

Сверхчистые кислоты и реагенты

Технические характеристики

По вопросам продаж и поддержки обращайтесь:

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Красноярск (391)204-63-61
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Магнитогорск (3519)55-03-13
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Смоленск (4812)29-41-54
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Ставрополь (8652)20-65-13
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Тула (4872)33-79-87
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Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
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Ultrapure acids and reagents are used in sample preparation and digestion prior to metal analysis. These acids and reagents are guaranteed to contain extremely low concentrations of metals. Their high purity ensures reliable measurements and results.



Acetic acid glacial, Ultratrace®, ppb-trace analysis grade

- Synonyms: Methane carboxylic acid, Methylformic acid
- CH_3COOH
- $M = 60,05 \text{ g/mol}$
- CAS [64-19-7]
- EINECS-No.: 200-580-7
- Density: $1,05 \text{ g/cm}^3$
- Solub. in water: (20°C): miscible
- Melting point: 17°C
- Boiling point: 117°C
- Flash pt. 39°C
- Ignition temp.: 485°C
- Vapour pressure: (20°C) $15,4 \text{ hPa}$
- Refraction index: (20°C) $1,37$
- LD 50 (oral, rat): 3310 mg/kg
- EC-Index-No.: 607-002-00-6
- ADR: 8 CF1 II UN 2789
- IMDG: 8 II UN 2789
- IATA/ICAO: 8 II UN 2789
- GHS-signal word: Danger
- GHS-H sentences: H314 - H226
- GHS-P sentences: P210 - P303+P361+P353 - P305+P351+P338 - P310 - P370+P378 - P405 - P501a
- Tariff number: 2915 21 00 10
- Applications: laboratory reagent, synthesis of organic products, in the rubber industry, in food industry.

SPECIFICATIONS

assay (acidimetric): min. 99 %
 colour (Hazen): max. 10
 chlorides (Cl): max. 0,0001 %
 phosphates (as PO_4): max. 0,0001 %
 sulfates (SO_4): max. 0,00005 %
 substances reducing $\text{K}_2\text{Cr}_2\text{O}_7$: passes test
 substances reducing KMnO_4 : passes test
 aluminium (Al): max. 1 ppb
 antimony (Sb): max. 0,5 ppb
 arsenic (As): max. 0,5 ppb
 barium (Ba): max. 0,5 ppb
 beryllium (Be): max. 0,1 ppb
 bismuth (Bi): max. 0,1 ppb

cadmium (Cd): max. 0,5 ppb
calcium (Ca): max. 1 ppb
cerium (Ce): max. 0,1 ppb
cesium (Cs): max. 0,1 ppb
chromium (Cr): max. 1 ppb
cobalt (Co): max. 0,1 ppb
copper (Cu): max. 0,5 ppb
dysprosium (Dy): max. 0,1 ppb
erbium (Er): max. 0,1 ppb
europium (Eu): max. 0,1 ppb
gadolinium (Gd): max. 0,1 ppb
gallium (Ga): max. 0,1 ppb
germanium (Ge): max. 0,5 ppb
hafnium (Hf): max. 0,1 ppb
holmium (Ho): max. 0,1 ppb
indium (In): max. 0,1 ppb
iron (Fe): max. 1 ppb
lanthanum (La): max. 0,1 ppb
lead (Pb): max. 0,1 ppb
lithium (Li): max. 0,1 ppb
lutetium (Lu): max. 0,1 ppb
magnesium (Mg): max. 0,5 ppb
manganese (Mn): max. 0,5 ppb
mercury (Hg): max. 1 ppb
molybdenum (Mo): max. 0,5 ppb
neodymium (Nd): max. 0,1 ppb
nickel (Ni): max. 0,5 ppb
platinum (Pt): max. 0,5 ppb
potassium (K): max. 1 ppb
praseodymium (Pr): max. 0,1 ppb
rhenium (Re): max. 0,1 ppb
rhodium (Rh): max. 0,5 ppb
rubidium (Rb): max. 0,1 ppb
ruthenium (Ru): max. 0,5 ppb
samarium (Sm): max. 0,1 ppb
scandium (Sc): max. 0,1 ppb
selenium (Se): max. 1 ppb
silver (Ag): max. 1 ppb
sodium (Na): max. 1 ppb
strontium (Sr) : max. 0,5 ppb
tellurium (Te): max. 0,5 ppb
terbium (Tb): max. 0,1 ppb
thallium (Tl): max. 0,1 ppb
thorium (Th): max. 0,1 ppb
thulium (Tm): max. 0,1 ppb
tin (Sn): max. 0,5 ppb
titanium (Ti): max. 0,5 ppb
tungsten (W): max. 0,5 ppb
uranium (U): max. 0,1 ppb
vanadium (V): max. 0,5 ppb
ytterbium (Yb): max. 0,1 ppb
yttrium (Y): max. 0,1 ppb
zinc (Zn): max. 1 ppb
zirconium (Zr): max. 0,1 ppb

Volume

x 500 ml

Reference

[AC03580500](#)

Packaging

x 500 ml :: Plastic bottle



Acetic acid glacial, Ultratrace®, ppt-trace analysis grade

- Synonyms: Methane carboxylic acid, Methylformic acid
- CH_3COOH
- M = 60,05 g/mol
- CAS [64-19-7]
- EINECS-No.: 200-580-7
- Density: 1,05 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: 17 °C
- Boiling point: 117 °C
- Flash pt. 39 °C
- Ignition temp.: 485 °C
- Vapour pressure: (20 °C) 15,4 hPa
- Refraction index: (20 °C) 1,37
- LD 50 (oral, rat): 3310 mg/kg
- EC-Index-No.: 607-002-00-6
- ADR: 8 CF1 II UN 2789
- IMDG: 8 II UN 2789
- IATA/ICAO: 8 II UN 2789
- GHS-signal word: Danger
- GHS-H sentences: H314 - H226
- GHS-P sentences: P210 - P303+P361+P353 - P305+P351+P338 - P310 - P370+P378 - P405 - P501a
- Tariff number: 2915 21 00 10
- Applications: laboratory reagent, synthesis of organic products, in the rubber industry, in food industry.

SPECIFICATIONS

assay (acidimetric): min. 99 %
aluminium (Al): max. 50 ppt
antimony (Sb): max. 50 ppt
arsenic (As): max. 50 ppt
barium (Ba): max. 10 ppt
beryllium (Be): max. 10 ppt
bismuth (Bi): max. 10 ppt
cadmium (Cd): max. 10 ppt
calcium (Ca): max. 50 ppt
cerium (Ce): max. 10 ppt
cesium (Cs): max. 10 ppt
chromium (Cr): max. 10 ppt
cobalt (Co): max. 10 ppt
copper (Cu): max. 10 ppt
dysprosium (Dy): max. 1 ppt
erbium (Er): max. 1 ppt
europium (Eu): max. 1 ppt
gadolinium (Gd): max. 1 ppt
gallium (Ga): max. 10 ppt
germanium (Ge): max. 10 ppt
hafnium (Hf): max. 10 ppt
holmium (Ho): max. 1 ppt
indium (In): max. 1 ppt
iron (Fe): max. 50 ppt
lanthanum (La): max. 1 ppt
lead (Pb): max. 10 ppt
lithium (Li): max. 10 ppt
lutetium (Lu): max. 10 ppt
magnesium (Mg): max. 50 ppt
manganese (Mn): max. 10 ppt
molybdenum (Mo): max. 10 ppt
neodymium (Nd): max. 1 ppt

nickel (Ni): max. 50 ppt
platinum (Pt): max. 50 ppt
potassium (K): max. 50 ppt
praseodymium (Pr): max. 1 ppt
rhenium (Re): max. 10 ppt
rhodium (Rh): max. 50 ppt
rubidium (Rb): max. 10 ppt
ruthenium (Ru): max. 50 ppt
samarium (Sm): max. 1 ppt
scandium (Sc): max. 10 ppt
silver (Ag): max. 50 ppt
sodium (Na): max. 100 ppt
strontium (Sr) : max. 10 ppt
tellurium (Te): max. 1 ppt
terbium (Tb): max. 1 ppt
thallium (Tl): max. 10 ppt
thorium (Th): max. 1 ppt
thulium (Tm): max. 1 ppt
tin (Sn): max. 50 ppt
titanium (Ti): max. 10 ppt
tungsten (W): max. 10 ppt
uranium (U): max. 1 ppt
vanadium (V): max. 10 ppt
ytterbium (Yb): max. 1 ppt
yttrium (Y): max. 1 ppt
zinc (Zn): max. 50 ppt
zirconium (Zr): max. 10 ppt

