>>**Entry Name: Aluminium oxide (Al_2O_3)**
Synonym(s): Alumina. Dialuminium trioxide. Aluminium sesquioxide. Alundum. Aloxite. Alumite. Many other names

CAS Registry Number: 1344-28-1
Related CAS Registry Numbers(s): 1333-84-2 12252-63-0 12522-88-2
Extra CAS Registry Numbers(s): 53809-96-4 157516-29-5
Al_2O_3

Molecular Formula: Al_2O_3
Molecular Weight: 101.961
Accurate Mass: 101.947823
Percentage Composition: Al 52.93%; O 47.07%
Use/Importance: Commercially available
Physical Description: White solid
Solubility: Sol. hot NaOH

Aldrich: 26774-0
Fluka: 6285
Sigma: H8006

>>**Derivative:** ¼ Hydrate
Synonym(s): Akdalaite

CAS Registry Number: 12043-15-1
Source/Synthesis: Mineral from Kazakhstan, USSR
Physical Description: White translucent cryst.

>>**Variant:** α-form
Synonym(s): Corundum. Emery

CAS Registry Number: 1302-74-5

Molecular Formula: Al_2O_3
Molecular Weight: 101.961
Accurate Mass: 101.947823
Percentage Composition: Al 52.93%; O 47.07%
General Statement: High temp. modification, indefinitely metastable at r.t. Structural prototype comprising hcp oxide with Al in O_h holes; solid solns. with small amounts of M_2O_3 give rise to various gem varieties
Source/Synthesis: Mineral of haematite group of widespread occurrence or may by synth. from γ-form or any hydrous oxide <=450°
Use/Importance: Gem quality corundum known as *White sapphire*. Abrasive
Physical Description: Transparent cryst; v. hard, resistant to attack by acids
Melting Point: Mp 2050°
Boiling Point: Bp 2977°
Other Data: ΔH_f° *ca.* –1682 kJ mol^{-1}; S° 50.9 JK^{-1} mol^{-1}; E_g >5 eV

>>**Derivative:** Mixed oxide with Cr_2O_3
Synonym(s): Ruby

CAS Registry Number: 12174-49-1
Source/Synthesis: Occurs naturally or may be synth. from NH_4 (Al,Cr) alums at 1450°
Use/Importance: Used in lasers and masers; gem
Physical Description: Brilliant red cryst.
Other Data: Red colour imparted by 1-4% Cr_2O_3

>>**Derivative:** Mixed oxide with Fe, Ti
Synonym(s): Sapphire. Blue sapphire

CAS Registry Number: 1317-82-4
Extra CAS Registry Numbers(s): 12678-40-9
Use/Importance: Gem
Physical Description: Transparent blue cryst.