**Appendix 1**

**Appendix 1** Dataset of alloys, corresponding phases, and H/M values

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| **Alloy** | **Phase** | **H/M** |
| TiVCrNb | BCC | 2 |
| Ti28V28Nb28Cr15 | BCC | 2 |
| TiVCrNbMo | BCC | 1.3 |
| TiVCrMo | BCC | 0.75 |
| TiVCrNbTa | BCC | 1.9 |
| (TiVNb)95.3Co4.7 | BCC | 2 |
| (TiVNb)96.2Ni3.8 | BCC | 2 |
| Ti0.325V0.275Zr0.125Nb0.275 | BCC | 1.75 |
| TiVZrNb | BCC | 1.7 |
| TiVZr1.20Nb | BCC | 1.9 |
| TiVZr1.50Nb | BCC | 1.9 |
| TiVZr1.75Nb | BCC | 1.9 |
| TiVZr2Nb | BCC | 1.9 |
| TiZrNbMoV | BCC | 1.72 |
| TiVZrHfNb0.5 | BCC | 1.82 |
| TiVZr0.5HfNb | BCC | 1.99 |
| TiVZrHf0.5Nb | BCC | 2 |
| TiV0.5ZrHfNb | BCC | 1.96 |
| Ti0.5VZrHfNb | BCC | 1.97 |
| TiVZrHfNb | BCC | 2.1 |
| Ti0.30 V0.25Zr0.10 Nb0.25Ta0.10 | BCC | 2.2 |
| TiVZr0.15NbTa0.85 | BCC | 1.9 |
| TiVZr0.50NbTa0.50 | BCC | 1.9 |
| TiVZr0.74NbTa0.26 | BCC | 1.9 |
| TiVZrHf | BCC | 1.72 |
| TiVNbMo | BCC | 1.5 |
| TiVHfNb | BCC | 1.99 |
| TiVNbHf | BCC | 2 |
| TiVNbTa | BCC | 1.9 |
| TiZrHfMoNb | BCC | 1.72 |
| Ti0.20Zr0.20Hf0.20Nb0.40 | BCC | 1.72 |
| TiZrNbHf | BCC | 2 |
| TiZrNbHfTa | FCC | 2 |
| TiZrNbTa | BCC | 1.72 |
| Ti0.20Zr0.20Hf0.20 Mo0.10Nb0.30 | BCC | 1.72 |
| Ti0.20Zr0.20Hf0.20 Mo0.20Nb0.20 | BCC | 1.72 |
| Ti0.20Zr0.20Hf0.20 Mo0.30Nb0.10 | BCC | 1.72 |
| Ti0.20Zr0.20Hf0.20 Mo0.40 | BCC | 1.72 |
| VZrHfNb | BCC | 1.72 |
| Ti0.32V0.32Cr0.05Nb0.32 | BCC | 2 |
| Ti0.32V0.32Ni0.04Nb0.32 | BCC | 2 |
| Ti0.24V0.24Zr0.28Nb0.24 | BCC | 1.9 |
| Ti0.22V0.22Zr0.33Nb0.22 | BCC | 1.9 |
| Ti0.21V0.21Zr0.37Nb0.21 | BCC | 1.9 |
| Ti0.3V0.25Zr0.1Nb0.25Ta0.1 | BCC | 2.2 |
| Ti0.2Zr0.2Nb0.2Mo0.2Hf0.2 | BCC | 1.18 |
| Ti0.3Zr0.2Nb0.2Hf0.2 | BCC | 1.12 |
| Ti0.2Zr0.2Nb0.3Mo0.1Hf0.2 | BCC | 1.54 |
| Ti0.2Zr0.2Nb0.1Mo0.3Hf0.2 | BCC | 1.4 |
