



# Effects of Predeformation and Semi-solid Processing on Microstructural and Mechanical Properties of RAP Processed Cr-V-Mo Steel

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Chair for Hyper - functional Forming  
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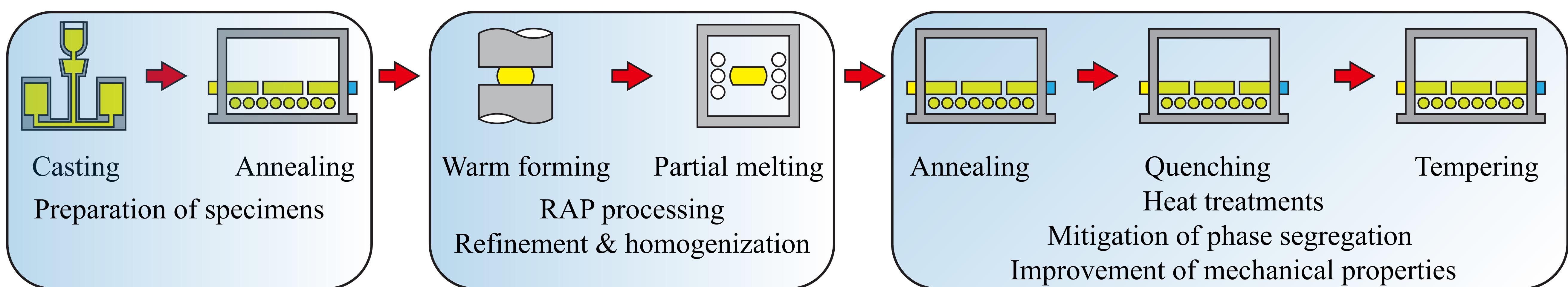
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## Introduction

To ensure the excellent mechanical properties of tools and dies, high-quality tool steel containing fine-grained martensite matrix and uniformly distributed carbide precipitation is required. An energy-efficient process route for manufacturing products with high quality was proposed based on recrystallization and partial melting (RAP) technology.

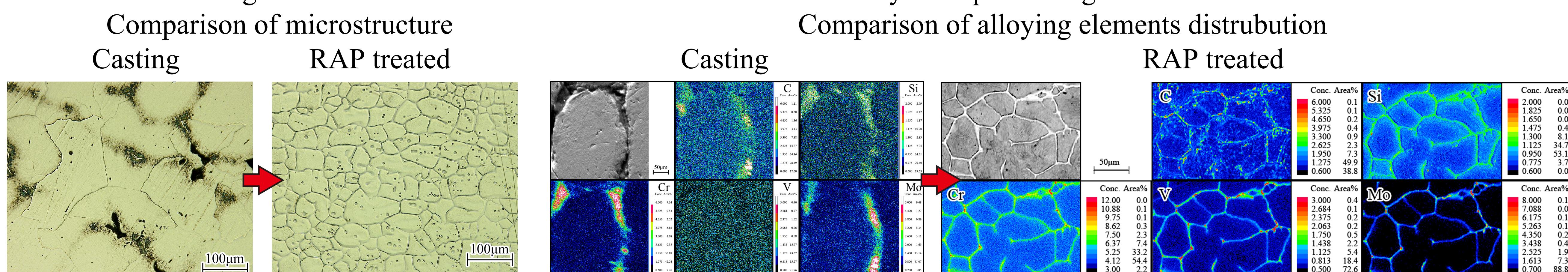
## Experiments

Schematic diagram of experimental strategy is shown as following.

