



>>Entry Name: Arsenic selenide (As₂Se₃), 9Cl, 8Cl

Synonym(s): Diarsenic(III) triselenide. Selenium arsenide. Arsenic sesquiselenide

CAS Registry Number: 1303-36-2

As₂Se₃

Molecular Formula: As₂Se₃

Molecular Weight: 386.723

Accurate Mass: 389.592748

Percentage Composition: As 38.75%; Se 61.25%

General Statement: Monoclinic. In cryst. each As atom is surrounded by polyhedron of 7 Se atoms forming distorted tetragonal pyramid and triangular prism, one face of which coincides with base of pyr. Mean As-Se 240 pm. Also known in amorphous and vitreous forms

Source/Synthesis: From As₄Se₄ at 260°; annealing of vitreous form at 320°; As + Se heated *in vacuo* → amorphous form

Use/Importance: Photoconductor and important xerographic photoreceptor, props. better than those of Se itself. Semiconductor. Used in glass optical fibres. Commercially available

Physical Description: Cherry red cryst.

Melting Point: Mp 380° (370°)

Boiling Point: Bp 861° (extrap.) (846°)

>>Variant: Vitreous-form

Molecular Formula: As₂Se₃

Molecular Weight: 386.723

Accurate Mass: 389.592748

Percentage Composition: As 38.75%; Se 61.25%

General Statement: Trigonal struct.

Physical Description: Stable, brown, semi-conducting glass

Other Data: Cryst. at 280° after softening at *ca.* 180-187°. $\Delta H_{298}^{\circ} -122$ kJ. Annealing of quenched glass leads to structural stabilisation (ordering) without structural change; atypical behaviour of arsenic sesquichalcogenides

References:

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