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~~1968~~

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$X^3\Sigma^-$

(ν_i, м.п.)

С помощью полупроводникового лазерного спектрометра измерено положение 23 линий вращат. структуры фундаментальной полосы в ИК-спектре AsH($X^3\Sigma^-$). Молекулы AsH образовывались в заполненной водородом разрядной трубке, содержащей порошкообразный As в условиях стабилизированного высоковольтного разряда постоянного тока. Для состояния $v=1$ AsH($X^3\Sigma^-$) получены след. значения ν_0, B, D, λ, γ (в $см^{-1}$): 2076,874; 6,98918; $3{,}247\cdot10^{-4}$, 58,681; —0,2573. В результате совместной обработки полученных результатов и данных по спектру лазерного магн. резонанса AsH (X, $v=0$) рассчитаны равновесные спектроскопич. постоянные AsH: $\omega_e=2175$, $\omega_e x_e=49$, $B_e=7{,}3067$, $\alpha_e=0{,}2117$, $D_e=8{,}30\cdot10^{-4}$, $\beta_e=3\cdot10^{-6}$ $см^{-1}$; $R_e=1{,}52315$ А.

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Photoionization mass

Spectrometric studies of

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AsH

AsH2

1993

118: 242028n Equilibrium gas-phase composition and thermodynamic properties including subhydrides in the pyrolysis of arsine and phosphine. Jordan, A. S.; Robertson, A. (AT and T Bell Lab., Murray Hill, New Jersey 07974, USA). *J. Cryst. Growth* 1993, 128(1-4), 488-93 (Eng). A thermodn. anal. was performed on the pyrolysis products of AsH_3 and PH_3. For the first time were detd. the concn. of subhydrides, (AsH, AsH_2 and their P analogs) resulting from the decompn. In the case of AsH_3 and the corresponding subhydrides, also were detd. the thermodn. properties from critically assessed or calcd. spectroscopic data by means of statistical thermodn. A novel free-energy minimization technique permits the calcn. of species concns. that differ by orders of magnitude. In applying the mass conservation constraints the authors differentiated between flow systems in metalorg. chem. vapor deposition (MOCVD) and crackers with effusive flow through an orifice in metalorg. mol. beam epitaxy (MOMBE). The authors have found that significant concns. of H, As, P, and AsH are generated in MOMBE crackers. In low pressure MOCVD of quaternary III-V alloys, PH_3 is the most important intermediate species. The calcd. concns. are in reasonable agreement with mass spectrometric measurements both at low and high pressures

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(12)

CA. 1993, 118, N 24

PH_2, P.H-

AsH

AsH_2

AsH_3

1993

119: 130402u Equilibrium gas-phase composition of cracked arsine and phosphine. Robertson, A., Jr.; Jordan, A. S. (Eng. Res. Cent., AT and T Bell Lab., Princeton, NJ 08540 USA). *J. Vac. Sci. Technol., B* 1993, 11(3), 1041–4 (Eng). A thermodn. anal. for the pyrolysis products of AsH_3 and PH_3 was performed. For the 1st time the authors detd. the concn. of subhydrides, (AsH, AsH_2, PH, PH_2) resulting from the decompn. In the case of AsH_3 and the corresponding subhydrides, the authors also detd. the thermodn. properties (free-energy function, entropy, etc.) from critically assessed or estd. spectroscopic data from statistical thermodn. A free-energy minimization technique permitted the calcn. of species concns. that differ by orders of magnitude. The mass conservation constraints formulated here are applicable to crackers with effusive flow through an orifice as used in metallorg. MBE and hydride MBE. The calcd. concns., including the dimer/tetramer ratios, are in reasonable agreement with mass spectrometric measurements.

($\Delta F, \Delta S$)

(+2) ⊠ ● PH, PH_3

C.A. 1993, 119, N 12

1997

Alle
Alle -
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