



Dangerous dwellings

One of the great delights of a new home is its cleanliness – that pristine environment just waiting to be spiced with spilt drinks, pet hairs and smelly socks.

But we shouldn't be fooled by shiny surfaces. A CSIRO study has found that occupants of new Australian homes may be exposed to up to 20 times the maximum allowable limits of indoor air toxics.

The study, by researchers at CSIRO Thermal and Fluids Engineering, shows that the National Health and Medical Research Council's maximum limits of total volatile organic air toxics may be exceeded in such houses for at least 10 weeks after completion.

'This means that up to 500 000 Australians moving into some 120 000 new homes every year could be subjected to high levels of airborne toxics for months,' the division's Steve Brown says.

'Air toxics were at their highest at construction showing many materials used in building homes are significant sources of indoor air pollution. The most potent sources are paints, adhesives and some wood-based panels.'

Further CSIRO measurements in 27 suburban Melbourne residences more than a year after construction identified 27 airborne toxics. These included the carcinogens benzene, formaldehyde and styrene, and a cocktail of methanol, ethanol, acetone, toluene, dichlorobenzene plus a number of less well-known toxics.

'In these established homes, indoor air still carried four times the total volatile organic toxics found in outside air, although the level in all but two of the

homes was within the council's guideline of 500 micrograms per cubic metre,' Brown says. 'This guideline was exceeded in all the new buildings studied.'

Toxics found in the new and renovated buildings included styrene, a recognised carcinogen, odour-producing toxics 4-phenylcyclohexene and nonaldehyde, and irritation levels of formaldehyde.

The carcinogen benzene was not present in higher amounts in the new and renovated buildings than in the established dwellings, although its presence was highest in homes with attached garages.

Formaldehyde levels were a particular concern. The measurements indicate that long-term indoor air pollution is likely from

CSIRO scientists conduct air toxics research in the National Dynamic Environmental Chamber Facility: a 33-cubic-metre chamber linked to a sophisticated chemical analysis laboratory.

new building materials emitting formaldehyde such as manufactured wood-based panels used principally in flooring, furniture and cabinets. Formaldehyde is considered a Category 2A carcinogen (probable cancer causing chemical) by the International Agency for Research on Cancer.

'Identifying these air toxics is part of a worldwide focus on identifying and controlling the cost to human health associated with modern living,' Brown says.

'These measurements are the first of their kind conducted in Australia and are in agreement with findings of similar studies conducted overseas. Together with CSIRO's complementary studies into pollutant emissions from materials and appliances, they allow us to link people's exposures to these pollutants with how we build and furnish our built environments.'

This study of indoor air toxics was funded by CSIRO for the benefit of all Australians to assist in developing preventive health strategies for the community.

CSIRO estimates that indoor air pollution costs the Australian community in excess of \$10 billion a year in illness and lost productivity.

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A snappy gift for serious seafood lovers

LOOKING for a unique Christmas gift? How about a collector's edition of the award-winning *Australian Seafood Handbook – an identification guide to domestic species?*

The handbook is touted as an essential reference for anyone who catches, processes, sells, studies or eats seafood. It contains colour photographs and descriptions of some 350 species of finfishes and shellfishes, plus oil composition profiles, protein fingerprints and fish fillet features.

Almost 10 000 copies have been sold since its release last year, an achievement that co-editor, Gordon Yearsley of CSIRO Marine Research reckons is not bad for any book, let alone one on fish. Next year he and his colleagues will complete a companion volume on imported species.

A waterproof version of the handbook, perfect for the boat, won a National Print Award in the Innovation category. The collector's edition on the other hand – tastefully bound in snapper leather – would outclass any tome on the coffee table.

The Australian Seafood Handbook is available from Seafood Services Australia on 1300 130 321. For the snapper-leather volume, contact the Fisheries Research and Development Corporation, (02) 6285 4485.

