



>>Entry Name: Gadolinium hydrides

Related CAS Registry Numbers(s): 85323-71-3

Molecular Formula: [GdH]

>>Variant: Gadolinium hydride (GdH₂)

CAS Registry Number: 13823-35-3

Molecular Formula: GdH₂

Molecular Weight: 159.266

Accurate Mass: 159.939749

Percentage Composition: Gd 98.73%; H 1.27%

General Statement: Possesses fluorite struct. Existence range GdH_{1.8-2.3}

Use/Importance: Catalyses propene hydrogenation and ortho-para conversion of H₂

Physical Description: Metallic grey solid

Other Data: $\Delta H_f -196.4 \text{ kJ mol}^{-1}$; $\Delta G_f -157.0 \text{ kJ mol}^{-1}$. $\mu_{\text{eff}} = 7.83\mu_B$

>>Variant: Gadolinium hydride (GdH₃)

CAS Registry Number: 13572-97-9

Molecular Formula: GdH₃

Molecular Weight: 160.274

Accurate Mass: 160.947574

Percentage Composition: Gd 98.11%; H 1.89%

General Statement: Isostructural with LaF₃. Existence range GdH_{2.85-3}

Physical Description: Metallic grey solid

Other Data: $\mu_{\text{eff}} = 7.3\mu_B$. $T_N = 332\text{K}$. ESR in matrices at 4K suggests planar molecule

References:

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Lyle, S.J. *et al.*, *J.C.S. Dalton*, 1975, 1406, (*Mössbauer, GdH₃*)
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