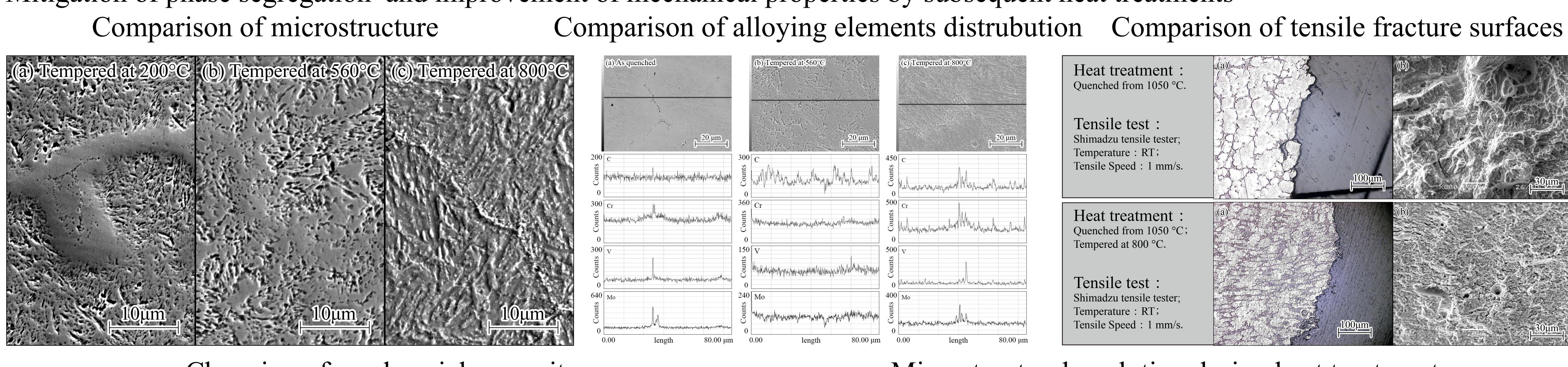


## Results

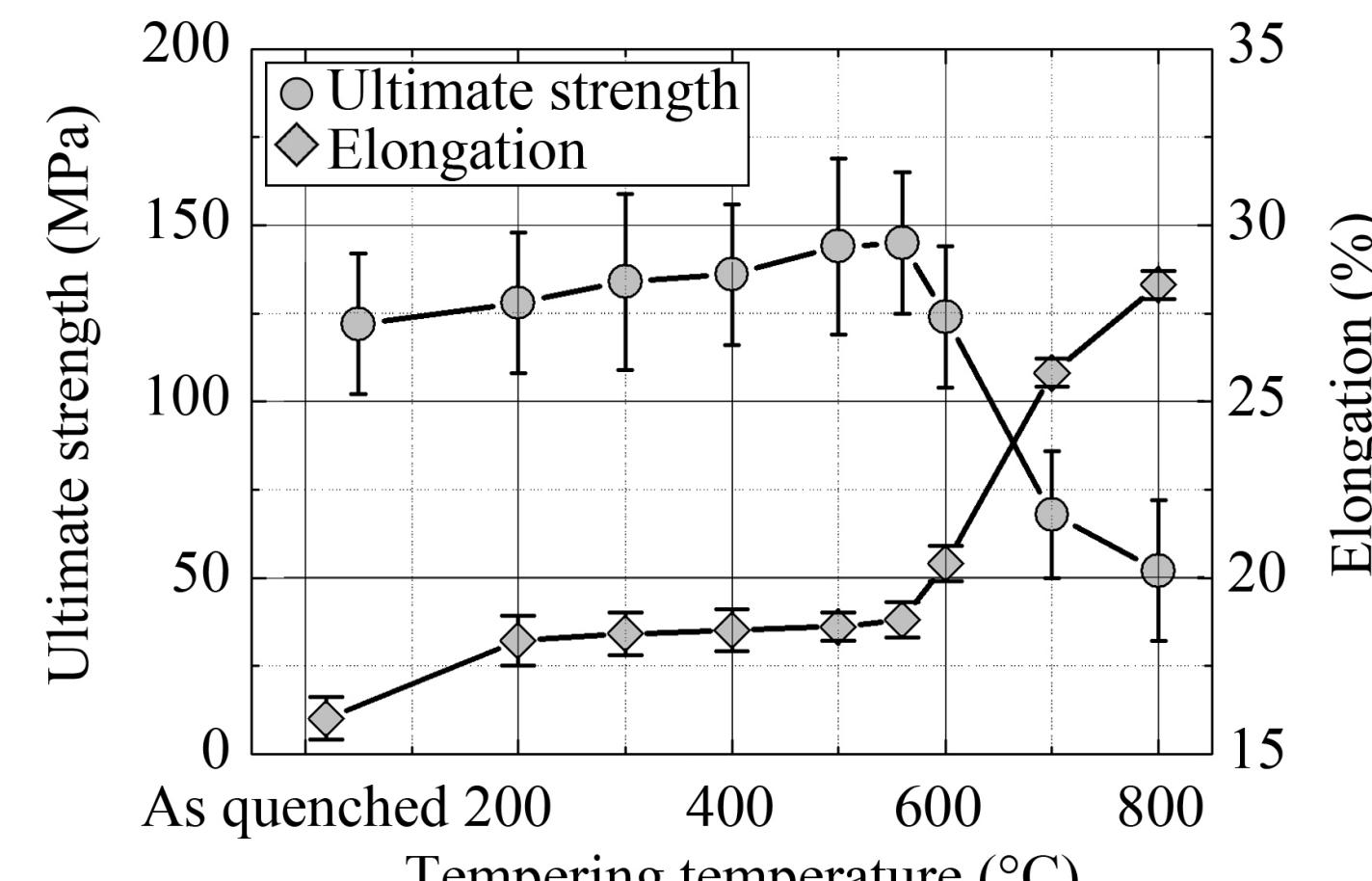
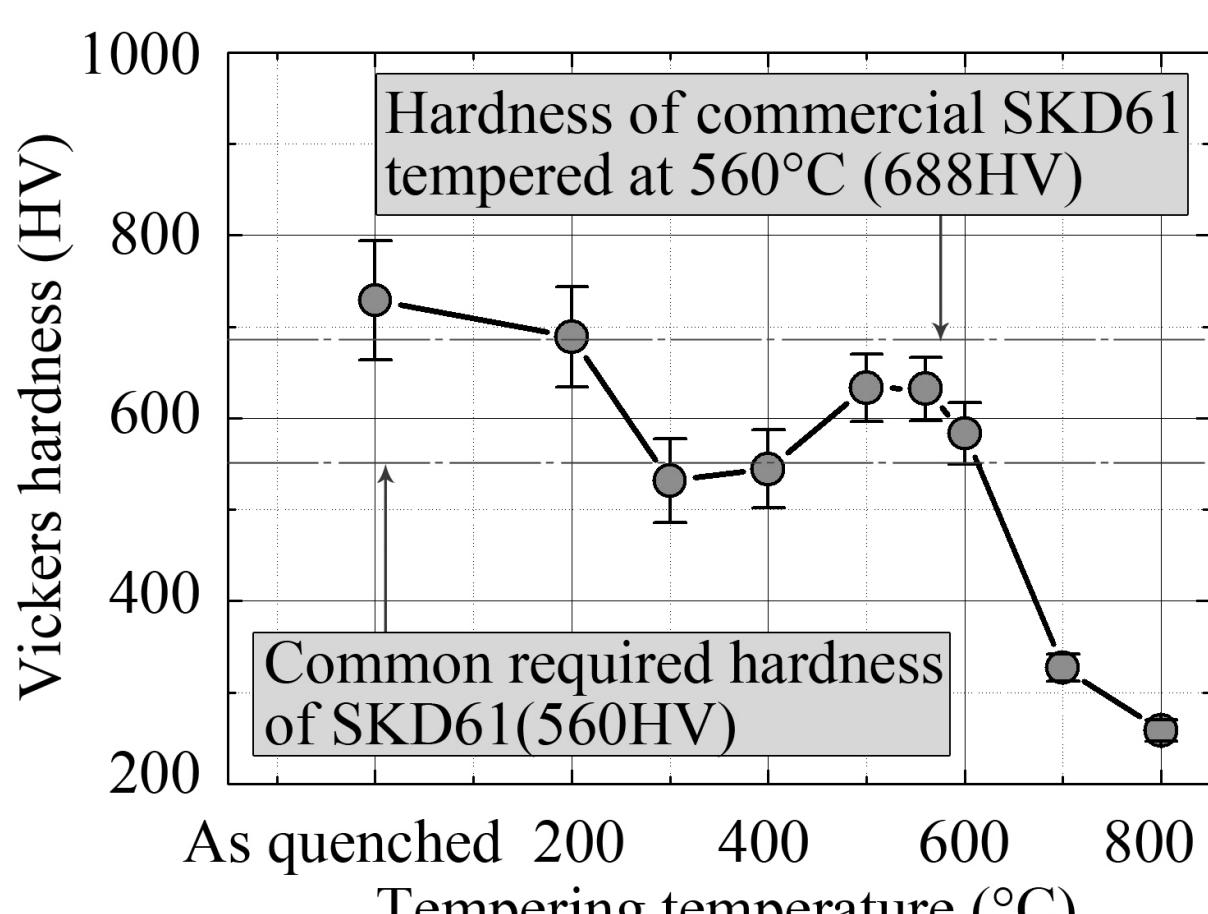
Refinement & homogenization of the microstructure of cast Cr-V-Mo steel by RAP processing.



Mitigation of phase segregation and improvement of mechanical properties by subsequent heat treatments



Changing of mechanical properties



Microstructural evolution during heat treatments

