

## Thermotech 社製熱力学データベース更新の御案内

このたび Thermotech 社製熱力学データベースが更新されました。従来の Al,Fe,Mg,Ni,に加えまして新たに Zr 基合金の熱力学データベースも追加されました。更新内容は以下の通りです。何卒ご検討いただきますようお願い申し上げます。

### **Al-DATA (ver.5)      Al,B,C,Ca,Cr,Cu,Fe,H,Mg,Mn,Ni,Si,Sr,Ti,V,Zn,Zr**

New elements: La and Sc.

Notes: Work has been done to take into model the various structural forms of Al<sub>3</sub>M compounds, DO22, DO23 and L12 that form with combinations Sc, Ti, V and Zr. Also beginning work on the addition of Rare Earth elements to Al-DATA.

New Rare Earth phases: AL11RE3 AL3RE\_DO19

### **Fe-DATA (ver.6)** **Fe,Al,B,C,Co,Cr,Cu,Mg,Mn,Mo,N,Nb,Ni,O,P,S,Si,Ta,Ti,V,W**

New element: O

Notes: Extensive new work done on Si containing alloys to improve modeling of higher Si containing alloys. Improved modeling for high Cr creep resistant steels with new phases to account for precipitation in such steels (G, Z and Pi phases). Extensive new work on oxides based around the Ni-Al-Cr-Fe-Si-Ti-O system.

New phases: Silicon rich G phase, Nitrogen rich Z and Pi phases, SiO<sub>2</sub>, MO\_B2, M<sub>3</sub>O<sub>4</sub>, M<sub>2</sub>O<sub>3</sub>, M<sub>2</sub>SiO<sub>4</sub>, Mullite, Spinel

### **Ni-DATA (ver.7)** **Ni,Al,Co,Cr,Cu,Fe,Hf,Mn,Mo,Nb,O,Re,Ru,Si,Ta,Ti,V,W,Zr,B,C,N**

New elements: Cu, V and O

Notes: Extensive new work done on Si containing alloys to improve modeling of higher Si containing alloys. Also new modelling work undertaken for the Pt<sub>2</sub>Mo type ordered phase in NiCrMo based superalloys, which forms at low temperatures. Extensive new work on oxides based around the Ni-Al-Cr-Fe-Si-Ti-O system. Gamma' solvus temperatures improved for recently developed High Refractory Element Ni-based superalloys.

New phases: Silicon rich G\_phase, Z and Pi nitrides, SiO<sub>2</sub>, MO\_B2, M<sub>3</sub>O<sub>4</sub>, M<sub>2</sub>O<sub>3</sub>, M<sub>2</sub>SiO<sub>4</sub>, Mullite, Spinel

### **Ti-DATA (ver.3)** **Ti,Al,B,C,Cr,Cu,Fe,H,Mn,Mo,N,Nb,Ni,O,Re,Ru,Si,Sn,Ta,V,Zr,**

New elements: H, Mn, Ru and Re.

**Zr-DATA (ver.1)      New database with  
Zr-Cr-Fe-Hf-Nb-Ni-Si-Sn-C-O-N-H**

以上