



# PRODUCT STEWARDSHIP PROGRAMME



SPECIAL STUDIES

# ECFIA'S PRODUCT STEWARDSHIP PROGRAMME

## SPECIAL STUDIES

### INTRODUCTION

This is a document in the ECFIA Product Stewardship Programme (PSP) series. Documents in this series provide detailed information on key PSP elements. The purpose of this document is to provide a brief description of the health effects research being undertaken by ECFIA and its member companies. A general overview of the PSP is provided in the ECFIA Action document "ECFIA's Product Stewardship Programme".



### WHAT IS THE PRODUCT STEWARDSHIP PROGRAMME?

In the 1990s ECFIA, the European association of the manufacturers of High Temperature Insulation Wools (HTIW), proactively developed a comprehensive Product Stewardship Programme (PSP). Its purpose is to enable full understanding of the way that HTIW may impact workers and the environment, and to mitigate any such possible impacts. It is designed to give manufacturers, end-users and regulators knowledge about the manufacture, use, levels and health effects of HTIW in industrial settings, and to provide analysis and recommendations on the proper storage, handling, use and disposal of HTIW products.



## BACKGROUND

The scope of 'Special Studies' includes environmental and socio-economic topics covering the whole life cycle of HTIW products. This includes, for example, the control of fibrous dust emissions, Greenhouse Gas (GHG) emissions and energy efficiency. Special Studies incorporate practical experience from individual experts, industry associations and projects by external consultants with the involvement of ECFIA.

## ENVIRONMENTAL AND SOCIO-ECONOMIC ASPECTS

HTIW producers have, over the years, been conducting a series of studies to measure particulate and fibrous dust emissions as part of their ongoing PSP. In addition, taking a global perspective, ECFIA supports socio-economic expert groups to undertake studies relating to energy and resource efficiency and the reduction of GHG emissions by the use of HTIW products instead of denser insulation materials (bricks, castables) in high temperature processes.

## ENVIRONMENTAL FIBRE EMISSIONS

During the last few decades, measurements of airborne fibrous dust have been performed at the production sites of ECFIA members around the globe. In addition to these workplace measurements, undertaken as part of the CARE programme<sup>1</sup>, measurements of stack emissions have also been performed. Data from Canada, Europe and the US indicate that there is very little potential for exposure of the general public to HTIW fibrous dust.

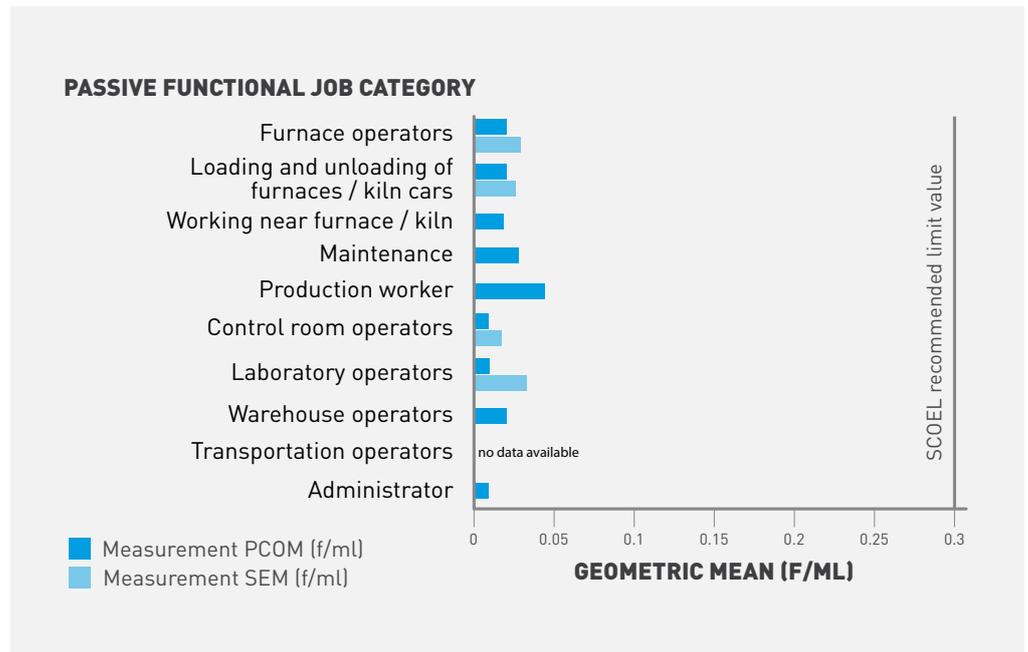
Since 2004, European manufacturers have conducted fence-line measurements to evaluate specifically the concentrations of ASW/RCF fibrous dust in air in the vicinity of manufacturing facilities. Analysis was performed using scanning electron microscopy (SEM) to assess WHO fibre concentrations. Fence boundary concentrations for the plants of ECFIA members ranged from 0.00009 to 0.005 f/ml; these findings can also be assumed for other HTIW types. The results of these studies should allay any possible concerns related to potential public health impacts from HTIW manufacturing.

