Management of asbestos in recovered fines and recovered materials for beneficial reuse in NSW

Discussion Paper – Submission Form

Submitter Details

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If this is a confidential submission, please tick here: ☐

Responses to questions

You can respond to any questions that are relevant to you. If you only want to submit data or any other relevant information, please email them to asbestosreview@chiefscientist.nsw.gov.au.

Thresholds and screening levels

Question 1: What factors should be considered when deriving a threshold or screening level for asbestos in recovered fines and material for beneficial reuse?

The scrutiny over the linear-no threshold (LNT) exposure-response model, on which Australian Asbestos Regulatory Standards are based, underscores the need for rigorous scientific evaluation.

It's noteworthy that the WHO no longer communicates the stance that 'there is no known safe level of asbestos exposure'.

The availability of a validated method to accurately determine asbestos concentration or percentage in recovered fines and material is crucial for establishing reliable screening levels. This needs to be supported by an assessment of homogeneity to confirm consistency of material (or not) before progressing to reuse.

Consideration of an assumption that wrapped / bagged asbestos waste exceeds any screening level and cannot be reused.

There is a necessity to redefine the current waste classification of 'Special Waste – Asbestos, which is "Asbestos waste means any waste that contains asbestos" to it being based on sound epidemiological evidence. This should consider relevant limits of detection and limits of reporting for validated methods for asbestos identification.

Practical and sustainable reuse practices should be prioritised to enhance the longevity of access to asbestos waste landfills and to maintain reasonable access to asbestos disposal points across NSW.

Ensuring that health risks associated with waste management adhere to the principle of being reasonably practicable. This involves a balanced assessment where the costs of eliminating or minimising risks associated with available methods are not grossly disproportionate relative to the actual risk.

Also consider the nature of asbestos contaminated medium – i.e. is it soil? Is it dust? How homogenous is it likely to be? How easily does the medium liberate fibres when disturbed (e.g. by wind disturbance / mechanical disturbance etc.).

What does reuse look like? – e.g. types of locations where these materials can be reused (industrial / commercial / residential / childcare, and will there be requirements for reused materials to be capped or any ongoing management as asbestos-containing e.g. under an asbestos management plan

Asbestos waste management at recycling facilities

Question 2: Can you provide any data on annual volumes of C&D waste being recycled or alternatively sent to landfill? Data on rejected loads due to asbestos presence and any other data related to all TOR items is welcomed.

Please email data together with this form to asbestosreview@chiefscientist.nsw.gov.au

Question 3: Can you provide any other information on the potential presence of asbestos in recycled C&D material?

i. Information on the methods of separating and removing asbestos from waste that can inform alternative approaches?

ii. What reuse scenarios are there for recycled waste, including end-products and their use?

i) Insight into sources of waste (e.g. construction dates) may inform the likelihood of asbestos being present within the C&D waste. Premises constructed after 2003 should not contain asbestos. Premises constructed in the 1960s – 1980's are more likely to contain asbestos. If the C&D waste supplier can provide evidence of a more recent construction date of their source material, then this may be grounds for less rigour in the waste asbestos assessment process when compared with C&D waste from older structures and buildings. Any inspection process used as part of separating asbestos from waste needs to be undertaken by persons who are experienced in identifying a wide range of asbestos-containing materials that were used in Australia and not just fibro, gaskets, floor tiles, lagging and ropes. A decision process (flow chart) could assist in standardising and informing actions once suspected asbestos-containing materials is identified (or not identified) in waste. Some asbestos types (mainly friable) are more difficult to separate from bulk waste than other materials due to their nature to degrade upon disturbance and as such should be addressed differently.

ii) No response provided

Question 4: While this section focuses on C&D waste, are there other waste types which are suitable for beneficial reuse which have the potential to be contaminated with asbestos?

Wastewater, sludges and slurries, mining waste, recycled steel. Consider also naturally occurring asbestos and the potential for waste generation during excavation.

Management of asbestos in soil

Question 5: Is it appropriate for the health screening levels for asbestos in soils to apply to asbestos in waste? Note that the threshold level in this instance refers to a level where further action is required.

i. Why or why not?

No:

The HSLs (Health Screening Levels) were derived from international research conducted by Swartjes and Tromp in the Netherlands (2008). Their study aimed to establish the relationship between asbestos concentration in soil and asbestos concentration in air following disturbance of contaminated soil. Subsequently, the Department of Health (DOH) in Western Australia extrapolated these findings, further reducing them by a factor of 10. This adjustment aimed to maintain likely exposures below 0.0002 f/mL·yr, deemed broadly acceptable for environmental contaminant hazards in a Western Australian context.

It's important to note that the sandy, drier soils of Western Australia are not necessarily representative of soil conditions throughout Australia. Nevertheless, the Australian Safety and Compensation Council National Environment Protection Measure (ASC NEPM) adopted the DOH's findings as applicable nationwide.

