PRODUCT STEWARDSHIP PROGRAMME (PSP)

USE OF EXPOSURE DATA TO EVALUATE THE IMPACT OF THE BOELV ON INDUSTRY PRACTICES; CASE STUDY ASW/RCF.

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ECFIA

ECFIA, the European Association representing the High Temperature Insulation Wool (HTIW) Industry, founded in 1979, has as its key objective to improve Occupational Health and Safety, when working with HTIW.

Initiating and promoting research and disseminated information on Health, Safety and Environmental aspects related to HTIW.

PRODUCT STEWARDSHIP PROGRAMME

Product Stewardship programmes (PSP) offer the ability to look at a range functions to support exposure assessment and evaluate health impacts.

PSP developed by ECFIA does after 26 years, demonstrate that collecting and using exposure data can positively benefit occupational health. The programme, which continues to be implemented today, follows well established principles of risk assessment and risk management. Its components are science based, with human health effects research as a priority. PSP was initiated in both Europe and USA by Industry and preceded any regulatory drivers.

Our PSP is worldwide in scope and has collected over 31,000 TWA measurements since it began.

AIMS

This study assesses the impact of the 0.3f/ml BOELV for aluminosilicate wools/ refractory ceramic fibres (ASW/RCF), as introduced in 2017 and implemented in 2020, on exposure levels at industrial sites.

METHOD

Now in its 27th year, CARE/PSP is the European programme collecting representative data for occupational exposure to airborne fibrous dust; analysed using PCOM and SEM techniques. With the changing regulatory landscape, CARE participants conducted a review of the data, focusing on evidence of reduced exposure or changed industrial practices since 2017 when the BOELV was first introduced.

The data were split pre- and post- 2017 and also compared to a non-hazardous alkaline earth silicate wool (AES/LBP) not covered by the BOELV, to consider the impact on exposure.

This Data was reviewed to see if the introduction of the BOELV for ASW/RCF had reduced exposure or changed industrial practices in terms of control measures, use of personal protective equipment and raising awareness.

Exposure data for ASW/RCF in a range of functional job categories (FJC), collected prior to 2017, were compared to those collected over the last 5 years post 2017 (2017-2021). This comparison looked at both manufacturers and user (customer) data.

An independent third-party statistician disseminated the necessary data for the review, which included:

- As measured versus with respirator use (pre 2017 and post 2017)
- ASW/RCF versus AES/LBP ; data for the same FJC (pre 2017 and post 2017)
- Uptake of LBP compared to ASW/RCF (pre and post 2017)
- The use of respirators and level of protection (pre 2017 and post 2017)

Communication and real time visualisation tools were also considered during this process.

