

## On the residual lifetime and inactivity time in mixtures

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### SUMMARY

In this paper we study the ageing characteristics in mixtures of distributions, providing characterizations for its derivatives that explain the smooth behaviour of the mixture. The classical preservation results for the reversed hazard rate, mean residual life and mean inactivity time are derived under a different approach than that in previous works. We focus on the variance of both the residual life and inactivity time in mixtures, obtaining some preservation properties. We also state conditions for weak and strong bending properties for the variance of the residual life and the inactivity time in mixtures.

**Keywords:** mixture, residual life variance, inactivity time variance, ageing class, bending property

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