

3. The stress intensity factor is independent from the change in temperature at a constant load, while with the increase in load the SIF also increases.

The present study can be incorporated with the experimental study and at even higher temperatures where the phase change of the material starts and can be implemented on many other materials that are used extensively these days.

REFERENCES

- [1] Broek, D. (2012). Elementary engineering fracture mechanics. Springer, Germany.
- [2] Wells, A.A. (1961). Unstable crack propagation in metals, cleavage and fast fracture. Proceedings of the Crack Propagation Symposium, 210-230.
- [3] Wells, A.A. (1963). Application of fracture mechanics at and beyond general yielding. British Welding Research Association Report.
- [4] Singh, A., Kumar, S., Yadav, H.L. (2018). Numerical Parametric study of crack parameters near crack tip. International Journal of Mechanical and Production Engineering Research and Development (IJMPERD), 8(1): 83-92. <https://doi.org/10.24247/ijmpferdfeb20189>
- [5] Singh, A., Kumar, S., Yadav, H.L. (2018). Modelling, Measurement and Control B. 87(2): 101-106. https://doi.org/https://doi.org/10.18280/mmc_b.870207
- [6] Rincon, E., Lopez, H.F., Cisneros, M.M., Mancha, H. (2009). Temperature effects on the tensile properties of cast and heat-treated aluminum alloy A319. Materials Science and Engineering, 519(1-2): 128-140. <https://doi.org/10.1016/j.msea.2009.05.022>
- [7] Shojaei, K., Sajadifar, S.V., Yapici, G.G. (2016). On the mechanical behavior of cold deformed aluminum 7075 alloy at elevated temperatures. Materials Science and Engineering, 670: 81-89. <http://dx.doi.org/10.1016/j.msea.2016.05.113>
- [8] Li, L.T., Lin, Y.C., Zhou, H.M., Jiang, Y.Q. (2013). Modeling the high-temperature creep behaviors of 7075 and 2124 aluminum alloys by continuum damage mechanics model. Computational Materials Science, 73: 72-78. <https://doi.org/10.1016/j.commatsci.2013.02.022>
- [9] Standard, A. (2009). Standard test methods for elevated temperature tension tests of metallic materials. ASTM International, E21-09.
- [10] European Committee for Standardization (CEN). (2007). Eurocode 9: Design of aluminum structures—Part 1-2: Structural fire design. BS EN 1999-1-2:2007, Brussels.
- [11] Hadianfard, M.J., Healy, J., Mai, Y.W. (1994). Temperature effect on fracture behaviour of an alumina particulate-reinforced 6061-aluminum composite. Applied Composite Materials, 1(2): 93-113. <https://doi.org/10.1007/BF00567572>
- [12] Derpenski, Ł., Seweryn, A. (2019). Ductile fracture of Notched aluminum alloy specimens under ELEVATED temperature part 2—numerical modelling and fracture criterion. Theoretical and Applied Fracture Mechanics, 102: 83-97. <https://doi.org/10.1016/j.tafmec.2019.01.023>
- [13] Derpenski, Ł., Seweryn, A. (2019). Ductile fracture of Notched aluminum alloy specimens under ELEVATED temperature part 1—numerical modelling and fracture criterion. Theoretical and Applied Fracture Mechanics, 102: 70-82. <https://doi.org/10.1016/j.tafmec.2019.04.001>
- [14] Su, M.N., Young, B. (2017). 10.37: Mechanical properties of high strength aluminum alloy at elevated temperatures. ce/papers, 1(2-3): 2831-2839. <https://doi.org/10.1002/cepa.334>

NOMENCLATURE

CMOD	Crack Mouth Opening Displacement
CTOD	Crack Tip Opening Displacement
SIF	Stress Intensity Factor
LEFM	Linear Elastic Fracture Mechanics
W	Width of the specimen
S	Span length
a	Crack length
B	Thickness of the specimen