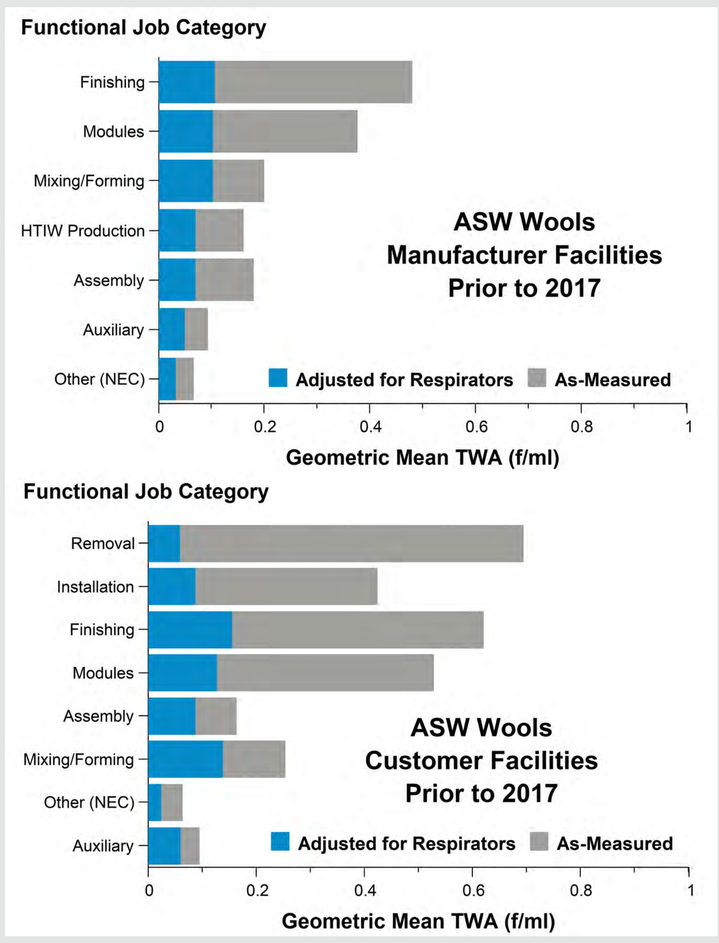
RESULTS

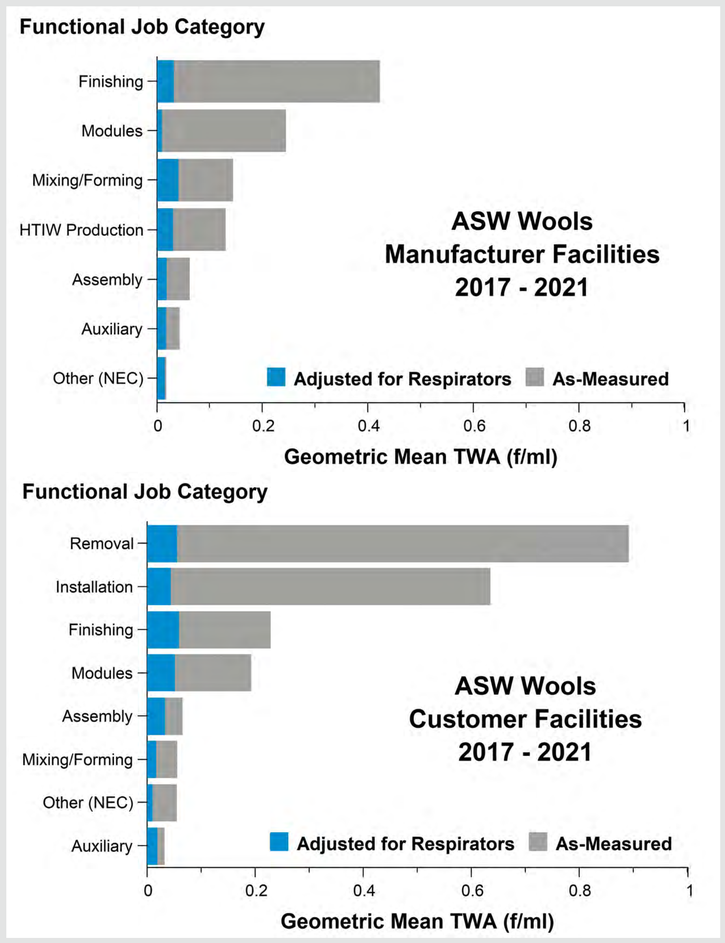
For Europe alone, 10,900 TWAs have been collected to date within the CARE/ PSP, the main consideration for this evaluation process was the data collected over the last 5 years, post 2017. There are significant differences in workplace exposure among functional job categories (FJC), for both manufacturers and users (customers).

Generally, there is a greater uptake of respiratory protection equipment, where higher exposure tasks are undertaken, such as finishing, removal; and this is regardless of fibre type.

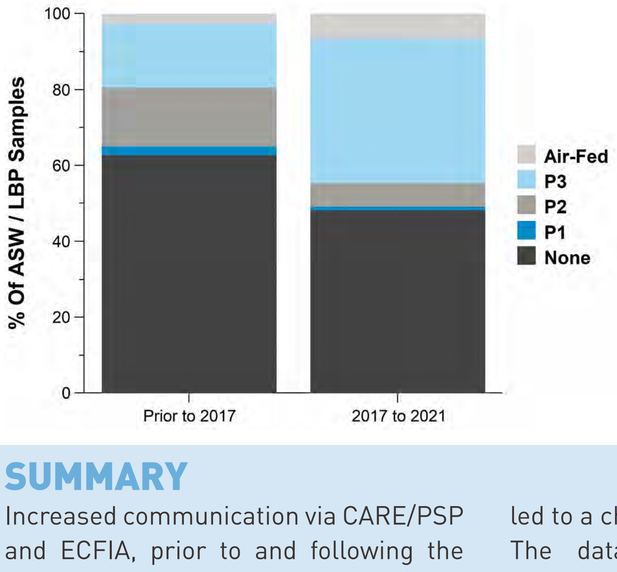
Higher exposure tasks are seen to use respiratory protective equipment (RPE) with higher protection factors. As such the increased use of RPE with higher protection factors, demonstrated an effective reduction in exposures. More observed for ASW than LBP.

