

## CERTIFICATE OF ANALYSIS

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

Catalogue Number	A466
Lot Number	24027436
Description	HYDROCHLORIC ACID, OPTIMA GRADE
CAS Number	7647-01-0,7732-18-5
Quality Test/Release Date	23/Mar/2026
Expiration Date	27/Dec/2028
Country of Origin	United States
Declaration of Origin	Synthetic
BSE/TSE	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.

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear, colorless liquid
ALUMINIUM	ppt	<= 20	<20
ANTIMONY (Sb)	ppt	<= 20	<20
ARSENIC (As)	ppt	<= 50	<50
ASSAY	%	Inclusive Between 32.0 - 35.0	33.6
BARIUM (Ba)	ppt	<= 10	<10
BERYLLIUM (Be)	ppt	<= 10	<10
BISMUTH (Bi)	ppt	<= 10	<10
BORON (B)	ppt	<= 100	<100
CADMIUM (Cd)	ppt	<= 10	<10
CALCIUM (Ca)	ppt	<= 10	<10
CERIUM (Ce)	ppt	<= 10	<10
CESIUM (Cs)	ppt	<= 10	<10
CHROMIUM (Cr)	ppt	<= 10	<10
COBALT (Co)	ppt	<= 10	<10
COPPER (Cu)	ppt	<= 10	<10
DYSPROSIUM (Dy)	ppt	<= 1	<1
ERBIUM (Er)	ppt	<= 1	<1
EUROPIUM (Eu)	ppt	<= 1	<1
GADOLINIUM (Gd)	ppt	<= 1	<1
GALLIUM (Ga)	ppt	<= 10	<10
GOLD (Au)	ppt	<= 50	<50
HAFNIUM (Hf)	ppt	<= 10	<10
HOLMIUM (Ho)	ppt	<= 1	<1
INDIUM (In)	ppt	<= 1	<1
IRON (Fe)	ppt	<= 10	<10
LANTHANUM (La)	ppt	<= 1	<1
LEAD (Pb)	ppt	<= 10	<10
LITHIUM (Li)	ppt	<= 10	<10
LUTETIUM (Lu)	ppt	<= 10	<10

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of the catalogue number listed above.

MAGNESIUM (Mg)	ppt	<= 10	<10
MANGANESE (Mn)	ppt	<= 10	<10
MERCURY (Hg)	ppt	<= 50	<50
MOLYBDENUM (Mo)	ppt	<= 10	<10
NEODYMIUM (Nd)	ppt	<= 1	<1
NICKEL (Ni)	ppt	<= 20	<20
NIOBIUM (Nb)	ppt	<= 1	<1
PALLADIUM (Pd)	ppt		<10
PLATINUM (Pt)	ppt		<10
POTASSIUM (K)	ppt	<= 10	<10
PRASEODYMIUM (Pr)	ppt	<= 1	<1
RHENIUM (Re)	ppt	<= 10	<10
RHODIUM (Rh)	ppt	<= 10	<10
RUBIDIUM (Rb)	ppt	<= 10	<10
RUTHENIUM (Ru)	ppt	<= 10	<10
SAMARIUM (Sm)	ppt	<= 1	<1
SCANDIUM (Sc)	ppt	<= 10	<10
SELENIUM (Se)	ppt		<50
SILVER (Ag)	ppt	<= 10	<10
SODIUM (Na)	ppt	<= 10	<10
STRONTIUM (Sr)	ppt	<= 10	<10
TANTALUM (Ta)	ppt		<1
TELLURIUM (Te)	ppt	<= 1	<1
TERBIUM (Tb)	ppt	<= 1	<1
THALLIUM (Tl)	ppt	<= 10	<10
THORIUM (Th)	ppt	<= 1	<1
THULIUM (Tm)	ppt	<= 1	<1
TIN (Sn)	ppt	<= 20	<20
TITANIUM (Ti)	ppt	<= 10	<10
TUNGSTEN (W)	ppt	<= 10	<10
URANIUM (U)	ppt	<= 1	<1
VANADIUM (V)	ppt	<= 10	<10
YTTERBIUM (Yb)	ppt	<= 1	<1
YTTRIUM (Y)	ppt	<= 1	<1
ZINC (Zn)	ppt	<= 10	<10
ZIRCONIUM (Zr)	ppt	<= 10	<10



Ash Frey  
Supervisor, Quality Control

Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third-party data or information associated with the product. Products are for research use or further manufacturing. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use.

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of the catalogue number listed above.