

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

Email USA: techserv@sial.com

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## Certificate of Analysis

Product Name:

Calcium titanate - nanopowder, &lt;100 nm particle size (BET), 99% trace metals basis

**Product Number:** 633801  
**Batch Number:** MKBM3924V  
 Brand: ALDRICH  
 CAS Number: 12049-50-2  
 MDL Number: MFCD00015981  
 Formula: CaO<sub>3</sub>Ti  
 Formula Weight: 135.94 g/mol  
 Quality Release Date: 12 DEC 2012



Test	Specification	Result
Appearance (Color)	White to Tan	White
Appearance (Form)	Powder	Powder
ICP Major Analysis	Confirmed	Confirmed
Confirms Calcium and Titanium Components		
Trace Metal Analysis	≤ 20000.0 ppm	3510.7 ppm
Silver (Ag)		< 10.0 ppm
Aluminum (Al)		53.0 ppm
Arsenic (As)		15.0 ppm
Gold (Au)		< 10.0 ppm
Boron (B)		1.7 ppm
Barium (Ba)		1100.0 ppm
Beryllium (Be)		< 0.5 ppm
Bismuth (Bi)		10.0 ppm
Cadmium (Cd)		< 0.5 ppm
Cerium (Ce)		0.4 ppm
Cobalt (Co)		< 0.1 ppm
Chromium (Cr)		1.8 ppm
Cesium (Cs)		< 1.0 ppm
Copper (Cu)		3.0 ppm
Iron (Fe)		150.0 ppm
Gallium (Ga)		0.9 ppm
Germanium (Ge)		< 0.5 ppm
Hafnium (Hf)		20.0 ppm
Mercury (Hg)		< 1.0 ppm

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

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Test	Specification	Result
Indium (In)		< 1.0 ppm
Potassium (K)		2.2 ppm
Lanthanum (La)		< 0.1 ppm
Lithium (Li)		< 0.1 ppm
Magnesium (Mg)		23.0 ppm
Manganese (Mn)		1.4 ppm
Molybdenum (Mo)		1.0 ppm
Sodium (Na)		7.0 ppm
Niobium (Nb)		40.0 ppm
Nickel (Ni)		1.4 ppm
Lead (Pb)		6.0 ppm
Rubidium (Rb)		< 5.0 ppm
Rhenium (Re)		< 0.1 ppm
Antimony (Sb)		< 0.5 ppm
Scandium (Sc)		< 0.1 ppm
Selenium (Se)		15.0 ppm
Tin (Sn)		6.0 ppm
Tantalum (Ta)		< 10.0 ppm
Tellurium (Te)		< 5.0 ppm
Thorium (Th)		< 0.1 ppm
Thallium (Tl)		< 0.1 ppm
Uranium (U)		< 0.1 ppm
Vanadium (V)		1.5 ppm
Tungsten (W)		1.7 ppm
Zinc (Zn)		3.8 ppm
Zirconium (Zr)		2000.0 ppm
Purity	Meets Requirements	Meets Requirements
99% Based On Trace Metals Analysis		
Size	≤ 100 nm	< 100 nm
Surface Area (m <sup>2</sup> /g)	5.0 - 20.0	6.6



Jamie Gleason, Manager

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Quality Control  
Milwaukee, Wisconsin US

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