

## Characterisation Of Rice Husk And Kaolinitic Clay Blends

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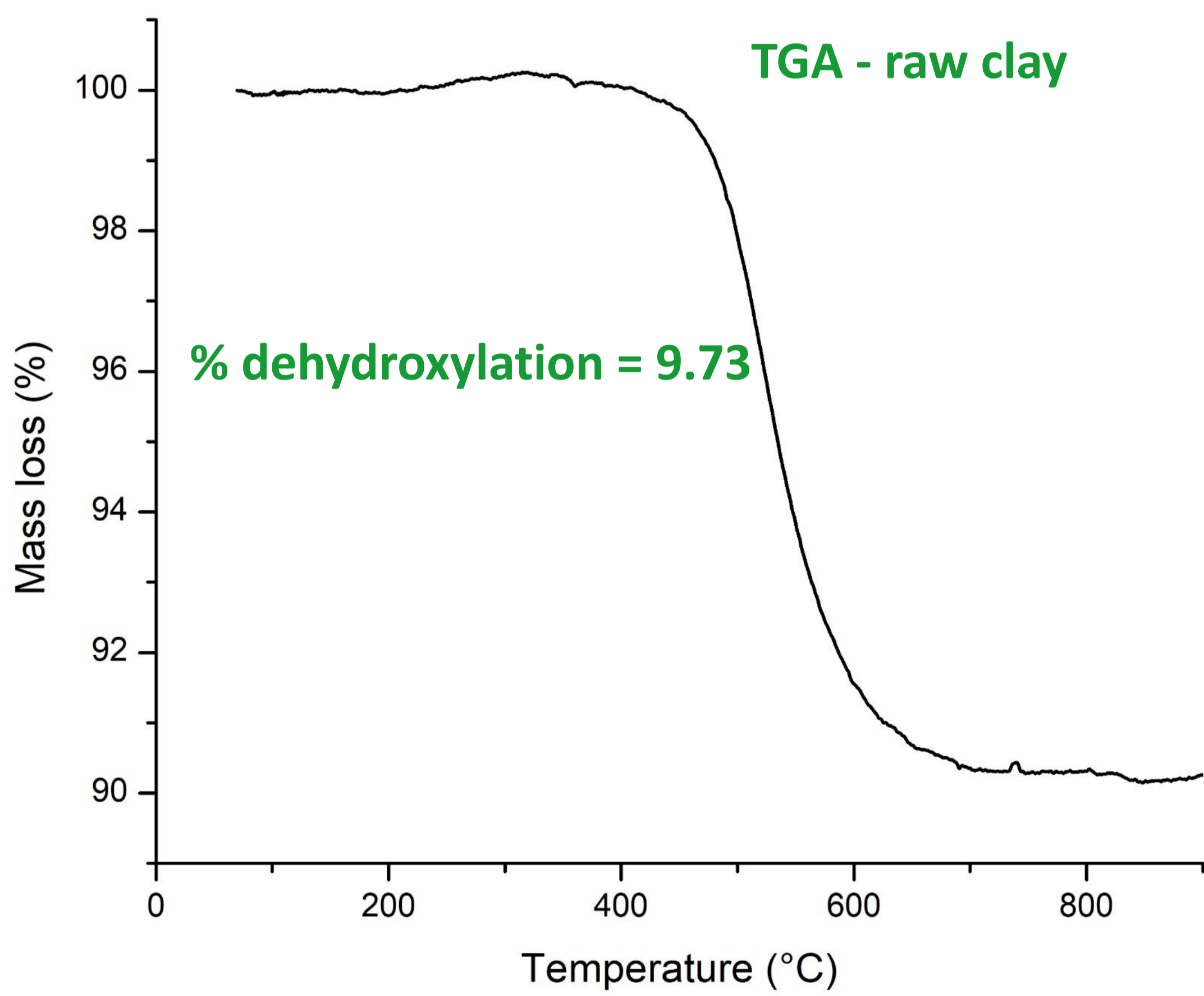
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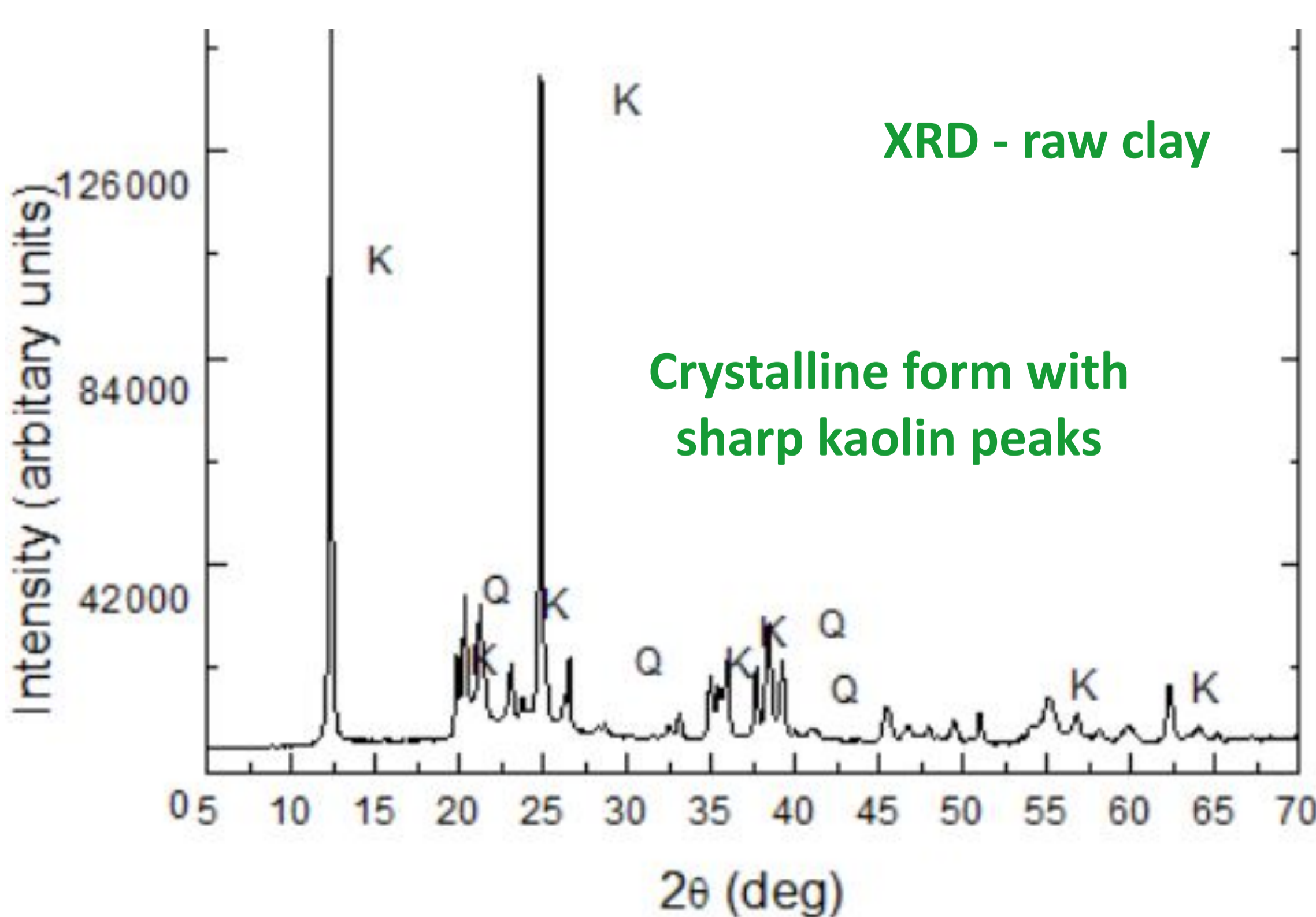