## 'PASSIVE' WORKPLACE EXPOSURE

The CARE programme is designed to assist HTIW manufacturers and end-users in the evaluation, control and reduction of both active and passive workplace exposures<sup>1</sup>. In the majority of cases, workplace monitoring is carried out where workers actively use or work on HTIW products. However, information is also needed on situations where HTIW products have been installed and contained within equipment and processes, but not actively handled. Workers in such situations may be considered to be passively exposed to HTIW fibrous dust. Measurements in areas where HTIW products are contained in industrial process equipment showed respirable fibrous dust concentrations either not detectable or very low, and below the European wide BOELV of 0.3 f/ml (based on the SCOEL recommendation published in 2011). The figure below shows actual measured fibre concentrations for a number of job categories in which passive exposure might occur.

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1 [http://ecfia.eu/has\\_care.htm](http://ecfia.eu/has_care.htm)



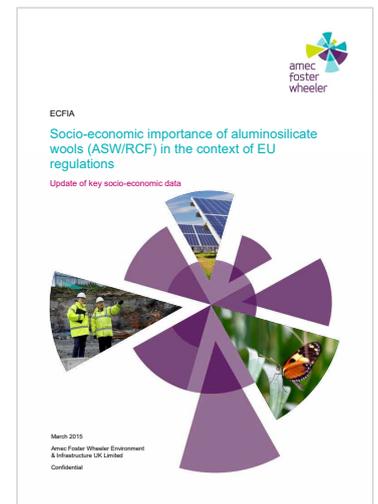
passive exposure levels

**EXAMPLES OF ECFIA SPONSORED STUDIES**

**SOCIO-ECONOMIC IMPORTANCE OF ALUMINO SILICATE WOOLS (ASW/RCF) IN THE CONTEXT OF EUROPEAN REGULATIONS**

This report issued by the consultant AMEC<sup>2</sup> provides a high-level update of key data on ASW/RCF as follow-up to a similar assessment initiated by the EU Commission in 1995<sup>3</sup> and confirms the ongoing socio-economic importance of ASW/RCF for the European market. Although the availability of alternative HTIW products such as AES and PCW has led to a 50% substitution of ASW/RCF products during the last 3 decades, the use of ASW/RCF is expected to continue to remain important in high temperature applications due to technical and economic considerations.

*"... The estimates in this report do give an initial indication that the cost associated with the non-use of ASW/RCF could be in the order of several hundred million Euros per year".*

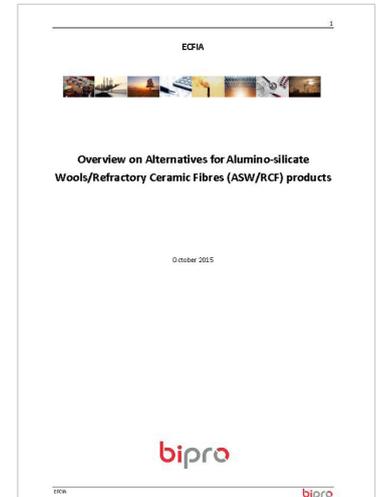


2 Link to: [amec foster wheeler](#)  
 3 Description and Characterisation of the Ceramic Fibres Industry of the European Union, October 1995 by ERM (Environmental Resources Management).

## OVERVIEW ON ALTERNATIVES FOR ALUMINO-SILICATE WOOLS/REFRACTORY CERAMIC FIBRES (ASW/RCF) PRODUCTS

In the course of a research project investigating possible alternative materials for ASW/RCF, the consultant, BiPRO<sup>4</sup>, concluded:

*“Due to their specific physico-chemical characteristics combined with easy and flexible installation, ASW/RCF products have been widely used in many different industrial applications since 1950s. By replacing conventional refractories in high temperature processes, energy savings of up to 50% could be realized due to their specific properties. In many industry sectors the use of ASW/RCF products allowed the development of new and innovative high quality end products...”*



The impact on greenhouse gas emissions in energy intensive high temperature processes is equivalent to the energy savings highlighted by BiPRO. The report concludes that the substitution of ASW/RCF products in the remaining applications is a complex engineering task which requires a case-by-case assessment.

### SUMMARY

Various ‘Special Studies’ have been conducted by ECFIA in association with topic experts and experienced consultants. As proven by actual site measurements, it can be stated that environmental exposure and “passive” worker exposure to fibrous dust from HTIW is low and often below the limit of detection.

Expert consultants and the European Commission have consistently concluded that using HTIW products in industrial high temperature processes leads to significant energy savings and, at the same time, a reduction of greenhouse gas emissions compared to other refractory materials.

<sup>4</sup> Overview on Alternatives for Alumino-silicate Wools/Refractory Ceramic Fibres (ASW/RCF) products, October 2015 by BiPRO GmbH, Grauertstr.12, 81545 Munich, Germany

### FOR FURTHER INFORMATION PLEASE VISIT

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