



>>Entry Name: Aluminium lithium oxide (AlLiO₂)

CAS Registry Number: 12003-67-7

Related CAS Registry Numbers(s): 12005-14-0

Extra CAS Registry Numbers(s): 37220-89-6

LiAlO₂

Molecular Formula: AlLiO₂

Molecular Weight: 65.921

Accurate Mass: 65.987372

Percentage Composition: Al 40.93%; Li 10.53%; O 48.54%

Use/Importance: Commercially available

Other Data: Related hydrates descr. Al may be replaced by Fe. LiAl₅O₈ also descr.

Aldrich: 33663-7

>>Variant: α-form

Synonym(s): Low pressure-form

Molecular Formula: AlLiO₂

Molecular Weight: 65.921

Accurate Mass: 65.987372

Percentage Composition: Al 40.93%; Li 10.53%; O 48.54%

General Statement: Tetragonal with 4-coordinate Al

Source/Synthesis: Synth. from Li₂CO₃ + Al(OH)₃ or γ-Al₂O₃ at 600-700°

Physical Description: Deliquescent white solid

Other Data: Forms mixed cryst. with spinel and β-quartz. $\Delta H_f^\circ -1189.5 \text{ kJ mol}^{-1}$; $S^\circ 53.3 \text{ JK}^{-1} \text{ mol}^{-1}$ *cf.* Lithium aluminate (Li₅(AlO₄)) [JZF37-A](#)

>>Variant: β-form

Synonym(s): Mid pressure-form

Molecular Formula: AlLiO₂

Molecular Weight: 65.921

Accurate Mass: 65.987372

Percentage Composition: Al 40.93%; Li 10.53%; O 48.54%

General Statement: Monoclinic with 4- and 6-coordinate Al

Source/Synthesis: Synth. from LiOH + Al₂O₃ at 1.8×10^4 atm. and 370° or from γ-Al₂O₃, Li₂CO₃ and K₂CO₃ at 450°

>>Variant: γ-form

Synonym(s): High pressure form

Molecular Formula: AlLiO₂

Molecular Weight: 65.921

Accurate Mass: 65.987372

Percentage Composition: Al 40.93%; Li 10.53%; O 48.54%

General Statement: Hexagonal with 6-coordinate Al; isostructural with NaHF₂

Source/Synthesis: From Li₂CO₃ + Al₂O₃ at 3×10^4 atm. and 850°

Physical Description: White solid

References:

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