrade e.g. O (oxygen), C (carbon) and Cu (copper).
- **Chemical compound** – made from the binding together of chemical elements (covalent or ionic bonds), for example H₂O (water), CuSO₄ (copper sulphate), CH₂OH (ethanol).

Mixture

- Produced by physically mixing chemical compounds or elements e.g. mixing salt with soil creates a mixture.

Environmental harm

It is important the trivial effects are not used in the scheduling of industrial chemicals. Ensuring that only material or significant effects are accounted for will bring the standard into line with existing state and federal requirements. The MCA recommends the following insertion (underlined):

- '...the consequence of a chemical having a **significant** adverse effect on organisms or other aspects of the environment...'

Hazard (environment)

For clarity, the MCA recommends the following text be inserted (underlined):

- 'The environmental hazards of a chemical are those **inherent** characteristics of a substance ...'. **The exposure characteristics of the chemical must be considered along with its hazard characteristics before its risk to the environment or health be determined (risk = hazard x exposure).**

Section 1 - Introduction

Section 1.1 – Background

The MCA considers while a completed standard will provide guidance to industry and other users to 'understand decisions on risk management requirements' further detail is required on how governments will use the standard for compliance and enforcement. Accordingly, a succinct description of Commonwealth jurisdiction and state/territory responsibilities should be included.

The MCA recommends the mechanism or model for implementation should be described in the standard. This will be particularly important given the standard may be referenced as a standalone document.

Section 1.4 – Related Policies, Standards and Procedures

Under international shipping rules, as referenced by the *Navigation Act 2012* (Cth), industry is also required to comply with the International Maritime Solid Bulk Cargo Code (IMSBC). This includes within its schedules, provisions for safety and environmental management. Accordingly, the IMSBC Code should be referenced as a related standard.

The aforementioned OECD guidance on the incorporation of bioavailability concepts into metals risk assessment should also be listed.

Section 2 - Schedules

Section 2.2 Criteria for scheduling

The MCA considers a note on naturally occurring substances, including metals/minerals should be included when describing the criteria for scheduling. In line with the explanatory document, the standard should reference key scheduling criteria for naturally occurring metals. These include bioavailability, location specific considerations (the receiving environment), treatment of substances with variable characteristics. Relevant exemptions should also be noted, (e.g. trace elements where no material risk is presented).

Table 1 – Criteria for assigning an industrial chemical to a schedule

Footnote 3 – Control measures employed by users on site should be considered in applying risk management conditions. Accordingly, the MCA recommends the following change (underlined)

'but may will be taken into consideration in applying risk management conditions'.

Section 3 – Risk management measures for industrial chemicals

An introductory note should precede risk management tables. It should note that the measures selected should be based on individual circumstances, including characteristics of the receiving environment.

Section 3.3 – General use risk management measures

Consistency in language

It is important to ensure the language used in the management measures is consistent. Notably, some management measure aim to avoid 'adverse environmental effects'. Instead, the terms 'environmental harm' or 'significant adverse environmental effects' should be used to avoid the capture of trivial or immaterial environmental effects and improve consistency with environmental regulation more broadly.

Bioavailability

Many of the measures in the risk management tables specify threshold concentrations of chemical substances that are released to waters, land and air. In line with previous comments, there is a need to recognise the concept of metals bioavailability when determining such thresholds. This should be articulated in the introductory paragraphs to the risk management measures.

Table 3 – Risk management measures relating to storage, handling and containment

The potential application of the standard to existing storage facilities and legacy sites is a critical issue for the minerals sector. Applied retrospectively, the standards could impact existing operations, including operating or closed tailings dams or rehabilitated land. It may also have implications on the management of legacy sites. Based on recent discussions with DEE, the MCA understands the standards are intended to be applied prospectively, thereby avoiding the inadvertent capture of these features. Accordingly, the MCA recommends this be made explicit in the implementation model and associated guidance material.

A range of criteria relate to limiting access to the chemical substance by select fauna species. This includes schedule 4 and 5 metal and mineral products. The MCA considers it important that a risk

based approach be taken in controlling access. For example, it may be impractical to limit birdlife access to tailings storage facilities however such controls may be unnecessary given visitations by the target species may be rare. Accordingly, the presence of the target species and therefore likelihood of visitation should be considered. To address this, the following modification is suggested (underlined):

SHC_1.3-1.7 *Do not permit [bird/mammal/insect/invertebrate/vertebrate/plant] to come into contact, or otherwise be exposed, to the chemical substance [above x concentration] where visitation by the [bird/mammal etc] is likely.*

Table 4 – Risk management measures relating to treatment and disposal

Schedules 3-5 provide that best available techniques (BAT) should be employed when treating a substance containing the chemical for disposal. However, the use of BAT may not be practical (e.g. due to low availability of reagents or expertise) or feasible (e.g. due to extreme or prohibitive cost). Accordingly, the MCA recommends the management option be modified as follows (underlined):

