This analysis contributed to a better understanding of the evolution of the behavior of polymers. It is important to note that the amorphous structure of the material, which necessarily plays a very important role in the process of instability (pulling hook), has been neglected.

Fig. 7 to 10 show the results of the evolution of the true stress corrected by a factor of triaxiality depending on the true strain for four radiuses proposed in this study (R2 to R80), they are compared with the experimental results and theoretical results obtained by modeling of G'sell [03].

We can observe a good correlation of predictions with experimental and modeling results, except the R2 where a larger gap appears in the curing phase between the corrected curve and the theoretical curves.

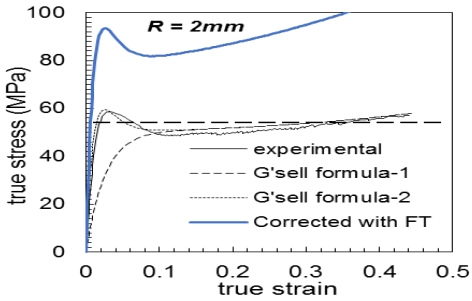

Figure 7. Evolution of the true stress vs. true strain for a radius of curvature R = 2 mm.

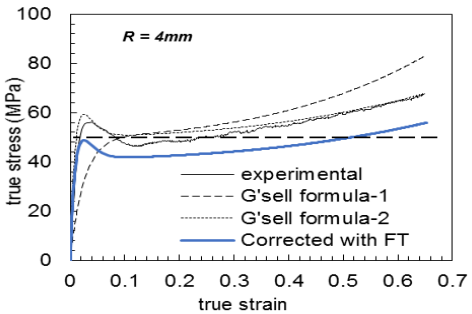

Figure 8. Evolution of the true stress vs. true strain for a radius of curvature R = 4 mm

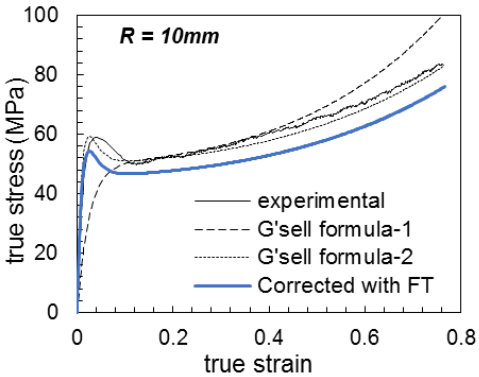

Figure 9. Evolution of the true stress vs. true strain for a radius of curvature R = 10 mm

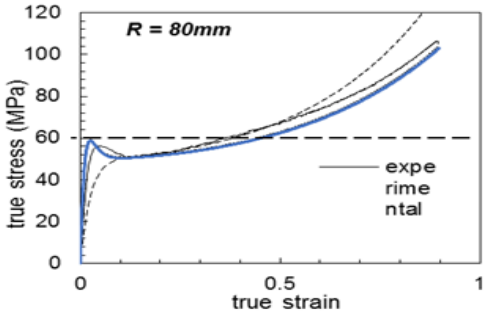

Figure 10. Evolution of the true stress vs. true strain for a radius of curvature R = 80 mm

6. CONCLUSION

The propagation of a constriction along an otherwise uniform section of the sample can be explained in terms of the transverse compressive stresses developed at the current shoulders of the neck. The effect of these triaxle stresses can be quantified in terms of a modified Bridgman correction factor, which is seen to be valid in locations of negative as well as positive curvature. In the presence of variations in cross-section, the gradient in the Bridgman triaxiality factor must be added to the strain localization relationship and plays a role analogous to that of an area or strength defect.

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