Volume

x 250 ml

Reference

[AC03590250](#)

Packaging

x 250 ml :: Plastic bottle



Ammonia, solution 20 - 22%, Ultratrace®, ppb-trace analysis grade

- Synonyms: Ammonia water
- NH₃
- M = 17,03 g/mol
- CAS [1336-21-6]
- EINECS-No.: 215-647-6
- Density: ~ 0,93 g/cm³
- Solub. in water: (20 °C): miscible
- EC-Index-No.: 007-001-01-2
- ADR: 8 C5 III UN 2672
- IMDG: 8 III UN 2672
- IATA/ICAO: 8 III UN 2672
- GHS-signal word: Danger
- GHS-H sentences: H314 - H335 - H400
- GHS-P sentences: P260 - P303+P361+P353 - P305+P351+P338 - P310 - P405 - P501a
- Tariff number: 2814 20 00 00
- Applications: analytical chemistry, laboratory reagent, detergent, bleaching agent, reagent for saponification reactions.

SPECIFICATIONS

assay (acidimetric, NH₃): 20 - 22 %

colour (Hazen): max. 10
chlorides (Cl): max. 0,00005 %
phosphates (as PO₄): max. 0,000001 %
sulfates (SO₄): max. 0,0001 %
aluminium (Al): max. 1 ppb
antimony (Sb): max. 0,5 ppb
arsenic (As): max. 1 ppb
barium (Ba): max. 0,1 ppb
beryllium (Be): max. 0,1 ppb
bismuth (Bi): max. 0,1 ppb
cadmium (Cd): max. 0,5 ppb
calcium (Ca): max. 1 ppb
cerium (Ce): max. 0,1 ppb
cesium (Cs): max. 0,1 ppb
chromium (Cr): max. 0,5 ppb
cobalt (Co): max. 0,5 ppb
copper (Cu): max. 0,5 ppb
dysprosium (Dy): max. 0,1 ppb
erbium (Er): max. 0,1 ppb
europium (Eu): max. 0,1 ppb
gadolinium (Gd): max. 0,1 ppb
gallium (Ga): max. 0,1 ppb
germanium (Ge): max. 0,1 ppb
gold (Au): max. 0,5 ppb
holmium (Ho): max. 0,1 ppb
indium (In): max. 0,1 ppb
iron (Fe): max. 1 ppb
lanthanum (La): max. 0,1 ppb
lead (Pb): max. 0,1 ppb
lithium (Li): max. 0,1 ppb
lutetium (Lu): max. 0,1 ppb
magnesium (Mg): max. 1 ppb
manganese (Mn): max. 0,5 ppb
mercury (Hg): max. 0,2 ppb
molybdenum (Mo): max. 0,5 ppb
neodymium (Nd): max. 0,1 ppb
nickel (Ni): max. 0,5 ppb
niobium (Nb): max. 0,1 ppb
potassium (K): max. 1 ppb
praseodymium (Pr): max. 0,1 ppb
rhodium (Rh): max. 0,5 ppb
rubidium (Rb): max. 0,1 ppb
samarium (Sm): max. 0,1 ppb
scandium (Sc): max. 0,1 ppb
selenium (Se): max. 1 ppb
silver (Ag): max. 0,5 ppb
sodium (Na): max. 1 ppb
strontium (Sr) : max. 0,1 ppb
tellurium (Te): max. 0,1 ppb
terbium (Tb): max. 0,1 ppb
thallium (Tl): max. 0,1 ppb
thorium (Th): max. 0,1 ppb
thulium (Tm): max. 0,1 ppb
tin (Sn): max. 0,5 ppb
titanium (Ti): max. 0,5 ppb
tungsten (W): max. 0,1 ppb
uranium (U): max. 0,1 ppb
vanadium (V): max. 0,5 ppb
ytterbium (Yb): max. 0,1 ppb
yttrium (Y): max. 0,1 ppb
zinc (Zn): max. 0,5 ppb
zirconium (Zr): max. 0,1 ppb

Volume

x 500 ml

Reference

[AM02690500](#)

Packaging

x 500 ml :: Plastic bottle



Ammonia, solution 20 - 22%, Ultratrace®, ppt-trace analysis grade

- Synonyms: Ammonia water
- NH₃
- M = 17,03 g/mol
- CAS [1336-21-6]
- EINECS-No.: 215-647-6
- Density: ~ 0,93 g/cm³
- Solub. in water: (20 °C): miscible
- EC-Index-No.: 007-001-01-2
- ADR: 8 C5 III UN 2672
- IMDG: 8 III UN 2672
- IATA/ICAO: 8 III UN 2672
- GHS-signal word: Danger
- GHS-H sentences: H314 - H335 - H400
- GHS-P sentences: P260 - P303+P361+P353 - P305+P351+P338 - P310 - P405 - P501a
- Tariff number: 2814 20 00 00
- Applications: analytical chemistry, laboratory reagent, detergent, bleaching agent, reagent for saponification reactions.

SPECIFICATIONS

assay (acidimetric, NH₃): 20 - 22 %

aluminium (Al): max. 20 ppt

antimony (Sb): max. 10 ppt

arsenic (As): max. 10 ppt

barium (Ba): max. 10 ppt

beryllium (Be): max. 10 ppt

bismuth (Bi): max. 10 ppt

cadmium (Cd): max. 10 ppt

cerium (Ce): max. 10 ppt

cesium (Cs): max. 10 ppt

chromium (Cr): max. 10 ppt

cobalt (Co): max. 10 ppt

copper (Cu): max. 10 ppt

dysprosium (Dy): max. 10 ppt

erbium (Er): max. 10 ppt

europium (Eu): max. 10 ppt

gadolinium (Gd): max. 10 ppt

gallium (Ga): max. 10 ppt

germanium (Ge): max. 10 ppt

gold (Au): max. 10 ppt

holmium (Ho): max. 10 ppt

indium (In): max. 10 ppt

iron (Fe): max. 10 ppt

lanthanum (La): max. 10 ppt

lead (Pb): max. 10 ppt

lithium (Li): max. 10 ppt

lutetium (Lu): max. 10 ppt

magnesium (Mg): max. 10 ppt

manganese (Mn): max. 10 ppt

mercury (Hg): max. 200 ppb
molybdenum (Mo): max. 10 ppt
neodymium (Nd): max. 10 ppt
nickel (Ni): max. 10 ppt
niobium (Nb): max. 10 ppt
potassium (K): max. 10 ppt
praseodymium (Pr): max. 10 ppt
rhodium (Rh): max. 10 ppt
rubidium (Rb): max. 10 ppt
samarium (Sm): max. 10 ppt
scandium (Sc): max. 10 ppt
silver (Ag): max. 10 ppt
sodium (Na): max. 20 ppt
strontium (Sr) : max. 10 ppt
tellurium (Te): max. 10 ppt
terbium (Tb): max. 10 ppt
thallium (Tl): max. 10 ppt
thorium (Th): max. 10 ppt
thulium (Tm): max. 10 ppt
tin (Sn): max. 10 ppt
titanium (Ti): max. 10 ppt
tungsten (W): max. 10 ppt
uranium (U): max. 10 ppt
vanadium (V): max. 10 ppt
ytterbium (Yb): max. 10 ppt
yttrium (Y): max. 10 ppt
zinc (Zn): max. 10 ppt
zirconium (Zr): max. 10 ppt



