



# Going for Gold: Cyanide free, non-toxic gold recovery

SCIENCE AND  
INDUSTRY  
ENDOWMENT  
FUND

**SIEF supports a demonstration plant to validate new, non-toxic products for gold recovery (Going for Gold)**

**the challenge** In the large-scale gold mining industry, toxic cyanide is often used to recover gold from the earth. In response to recent spills of toxic cyanide, several regional agencies in the United States, South America and Europe have banned the use of cyanide for gold extraction. Whilst small mining firms typically do not use cyanide, their gold recovery practices are far less efficient, with miners losing up to half of the gold that they mine. As a whole, the industry faces challenges relating to resource size, transport costs, stringent regulatory approvals processes, and environmental constraints.

**the response** The SIEF Experimental Development Program (EDP) supported the development of market-ready, proprietary, non-toxic gold recovery products. The technology replaces cyanide with thiosulphate, a non-toxic alternative, and a simple process flowsheet.

**the collaboration** A team of specialists from CSIRO and Eco Minerals Research Ltd contributed their expertise in research & development, process engineering & construction, mineral processing, chemistry, and process piloting, to demonstrate the technology.

**projected impact** The outcomes of this project have the potential to drive commercialisation of non-toxic gold recovery products, with projected impacts including:

- Increasing the economic value of gold recovery markets, with an estimated \$3 billion per annum of additional gold production in Australia and more than US\$30 billion per annum worldwide.
- Reducing environmental risks of gold mining and mitigating the very high costs of safely managing cyanide.
- Increasing the business potential of small-scale gold mining firms which use sustainable business practices, with flow-on social and economic benefits to regional communities.



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#### What is SIEF?

Spanning a history of over 85 years, the Science and Industry Endowment Fund (SIEF) provides grants to science and scientists for the purposes of assisting Australian industry, furthering the interests of the Australian community and contributing to the achievement of Australian national objectives. In 2009 this unique and esteemed funding arrangement was rejuvenated by a gift from CSIRO, made possible due to the commercial success of CSIRO's fast WLAN, or Wi-Fi technology. Thus past accomplishments are reinvested into new science and innovation for the nation.