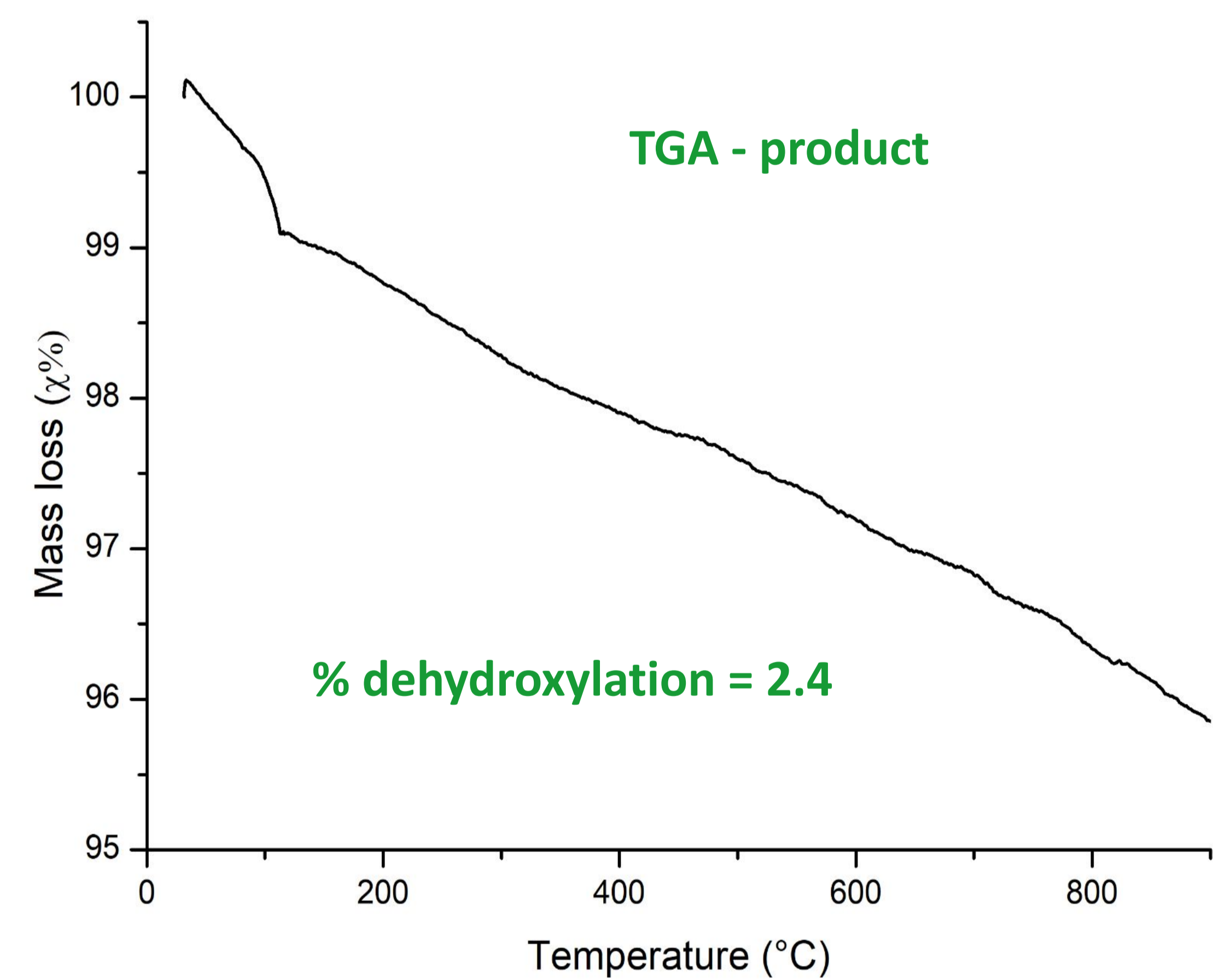
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### Abstract.