There was a greater uptake of respiratory protection, with high protection, for ASW/RCF use post 2017, which reflects the impact of the BOELV. Since the introduction of the BOELV there has been a noted reduction in exposure overall, with regards ASW/RCF and this is indicated in across all FJC:

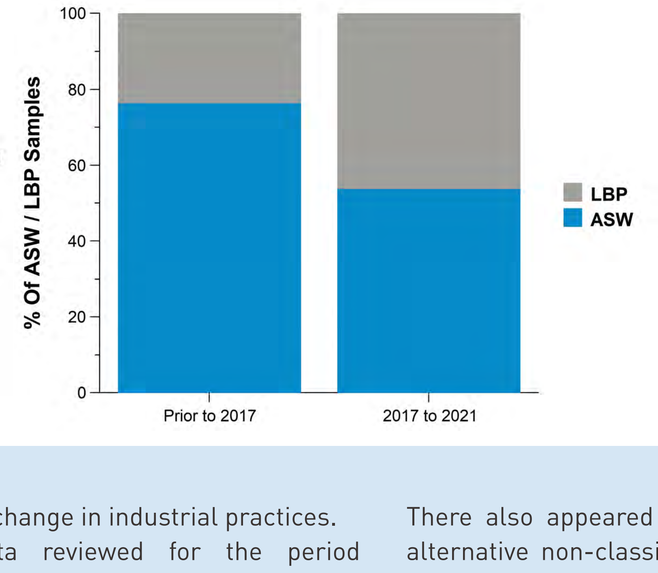




Overall respirator use, (correctly fitted), increased from 37% to 52% post 2017. The reliance on the lower protection factor (P1, P2, disposable) RPE was seen to fall by 40% and higher protection RPE were seen to be used in preference, with this use almost doubling post 2017.



Based on the number of samples collected during these periods, 23% LBP (AES) were collected pre 2017 and 46% LBP (AES) were collected post 2017, indicating a shift to greater use of alternative HTIW namely AES/LBP.



There has been a marked move to increased use of RPE across all FJCs where ASW/RCF is being used:

Improved respirator use in recent years has lowered effective exposure substantially in both manufacturers and customer facilities.

Repeat CARE/PSP visits to customer facilities have shown that communication and education within the CARE/ PSP programme have provided a greater awareness, such that there has been an uptake of exposure controls that have led to a reduction in personal exposure to HTIW.

Novel techniques that negate language barriers and offer visual guidance on best practice have been adopted by the HTIW industry during this period (2017-2021) and this has helped to raise awareness, support training initiatives and support exposure reduction plans. (For further information please refer to QR code)

SUMMARY

Increased communication via CARE/PSP and ECFIA, prior to and following the introduction of the BOELV for ASW/RCF, did raise awareness with HTIW producers and users; this coupled with increased use of novel visual techniques has led to a change in industrial practices.

The data reviewed for the period 2017-2021 has demonstrated that there has been an overall reduction in fibre exposure at both manufacturers and user's facilities.

There also appeared to be a move to alternative non-classified HTIW, where and when these could be used in preference to ASW/RCF, during this period.

There has been a greater uptake in use of RPE and most particularly RPE with higher protection factors; in general, this was seen as an immediate first step to protect workers following the introduction of the BOELV. The next step will be to ensure further exposure reduction initiatives are implemented. In the next 5 years we hope to revisit and review progress.

CONCLUSION

RESULTS TO DATE DEMONSTRATE THAT THE INTRODUCTION OF THE BOELV PROMPTED GREATER COMMUNICATION THROUGH PSP; RESULTING IN POSITIVE BEHAVIOUR CHANGES AT MANUFACTURERS AND USERS OF ASW/RCF.

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