Hydrochloric acid, 30%, Ultratrace®, ppb-trace analysis grade

- HCl
- CAS [7647-01-0]
- EINECS-No.: 231-595-7
- Density: ~ 1,15 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: -50 °C
- Boiling point: 90 °C
- Vapour pressure: (20 °C) 21,8 hPa
- EC-Index-No.: 017-002-01-X
- ADR: 8 C1 II UN 1789
- IMDG: 8 II UN 1789
- IATA/ICAO: 8 II UN 1789
- GHS-signal word: Danger
- GHS-H sentences: H290 - H314 - H335
- GHS-P sentences: P260 - P303+P361+P353 - P305+P351+P338 - P310 - P405 - P501a
- Tariff number: 2806 10 00 00

SPECIFICATIONS

assay (acidimetric): 29 - 31 %
colour (Hazen): max. 10
bromides (Br): max. 0,001 %
free chlorine (as Cl): max. 0,00005 %
total phosphorus (P): max. 10 ppb
total sulfur (S): max. 300 ppb
aluminium (Al): max. 1 ppb
antimony (Sb): max. 0,5 ppb
arsenic (As): max. 0,5 ppb
barium (Ba): max. 0,1 ppb

beryllium (Be): max. 0,1 ppb
bismuth (Bi): max. 0,1 ppb
boron (B): max. 1 ppb
cadmium (Cd): max. 0,1 ppb
calcium (Ca): max. 1 ppb
cerium (Ce): max. 0,1 ppb
cesium (Cs): max. 0,1 ppb
chromium (Cr): max. 0,5 ppb
cobalt (Co): max. 0,1 ppb
copper (Cu): max. 0,5 ppb
dysprosium (Dy): max. 0,1 ppb
erbium (Er): max. 0,1 ppb
europium (Eu): max. 0,1 ppb
gadolinium (Gd): max. 0,1 ppb
gallium (Ga): max. 0,1 ppb
germanium (Ge): max. 1 ppb
gold (Au): max. 0,5 ppb
hafnium (Hf): max. 0,1 ppb
holmium (Ho): max. 0,1 ppb
indium (In): max. 0,1 ppb
iron (Fe): max. 1 ppb
lanthanum (La): max. 0,1 ppb
lead (Pb): max. 0,1 ppb
lithium (Li): max. 0,1 ppb
lutetium (Lu): max. 0,1 ppb
magnesium (Mg): max. 0,5 ppb
manganese (Mn): max. 0,1 ppb
mercury (Hg): max. 0,1 ppb
molybdenum (Mo): max. 0,1 ppb
neodymium (Nd): max. 0,1 ppb
nickel (Ni): max. 0,5 ppb
niobium (Nb): max. 0,1 ppb
potassium (K): max. 1 ppb
praseodymium (Pr): max. 0,1 ppb
rhenium (Re): max. 0,1 ppb
rhodium (Rh): max. 0,1 ppb
rubidium (Rb): max. 0,1 ppb
ruthenium (Ru): max. 0,1 ppb
samarium (Sm): max. 0,1 ppb
scandium (Sc): max. 0,1 ppb
selenium (Se): max. 1 ppb
silver (Ag): max. 1 ppb
sodium (Na): max. 1 ppb
strontium (Sr) : max. 0,1 ppb
tellurium (Te): max. 0,1 ppb
terbium (Tb): max. 0,1 ppb
thallium (Tl): max. 0,1 ppb
thorium (Th): max. 0,1 ppb
thulium (Tm): max. 0,1 ppb
tin (Sn): max. 0,5 ppb
titanium (Ti): max. 0,5 ppb
tungsten (W): max. 0,1 ppb
uranium (U): max. 0,1 ppb
vanadium (V): max. 0,5 ppb
ytterbium (Yb): max. 0,1 ppb
yttrium (Y): max. 0,1 ppb
zinc (Zn): max. 1 ppb
zirconium (Zr): max. 0,1 ppb

Hydrochloric acid, 35%, Ultratrace®, ppt-trace analysis grade

- Synonyms: Hydrogen chloride solution, Muriatic acid
- HCl
- M = 36,46 g/mol
- CAS [7647-01-0]
- EINECS-No.: 231-595-7
- Density: ~ 1,19 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: -28 °C
- Boiling point: ~ 50 °C
- Vapour pressure: (20 °C) ~ 190 hPa
- EC-Index-No.: 017-002-01-X
- ADR: 8 C1 II UN 1789
- IMDG: 8 II UN 1789
- IATA/ICAO: 8 II UN 1789
- GHS-signal word: Danger
- GHS-H sentences: H290 - H314 - H335
- GHS-P sentences: P260 - P303+P361+P353 - P305+P351+P338 - P310 - P405 - P501a
- Tariff number: 2806 10 00 00
- Applications: laboratory reagent, acidifying agent, in the production of chlorides, synthesis of organic products.

SPECIFICATIONS

assay (acidimetric): 32 - 35 %
aluminium (Al): max. 20 ppt
antimony (Sb): max. 20 ppt
arsenic (As): max. 50 ppt
barium (Ba): max. 10 ppt
beryllium (Be): max. 10 ppt
bismuth (Bi): max. 10 ppt
boron (B): max. 100 ppt
cadmium (Cd): max. 10 ppt
calcium (Ca): max. 10 ppt
cerium (Ce): max. 10 ppt
cesium (Cs): max. 10 ppt
chromium (Cr): max. 10 ppt
cobalt (Co): max. 10 ppt
copper (Cu): max. 10 ppt
dysprosium (Dy): max. 1 ppt
erbium (Er): max. 1 ppt
europium (Eu): max. 1 ppt
gadolinium (Gd): max. 1 ppt
gallium (Ga): max. 10 ppt
gold (Au): max. 50 ppt
hafnium (Hf): max. 10 ppt
holmium (Ho): max. 1 ppt
indium (In): max. 1 ppt
iron (Fe): max. 10 ppt
lanthanum (La): max. 1 ppt
lead (Pb): max. 10 ppt
lithium (Li): max. 10 ppt
lutetium (Lu): max. 10 ppt
magnesium (Mg): max. 10 ppt
manganese (Mn): max. 10 ppt
mercury (Hg): max. 50 ppt
molybdenum (Mo): max. 10 ppt
neodymium (Nd): max. 1 ppt
nickel (Ni): max. 20 ppt
niobium (Nb): max. 1 ppt
potassium (K): max. 10 ppt
praseodymium (Pr): max. 1 ppt

rhodium (Rh): max. 10 ppt
ruthenium (Ru): max. 10 ppt
samarium (Sm): max. 1 ppt
scandium (Sc): max. 10 ppt
silver (Ag): max. 10 ppt
sodium (Na): max. 10 ppt
strontium (Sr) : max. 10 ppt
tellurium (Te): max. 1 ppt
terbium (Tb): max. 1 ppt
thallium (Tl): max. 10 ppt
thorium (Th): max. 1 ppt
thulium (Tm): max. 1 ppt
tin (Sn): max. 20 ppt
titanium (Ti): max. 10 ppt
tungsten (W): max. 10 ppt
uranium (U): max. 1 ppt
vanadium (V): max. 10 ppt
ytterbium (Yb): max. 1 ppt
yttrium (Y): max. 1 ppt
zinc (Zn): max. 10 ppt
zirconium (Zr): max. 10 ppt



