



ELSEVIER

Contents lists available at ScienceDirect

## Journal of Nuclear Materials

journal homepage: [www.elsevier.com/locate/jnucmat](http://www.elsevier.com/locate/jnucmat)



# XT-ADS Windowless spallation target thermohydraulic design & experimental setup

A.G. Class<sup>a,\*</sup>, D. Angeli<sup>d</sup>, A. Batta<sup>a</sup>, M. Dierckx<sup>e</sup>, F. Fellmoser<sup>a</sup>, V. Moreau<sup>c</sup>, F. Roelofs<sup>b</sup>,  
P. Schuurmans<sup>e</sup>, K. Van Tichelen<sup>e</sup>, T. Wetzel<sup>a</sup>

<sup>a</sup> KIT, Kaiserstraße 12, D-76131 Karlsruhe, Germany

<sup>b</sup> NRG Petten, Westerduinweg 3, P.O. Box 25, NL-1755 ZG Petten, The Netherlands

<sup>c</sup> CRS4, Polaris Edificio 1, 09010 Pula, CA, Italy

<sup>d</sup> AAA, Advanced Accelerator Applications, 20 Rue Diesel, 06130 Saint-Genis-Pouilly, France

<sup>e</sup> SCK•CEN, Boeretang 200, B-2400 Mol, Belgium

## ARTICLE INFO

*Article history:*

Available online 11 May 2011

## ABSTRACT

The objective of the European 6th framework Integrated Project (IP) EUROTRANS (EUROPEAN RESEARCH PROGRAMME FOR THE TRANSMUTATION OF HIGH LEVEL NUCLEAR WASTE IN AN ACCELERATOR DRIVEN SYSTEM) is to demonstrate the feasibility of transmutation of high level nuclear waste using subcritical Accelerator Driven Systems (ADS). The spallation target represents the most challenging new component in an ADS since it is the component coupling the accelerator and the nuclear core and is subjected to very high thermal load in a high radiation field. In this document the thermal hydraulic activities which led to reliable design rules for a windowless target are presented and the status of the heavy liquid metal target mock-up experiment at the Karlsruhe Liquid metal Laboratory (KALLA) are reported.

© 2011 Published by Elsevier B.V.