| Ti0.2Zr0.2Mo0.4Hf0.2 | BCC | 0.92 |
| Mg0.20Al0.20Ti0.20Fe0.20Ni0.20 | BCC | 1.72 |
| Mg0.20Al0.20V0.20Cr0.20Ni0.20 | BCC | 1 |
| Mg0.28Al0.19V0.28Cr0.19Ni0.06 | BCC | 0.345 |
| Mg0.26Al0.31V0.31Cr0.06Ni0.06 | BCC | 1.72 |
| Mg0.20Ti0.20V0.20Cr0.20Fe0.20 | BCC | 0.3 |
| Mg0.10Ti0.30V0.25Zr0.10Nb0.25 | BCC | 2.7 |
| Mg0.22Ti0.22Cr0.11Mn0.11Nb0.22 | BCC | 1.72 |
| Mg0.22Ti0.22Cr0.11Mn0.11Ni0.11Nb0.22 | FCC | 1.6 |
| Mg0.22Ti0.22Fe0.11Co0.11Ni0.11Zr0.22 | BCC | 1.2 |
| Mg0.22Ti0.22Fe0.11Co0.11Ni0.11Zr0.22 | FCC | 1.72 |
| Al0.17Cr0.17Mn0.17Fe0.17Ni0.17W0.17 | BCC | 0.62 |
| Ti0.17V0.17Cr0.17Fe0.17Ni0.17Zr0.17 | BCC | 1.7 |
| Ti0.20Fe0.40Ni0.15Zr0.20Nb0.05 | BCC | 1.38 |
| Ti0.20Fe0.40Ni0.20Zr0.20Nb0.20 | BCC | 1.64 |
| V0.20Mn0.20Fe0.40Ni0.20La0.20 | BCC | 0.565 |
| TiZrHfMoNb | FCC | 2 |
| Ti35V35Nb20Cr5Mn5 | FCC | 2.47 |
| Ti32V32Nb18Cr9Mn9 | FCC | 2.09 |
| Ti27.5V27.5Nb20Cr12.5Mn12.5 | FCC | 3.38 |
| TiZrVMoNb | FCC | 1.5 |
| Ti15V35(CrMnFe)50 | FCC | 2.68 |
| TiZrHfMoNb | FCC | 1.8 |
| V0.3Ti0.3Cr0.25Mn0.1Nb0.05 | FCC | 1.78 |
| Ti0.30V0.25Zr0.10Nb0.25Mo0.10 | FCC | 2 |
| MgZrTiFe0.5Co0.5Ni0.5 | FCC | 1.2 |
| Ti0.20Zr0.20Hf0.20Nb0.40 | FCC | 1.5 |
| AlCrFeMnNiW | FCC | 0.615 |
| TiFe0.8Mn0.2Zr0.05 | FCC | 2.04 |
| TiFe0.8Mn0.18Al0.02Zr0.05 | FCC | 1.89 |
| TiFe0.8Mn0.18Al0.05Zr0.02 | FCC | 1.88 |
| TiFe0.8Mn0.2V0.05 | FCC | 1.78 |
| TiCo0.5Mn0.5V0.05 | FCC | 1.3 |
| TiCo0.5Mn0.5Zr0.05 | FCC | 1.4 |
| TiCo0.5Fe0.5V0.05 | FCC | 1.3 |
| TiCo0.5Fe0.5Zr0.05 | FCC | 1.3 |
| Ti0.2V0.2Nb0.2Zr0.4 | FCC | 2 |
| Mg21Ti31Nb31Ni17 | FCC | 1 |
| FeMnNiCoCr | FCC | 0.37 |
| Ti25V25Nb25Zr25 | FCC | 2 |
| TiVZrNbNi | FCC | 2 |
| TiVZrNbHf | FCC | 1.99 |
| (TiVNb)30Cr70 | FCC | 3.1 |
| (TiVNb)65Cr35 | FCC | 2.8 |
| TiVZrNbFe | FCC | 1.6 |
| Mg0.68TiNbNi0.55 | FCC | 3.3 |