Hydrochloric acid, 37%, Ultratrace®, ppb-trace analysis grade

- Synonyms: Hydrochloric acid fuming, Muriatic acid, Hydrogen chloride solution
- HCl
- M = 36,46 g/mol
- CAS [7647-01-0]
- EINECS-No.: 231-595-7
- Density: ~ 1,19 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: -28 °C
- Boiling point: ~ 50 °C
- Vapour pressure: (20 °C) 190 hPa
- EC-Index-No.: 017-002-01-X
- ADR: 8 C1 II UN 1789
- IMDG: 8 II UN 1789
- IATA/ICAO: 8 II UN 1789
- GHS-signal word: Danger
- GHS-H sentences: H314 - H335
- GHS-P sentences: P260 - P303+P361+P353 - P305+P351+P338 - P310 - P405 - P501a
- Tariff number: 2806 10 00 00
- Applications: laboratory reagent, acidifying agent, in the production of chlorides, synthesis of organic products.

SPECIFICATIONS

assay (acidimetric): 34 - 37 %
colour (Hazen): max. 10
bromides (Br): max. 0,001 %
free chlorine (as Cl): max. 0,00005 %
total phosphorus (P): max. 10 ppb
total sulfur (S): max. 300 ppb
aluminium (Al): max. 1 ppb
antimony (Sb): max. 0,5 ppb
arsenic (As): max. 0,5 ppb
barium (Ba): max. 0,1 ppb
beryllium (Be): max. 0,1 ppb

bismuth (Bi): max. 0,1 ppb
boron (B): max. 1 ppb
cadmium (Cd): max. 0,1 ppb
calcium (Ca): max. 1 ppb
cerium (Ce): max. 0,1 ppb
cesium (Cs): max. 0,1 ppb
chromium (Cr): max. 0,5 ppb
cobalt (Co): max. 0,1 ppb
copper (Cu): max. 0,5 ppb
dysprosium (Dy): max. 0,1 ppb
erbium (Er): max. 0,1 ppb
europium (Eu): max. 0,1 ppb
gadolinium (Gd): max. 0,1 ppb
gallium (Ga): max. 0,1 ppb
gold (Au): max. 0,5 ppb
hafnium (Hf): max. 0,1 ppb
holmium (Ho): max. 0,1 ppb
indium (In): max. 0,1 ppb
iron (Fe): max. 1 ppb
lanthanum (La): max. 0,1 ppb
lead (Pb): max. 0,1 ppb
lithium (Li): max. 0,1 ppb
lutetium (Lu): max. 0,1 ppb
magnesium (Mg): max. 0,5 ppb
manganese (Mn): max. 0,1 ppb
mercury (Hg): max. 0,1 ppb
molybdenum (Mo): max. 0,1 ppb
neodymium (Nd): max. 0,1 ppb
nickel (Ni): max. 0,5 ppb
niobium (Nb): max. 0,1 ppb
potassium (K): max. 1 ppb
praseodymium (Pr): max. 0,1 ppb
rhenium (Re): max. 0,1 ppb
rhodium (Rh): max. 0,1 ppb
rubidium (Rb): max. 0,1 ppb
ruthenium (Ru): max. 0,1 ppb
samarium (Sm): max. 0,1 ppb
scandium (Sc): max. 0,1 ppb
selenium (Se): max. 1 ppb
silver (Ag): max. 1 ppb
sodium (Na): max. 1 ppb
strontium (Sr) : max. 0,1 ppb
tellurium (Te): max. 0,1 ppb
terbium (Tb): max. 0,1 ppb
thallium (Tl): max. 0,1 ppb
thorium (Th): max. 0,1 ppb
thulium (Tm): max. 0,1 ppb
tin (Sn): max. 0,5 ppb
titanium (Ti): max. 0,5 ppb
tungsten (W): max. 0,1 ppb
uranium (U): max. 0,1 ppb
vanadium (V): max. 0,5 ppb
ytterbium (Yb): max. 0,1 ppb
yttrium (Y): max. 0,1 ppb
zinc (Zn): max. 1 ppb
zirconium (Zr): max. 0,1 ppb



Hydrofluoric acid, 48%, Ultratrace®, ppb-trace analysis grade

- HF
- M = 20,00 g/mol
- CAS [7664-39-3]
- EINECS-No.: 231-634-8
- Density: 1,16 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: ~ -35 °C
- Boiling point: ~ 106 °C
- EC-Index-No.: 009-002-00-6
- ADR: 8 CT1 II UN 1790
- IMDG: 8 II UN 1790
- IATA/ICAO: 8 II UN 1790
- GHS-signal word: Danger
- GHS-H sentences: H310 - H330 - H314
- GHS-P sentences: P260 - P303+P361+P353 - P305+P351+P338 - P310 - P320 - P405 - P501a
- Tariff number: 2811 11 00 00
- Applications: analytical chemistry, acidifying agent, dissolution agent for silicates.

SPECIFICATIONS

assay (acidimetric): 47 - 51 %
 colour (Hazen): max. 10
 chlorides (Cl): max. 0,0004 %
 hexafluorosilicic acid (H₂SiF₆) : max. 0,002 %
 total phosphorus (P): max. 0,000005 %
 total sulfur (S): max. 0,00001 %
 aluminium (Al): max. 1 ppb
 antimony (Sb): max. 0,2 ppb
 arsenic (As): max. 0,5 ppb
 barium (Ba): max. 0,1 ppb
 beryllium (Be): max. 0,1 ppb
 bismuth (Bi): max. 0,1 ppb
 boron (B): max. 1 ppb
 cadmium (Cd): max. 0,1 ppb
 calcium (Ca): max. 1 ppb
 cerium (Ce): max. 0,1 ppb
 cesium (Cs): max. 0,1 ppb
 chromium (Cr): max. 1 ppb
 cobalt (Co): max. 0,1 ppb
 copper (Cu): max. 0,5 ppb
 dysprosium (Dy): max. 0,1 ppb
 erbium (Er): max. 0,1 ppb
 europium (Eu): max. 0,1 ppb
 gadolinium (Gd): max. 0,1 ppb
 gallium (Ga): max. 0,1 ppb
 germanium (Ge): max. 0,1 ppb
 gold (Au): max. 0,2 ppb
 hafnium (Hf): max. 0,1 ppb
 holmium (Ho): max. 0,1 ppb
 indium (In): max. 0,1 ppb
 iron (Fe): max. 1 ppb
 lanthanum (La): max. 0,1 ppb
 lead (Pb): max. 0,1 ppb
 lithium (Li): max. 0,1 ppb
 lutetium (Lu): max. 0,1 ppb
 magnesium (Mg): max. 1 ppb
 manganese (Mn): max. 0,1 ppb
 mercury (Hg): max. 1 ppb
 molybdenum (Mo): max. 0,1 ppb
 neodymium (Nd): max. 0,1 ppb
 nickel (Ni): max. 0,5 ppb
 niobium (Nb): max. 0,1 ppb
 palladium (Pd): max. 0,2 ppb
 platinum (Pt): max. 0,2 ppb

potassium (K): max. 1 ppb
praseodymium (Pr): max. 0,1 ppb
rhenium (Re): max. 0,1 ppb
rhodium (Rh): max. 0,1 ppb
rubidium (Rb): max. 0,1 ppb
ruthenium (Ru): max. 0,1 ppb
samarium (Sm): max. 0,1 ppb
scandium (Sc): max. 0,1 ppb
selenium (Se): max. 1 ppb
silver (Ag): max. 0,5 ppb
sodium (Na): max. 1 ppb
strontium (Sr) : max. 0,1 ppb
tantalum (Ta): max. 0,1 ppb
tellurium (Te): max. 0,1 ppb
terbium (Tb): max. 0,1 ppb
thallium (Tl): max. 0,1 ppb
thorium (Th): max. 0,1 ppb
thulium (Tm): max. 0,1 ppb
tin (Sn): max. 0,5 ppb
titanium (Ti): max. 1 ppb
tungsten (W): max. 0,5 ppb
uranium (U): max. 0,1 ppb
vanadium (V): max. 0,1 ppb
ytterbium (Yb): max. 0,1 ppb
yttrium (Y): max. 0,1 ppb
zinc (Zn): max. 1 ppb
zirconium (Zr): max. 0,1 ppb



