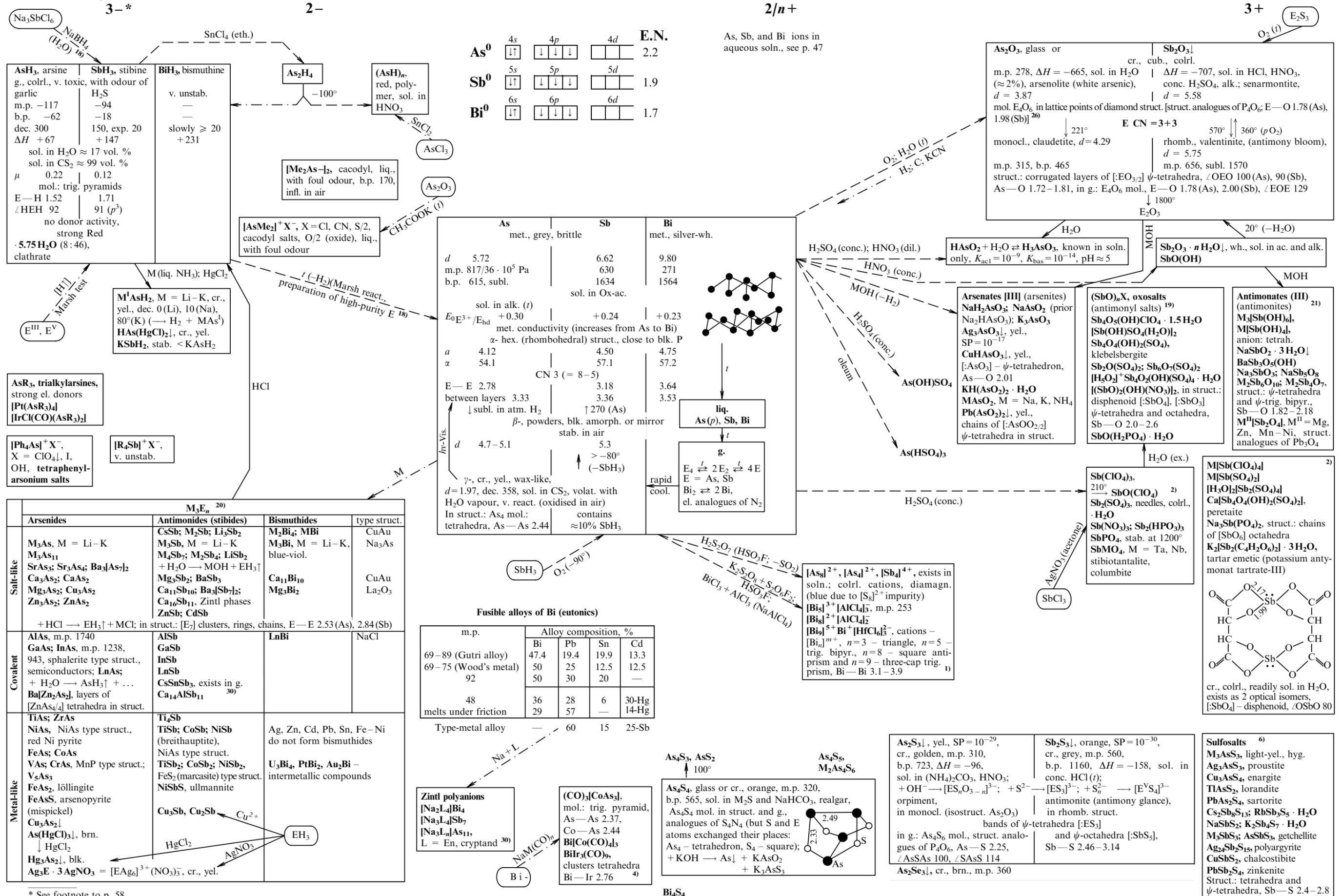


ARSENIC, ANTIMONY AND BISMUTH



As₂S₃↓, yel., SP = 10⁻²⁹, cr., golden, m.p. 310, b.p. 723, ΔH = -96, sol. in (NH₄)₂CO₃, HNO₃; + OH⁻ → [ES_nO_{3-n}]³⁻; + S²⁻ → [ES₃]³⁻; + S_n²⁻ → [E^VS₄]³⁻ orpiment, in monocl. (isostruct. As₂O₃)

bands of ψ-tetrahedra [ES₃]

in g.: As₄S₆ mol., struct. analogues of P₄O₆, As—S 2.25, ∠AsSAs 100, ∠SAsS 114

As₂Se₃↓, cr., brn., m.p. 360

Sb₂S₃↓, orange, SP = 10⁻³⁰, cr., grey, m.p. 560, b.p. 1160, ΔH = -158, sol. in conc. HCl (l); + OH⁻ → [ES₃]³⁻; + S_n²⁻ → [E^VS₄]³⁻ antimonite (antimony glance), in rhomb. struct.

Sb—S 2.46–3.14

As₄S₄, glass or cr., orange, m.p. 320, b.p. 565, sol. in M₂S and NaHCO₃, realgar, As₄S₄ mol. in struct. and g., analogues of S₄N₄ (but S and E atoms exchanged their places: As₄—tetrahedron, S₄—square); + KOH → As↓ + KAsO₂ + K₃As₃S₃

As₄S₆, M₂As₄S₆

2.49

2.33

Zintl polyanions

[Na₂L₄]Bi₄

[Na₃L₄]Sb₇

[Na₃L_n]As₁₁, L = En, cryptand³⁰⁾

(CO)₃[CoAs₃], mol.: trig. pyramid, As—As 2.37, Co—As 2.44

Bi[Co(CO)₄]₃

BiIr₃(CO)₉, clusters tetrahedra

Bi—Ir 2.76⁴⁾

Fusible alloys of Bi (eutonics)

m.p.	Alloy composition, %			
	Bi	Pb	Sn	Cd
69–89 (Gutri alloy)	47.4	19.4	19.9	13.3
69–75 (Wood's metal)	50	25	12.5	12.5
92	50	30	20	—
48	36	28	6	30-Hg
melts under friction	29	57	—	14-Hg

Type-metal alloy — 60 15 25-Sb

As₂S₃, AsS₂

↑ 100°

As₄S₄, AsS₂

↑ 100°

As₄S₆, M₂As₄S₆

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