>>**Entry Name: Arsenic telluride (As_2Te_3),** 9Cl, 8Cl
Synonym(s): Diarsenic(*III*) tritelluride. Tellurium arsenide. Arsenic sesquitelluride

CAS Registry Number: 12044-54-1
As_2Te_3

Molecular Formula: As_2Te_3
Molecular Weight: 532.643
Accurate Mass: 539.561875
Percentage Composition: As 28.13%; Te 71.87%
General Statement: Monoclinic. Parallel layer struct. As(1) coordinated by 6 Te in distorted octahedron, As(2) by 7 Te as tetragonal prism and triangular prism with cojoint base. Also exists in amorphous and vitreous states. A new metastable, rhombohedral form has also been descr.
Source/Synthesis: Synth from As + Te
Use/Importance: Semiconductor. Component of many laminar glasses. Promising material for memory devices. Commercially available
Physical Description: Grey, needle-like cryst.
Melting Point: Mp 360°. Mp 381°

>>**Variant:** Amorphous-form

Molecular Formula: As_2Te_3
Molecular Weight: 532.643
Accurate Mass: 539.561875
Percentage Composition: As 28.13%; Te 71.87%
General Statement: Struct. approximates to that of cryst. form. Corrugated layers but no long-range order. Each As coordinated to 3 Te's, and each Te to 2 As's

>>**Variant:** Vitreous-form

Molecular Formula: As_2Te_3
Molecular Weight: 532.643
Accurate Mass: 539.561875
Percentage Composition: As 28.13%; Te 71.87%
Source/Synthesis: By drastic supercooling of melt
Melting Point: Mp 405-410°
Other Data: Softening temp. *ca.* 140°. Bulk glass difficult to produce owing to crystallisation. Annealing of quenched glass results in decreasing structural order; typical behaviour of arsenic sesquichalcogenides; fraction of atoms in more ordered quenched glass are six-fold coord.; disorder resulting from annealing explained by semiconductor-metal transition in As_2Te_3 liq.

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