Hydrofluoric acid, 48%, Ultratrace®, ppt-trace analysis grade

- HF
- M = 20,00 g/mol
- CAS [7664-39-3]
- EINECS-No.: 231-634-8
- Density: 1,16 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: ~ -35 °C
- Boiling point: ~ 106 °C
- EC-Index-No.: 009-002-00-6
- ADR: 8 CT1 II UN 1790
- IMDG: 8 II UN 1790
- IATA/ICAO: 8 II UN 1790
- GHS-signal word: Danger
- GHS-H sentences: H310 - H330 - H314
- GHS-P sentences: P260 - P303+P361+P353 - P305+P351+P338 - P310 - P320 - P405 - P501a
- Tariff number: 2811 11 00 00
- Applications: analytical chemistry, acidifying agent, dissolution agent for silicates.

SPECIFICATIONS

assay (acidimetric): 47 - 51 %
total sulfur (S): max. 0,00001 %
aluminium (Al): max. 20 ppt
antimony (Sb): max. 20 ppt
arsenic (As): max. 50 ppt
barium (Ba): max. 10 ppt
beryllium (Be): max. 10 ppt
bismuth (Bi): max. 10 ppt
boron (B): max. 100 ppt

cadmium (Cd): max. 10 ppt
calcium (Ca): max. 10 ppt
cerium (Ce): max. 10 ppt
cesium (Cs): max. 10 ppt
chromium (Cr): max. 10 ppt
cobalt (Co): max. 10 ppt
copper (Cu): max. 10 ppt
dysprosium (Dy): max. 1 ppt
erbium (Er): max. 1 ppt
europium (Eu): max. 1 ppt
gadolinium (Gd): max. 1 ppt
gallium (Ga): max. 10 ppt
germanium (Ge): max. 10 ppt
gold (Au): max. 20 ppt
hafnium (Hf): max. 10 ppt
holmium (Ho): max. 1 ppt
indium (In): max. 1 ppt
iron (Fe): max. 10 ppt
lanthanum (La): max. 10 ppt
lead (Pb): max. 10 ppt
lithium (Li): max. 10 ppt
lutetium (Lu): max. 1 ppt
magnesium (Mg): max. 10 ppt
manganese (Mn): max. 10 ppt
mercury (Hg): max. 50 ppt
molybdenum (Mo): max. 10 ppt
neodymium (Nd): max. 1 ppt
nickel (Ni): max. 20 ppt
niobium (Nb): max. 10 ppt
palladium (Pd): max. 20 ppt
platinum (Pt): max. 20 ppt
potassium (K): max. 10 ppt
praseodymium (Pr): max. 1 ppt
rhenium (Re): max. 10 ppt
rhodium (Rh): max. 20 ppt
rubidium (Rb): max. 20 ppt
ruthenium (Ru): max. 20 ppt
samarium (Sm): max. 1 ppt
scandium (Sc): max. 10 ppt
silver (Ag): max. 10 ppt
sodium (Na): max. 10 ppt
strontium (Sr) : max. 10 ppt
tellurium (Te): max. 1 ppt
terbium (Tb): max. 1 ppt
thallium (Tl): max. 10 ppt
thorium (Th): max. 1 ppt
thulium (Tm): max. 1 ppt
tin (Sn): max. 20 ppt
titanium (Ti): max. 20 ppt
tungsten (W): max. 20 ppt
uranium (U): max. 1 ppt
vanadium (V): max. 10 ppt
ytterbium (Yb): max. 1 ppt
yttrium (Y): max. 1 ppt
zinc (Zn): max. 10 ppt
zirconium (Zr): max. 10 ppt



**Hydrogen peroxide, solution 30% w/w (110 vol),
Ultratrace®, ppt-trace analysis grade**

- Synonyms: Hydrogen dioxide, Hydroperoxide
- H₂O₂
- M = 34,01 g/mol
- CAS [7722-84-1]
- EINECS-No.: 231-765-0
- Density: 1,11 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: -26 °C
- Boiling point: 107 °C
- Vapour pressure: (20 °C) ~ 18 hPa
- LD 50 (oral, rat): 2000 mg/kg (90% solution)
- EC-Index-No.: 008-003-00-9
- ADR: 5.1 OC1 II UN 2014
- IMDG: 5.1 II UN 2014
- IATA/ICAO: 5.1 II UN 2014
- GHS-signal word: Danger
- GHS-H sentences: H318 - H302 -
- GHS-P sentences: P280 - P264 - P305+P351+P338 - P310 - P301+P312 - P501a
- Tariff number: 2847 00 00 00
- Applications: analytical chemistry, oxidizing agent, bleaching agent, for pharmaceutical use.

SPECIFICATIONS

assay (permanganometric): 30,0 - 32,0 %

aluminium (Al): max. 50 ppt

antimony (Sb): max. 10 ppt

arsenic (As): max. 100 ppt

barium (Ba): max. 10 ppt

beryllium (Be): max. 10 ppt

bismuth (Bi): max. 10 ppt

boron (B): max. 100 ppt

cadmium (Cd): max. 10 ppt

calcium (Ca): max. 100 ppt

cerium (Ce): max. 1 ppt

cesium (Cs): max. 1 ppt

chromium (Cr): max. 10 ppt

cobalt (Co): max. 10 ppt

copper (Cu): max. 10 ppt

dysprosium (Dy): max. 1 ppt

erbium (Er): max. 1 ppt

europium (Eu): max. 1 ppt

gadolinium (Gd): max. 1 ppt

gallium (Ga): max. 10 ppt

germanium (Ge): max. 10 ppt

gold (Au): max. 10 ppt

hafnium (Hf): max. 1 ppt

holmium (Ho): max. 1 ppt

indium (In): max. 1 ppt

iron (Fe): max. 20 ppt

lanthanum (La): max. 1 ppt

lead (Pb): max. 10 ppt

lithium (Li): max. 10 ppt

lutetium (Lu): max. 1 ppt

magnesium (Mg): max. 20 ppt

manganese (Mn): max. 10 ppt

mercury (Hg): max. 50 ppt

molybdenum (Mo): max. 10 ppt

neodymium (Nd): max. 1 ppt

nickel (Ni): max. 20 ppt

niobium (Nb): max. 10 ppt

palladium (Pd): max. 10 ppt

potassium (K): max. 20 ppt

praseodymium (Pr): max. 1 ppt

rhenium (Re): max. 10 ppt

rhodium (Rh): max. 10 ppt

rubidium (Rb): max. 10 ppt
ruthenium (Ru): max. 10 ppt
samarium (Sm): max. 1 ppt
scandium (Sc): max. 10 ppt
selenium (Se): max. 100 ppt
silver (Ag): max. 10 ppt
sodium (Na): max. 50 ppt
strontium (Sr) : max. 10 ppt
tantalum (Ta): max. 10 ppt
tellurium (Te): max. 1 ppt
terbium (Tb): max. 1 ppt
thallium (Tl): max. 1 ppt
thorium (Th): max. 1 ppt
thulium (Tm): max. 1 ppt
tin (Sn): max. 50 ppt
titanium (Ti): max. 20 ppt
tungsten (W): max. 20 ppt
uranium (U): max. 1 ppt
vanadium (V): max. 10 ppt
ytterbium (Yb): max. 1 ppt
yttrium (Y): max. 1 ppt
zinc (Zn): max. 50 ppt
zirconium (Zr): max. 10 ppt