TD_1.1 *Where feasible, apply best available techniques when treating a substance containing a chemical for disposal.*

With respect to disposal, trivial or immaterial impacts should be exempted through focussing on environmental harm, the MCA recommends the following modification (underlined):

TD_1.2 *Do not adopt measures for treatment that will result in environmental harm ~~adverse effects on the environment.~~*

With respect to schedule 4 it may not be possible to ‘treat’ metals and metal compounds or render them inactive. Instead, other ‘fit for purpose’ controls (e.g. halting mobilisation through containment) may be more appropriate:

TD_1.4 *Where practicable, treat the chemical substance to destroy the chemical, or render it inactive/harmless prior to release to the environment.*

Tables 5 and 6 – Risk management measures to protect waters and groundwater

The introductory note indicates the measures listed relate to sensitive waters. Accordingly, it is important to note measures selected should be fit-for-purpose and suit the environmental context. Any threshold concentration or ‘limit of quantification’ should account for the specific characteristics of the target surface or groundwater system accounting for chemical and seasonal variability and the risk posed to relevant biota.

Table 7 – Risk management measures to protect land

As provided above, the importance of environmental context should be included in the introductory statement. The concept of bioavailability should also be recognised. In line with earlier comments, trivial or immaterial affects should not be captured by the risk management measures. Furthermore, existing or future land use may be constrained by a range of factors outside of land or soil chemistry, (e.g. rainfall) therefore only those beneficial uses deemed likely should be considered. Accordingly the MCA recommends the introductory statement should be clarified further (underlined):

In general, the resulting bioavailable concentrations of a chemical in soil should not be at a level that will cause significant adverse effects on identified environmental values or the likely beneficial uses of the land.

Table 8 – Risk management measures to protect air

In line with the comments above, only those management measures appropriate to the circumstances should be selected. With respect to bulk mineral products, stockpiling may occur in some circumstances (e.g. at the mine site or in some cases at the port). While some locations may make those products more susceptible to windborne transport, this may be actively managed (e.g. through the addition of water, surfactants or other dust management measures). The MCA considers this

could be recognised through an acknowledgement of existing controls or the insertion of specific wording (for example, see underlined text below):

A_1.3 Do not store or handle the chemical in locations where it may be subject to windborne transport and cannot be mitigated

6. SPECIFIC COMMENTS ON THE EXPLANATORY DOCUMENT

The MCA provides the following specific comments on the explanatory document.

Glossary of Terms

In line with previous comments on the draft standard, additional terms/clarification is required.

Section 7 – National standard schedules and criteria

The description of 'risk' (p.18) could be further clarified through the following addition (underlined):

The likelihood that the chemical may cause harm to the environment based on the intended use, the volume of the industrial chemical **and potential for release to the environment**

Chart 2 – Schedule for assignment for hazardous chemicals

In line with the stated exemptions (p.12), the decision point 'inorganic containing a metal of concern to the environment' should be clarified to avoid the capture of trace concentrations.

Section 7.7.3 – Explanation of questions in categorisation decision tree

Metal specific questions, (12 and 13) should include further explanation of bioavailability concepts (referring to the OECD guidance).

Sections 7.8.3 Toxic substances and 7.8.4 – Interpreting data for categorisation

The MCA considers these sections should be expanded to accommodate the selection and assessment of metals toxicity data based on bioavailability.

Section 8 – Risk management measures for industrial chemicals

Refer to previous comments on the individual measures in section 3 of the draft standard. These comments should be reflected in the explanatory document, including the comments section of the risk management tables. In addition, the MCA makes the following suggestion on the comments for the below measures:

TD_1.1 – The comment should note the importance of practicability and economic feasibility of the proposed best available technique or measure.

TD_1.4 – The comment should note practicability of the measure.

A_1.3 – Mitigation measures should be recognised.

Section 10 – Examples of chemical scheduling

A MCA recommends this section include mining/minerals examples, accounting for some of the specific characteristics previously discussed.

Section 11 – Existing management approached that align with the national standard

The MCA recommends this should be expanded where relevant in relation to metal risk assessment in the interests of national and international chemicals assessment harmonisation.

In line with comments provided on the draft standard, the aforementioned OECD guidance on bioavailability in the assessment of metals should be referenced.¹¹

¹¹ Organisation for Economic Co-operation and Development, [Guidance on the incorporation of bioavailability concepts for assessing the chemical ecological risk and/or environmental threshold values of metals and inorganic metal compounds](#), OECD, Paris, 19 December 2016.

The MCA also considers voluntary industry standards, (e.g. the International Cyanide Management Code), should be generally recognised.

Section 12 – Scheduling and Decision making criteria

Section 12.5.9 – Consideration of socio-economic impacts

The MCA notes that guidance will be developed on how the advisory committee considers socio-economic impact. The MCA considers industry, including the minerals sector should be consulted in the development of this advice.

7. FURTHER INFORMATION

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