

3Gd₂₀3 • 5Fe₂₀3 Glass Obtained by Rapid Quenching Apparatus Using Laser Beam

著者	YAJIMA Seishi, OKAMURA Kiyohito, SHISHIDO Toetsu
journal or publication title	Science reports of the Research Institutes, Tohoku University. Ser. A, Physics, chemistry and metallurgy
volume	26
page range	87-87
year	1976
URL	http://hdl.handle.net/10097/27759

means of differential thermal analysis (DTA) and X-ray diffraction. From the experimental results, the crystallization process was characterized mainly by the two successive transitions, i.e., glassy phase \rightarrow a new metastable phase \rightarrow stable phase of $\text{La}_2\text{O}_3 \cdot 5\text{Nb}_2\text{O}_5$.

Mössbauer Measurements of Iron Atoms Dispersed in Amorphous Glass-like Carbon

Seishi YAJIMA and Mamoru OMORI
Chemistry Letters (1974), 277.

Various iron species have been prepared by pyrolyzing acetylferrocene-furfural resins at 400°C in vacuum, and analysed by means of Mössbauer spectroscopy. The Mössbauer spectra show that the iron species in an amorphous glasslike carbon matrix are free iron atoms, Fe^+ ions, iron clusters, superparamagnetic irons and ferromagnetic irons.

Crystallization of $3\text{Ln}_2\text{O}_3 \cdot 5\text{Ga}_2\text{O}_3$ Glasses

Seishi YAJIMA, Kiyohito OKAMURA and Toetsu SHISHIDO
Chemistry Letters (1974), 545.

The oxide glasses of $3\text{Ln}_2\text{O}_3 \cdot 5\text{Ga}_2\text{O}_3$ were prepared, using Pr, Nd, Sm, Eu or Gd as a lanthanoid element. Crystallization of the glasses was studied by DTA and X-ray diffraction. A metastable phase was found on the way of the crystallization process of $3\text{Pr}_2\text{O}_3 \cdot 5\text{Ga}_2\text{O}_3$ and $3\text{Nd}_2\text{O}_3 \cdot 5\text{Ga}_2\text{O}_3$ glasses terminating in the transition into garnet. However, the phase transition transforming the amorphous phase directly into garnet not through a metastable phase was observed in case of $3\text{Ln}_2\text{O}_3 \cdot 5\text{Ga}_2\text{O}_3$ glasses ($\text{Ln} = \text{Sm, Eu or Gd}$).

$3\text{Gd}_2\text{O}_3 \cdot 5\text{Fe}_2\text{O}_3$ Glass Obtained by Rapid Quenching Apparatus Using Laser Beam

Seishi YAJIMA, Kiyohito OKAMURA and Toetsu SHISHIDO
Chemistry Letters (1974), 1531.

The oxide glass of $3\text{Gd}_2\text{O}_3 \cdot 5\text{Fe}_2\text{O}_3$ (GIG) was prepared using the piston and anvil technique incorporated into a laser melting furnace. The quenching apparatus provides higher quenching rates than an impact quenching apparatus already made. Crystallization and magnetization of the GIG glass have been examined by means of DTA method and magnetic balance.

Amorphous Phase in Yttrium-Cobalt-Boron System

Seishi YAJIMA, Kiyohito OKAMURA and Toetsu SHISHIDO
Chemistry Letters (1975), 1227.

By rapid quenching of the melt, an amorphous phase of yttrium-cobalt-boron system was obtained. The phase is stable at room temperature, and its crystallization takes place in the vicinity of 700°C on heating at $10^\circ\text{C}/\text{min}$. Electrical