Nitric acid, 69%, Ultratrace®, ppb-trace analysis grade

- HNO₃
- M = 63,01 g/mol
- CAS [7697-37-2]
- EINECS-No.: 231-714-2
- Density: 1,41 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: -41 °C
- Boiling point: 122 °C
- Vapour pressure: (20 °C) 9,4 hPa
- EC-Index-No.: 007-004-00-1
- ADR: 8 CO1 II UN 2031
- IMDG: 8 II UN 2031
- IATA/ICAO: 8 II UN 2031
- GHS-signal word: Danger
- GHS-H sentences: H272 - H290 - H314 - H331 -
- GHS-P sentences: P221 - P303+P361+P353 - P305+P351+P338 - P310 - P370+P378 - P405 - P501a
- Tariff number: 2808 00 00 00
- Applications: oxidizing agent, synthesis of nitrates and organic nitro compounds.

SPECIFICATIONS

assay (acidimetric): 67 - 70 %
colour (Hazen): max. 10
chlorides (Cl): max. 200 ppb
total phosphorus (P): max. 10 ppb
total sulfur (S): max. 300 ppb
aluminium (Al): max. 1 ppb
antimony (Sb): max. 0,5 ppb
arsenic (As): max. 0,5 ppb
barium (Ba): max. 0,1 ppb
beryllium (Be): max. 0,1 ppb
bismuth (Bi): max. 0,1 ppb
boron (B): max. 1 ppb
cadmium (Cd): max. 0,5 ppb

calcium (Ca): max. 1 ppb
cerium (Ce): max. 0,1 ppb
cesium (Cs): max. 0,1 ppb
chromium (Cr): max. 1 ppb
cobalt (Co): max. 0,5 ppb
copper (Cu): max. 0,5 ppb
dysprosium (Dy): max. 0,1 ppb
erbium (Er): max. 0,1 ppb
europium (Eu): max. 0,1 ppb
gadolinium (Gd): max. 0,1 ppb
gallium (Ga): max. 0,1 ppb
germanium (Ge): max. 0,1 ppb
gold (Au): max. 0,1 ppb
hafnium (Hf): max. 0,1 ppb
holmium (Ho): max. 0,1 ppb
indium (In): max. 0,1 ppb
iron (Fe): max. 1 ppb
lanthanum (La): max. 0,1 ppb
lead (Pb): max. 0,1 ppb
lithium (Li): max. 0,1 ppb
lutetium (Lu): max. 0,1 ppb
magnesium (Mg): max. 1 ppb
manganese (Mn): max. 0,1 ppb
mercury (Hg): max. 0,1 ppb
molybdenum (Mo): max. 0,1 ppb
neodymium (Nd): max. 0,1 ppb
nickel (Ni): max. 0,5 ppb
niobium (Nb): max. 0,1 ppb
palladium (Pd): max. 0,5 ppb
platinum (Pt): max. 0,5 ppb
potassium (K): max. 1 ppb
praseodymium (Pr): max. 0,1 ppb
rhenium (Re): max. 0,1 ppb
rhodium (Rh): max. 0,5 ppb
rubidium (Rb): max. 0,1 ppb
ruthenium (Ru): max. 0,5 ppb
samarium (Sm): max. 0,1 ppb
scandium (Sc): max. 0,1 ppb
selenium (Se): max. 1 ppb
silver (Ag): max. 0,1 ppb
sodium (Na): max. 1 ppb
strontium (Sr) : max. 0,1 ppb
tellurium (Te): max. 0,1 ppb
terbium (Tb): max. 0,1 ppb
thallium (Tl): max. 0,1 ppb
thorium (Th): max. 0,1 ppb
thulium (Tm): max. 0,1 ppb
tin (Sn): max. 0,5 ppb
titanium (Ti): max. 0,5 ppb
tungsten (W): max. 0,1 ppb
uranium (U): max. 0,1 ppb
vanadium (V): max. 0,5 ppb
ytterbium (Yb): max. 0,1 ppb
yttrium (Y): max. 0,1 ppb
zinc (Zn): max. 0,5 ppb
zirconium (Zr): max. 0,1 ppb



Nitric acid, 69%, Ultratrace®, ppt-trace analysis grade

- HNO₃
- M = 63,01 g/mol
- CAS [7697-37-2]
- EINECS-No.: 231-714-2
- Density: 1,41 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: -41 °C
- Boiling point: 122 °C
- Vapour pressure: (20 °C) 9,4 hPa
- EC-Index-No.: 007-004-00-1
- ADR: 8 CO1 II UN 2031
- IMDG: 8 II UN 2031
- IATA/ICAO: 8 II UN 2031
- GHS-signal word: Danger
- GHS-H sentences: H272 - H290 - H314 - H331 -
- GHS-P sentences: P221 - P303+P361+P353 - P305+P351+P338 - P310 - P370+P378 - P405 - P501a
- Tariff number: 2808 00 00 00
- Applications: oxidizing agent, synthesis of nitrates and organic nitro compounds.

SPECIFICATIONS

assay (acidimetric): 67 - 70 %

aluminium (Al): max. 20 ppt

antimony (Sb): max. 10 ppt

arsenic (As): max. 20 ppt

barium (Ba): max. 10 ppt

beryllium (Be): max. 10 ppt

bismuth (Bi): max. 10 ppt

boron (B): max. 10 ppt

cadmium (Cd): max. 10 ppt

calcium (Ca): max. 10 ppt

cerium (Ce): max. 10 ppt

cesium (Cs): max. 10 ppt

chromium (Cr): max. 10 ppt

cobalt (Co): max. 10 ppt

copper (Cu): max. 10 ppt

dysprosium (Dy): max. 1 ppt

erbium (Er): max. 1 ppt

europium (Eu): max. 1 ppt

gadolinium (Gd): max. 1 ppt

gallium (Ga): max. 10 ppt

germanium (Ge): max. 10 ppt

gold (Au): max. 20 ppt

hafnium (Hf): max. 10 ppt

holmium (Ho): max. 1 ppt

indium (In): max. 1 ppt

iron (Fe): max. 10 ppt

lanthanum (La): max. 1 ppt

lead (Pb): max. 10 ppt

lithium (Li): max. 10 ppt

lutetium (Lu): max. 1 ppt

magnesium (Mg): max. 10 ppt

manganese (Mn): max. 10 ppt

mercury (Hg): max. 50 ppt

molybdenum (Mo): max. 10 ppt

neodymium (Nd): max. 1 ppt

nickel (Ni): max. 20 ppt

niobium (Nb): max. 1 ppt

palladium (Pd): max. 20 ppt

platinum (Pt): max. 20 ppt

potassium (K): max. 10 ppt

praseodymium (Pr): max. 1 ppt

rhenium (Re): max. 10 ppt

rhodium (Rh): max. 10 ppt

rubidium (Rb): max. 10 ppt
ruthenium (Ru): max. 20 ppt
samarium (Sm): max. 1 ppt
scandium (Sc): max. 10 ppt
silver (Ag): max. 10 ppt
sodium (Na): max. 10 ppt
strontium (Sr) : max. 10 ppt
tellurium (Te): max. 1 ppt
terbium (Tb): max. 1 ppt
thallium (Tl): max. 10 ppt
thorium (Th): max. 1 ppt
thulium (Tm): max. 1 ppt
tin (Sn): max. 20 ppt
titanium (Ti): max. 10 ppt
tungsten (W): max. 10 ppt
uranium (U): max. 1 ppt
vanadium (V): max. 10 ppt
ytterbium (Yb): max. 1 ppt
yttrium (Y): max. 1 ppt
zinc (Zn): max. 10 ppt
zirconium (Zr): max. 10 ppt