These screening levels cannot currently be extended to asbestos in waste materials other than with soil, until additional evidence-based epidemiological data becomes available. The degree of disturbance to soil may be different to the degree of disturbance to other C&D waste and the subsequent relationship to airborne asbestos concentrations. However, there is concern that these screening levels may be overly cautious given the current scientific understanding, leading to unnecessary waste disposal and grossly disproportionate costs to remedy the 'risk'.

Additionally, when the asbestos is managed in soil, it is typically capped beneath at least 10cm of non-asbestos containing soil. Asbestos in C&D waste may not be covered in soil and is likely subject to processing and manipulation unless mandated otherwise. FA / AF are not the same in terms of friability so should not be treated the same.

Question 6: Health screening levels are not the only tool used for managing asbestos in soils. If threshold levels in soils were to be applied to asbestos in **waste for beneficial reuse**,

i. what other tools can support managing asbestos in waste for beneficial reuse?
ii. what would be the limitations, costs or feasibility of safely removing asbestos in waste?
iii. are there certain scenarios where recycled C&D material should not be reused?
iv. are there certain scenarios where reuse of recycled C&D material could result in land legacy issues?

See answer to Question 5. We suggest that existing soil HSLs should not be applied to asbestos in waste for beneficial reuse.

Please read:

Calabrese, E. J. (2022). Linear non-threshold (LNT) fails numerous toxicological stress tests: Implications for continued policy use. *Chemico-biological Interactions, 365*, 110064. https://doi.org/10.1016/j.cbi.2022.110064

Standards and guidelines for asbestos in waste

Question 7: Are there other standards or guidelines that would be applicable for managing asbestos in waste for beneficial reuse that can be provided?

Guide – Managing Asbestos in or on Soils, 2014 (NSW Government) identifies practical measures:

- for hand-picking, tiling or screening non-friable / bonded asbestos fragments.
- Identifying that further sampling of soil is not required where identified non-friable / Bonded asbestos fragments is not weathered or damaged.

Question 8: Should the approach in the WA guideline (*Managing asbestos at construction and demolition waste recycling facilities*), be implemented in NSW and if so, why or why not?

i. Are there other factors that should be considered if the WA Guideline is to be implemented?

ii. Is there an alternative approach that could be considered?

The WA guidelines put the onus of identifying the source of the load on to the receiver. The waste generator is better placed to do this.

It would be useful to identify any data on percentage of rejected waste loads / characteristics of rejected waste loads etc. from WA to identify any patterns and trends that may be relevant to NSW.

Also – is the WA approach producing the desired outcomes? Is there any data?

Sampling and analysis

Question 9: Apart from AS4964 and ASC NEPM, are there other sampling and analysis methods for detecting and quantifying asbestos in waste materials or recycled products that are being received and processed at recycling facilities?

i. Are you aware of any other methods/processes for sampling and analysis of asbestos that the Review should consider? If so, please provide details and basis for their relevance to this Review.

AS4964 has recently been superseded by *AS 5370 - 2004 Sampling and qualitative identification of asbestos in bulk materials (ISO 22262-1:2012, MOD)* which was reproduced *from ISO 22262-1:2012, Air Quality — Bulk materials — Part 1: Sampling and qualitative determination of asbestos in commercial bulk materials*. The AS 5370 includes normative appendices in Appendix ZB for analysing soils, dusts, aggregates and minerals and in Appendix ZC for residual analysis of non-homogenous samples.

Further standards include:

- Quantitative analysis to *ISO 22262-2:2014 Air quality — Bulk materials Part 2: Quantitative determination of asbestos by gravimetric and microscopical methods*
- Guide for investigating and sampling soil to *ISO 18400-203:2018 Soil Quality – Sampling: Investigation of potentially contaminated sites*

ii. How reliable and accurate are these methods in ensuring that recycled waste is not contaminated?

Whilst these analytical methods are reliable and accurate, visual observation is key, as is the training and competency of those undertaking the visual observation to ensure that suspected ACM is prioritised for sampling and analysis, noting that asbestos can be present in many forms and matrices.

Sampling strategies should be prioritised.

It is our understanding that some facilities are using asbestos detection "guns". These do not meet legislative requirements and are not understood to be sufficiently sophisticated to reliably detect asbestos in differing matrices.

Risk-based approaches for managing asbestos in waste

Question 10: Would a through-chain approach to managing asbestos in waste, where each business looks to minimise or eliminate the risk from asbestos in waste for beneficial reuse, work?

i. What elements would be part of the system/approach?
ii. What would be the advantages/disadvantages of such a system?

Business motivation should be considered. This may be through financial drivers to identify and segregate asbestos and / or penalties for non-compliance. Can managing asbestos in waste form credit towards environmental management accreditation systems?

The EPAs Integrated waste tracking solution could be amended to force the collection of additional data that would inform the asbestos assessment process, such as a tick box for approximate construction date of source material.

Question 11: Are there other risk-based approaches to managing asbestos in waste for beneficial reuse?

Click or tap here to enter text.

General

Question 12: Is there any further information you would like to provide the Review to assist us with in responding to the Terms of Reference?

Click or tap here to enter text.

Email the completed form and attach any relevant data and information to asbestosreview@chiefscientist.nsw.gov.au by 31 July 2024.