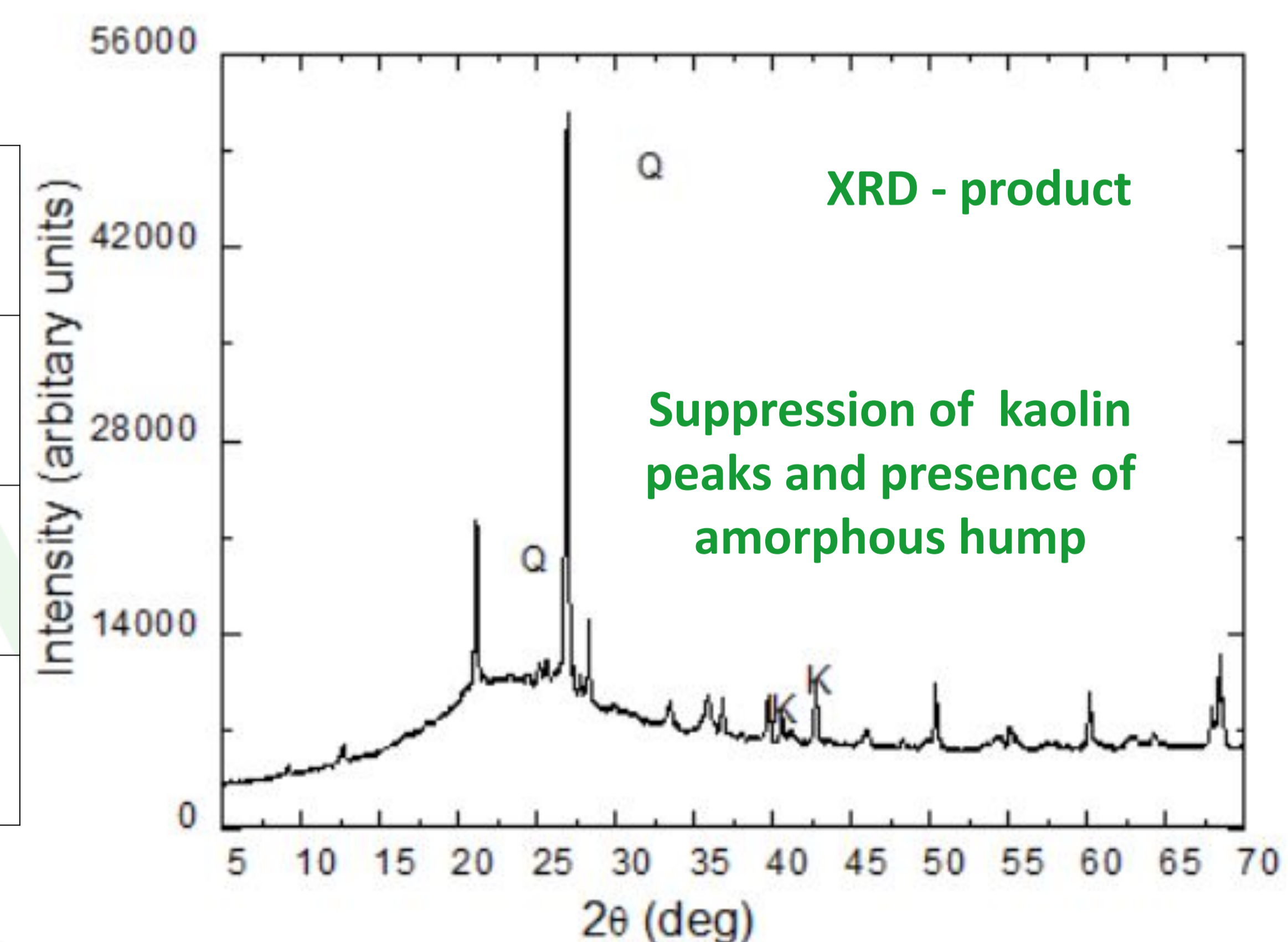
- Product obtained by simultaneous co-firing of kaolin clay and rice-husk is characterized in this study.
- Calcination is performed in a nearly isothermal reactor with a 1:1 blending of biomass and clay with a nominal fuel feed rate of 5 – 6 kg/h.
- The suitability of the obtained product was characterized using:
  - (i) furnace tests
  - (ii) thermogravimetric analysis (TGA), and
  - (iii) X-ray diffraction studies.



Property of raw clay	Value
Density (kg/m <sup>3</sup> )	2.77
Wt % kaolin	69.72
Specific heat (J/kg-K)	877



Property of product	Value
Degree of calcination	74.7
Wt (%) kaolin	17.9
Conversion % of rice husk	89.6



### Conclusion

- The conversion of biomass is assessed using a combination of TGA, XRD, and muffle furnace analysis.
- XRD analysis shows that the product lacks crystalline phases and can be used as a substitute for clinker.
- Overall, the characterization of the product sample shows its suitability as an SCM.

### References

1. A Mani Kalyani, Priyanshu Sinha, Arun Appadurai, Piyush Chaunsali, Varunkumar S, Kaolinitic clay and powdered biomass ash blends as supplementary cementitious material – experimental studies on continuous simultaneous calcination and reactivity assessment, Private communication (2022).