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## **SUPERPLASTICITY: CHARACTERISTICS, ORIGIN, AND UTILIZATION**

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### **SUMMARY**

Micrograin Superplasticity refers to the ability of fine-grained materials ( $1\mu\text{m} < d < 10\mu\text{m}$ , where  $d$  is the grain size) to exhibit extensive neck-free elongations during deformation at elevated temperatures. Over the past three decades, good progress has been made in rationalizing this phenomenon. This presentation provides a brief review on this progress in several areas that are related to: (a) the mechanical characteristics of micrograin superplasticity and their origin, (b) the effect of impurity content and type on deformation behavior, boundary sliding, and cavitation during superplastic deformation, (c) the formation of cavity stringers, (d) dislocation activities and role during superplastic flow, and (e) the utilization of superplasticity