Ar – He, Ne

He-Ar, He-$CO_2$, H-Ar ($\Delta H_{mix}$). 1972

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Изв. Ленингр. Электротех. ин-та 1972, 116, 20-30.

Определение энтальпий газовых смесей в изотермическом калориметре.

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С. А. 1975. 82 N22. 146038h.

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He - Ar

H - Ar

$\Delta H_{mix}$

XI - 3092

1972

39825n Measurement of the heat of mixing of simple moderately rarefied gases. Kotousov, L. S. (Leningr. Politekh. Inst. im. Kalinina, Leningrad, USSR). *Zh. Fiz. Khim.* 1972, 46(4), 863–6 (Russ). The heats of mixing ($h^E$) for the formation of He-Ar, He-$CO_2$, and H-Ar mixts. were measured at 0.2–0.9 atm and 295°K. The $10^2h^E/RT$ values obtained were resp., ~3.8, ~3.4, and ~1.9, whereas those calcd. for the He-Ar mixt. using the 2nd virial coeff. were in the 0–0.1 range at the pressures investigated. Moreover, the values obtained were 10–30% greater than those reported in literature at 20–5 atm.

J. Pietkiewicz

C.A. 1972. 77.6

Ar-He

1977

$CO_2$-He

86: 146675w **Heat of mixing of gases at low pressures.** Altunin, V. V.; Bondarenko, V. F.; Kuznetsov, D. O. (Mosk. Energ. Inst., Moscow, USSR). *Teplofiz. Vys. Temp.* 1977, 15(1), 216-18 (Russ). The heats of mixing, $\Delta H$, of Ar–He and $CO_2$–He mixts. were detd. at 295 K and $P \leq 2$ bar. The values of $\Delta H$ decrease linearly with decreasing $P$. They agree with the values calcd. by the phenomenolog. theory (authors, 1974) and the virial theory.

$\Delta H_{mix}$

(+1) ☒

C. A. 1977, 86 N 20

Ar-He

$N_2$-He

1978

90: 29923x **Measurement of the heat of mixing of argon-helium and nitrogen-helium in the 2–15 bar pressure range.** Kotousov, L. S.; Popov, Y. I.; Sviridov, A. N. (Inst. Electrotech., Leningrad, USSR). *C. R. Hebd. Seances Acad. Sci., Ser. B* 1978, 287(5), 109–11 (Fr). The excess enthalpies of Ar–He and $N_2$–He mixts. were measured as functions of pressure at 2–15 bar. The exptl. results are in good agreement with the non-equil. theor. evaluations. The heats of mixing vary very little with the pressure. E. S. Hanrahan

$\Delta H_{mix}$

C.A.; 1978, 90, N4

NeAr

NeKr

NeXe

ArCO

ArCO2

1980

√93: 156000f **The second virial coefficients of different gas mixtures from 213 to 475 K.** Schmiedel, H.; Gehrmann, R.; Schramm, B. (Phys.-Chem. Inst., Univ. Heidelberg, 6900 Heidelberg, Fed. Rep. Ger.). *Ber. Bunsenges. Phys. Chem.* 1980, 84(8), 721-4 (Ger). The second virial coeffs. $B_m(T, x_1)$ of the binary gas mixts. NeAr, NeKr, NeXe, ArCO, and $ArCO_2$ with different mole fractions were measured at 213-475 K. These values detd. the interaction virial coeff. $B_{12}(T)$, which is no longer a function of the mole fraction. The measured data are compared with data calcd. by using potentials suggested by other authors.

(P.T.)

C.A. 1980, 93, N16

Ar–Ne

1981

Cv°, Cp°

95: 193267k Volumetric thermodynamic properties of neon-argon solutions. Konovodchenko, E. V.; Pashkov, V. V.; Khokhlov, Yu. I. (Fiz.-Tekh. Inst. Nizk. Temp., Kharkov, USSR). *Ukr. Fiz. Zh. (Russ. Ed.)* 1981, 26(9), 1480–5 (Russ). Ultrasonic velocities, adiabatic and isothermal compressibilities, isobaric coeffs. of expansion, and heat capacities at const. vol. and pressure were detd. of Ar–Ne mixts. contg. 0–22 at% Ar at 95.82–121.36 K and pressures to 150 atm.

C. A. 1981, 95, N22.

Ne-Ar

Om. 17153

1983

Candori R., Firani F., et al.,

mparten.
cb-ba

Mol. Phys., 1983, 49, N3,
551-560.

He–Ar 1984

ΔM тіх; Котоусов Л. С., Попов Ю. И. Термодинам. необратимы. процессов и её прим. менение. Тез. док. 2 Всес. конф., Черновцы, 18–20 сент. 1984. Ч. 1. Черновцы, 1984, 156–157. (см. He–$CO_2$; I)

$Ne_{13-n}Ar_n$

$0 \leq n \leq 13$

(G)

мер. расчет

1997

127: 253620m **A computational study of 13-atom Ne-Ar cluster heat capacities.** Frantz, D. D. (Dep. Chemistry, Univ. Waterloo, Waterloo, ON Can. N2L 3G1). *J. Chem. Phys.* **1997**, 107(6), 1992-2011 (Eng), American Institute of Physics. Heat capacity curves as functions of temp. were calcd. using Monte Carlo methods for the series of $Ne_{13-n}Ar_n$ clusters ($0 \leq n \leq 13$). The clusters were modeled classically using pairwise additive Lennard-Jones potentials. The J-walking (or jump-walking) method was used to overcome systematic errors due to quasiergodicity. Substantial discrepancies between the J-walking results and those obtained using std. Metropolis methods were found. Results obtained using the atom-exchange method, another Monte Carlo variant for multi-component systems, also did not compare well with the J-walker results. Quench studies were done to investigate the clusters' potential energy surfaces. Only those Ne-Ar clusters consisting predominately of either one or the other component had lowest energy isomers having the icosahedral-like symmetry typical of homogeneous 13-atom rare gas clusters; non-icosahedral structures dominated the lowest-energy isomers for the other clusters. This resulted in heat capacity curves that were very much different than that of their homogeneous counterpart. Evidence for coexistence behavior different than that seen in homogeneous clusters is also presented.

C.A. 1997, 127, N18

1999

F: HeAr2+
P: 3
131:134896 Experimental evidence for long-lived HeAr2+ rare gas dimers. Ben-Itzhak, I.; Bouhnik, J. P.; Esry, B. D.; Gertner, I.; Rosner, B. (Department of Particle Physics, Weizmann Institute of Science, Rehovot 7 Israel). Chem. Phys. Lett., 307(5,6), 287-294 (English) 1999 The first observation of long-lived doubly charged HeAr2+ rare gas dimers reported. These dications were obtained in charge-stripping collisions o keV HeAr+ in Ar gas. The mean lifetime for spontaneous dissocn. of the 3He40Ar2+ isotope was detd. to be larger than about 40 .mu.s using a new technique. The cross section for collision-induced dissocn. of these mol in air was found to be .sigma.diss ~ 2 .times. 10-15 cm2. Calcns. of the vibrational state population and mean lifetimes for a few low-lying elect states indicate that all four low-lying states are very long lived and ma populated in fast charge-stripping collisions.

C.A. 1999, 131

$He_2 Ar^{n+}$ 1999

Hughes, J.M. et al.,

ab initio
расчет
Re, Do,
Di

THEOCHEM 1999,
459, (1-3), 67-84

(adl. $He_2 B^{n+}$; III)

Atkin

2001

Murrell. J.N. et al.,

structure, stability. at initio theor. aspect

Mol. Phys. 2001, 99(2), 115–132.

(see ● Nellen+; III)