

ARGENTUM VIVUM
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SOLUTIONS

We are on a good path towards an inexhaustible source of energy.

The European EUROfusion consortium focuses all activity of European nuclear fusion research on the one target of demonstrating how to generate electric energy in a nuclear fusion power plant. Within this frame, the MERCATOR PROJECT deals with the realisation of the fuel cycle of a fusion reactor.

Already in September 2014 the European Commission has awarded the "European Prize for Innovation in Fusion Research" to the two KIT scientists Christian Day and Thomas Giegerich for their development of a new vacuum pumping process. This process drastically simplifies the current method for fuel treatment and thus facilitates energy-efficient and safe fuel handling. The process utilizes vacuum pumps operating with liquid metal (mercury). During the next few years KIT plans to set up and test this so called KALPUREX process at a scope relevant for actual fusion power plants.

THE MERCATOR-PROJECT

Use of mercury is discussed controversially. Both the Minamata Convention (2013) and the EU regulation 2017/852 pursue the goal of terminating use of mercury.

- To clarify the availability of mercury against this backdrop, the current state of the industries acquiring and using mercury, be it directly or as a by-product, must be analysed.
- Hazards for human beings and the environment entailed in the operation need to be studied.
- Another question needing an answer is this: At the end of a plant's service life, what can be done with the mercury that has been contaminated by radiating substances in the operating media?

Since mercury is subject to diverse legal regulations – especially concerning approval of industrial processes – a legal cadastral register for operation of a plant with mercury as an operating medium will be edited.

Project carrier

Within the framework of EUROfusion research Argentum Vivum Solutions GmbH is the industrial partner of KIT (Karlsruher Institut für Technologie).