Perchloric acid, 70%, Ultratrace®, ppb-trace analysis grade

- HClO₄
- M = 100,46 g/mol
- CAS [7601-90-3]
- EINECS-No.: 231-512-4
- Density: 1,68 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: -18 °C
- Boiling point: 198,7 °C
- LD 50 (oral, rat): 1100 mg/kg (anhydrous substance)
- EC-Index-No.: 017-006-00-4
- ADR: 5.1 OC1 | UN 1873
- IMDG: 5.1 | UN 1873
- IATA/ICAO: 5.1 | UN 1873
- GHS-signal word: Danger
- GHS-H sentences: H271 - H314 - H302
- GHS-P sentences: P221 - P283 - P303+P361+P353 - P305+P351+P338 - P310 - P370+P378
- P405 - P501a
- Tariff number: 2811 19 80 90
- Applications: analytical chemistry, laboratory reagent, oxidizing agent, in explosive compositions.

SPECIFICATIONS

assay (acidimetric): 65 - 71 %
colour (Hazen): max. 10
aluminium (Al): max. 1 ppb
antimony (Sb): max. 0,5 ppb
arsenic (As): max. 0,5 ppb
barium (Ba): max. 1 ppb
beryllium (Be): max. 0,5 ppb
bismuth (Bi): max. 0,5 ppb
cadmium (Cd): max. 1 ppb
calcium (Ca): max. 1 ppb
cerium (Ce): max. 0,5 ppb
cesium (Cs): max. 0,5 ppb
cobalt (Co): max. 0,5 ppb

copper (Cu): max. 0,5 ppb
dysprosium (Dy): max. 0,5 ppb
erbium (Er): max. 0,5 ppb
europium (Eu): max. 0,5 ppb
gadolinium (Gd): max. 0,5 ppb
gallium (Ga): max. 0,5 ppb
gold (Au): max. 0,5 ppb
holmium (Ho): max. 0,5 ppb
indium (In): max. 0,5 ppb
iron (Fe): max. 1 ppb
lanthanum (La): max. 0,5 ppb
lead (Pb): max. 1 ppb
lithium (Li): max. 0,5 ppb
lutetium (Lu): max. 0,5 ppb
magnesium (Mg): max. 1 ppb
manganese (Mn): max. 1 ppb
molybdenum (Mo): max. 0,5 ppb
neodymium (Nd): max. 0,5 ppb
nickel (Ni): max. 1 ppb
palladium (Pd): max. 0,5 ppb
platinum (Pt): max. 0,5 ppb
potassium (K): max. 1 ppb
praseodymium (Pr): max. 0,5 ppb
rhodium (Rh): max. 0,5 ppb
rubidium (Rb): max. 0,5 ppb
samarium (Sm): max. 0,5 ppb
scandium (Sc): max. 0,5 ppb
silver (Ag): max. 1 ppb
sodium (Na): max. 1 ppb
strontium (Sr) : max. 0,5 ppb
tellurium (Te): max. 0,5 ppb
terbium (Tb): max. 0,5 ppb
thallium (Tl): max. 0,5 ppb
thorium (Th): max. 1 ppb
thulium (Tm): max. 0,5 ppb
tin (Sn): max. 1 ppb
titanium (Ti): max. 1 ppb
uranium (U): max. 0,5 ppb
vanadium (V): max. 0,5 ppb
ytterbium (Yb): max. 0,5 ppb
yttrium (Y): max. 0,5 ppb
zinc (Zn): max. 1 ppb
zirconium (Zr): max. 0,5 ppb



Sulfuric acid, 96%, Ultratrace®, ppb-trace analysis grade

- Synonyms: Sulphuric acid
- H₂SO₄
- M = 98,08 g/mol
- CAS [7664-93-9]
- EINECS-No.: 231-639-5
- Density: 1,84 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: ~ -15 °C
- Boiling point: ~ 310 °C
- Vapour pressure: (20 °C) ~ 0,0001 hPa
- LD 50 (oral, rat): 2140 mg/kg
- EC-Index-No.: 016-020-00-8
- ADR: 8 C1 II UN 1830
- IMDG: 8 II UN 1830

- IATA/ICAO: 8 II UN 1830
- GHS-signal word: Danger
- GHS-H sentences: H290 - H314
- GHS-P sentences: P260 - P303+P361+P353 - P305+P351+P338 - P310 - P405 - P501a
- Tariff number: 2807 00 00 00
- Applications: analytical chemistry, laboratory reagent, acidifying agent, synthesis of organic products, nitrogen determinations.

SPECIFICATIONS

assay (acidimetric): 93 - 98 %
 colour (Hazen): max. 10
 chlorides (Cl): max. 0,00007 %
 nitrates (NO₃): max. 0,00002 %
 total phosphorus (P): max. 0,000005 %
 substances reducing KMnO₄ : passes test

aluminium (Al): max. 1 ppb
 antimony (Sb): max. 1 ppb
 arsenic (As): max. 0,5 ppb
 barium (Ba): max. 0,1 ppb
 beryllium (Be): max. 0,1 ppb
 bismuth (Bi): max. 0,1 ppb
 cadmium (Cd): max. 0,5 ppb
 calcium (Ca): max. 1 ppb
 cerium (Ce): max. 0,1 ppb
 cesium (Cs): max. 0,1 ppb
 chromium (Cr): max. 0,5 ppb
 cobalt (Co): max. 0,5 ppb
 copper (Cu): max. 0,5 ppb
 dysprosium (Dy): max. 0,1 ppb
 erbium (Er): max. 0,1 ppb
 europium (Eu): max. 0,1 ppb
 gadolinium (Gd): max. 0,1 ppb
 gallium (Ga): max. 0,1 ppb
 germanium (Ge): max. 1 ppb
 hafnium (Hf): max. 0,1 ppb
 holmium (Ho): max. 0,1 ppb
 indium (In): max. 0,1 ppb
 iron (Fe): max. 1 ppb
 lanthanum (La): max. 0,1 ppb
 lead (Pb): max. 0,1 ppb
 lithium (Li): max. 0,5 ppb
 lutetium (Lu): max. 0,1 ppb
 magnesium (Mg): max. 1 ppb
 manganese (Mn): max. 0,5 ppb
 mercury (Hg): max. 0,1 ppb
 molybdenum (Mo): max. 0,5 ppb
 neodymium (Nd): max. 0,1 ppb
 nickel (Ni): max. 0,5 ppb
 niobium (Nb): max. 0,1 ppb
 potassium (K): max. 1 ppb
 praseodymium (Pr): max. 0,1 ppb
 rhodium (Rh): max. 0,5 ppb
 rubidium (Rb): max. 0,5 ppb
 samarium (Sm): max. 0,1 ppb
 scandium (Sc): max. 0,1 ppb
 selenium (Se): max. 10 ppb
 silver (Ag): max. 1 ppb
 sodium (Na): max. 1 ppb
 strontium (Sr) : max. 0,5 ppb
 tellurium (Te): max. 0,1 ppb
 terbium (Tb): max. 0,1 ppb
 thallium (Tl): max. 0,1 ppb
 thorium (Th): max. 0,1 ppb
 thulium (Tm): max. 0,1 ppb

tin (Sn): max. 1 ppb
titanium (Ti): max. 1 ppb
tungsten (W): max. 0,5 ppb
uranium (U): max. 0,1 ppb
vanadium (V): max. 0,5 ppb
ytterbium (Yb): max. 0,1 ppb
yttrium (Y): max. 0,1 ppb
zinc (Zn): max. 1 ppb
zirconium (Zr): max. 0,5 ppb



