Senate Standing Committee on Economics
ANSWERS TO QUESTIONS ON NOTICE
Innovation, Industry, Science and Research Portfolio
Budget Estimates Hearing 2009-10
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AGENCY/DEPARTMENT: COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

TOPIC: Bushfire research

REFERENCE: Question on Notice (Hansard 1 June 2009, E40)

QUESTION No.: BI-49

Senator ABETZ—... I understand CSIRO is looking at a bushfire resistant housing panel. Is that correct?
Dr Johnson—I am not in a position—
Senator ABETZ—Take it on notice, please.
Dr Johnson—Yes, I may have to take that on notice.
Senator ABETZ—Let me know how developments are going in that area.

ANSWER

CSIRO has many completed, ongoing and planned projects aimed at developing new materials for improving fire safety to people, buildings, structures and vehicles. Examples of these include:

- **Fire-rated structural materials.** Work on advanced cellular concrete and inorganic polymers has resulted in a new pre-cast concrete panel technology (HySSIL) with a 4 hour fire rating. These new materials can be utilised as fire proof building insulation for fire shelters, bunkers, sheds and panic rooms. These cellular materials can also potentially provide improved blast protection. HySSIL has been commercialised and CSIRO is an equity owner in HySSIL P/L. HySSIL P/L is searching for suitable licensees and partners in Australia and around the world to enter into licensing arrangements. HySSIL is being used as noise barrier panels in the Monash Freeway and the first commercial demonstrator home has recently been built in Werribee, Victoria, in partnership with a local housing company. For additional information see: http://www.hyssil.com/.
- **High temperature sealants and coatings.** Inorganic polymers may potentially be applied to the production of high temperature-resistant sealing materials, which will be crucial for fire protection of shelters and bunkers. For example, tough new fire-resistant coating materials called HIPS ('hybrid inorganic polymer system') are being developed by CSIRO. HIPS coatings can withstand temperatures of over 1000°C compared to current commercial coatings for building materials and structures, which break down at between 150-250°C. Such materials also have potential applications in the manufacture of fire resistant doors, barriers and partitions. For additional information see: http://www.csiro.au/news/HIPS-fireproof-coatings.html and http://www.business-standard.com/india/news/now-polymer-coatings-which-can-resist-fireto-1000c/65660/on
- **Fireworthy polymers** have been developed for use in the internal components of large transport vehicles with recent work focused on improving strength and heat resistance in aircraft interiors. More information is available from the following web link: http://www.solve.csiro.au/0805/article3.htm

- **Ceramifiable polymers** have been developed into cable products which can maintain performance and insulation under fire conditions of 1000°C for 2 hours. This provides a critical increased window of operation in severe fire events. The ceramifiable polymer technology won a CRC Association award for excellence in innovation in 2004. CSIRO continued to work with Olex cables on this technology after the CRC project came to an end, and has developed single and multi core ceramifiable cables. Additional information is available at: http://www.solve.csiro.au/0806/article10.htm and http://www.olex.com.au/Products/Fire-Rated/Pyrolex-Ceramifiable.html
- **Better flame retardants.** Work is ongoing to develop a low toxicity non-halogenated flame retardant that is suitable for use in structural composites. The application of such technology is likely in vehicles and confined spaces. CSIRO is also proposing to work on improving the in-service durability and fire retardant performance for timber systems through both chemical and non-chemical means.

In addition, CSIRO has undertaken research and development in other areas of protective technologies such as flame resistant industrial fabrics, protective clothing and breathing apparatus for fire fighters.