

## Hic Sunt Dracones: here be hazardous materials (sic)<sup>1</sup>

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Rather than turning a blind eye to the 'dragons' in your collection, learning about potential dangers and how to deal with them can reduce health risks. This article introduces materials that present hazards, issues to consider and where to go for more information.



### Don't be alarmed – be alert and informed!

Many hazardous materials enter collections unsuspected and some substances originally assumed non-threatening are later re-classified as hazardous. In order to assess existing risks, it is necessary to identify what may pose a threat and the likelihood and potential severity of the danger. Then informed planning can focus on minimizing hazards.

### Survey the Collection

Survey the collection and treatment files to identify the types of materials present. It is advised that conservators conduct surveys because of their specialised knowledge of materials, their history, and the needs of collecting institutions. To find a conservator go to: [www.aiccm.org](http://www.aiccm.org)

### Types of Hazards & Harmful Exposure

Hazardous materials may be: flammable, explosive, radioactive, carcinogenic, toxic, poisonous, corrosive, acidic, oxidising, asphyxiant, biohazardous, infectious, allergenic, irritant or a combination of the above. Some types of harmful exposure include: skin contact, contact with eyes, nose and mouth, ingestion, inhalation or by entering the bloodstream. Harm may occur quickly or over long-term exposure. Specific safety measures are required for different materials.

Dangerous and hazardous substances may be inherent to a collection item or its use (eg. lead paint, pathogens on medical instruments). They may have been added in early preservation treatments (pesticides) or they may be the result of other external influences (mould or the by-products of disasters such as floods and fires, including sewage and toxic chemicals). Gloves, masks and eye

protection are essential when dealing with these hazards, even with dust!

### Pesticides

Historically, arsenic, methyl bromide and wolfsbane<sup>2</sup> were pesticides applied to cultural heritage items, where today conservators aim to avoid chemicals. Collection items such as taxidermy animals, textiles and ethnographic materials may have pesticide residues that present threats through contact. They should not be handled without taking appropriate precautions.

### Expect the unexpected

One should always consider weapons are live unless examined and labelled otherwise. Spears and ceremonial knives sometimes had poisons applied to them. One expects radioactivity in instruments used for x-radiography, but not necessarily in some rocks, fossils or

watches and dials that glow in the dark. Natural history specimens are stored in solvents or formaldehyde, presenting different dangers.

Nitrocellulose film decomposes, releasing corrosive acids and becoming combustible. Once aflame it cannot be extinguished. Domestic and industrial appliances and machines may contain asbestos. Moving parts on heritage machinery may be unsafe.

Paint films on painted objects often contain lead, mercury, cobalt, cadmium or arsenic. If the paint is stable they shouldn't pose a threat, but flaking or powdery paint necessitates health and safety recommendations for handling and storage. The same can be said for ceramic glazes, which may be toxic if inhaled or ingested. Mercury on mirrors can vaporize and also be inhaled.

### Safety First

It is critical to be aware of current local, state and national regulations, laws and procedures for appropriate health and safety measures regarding handling, storage and disposal of hazardous materials. Material Safety Data Sheets provide information about safety measures regarding chemicals and are OH&S requirements. Someone should be appointed to manage risk. Prioritisation of interactive displays and access necessitates effective risk management. Remember, digitisation can improve safe access.

### Train staff to:

- Ensure appropriate storage, labelling and handling.
- Keep areas clean.
- Isolate hazardous materials.
- Identify the correct Personal Protective Equipment (PPE) for given hazards.

- Ensure personal protective equipment is worn during handling.
- Isolate contaminated clothing.
- Clean hands before blowing nose, touching eyes and eating.

### Discover and vanquish your collection's dragons!

This article is not comprehensive but should raise awareness of the need to address different problems of hazardous materials in your collection and implement safety procedures.

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### Some Useful Websites

The Australian Institute for the Conservation of Cultural Materials: <http://www.aiccm.org.au>

Visit state government work safety agency websites for laws & regulations on Health and Safety and Hazardous Materials.

- Standards Australia: <http://www.standards.org.au/Pages/default.aspx>

- Safe Work Australia > Hazardous Substances: <http://hsis.safeworkaustralia.gov.au>

- The Australian Institute of Occupational Hygienists Inc: <http://www.aioh.org.au/index.aspx>

Oposite: The paint in the foliage of the tree was painted with Paris Green, an arsenic based pigment used in the 19th century. The paint film is stable so does not pose a health risk. Artist Hugh Ramsay, private collection. Image by Alex Ellem.

- Ansell Chemsafe: <http://www.ansellchemsafe.com/Content.aspx?topicID=189>

### Endnotes

<sup>1</sup> Translation: 'Here be dragons'. This phrase is found on the 16th century Hunt-Lenox Globe in the New York Public Library. Similar phrases or images of dragons and beasts on early maps indicated uncharted territories and potential dangers.

<sup>2</sup> Finding wolfsbane in your collection is unlikely, unless it holds 16th century Tibetan manuscripts. To date there is no data concerning the efficacy of wolfsbane for werewolf prevention, however, the risks from exposure to wolfsbane are extreme and probable. Skin contact with wolfsbane can be fatal if it is not cleaned off quickly. Ingestion kills much faster.

### Bibliography

L E Conole, M L Hallett & A Grant (eds), *Heritage Artifacts, Hands on, hands off? Activating heritage artifacts – the conservation and safety issues*, proceedings of a seminar held at Scienceworks on 16 November, 1992, Scienceworks: Spotswood, 1993.

National Parks and Services, 'Hazardous Materials in Your Collection', *Conserv O Gram*, No 2/10, August 1998.

Alison Wain, 'Hazardous Materials in Museum Collections', *AICCM Bulletin*, Vol 18 Nos 1 & 2, 1992, 3-28.