

Notes on Thorium powered nuclear generators

Chinese scientists claim that hazardous waste will be a thousand times less than with uranium. The system is inherently less prone to disaster.

'The reactor has an amazing safety feature,' said Kirk Sorensen, a former NASA engineer at Teledyne Brown and a thorium expert. 'If it begins to overheat, a little plug melts and the salts drain into a pan. There is no need for computers, or the sort of electrical pumps that were crippled by the tsunami. The reactor saves itself,' he said. 'They operate at atmospheric pressure so you don't have the sort of hydrogen explosions we've seen in Japan. One of these reactors would have come through the tsunami just fine. There would have been no radiation release.'

Professor Robert Cywinski from Huddersfield University said thorium must be bombarded with neutrons to drive the fission process. 'There is no chain reaction. Fission dies the moment you switch off the photon beam. There are not enough neutrons for it continue of its own accord,' he said.

Dr Cywinski, who anchors a UK-wide thorium team, said the residual heat left behind in a crisis would be 'orders of magnitude less' than in a uranium reactor.

The earth's crust holds 80 years of uranium at expected usage rates, he said. Thorium is as common as lead. America has buried tons as a by-product of rare earth metals mining. Norway has so much that Oslo is planning a post-oil era where thorium might drive the country's next great phase of wealth. Even Britain has seams in Wales and in the granite cliffs of Cornwall. Almost all the mineral is usable as fuel, compared to 0.7pc of uranium. There is enough to power civilization for thousands of years.

US physicists in the late 1940s explored thorium fuel for power. It has a higher neutron yield than uranium, a better fission rating, longer fuel cycles, and does not require the extra cost of isotope separation. The plans were shelved because thorium does not produce plutonium for bombs. As a happy bonus, it can burn up plutonium and toxic waste from old reactors, reducing radio-toxicity and acting as an eco-cleaner.

Article: http://www.telegraph.co.uk/finance/comment/ambroseevans_pritchard/8393984/Safe-nuclear-does-exist-and-China-is-leading-the-way-with-thorium.html