



SDI Review Form 1.5

PART A:

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| Journal Name: | Physical Review & Research International |
| Manuscript Number: | MS: 2012/PRRI/1474 |
| Title of the Manuscript: | <i>Predicting the Time Dependent Deformation of Viscoelastic Materials Using a Gompertz-type Model</i> |
| Manuscript received on (Date) | |
| Review comment submitted (Date) | |



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PART B: Review Comments

| | Reviewer's comment | Author's comment <i>(if agreed with reviewer, correct the manuscript and highlight that part and write here 'Corrected'/ if not agreed, give suitable justifications)</i> |
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| General comment: | The article is essentially based on a mathematical development consisting of the resolution of a differential equation. The link to the physical aspect is unclear although the non linear viscoelastic constitutive model is considered. Indeed, no experimental data related to the S-type strain time curve, frequently invoked, is provided. | Corrected |
| Specific comments: | | |
| Title and abstract | The title can stand by omitting the first terms 'Predicting of' | Corrected |
| Introduction | The case of plastic deformation that may be present in some materials is ignored in the introduction. The authors claim that no definitive framework formulation exists under finite (large) strain framework. The referee would suggest them to read, for instance, Laiarinandrasana et al. Int. J. Plasticity 2003 (19): 977-1000, where the internal state variable theory is opposed to the one based upon the Boltzman hereditary integral. It is not very clear in the introduction how the authors distinguish the non linearity due to elasticity and that due to viscosity. | Corrected |
| Review of literature (Heading may differ in the case of review paper) | The referee finds that some important articles are missing in this paper. Namely, this kind of problem can be solved by finite element analysis provided with relevant constitutive relationships. Moreover, it seems to the referee that the comprehensive visco-hyperelastic models valid for rubber like materials existing in the literature should be at least compared with the one proposed by the authors. | Corrected |
| Materials & methods (Heading may differ in the case of review paper) | No material characteristics are proposed. The authors frequently refer to strain time S-shaped curve, but there is no experimental data showing it. | Corrected |
| Results & discussion (Heading may differ in the case of review paper) | In all figures, since the authors discuss about the strain rate effects, strain rate – time curves should be plotted in parallel with the strain history. Figures 2-4 showing the effects of the variation of coefficients on | Corrected |



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| | the shape of the curves can be treated by optimizer methods which are nowadays very powerful. | |
| Conclusion | The referee finds it too short | Corrected |
| References | Insufficient | Corrected |