

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

Email USA: techserv@sial.com

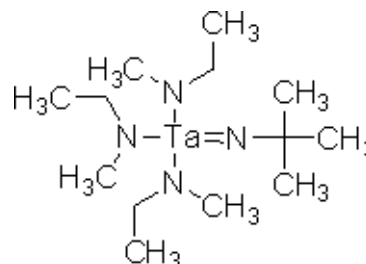
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## Certificate of Analysis

Product Name:

Tris(ethylmethyamido)(tert-butylimido)tantalum(V) - electronic grade, ≥95% (CP), ≥99.99% trace metals basis

**Product Number:** J100043  
**Lot Number:** SHBB6136V  
**Brand:** ALDRICH  
**CAS Number:** 511292-99-2  
**MDL Number:** MFCD05663776  
**Formula:** C<sub>13</sub>H<sub>33</sub>N<sub>4</sub>Ta  
**Formula Weight:** 426.38 g/mol  
**Quality Release Date:** 13 OCT 2011



Test	Specification	Result
Appearance (Color)	Colorless to Yellow	Light Yellow
Appearance (Form)	Liquid	Liquid
Proton NMR spectrum	Conforms to Structure	Conforms
Proton NMR	≥ 95.0 %	99.3 %
Chloride by Ion Chromatography	≤ 100 ppm	1 ppm
Trace Metal Analysis	≤ 100 ppm	3 ppm
Sum of trace metallic impurities.		
Purity based on trace metals analysis.		
Aluminum (Al)		88 ppb
Antimony (Sb)		< 50 ppb
Arsenic (As)		< 50 ppb
Barium (Ba)		< 50 ppb
Beryllium (Be)		< 50 ppb
Bismuth (Bi)		119 ppb
Boron (B)		< 50 ppb
Cadmium (Cd)		< 50 ppb
Calcium (Ca)		61 ppb
Cerium (Ce)		< 50 ppb
Chromium (Cr)		< 50 ppb
Cobalt (Co)		< 50 ppb
Copper (Cu)		< 50 ppb
Dysprosium (Dy)		< 50 ppb
Erbium (Er)		< 50 ppb
Europium (Eu)		< 50 ppb

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
Gadolinium (Gd)		< 50 ppb
Gallium (Ga)		< 50 ppb
Germanium (Ge)		< 50 ppb
Gold (Au)		ppb
Hafnium (Hf)		99 ppb
Holmium (Ho)		< 50 ppb
Indium (In)		< 50 ppb
Iridium (Ir)		< 50 ppb
Iron (Fe)		< 50 ppb
Lanthanum (La)		< 50 ppb
Lead (Pb)		< 50 ppb
Lithium (Li)		< 50 ppb
Lutetium (Lu)		< 50 ppb
Magnesium (Mg)		< 50 ppb
Manganese (Mn)		< 50 ppb
Mercury (Hg)		< 50 ppb
Molybdenum (Mo)		< 50 ppb
Neodymium (Nd)		< 50 ppb
Nickel (Ni)		< 50 ppb
Niobium (Nb)		52 ppb
Osmium (Os)		< 50 ppb
Palladium (Pd)		< 50 ppb
Platinum (Pt)		< 50 ppb
Potassium (K)		< 50 ppb
Praseodymium (Pr)		< 50 ppb
Rhenium (Re)		< 50 ppb
Rhodium (Rh)		< 50 ppb
Ruthenium (Ru)		< 50 ppb
Samarium (Sm)		< 50 ppb
Silver (Ag)		< 50 ppb
Sodium (Na)		< 50 ppb
Strontium (Sr)		< 50 ppb
Tellurium (Te)		< 50 ppb
Terbium (Tb)		< 50 ppb
Thallium (Tl)		< 50 ppb

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Test	Specification	Result
Thorium (Th)		< 50 ppb
Thulium (Tm)		< 50 ppb
Tin (Sn)		< 50 ppb
Titanium (Ti)		< 50 ppb
Tungsten (W)		< 50 ppb
Uranium (U)		< 50 ppb
Vanadium (V)		< 50 ppb
Ytterbium (Yb)		< 50 ppb
Yttrium (Y)		< 50 ppb
Zinc (Zn)		< 50 ppb
Zirconium (Zr)		< 50 ppb



Jennifer Baughman, Manager  
Quality Control  
Sheboygan Falls, WI US

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