

## Certificate of Analysis

1 Reagent Lane  
 Fair Lawn, NJ 07410  
 201.796.7100 tel  
 201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System  
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	A510	Quality Test / Release Date	08/30/2023
Lot Number	24001282	Expiration Date	Mar/2026
Description	SULFURIC ACID, TRACE METAL GRADE		
Country of Origin	United States		
Chemical Origin	Synthetic		
BSE/TSE Comment	This material is produced using a synthetic process and the production equipment does not come into contact with anything of animal origin. Therefore, there is no potential for BSE or TSE to be present in the product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear, colorless liquid
ALUMINUM	ppb	<= 1	<1
ANTIMONY (Sb)	ppb	<= 1	<1
ARSENIC (As)	ppb	<= 0.5	<0.5
ASSAY	%	Inclusive Between 93 - 98	96
BARIUM (Ba)	ppb	<= 0.1	<0.1
BERYLLIUM (Be)	ppb	<= 0.1	<0.1
BISMUTH (Bi)	ppb	<= 0.1	<0.1
CADMIUM (Cd)	ppb	<= 0.5	<0.5
CALCIUM (Ca)	ppb	<= 1	<1
CERIUM (Ce)	ppb	<= 0.1	<0.1
CESIUM (Cs)	ppb	<= 0.1	<0.1
CHLORIDE	ppm	<= 0.7	<0.7
CHROMIUM (Cr)	ppb	<= 0.5	<0.5
COBALT (Co)	ppb	<= 0.5	<0.5
COLOR	APHA	<= 10	<10
COPPER (Cu)	ppb	<= 0.5	<0.5
DYSPROSIUM (Dy)	ppb	<= 0.1	<0.1
ERBIUM (Er)	ppb	<= 0.1	<0.1
EUROPIUM (Eu)	ppb	<= 0.1	<0.1
GADOLINIUM (Gd)	ppb	<= 0.1	<0.1
GALLIUM (Ga)	ppb	<= 0.1	<0.1
GERMANIUM (Ge)	ppb	<= 1	<1
GOLD (Au)	ppb	<= 0.5	<0.5
HAFNIUM (Hf)	ppb	<= 0.1	<0.1

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.  
 If there are any questions with this certificate, please call at (800) 227-6701.

\*Based on suggested storage condition.

## Certificate of Analysis

1 Reagent Lane  
 Fair Lawn, NJ 07410  
 201.796.7100 tel  
 201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System  
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

HOLMIUM (Ho)	ppb	<= 0.1	<0.1
INDIUM (In)	ppb	<= 0.1	<0.1
IRON (Fe)	ppb	<= 1	<1
LANTHANUM (La)	ppb	<= 0.1	<0.1
LEAD (Pb)	ppb	<= 0.1	<0.1
LITHIUM (Li)	ppb	<= 0.5	<0.5
LUTETIUM (Lu)	ppb	<= 0.1	<0.1
MAGNESIUM (Mg)	ppb	<= 1	<1
MANGANESE (Mn)	ppb	<= 0.5	<0.5
MERCURY (Hg)	ppb	<= 0.1	<0.1
MOLYBDENUM (Mo)	ppb	<= 0.5	<0.5
NEODYMIUM (Nd)	ppb	<= 0.1	<0.1
NICKEL (Ni)	ppb	<= 0.5	<0.5
NIOBIUM (Nb)	ppb	<= 0.1	<0.1
NITRATE (NO3)	ppm	<= 0.2	<0.2
PALLADIUM (Pd)	ppb		<0.5
PLATINUM (Pt)	ppb		<0.5
POTASSIUM (K)	ppb	<= 1	<1
PRASEODYMIUM (Pr)	ppb	<= 0.1	<0.1
RHODIUM (Rh)	ppb	<= 0.5	<0.5
RUBIDIUM (Rb)	ppb	<= 0.5	<0.5
SAMARIUM (Sm)	ppb	<= 0.1	<0.1
SCANDIUM (Sc)	ppb	<= 0.1	<0.1
SELENIUM (Se)	ppb	<= 10	<10
SILVER (Ag)	ppb	<= 1	<1
SODIUM (Na)	ppb	<= 1	<1
STRONTIUM (Sr)	ppb	<= 0.5	<0.5
SUBSTANCES REDUCING KMNO4	ppm	<= 20	<20
TANTALUM (Ta)	ppb		<1
TELLURIUM (Te)	ppb	<= 0.1	<0.1
TERBIUM (Tb)	ppb	<= 0.1	<0.1
THALLIUM (Tl)	ppb	<= 0.1	<0.1
THORIUM (Th)	ppb	<= 0.1	<0.1
THULIUM (Tm)	ppb	<= 0.1	<0.1
TIN (Sn)	ppb	<= 1	<1
TITANIUM (Ti)	ppb	<= 1	<1
TOTAL PHOSPHOROUS (P)	ppm	<= 0.05	<0.05
TUNGSTEN (W)	ppb	<= 0.5	<0.5
URANIUM (U)	ppb	<= 0.1	<0.1
VANADIUM (V)	ppb	<= 0.5	<0.5

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.  
 If there are any questions with this certificate, please call at (800) 227-6701.

\*Based on suggested storage condition.

## Certificate of Analysis

1 Reagent Lane

Fair Lawn, NJ 07410

201.796.7100 tel

201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System  
Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

YTTERBIUM (Yb)	ppb	<= 0.1	<0.1
YTTRIUM (Y)	ppb	<= 0.1	<0.1
ZINC (Zn)	ppb	<= 1	<1
ZIRCONIUM (Zr)	ppb	<= 0.5	<0.5



Chetan Dudhatra - Quality Control Supervisor - Bridgewater

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.  
If there are any questions with this certificate, please call at (800) 227-6701.

\*Based on suggested storage condition.