

# LIGHTWEIGHT ALKALI ACTIVATED PRODUCT BASED ON SECONDARY RAW MATERIALS

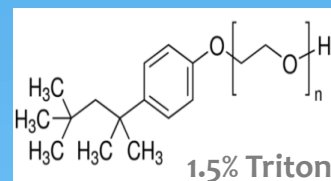
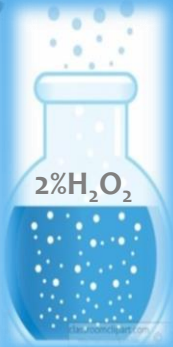
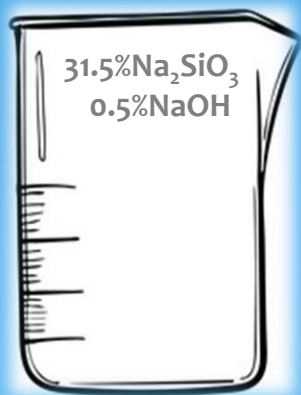
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## SUMMARY

As part of the FLOW project, we have developed a new lightweight alkali activated thermal and acoustic insulating panel for use in construction using Slovenian steel slags. A detailed procedure was followed in order to produce highly porous structures with sufficient mechanical strength, from the chemical analysis of raw materials to an alkali activation process combined with foaming and fibre reinforcement. Using locally available electric arc furnace and ladle slag as inorganic secondary resources for the production of alkali activated foams, a high energy efficiency was achieved with low environmental impact. Finally, pilot products were developed from laboratory samples, assessed in terms of their durability and impact on environmental and human health, and prepared for further applications.

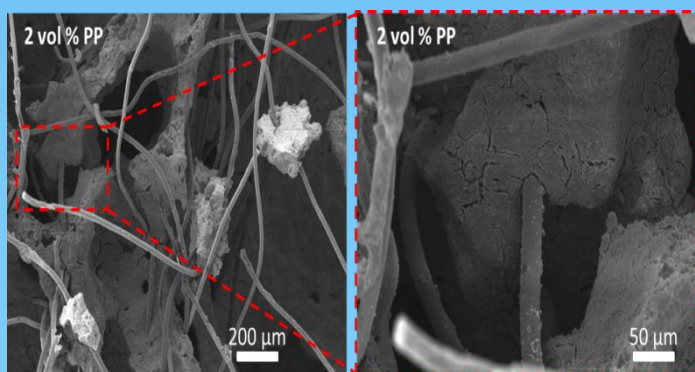


62.5% EAF & LS  
slags

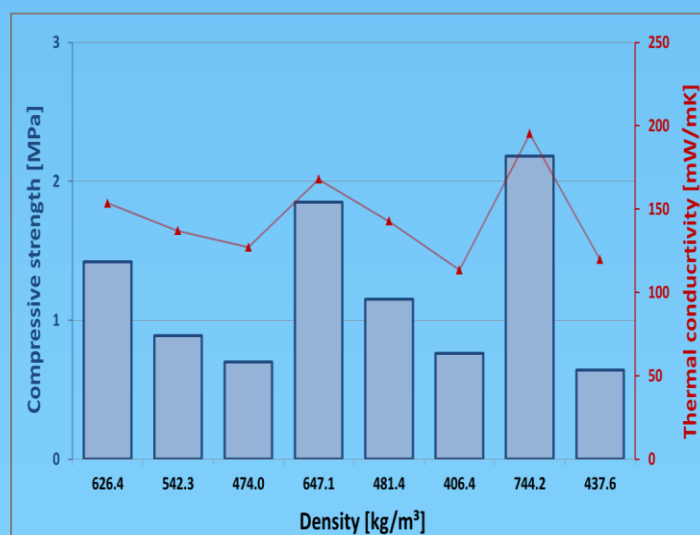


ACTIVATOR + FOAMING AGENT + STABILIZING AGENT + FIBRES

Alkali activation



SEM images at different  
magnifications



Mechanical and thermal  
properties vs. density



Alkali-activated composite  
foam

### MORE...

... about FLOW  
activities and  
research findings on  
webpage:  
<http://flow.zag.si/en>



### ACKNOWLEDGMENT

Work has been financed under project FLOW: Lightweight alkali activated composite foams based on secondary raw materials, Project ID-94, 2017 ERA-MIN 2 Joint Call.



REPUBLIC OF SLOVENIA  
MINISTRY OF EDUCATION,  
SCIENCE AND SPORT



RESEARCH & INNOVATION PROGRAMME  
ON RAW MATERIALS  
TO FOSTER CIRCULAR ECONOMY