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## Abbreviations

|       |   |
|-------|---|
| HEA   | : High Entropy Alloy                              |
| RHEA  | : Refractory HEA                                  |
| LDHEA | : Low-Density HEA                                 |
| LWHEA | : Light Weight HEA                                |
| YS    | : Yield Strength                                  |
| IM    | : Intermetallics                                  |
| XRD   | : X-ray Diffraction                               |
| BPR   | : Ball to Powder Ratio                            |
| SE    | : Secondary Electron                              |
| MA    | : Mechanical Alloying                             |
| SPS   | : Spark Plasma Sintering                          |
| HIP   | : Hot Isostatic Pressing                          |
| VIM   | : Vacuum Induction Melting                        |
| HEBM  | : High Energy Ball Milling                        |
| BSE   | : Back-Scattered Electron                         |
| CCA   | : Complex Concentrated Alloy                      |
| SEM   | : Scanning Electron Microscopy                    |
| ODS   | : Oxide Dispersion Reinforced                     |
| EDS   | : Energy Dispersive X- ray Spectroscopy           |
| DSC   | : Differential Scanning Calorimetry               |
| VEC   | : Valence Electron Concentration                  |
| VHP   | : Vacuum Hot Pressing and Sintering               |
| TEM   | : Transmission Electron Microscopy                |
| ICDD  | : International Centre for Diffraction Data       |
| LWEFM | : Light Weight Environmentally Friendly Materials |

## Symbols

|                   |   |  |
|-------------------|---|--|
| $k$               | : | Boltzmann constant                     |
| $S$               | : | Configurational entropy                |
| $W$               | : | Number of possible configurations      |
| $\Delta S_{conf}$ | : | Change in configurational entropy      |
| $R$               | : | Gas constant                           |
| $\Delta G_{mix}$  | : | Gibbs free energy change due to mixing |
| $\delta$          | : | Atomic size difference                 |
| $\Delta H_{mix}$  | : | Enthalpy of mixing                     |
| $\Delta S_{mix}$  | : | Entropy of mixing                      |
| $T_m$             | : | Melting point                          |
| $\sigma$          | : | Sigma phase                            |
| $\sigma_y$        | : | Yield stress                           |
| $M_s$             | : | Saturated magnetization                |
| $\chi$            | : | Permeability                           |
| $\lambda$         | : | Wave length                            |
| $\beta$           | : | Peak broadening                        |
| $t$               | : | Crystallite size                       |