BUSHFIRE AIR TOXICS - WHERE THERE’S FIRE THERE’S SMOKE (AND PEOPLE)!

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OBJECTIVE

Measure, evaluate and control the personal exposures of Australian bushfire fire-fighters to air toxics

- Assess exposure levels to air toxics in regards to Occupational Exposure Standards (OES)
- Determine key factors that determine exposure levels
- Identify situations of unacceptable risk

Health Risk = Likelihood That Hazard (= Potential For Harm) Will Be Realised

Requires knowledge of personal exposures to air toxics, in relation to fire-fighter tasks, fuel type, fire type, fire agency practices.

METHODOLOGY

Sample bushfire air toxics - Carbon monoxide (CO), Aldehydes, Volatile Organic Compounds (VOCs) and Respirable particles - on 3 to 6 fire-fighters per burn or fire using personal monitoring devices.

RESULTS & DISCUSSION

SUMMARY

Key Air Toxics that may exceed OES include

- CO (primarily short-term exposures) – headaches, dizziness, reduced concentration
- Respirable particles – respiratory irritation, reduced lung function
- Formaldehyde – respiratory irritation, nasal carcinogen

Key factors that determine exposure levels include work activities, fire types, fuel types

High risk situations:

- Patrolling/suppressing spot-fires > lighting
- Fuel reduction burns > accidental > slash burns

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