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| $\text{Ti}_4\text{Ni}_2\text{Ga}_3$ | $hP18$ | (189) $P\text{-}62m - \text{ihgfba}$ |
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$\text{Ti}_8\text{Ni}_4\text{Ga}_6$ [1]

Structural features: Infinite columns of base-linked NiTi_6 trigonal prisms share edges to form a 3D-framework; single columns of base-linked TiGa_6 trigonal prisms in channels parallel to $[001]$. Substitution derivative of Fe_2P (or its branch Mg_2In), $[\text{Ti}_3\text{Ga}_3][\text{Ni}_2\text{Ti}]$, with distortions towards the formation of Ni_2 dumbbells.

Markiv V.Y. et al. (1983) [1]

$\text{Ga}_3\text{Ni}_2\text{Ti}_4$

$a = 0.699$, $c = 0.624$ nm, $c/a = 0.893$, $V = 0.2640$ nm³, $Z = 2$

| site | Wyck. | sym. | x | y | z | occ. | atomic environment |
|------|-------|---------------|---------------|---------------|---------------|------|------------------------------------------------------------|
| Ga1 | $6i$ | $\dots m$ | 0.273 | 0 | 0.253 | | 14-vertex Frank-Kasper $\text{Ti}_8\text{Ni}_2\text{Ga}_4$ |
| Ni2 | $4h$ | $3\dots$ | $\frac{1}{3}$ | $\frac{2}{3}$ | 0.2 | | 10-vertex polyhedron NiTi_6Ga_3 |
| Ti3 | $3g$ | $m2m$ | 0.586 | 0 | $\frac{1}{2}$ | | 13-vertex polyhedron $\text{Ga}_6\text{Ni}_4\text{Ti}_3$ |
| Ti4 | $3f$ | $m2m$ | 0.633 | 0 | 0 | | 13-vertex polyhedron $\text{Ni}_4\text{Ti}_3\text{Ga}_6$ |
| Ti5 | $1b$ | $\text{-}62m$ | 0 | 0 | $\frac{1}{2}$ | | pseudo Frank-Kasper Ga_6Ti_5 |
| Ti6 | $1a$ | $\text{-}62m$ | 0 | 0 | 0 | | pseudo Frank-Kasper Ga_6Ti_5 |

Experimental: powder, diffractometer, X-rays, $R = 0.098$

Remarks: Phase referred to as $\varepsilon\text{-(GaNiTi)}$; homogeneity range $\text{Ti}_{1+x}\text{Ni}_{0.66}\text{Ga}_{1-y}$, $0.34 < x < 0.50$, $0 < y < 0.16$.

References: [1] Markiv V.Y., Belyavina N.N., Lysenko A.A., Babenko A.A. (1983), Dopov. Akad. Nauk Ukr. RSR, Ser. B 1983(1), 34-37.