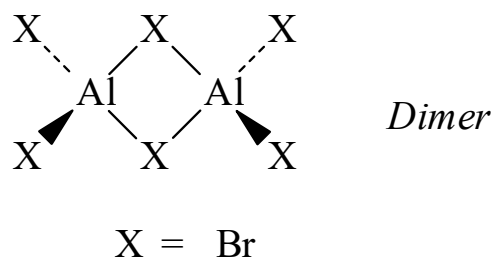




>>Entry Name: Aluminium(III) bromide (AlBr₃)

Synonym(s): Aluminium tribromide



CAS Registry Number: 7727-15-3

Molecular Formula: AlBr₃

Molecular Weight: 266.693

Accurate Mass: 263.796547

Percentage Composition: Al 10.12%; Br 89.88%

General Statement: Dimeric molecular structure in solid and liq.; oligomeric (AlBr₃)_n n = 1,2,4,6 in gas. Monomer studied in Ar matrix

Source/Synthesis: Synth. from elements at 100°

Use/Importance: Lewis acid. Friedel Crafts catalyst. Catalyst for alkane isom. Agent for chemical transport in metal halide synth. Commercially available

Other Data: Forms many complexes with Lewis bases and weak adducts with aromatic hydrocarbons, alkenes and alkynes. $\Delta H_f^\circ(\text{s}) -494.8 \text{ kJ mol}^{-1}$ (per AlBr₃); $\Delta H_f^\circ_{298} -527.2 \text{ kJ mol}^{-1}$; $S^\circ 180.2 \text{ J K}^{-1} \text{ mol}^{-1}$

Hazard & Toxicity: Reacts violently with H₂O

Aldrich: 21007-2

Fluka: 6180

Sigma: A8080

>>Derivative: Hexahydrate

Synonym(s): Hexaaquaaluminium(3+) tribromide

CAS Registry Number: 7784-11-4

Molecular Formula: AlBr₃H₁₂O₆

Molecular Weight: 374.785

Accurate Mass: 371.859937

Percentage Composition: Al 7.20%; Br 63.96%; H 3.23%; O 25.61%

Physical Description: Colourless needles (H₂O)

Melting Point: Mp 93°

>>Derivative: C₆H₆ complex

CAS Registry Number: 6736-24-9

Molecular Formula: C₆H₆Al₂Br₆

Molecular Weight: 611.5

Accurate Mass: 605.640044

Percentage Composition: C 11.79%; H 0.99%; Al 8.82%; Br 78.40%

Physical Description: Colourless air-sensitive cryst. (C₆H₆)

Other Data: C₆H₆ and Al₂Br₆ present in cryst. Similar compds. with toluene and xylenes descr.

>>Derivative: SbBr₃ complex

see Tribromo(tribromostibine)aluminium, [JFL09-N](#)

>>Derivative: Tris(trimethylsilyl)phosphine complex

Synonym(s): Tribromo[tris(trimethylsilyl)phosphine]aluminium, 13CI

CAS Registry Number: 159901-96-9

Molecular Formula: C₉H₂₇AlBr₃PSi₃

Molecular Weight: 517.236

Accurate Mass: 513.912365

Percentage Composition: C 20.90%; H 5.26%; Al 5.22%; Br 46.34%; P 5.99%; Si 16.29%

Source/Synthesis: Synth. by sonicating parent compd. and P(SiMe₃)₃ in toluene for 48h

Physical Description: Air- and moisture-sensitive cryst. + 1 toluene (toluene)

Melting Point: Mp 300°

Solubility: Sol. C₆H₆, toluene