

## **Around the fire: understanding the effect of heat exposure on hafting adhesives.**

Sonja Tomasso<sup>1</sup>, Dries Cnuts<sup>1</sup> and Veerle Rots<sup>1,2</sup>

1 TraceoLab/Prehistory, University of Liège, Place du 20-août 7 (Bât. A4), 4000 Liège, Belgium

2 Chercheur Qualifié du FNRS

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Since several adhesive technologies require heat during their production process, fireplaces are closely linked with the use of adhesives for hafting. While fireplaces are often recognised archaeologically, evidence for hafting adhesives in the Palaeolithic record is rare and no study has yet focussed on the effect of heat exposure on adhesive deposition, preservation and alteration. The goal of this experimental study is therefore to improve our understanding of the impact of heat exposure on adhesives that are deposited on lithic tools.

Our observations demonstrate that the influence of fire should be taken into account when examining hafting adhesives. Beside the fact that heat exposure from fireplaces can be a reason for the rare presence of adhesives in the archaeological record, the study demonstrates also that the degradation might not only be a reaction of direct contact with the fire but also the result of alteration due to heat from overlying fireplaces.

In addition, the fire experiment shows that incidental tar can be produced under accidental conditions, which stresses the importance of combining residue and use-wear analysis to prove that the adhesive is intentional in nature before using it as a proxy for fire production or complex cognition.

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