Sulfuric acid, 96%, Ultratrace®, ppt-trace analysis grade

- Synonyms: Sulphuric acid
- H₂SO₄
- M = 98,08 g/mol
- CAS [7664-93-9]
- EINECS-No.: 231-639-5
- Density: 1,84 g/cm³
- Solub. in water: (20 °C): miscible
- Melting point: ~ -15 °C
- Boiling point: ~ 310 °C
- Vapour pressure: (20 °C) ~ 0,0001 hPa
- LD 50 (oral, rat): 2140 mg/kg
- EC-Index-No.: 016-020-00-8
- ADR: 8 C1 II UN 1830
- IMDG: 8 II UN 1830
- IATA/ICAO: 8 II UN 1830
- GHS-signal word: Danger
- GHS-H sentences: H290 - H314
- GHS-P sentences: P260 - P303+P361+P353 - P305+P351+P338 - P310 - P405 - P501a
- Tariff number: 2807 00 00 00
- Applications: analytical chemistry, laboratory reagent, acidifying agent, synthesis of organic products, nitrogen determinations.

SPECIFICATIONS

assay (acidimetric): 93 - 98 %
aluminium (Al): max. 50 ppt
antimony (Sb): max. 50 ppt
arsenic (As): max. 500 ppt
barium (Ba): max. 10 ppt
beryllium (Be): max. 10 ppt
bismuth (Bi): max. 10 ppt
cadmium (Cd): max. 10 ppt
calcium (Ca): max. 50 ppt
cerium (Ce): max. 10 ppt
cesium (Cs): max. 10 ppt
chromium (Cr): max. 10 ppt
cobalt (Co): max. 10 ppt
copper (Cu): max. 10 ppt
dysprosium (Dy): max. 10 ppt
erbium (Er): max. 10 ppt
europium (Eu): max. 10 ppt
gadolinium (Gd): max. 10 ppt
gallium (Ga): max. 10 ppt
germanium (Ge): max. 100 ppt
hafnium (Hf): max. 10 ppt
holmium (Ho): max. 10 ppt
indium (In): max. 10 ppt
iron (Fe): max. 50 ppt
lanthanum (La): max. 10 ppt

lead (Pb): max. 10 ppt
lithium (Li): max. 10 ppt
lutetium (Lu): max. 10 ppt
magnesium (Mg): max. 50 ppt
manganese (Mn): max. 10 ppt
mercury (Hg): max. 100 ppt
molybdenum (Mo): max. 10 ppt
neodymium (Nd): max. 10 ppt
nickel (Ni): max. 50 ppt
niobium (Nb): max. 10 ppt
potassium (K): max. 50 ppt
praseodymium (Pr): max. 10 ppt
rhodium (Rh): max. 50 ppt
rubidium (Rb): max. 10 ppt
samarium (Sm): max. 10 ppt
scandium (Sc): max. 10 ppt
selenium (Se): max. 500 ppt
silver (Ag): max. 50 ppt
sodium (Na): max. 50 ppt
strontium (Sr) : max. 10 ppt
tellurium (Te): max. 50 ppt
terbium (Tb): max. 10 ppt
thallium (Tl): max. 10 ppt
thorium (Th): max. 10 ppt
thulium (Tm): max. 10 ppt
tin (Sn): max. 50 ppt
titanium (Ti): max. 50 ppt
tungsten (W): max. 10 ppt
uranium (U): max. 10 ppt
vanadium (V): max. 10 ppt
ytterbium (Yb): max. 10 ppt
yttrium (Y): max. 10 ppt
zinc (Zn): max. 50 ppt
zirconium (Zr): max. 10 ppt



Water, Ultratrace®, ppt-trace analysis grade

- H₂O
- M = 18,02 g/mol
- CAS [7732-18-5]
- EINECS-No.: 231-791-2
- Density: 1,00 g/cm³
- Melting point: 0 °C
- Boiling point: 100 °C
- Vapour pressure: (20 °C) 23 hPa
- Dielectric const.: (20 °C) 80,2
- Tariff number: 2853 00 10 00
- Applications: solvents, analytical chemistry.

SPECIFICATIONS

colour (Hazen): max. 10
chlorides (Cl): max. 1 ppb
phosphates (as PO₄): max. 1 ppb
sulfates (SO₄): max. 1 ppb
aluminium (Al): max. 20 ppt
antimony (Sb): max. 10 ppt
arsenic (As): max. 10 ppt
barium (Ba): max. 10 ppt
beryllium (Be): max. 10 ppt

bismuth (Bi): max. 10 ppt
boron (B): max. 20 ppt
cadmium (Cd): max. 10 ppt
calcium (Ca): max. 10 ppt
cerium (Ce): max. 10 ppt
cesium (Cs): max. 10 ppt
chromium (Cr): max. 10 ppt
cobalt (Co): max. 10 ppt
copper (Cu): max. 10 ppt
dysprosium (Dy): max. 1 ppt
erbium (Er): max. 1 ppt
europium (Eu): max. 1 ppt
gadolinium (Gd): max. 1 ppt
gallium (Ga): max. 10 ppt
germanium (Ge): max. 10 ppt
gold (Au): max. 10 ppt
hafnium (Hf): max. 1 ppt
holmium (Ho): max. 1 ppt
indium (In): max. 1 ppt
iron (Fe): max. 10 ppt
lanthanum (La): max. 1 ppt
lead (Pb): max. 10 ppt
lithium (Li): max. 10 ppt
lutetium (Lu): max. 1 ppt
magnesium (Mg): max. 10 ppt
manganese (Mn): max. 10 ppt
mercury (Hg): max. 20 ppt
molybdenum (Mo): max. 10 ppt
neodymium (Nd): max. 1 ppt
nickel (Ni): max. 10 ppt
niobium (Nb): max. 10 ppt
palladium (Pd): max. 10 ppt
platinum (Pt): max. 10 ppt
potassium (K): max. 10 ppt
praseodymium (Pr): max. 10 ppt
rhenium (Re): max. 10 ppt
rhodium (Rh): max. 10 ppt
rubidium (Rb): max. 10 ppt
ruthenium (Ru): max. 10 ppt
samarium (Sm): max. 10 ppt
scandium (Sc): max. 10 ppt
selenium (Se): max. 50 ppt
silver (Ag): max. 10 ppt
sodium (Na): max. 10 ppt
strontium (Sr) : max. 10 ppt
tantalum (Ta): max. 10 ppt
tellurium (Te): max. 1 ppt
terbium (Tb): max. 10 ppt
thallium (Tl): max. 10 ppt
thorium (Th): max. 1 ppt
thulium (Tm): max. 10 ppt
tin (Sn): max. 10 ppt
titanium (Ti): max. 10 ppt
tungsten (W): max. 10 ppt
uranium (U): max. 1 ppt
vanadium (V): max. 10 ppt
ytterbium (Yb): max. 10 ppt
yttrium (Y): max. 1 ppt
zinc (Zn): max. 10 ppt
zirconium (Zr): max. 10 ppt

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