

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	24028860
Description	HYDROCHLORIC ACID, OPTIMA GRADE
CAS Number	7647-01-0,7732-18-5
Quality Test/Release Date	01/May/2026
Suggested retest date	28/Feb/2029
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
ALUMINUM	ppt	<= 20	<10
ANTIMONY (Sb)	ppt	<= 20	<5
ARSENIC (As)	ppt	<= 50	<20
ASSAY	%	Inclusive Between 32.0 - 35.0	33.2
BARIUM (Ba)	ppt	<= 10	<1
BERYLLIUM (Be)	ppt	<= 10	<1
BISMUTH (Bi)	ppt	<= 10	<1
BORON (B)	ppt	<= 100	<50
CADMIUM (Cd)	ppt	<= 10	<1
CALCIUM (Ca)	ppt	<= 10	<10
CERIUM (Ce)	ppt	<= 10	<1
CESIUM (Cs)	ppt	<= 10	<1
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	<1.00
GALLIUM (Ga)	ppt	<= 10	<10
GOLD (Au)	ppt	<= 50	<20
HAFNIUM (Hf)	ppt	<= 10	<1
HOLMIUM (Ho)	ppt	<= 1	<1
INDIUM (In)	ppt	<= 1	<1
IRON (Fe)	ppt	<= 10	<10
LANTHANUM (La)	ppt	<= 1	<1
LEAD (Pb)	ppt	<= 10	<1
LITHIUM (Li)	ppt	<= 10	<1
LUTETIUM (Lu)	ppt	<= 10	<1

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	<1
MERCURY (Hg)	ppt	<= 50	<10.00
MOLYBDENUM (Mo)	ppt	<= 10	<10
NEODYMIUM (Nd)	ppt	<= 1	<1
NICKEL (Ni)	ppt	<= 20	<10
NIOBIUM (Nb)	ppt	<= 1	<1
PALLADIUM (Pd)	ppt		<1
PLATINUM (Pt)	ppt		<10
POTASSIUM (K)	ppt	<= 10	<10.00
PRASEODYMIUM (Pr)	ppt	<= 1	<1
RHENIUM (Re)	ppt	<= 10	<1
RHODIUM (Rh)	ppt	<= 10	<1
RUBIDIUM (Rb)	ppt	<= 10	<1
RUTHENIUM (Ru)	ppt	<= 10	<1
SAMARIUM (Sm)	ppt	<= 1	<1
SCANDIUM (Sc)	ppt	<= 10	<1
SELENIUM (Se)	ppt		<50
SILVER (Ag)	ppt	<= 10	<1
SODIUM (Na)	ppt	<= 10	<10
STRONTIUM (Sr)	ppt	<= 10	<1
TANTALUM (Ta)	ppt		<10
TELLURIUM (Te)	ppt	<= 1	<1
TERBIUM (Tb)	ppt	<= 1	<1
THALLIUM (Tl)	ppt	<= 10	<1
THORIUM (Th)	ppt	<= 1	<1
THULIUM (Tm)	ppt	<= 1	<1
TIN (Sn)	ppt	<= 20	<10
TITANIUM (Ti)	ppt	<= 10	<1
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	<1



Ash Frey
Supervisor, Quality Control

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