

# Ultrapur

~Ultrapure Reagents~



Kanto Reagents

*Hydrochloric Acid*

*Hydrofluoric Acid*

*Nitric Acid*

*Sulfuric Acid*



*Acetic Acid*

*Hydrochloric Acid*

*Hydrofluoric Acid*

*Nitric Acid*

*Perchloric Acid*

*Sulfuric Acid*

*Hydrogen peroxide*

*Ultrapur Water*

*Ammonia Solution*

*Potassium Hydroxide Solution*

*Sodium Hydroxide Solution*



KANTO CHEMICAL CO., INC.

## Ultrapur

「**Ultrapur**」 is products lineup with guaranteed metal impurity content ppt Level.

*Ultrapur* is the brand name of Ultra High Purity chemicals lineup specially designed for precise instrumental trace analysis of metal impurities. The modern analytical instruments, ICP-MS, ICP-AES, the detection limit have advanced from ppb( $10^{-9}$ ) to ppt( $10^{-12}$ )level.

To solve the increasing demands for highest purity of reagents from modern analytical instruments, Ultrapure reagents should have their impurity level less than 10 ppt.

### Characteristics

#### 1 Undetectable, minimal impurity content

Ultrapur products are refined with Kanto's special treatment method for use in the clean room environment. The quantity of each element is at the ppt level at most, which offers the most superior product in purity on the market.

#### 2 Contamination-free container

Ultrapur products are contained in high-quality Teflon (PFA)-coated packaging, avoiding contamination from materials such as glass.

#### 3 Certificate of Analysis

An assay is available for each product that records the lot-specific analysis obtained by ICP/MS and AAS methods.

## Ultrapur-100

「**Ultrapur-100**」 is products lineup with guaranteed metal impurity content 100 ppt Level.

*Ultrapur-100* is the brand name of Ultra High Purity chemicals lineup specially designed for precise instrumental trace analysis of metal impurities same as *Ultrapur*.

To solve the increasing demands for highest purity of reagents from modern analytical instruments, Ultrapure-100 reagents should have their impurity 100 ppt level.

#### 1 High Purity

*Ultrapur-100* products are refined with Kanto's special treatment method for use in the clean room environment. The quantity of each element is at the 100 ppt level , which is next to Ultrapur, which offers the most superior product in purity on the market.

#### 2 Unique Bottle

*Ultrapur-100* products are contained in Extremely-pure Polyethylene (HDPE) packaging, avoiding contamination from materials such as glass.

#### 3 High Price-performance

To provide high price-performance even its high purity and contained in unique bottle. To solve the increasing demands for highest purity of reagents from modern Analysis of tap water and soil(pollution) using ICP-MS, ICP-AES, *Ultrapure-100* is the most suitable.

## Ultrapur -100 Specification

Item	<i>Hydrochloric Acid</i> HCl	<i>Hydrofluoric Acid</i> HF	<i>Nitric Acid 1.42</i> HNO <sub>3</sub>	<i>Sulfuric Acid</i> H <sub>2</sub> SO <sub>4</sub>
Purity %	-	-	-	96.0%
Concentration %	35.0-37.0%	46.0-51.0%	69.0-71.0%	-
Silver(Ag) max	100 ppt	100 ppt	100 ppt	100 ppt
Aluminium(Al) max	200 ppt	200 ppt	200 ppt	200 ppt
Gold(Au) max	100 ppt	100 ppt	100 ppt	100 ppt
Barium(Ba) max	100 ppt	100 ppt	100 ppt	100 ppt
Beryllium(Be) max	100 ppt	100 ppt	100 ppt	100 ppt
Bismuth(Bi) max	100 ppt	100 ppt	100 ppt	100 ppt
Calcium(Ca) max	100 ppt	100 ppt	100 ppt	100 ppt
Cadmium(Cd) max	100 ppt	100 ppt	100 ppt	100 ppt
Cobalt(Co) max	100 ppt	100 ppt	100 ppt	100 ppt
Chromium(Cr) max	100 ppt	100 ppt	100 ppt	100 ppt
Copper(Cu) max	100 ppt	100 ppt	100 ppt	100 ppt
Iron(Fe) max	200 ppt	200 ppt	200 ppt	200 ppt
Gallium(Ga) max	100 ppt	100 ppt	100 ppt	100 ppt
Germanium(Ge) max	100 ppt	100 ppt	100 ppt	100 ppt
Indium(In) max	100 ppt	100 ppt	100 ppt	100 ppt
Potassium(K) max	200 ppt	200 ppt	200 ppt	200 ppt
Lithium(Li) max	100 ppt	100 ppt	100 ppt	100 ppt
Magnesium(Mg) max	100 ppt	100 ppt	100 ppt	100 ppt
Manganese(Mn) max	100 ppt	100 ppt	100 ppt	100 ppt
Molybdenum(Mo) max	100 ppt	100 ppt	100 ppt	100 ppt
Sodium(Na) max	200 ppt	200 ppt	200 ppt	200 ppt
Nickel(Ni) max	100 ppt	100 ppt	100 ppt	100 ppt
Lead(Pb) max	100 ppt	100 ppt	100 ppt	100 ppt
Antimony(Sb) max	100 ppt	100 ppt	100 ppt	100 ppt
Tin(Sn) max	100 ppt	100 ppt	100 ppt	100 ppt
Strontium(Sr) max	100 ppt	100 ppt	100 ppt	100 ppt
Thorium(Th) max	100 ppt	100 ppt	100 ppt	100 ppt
Thallium(Tl) max	-	-	-	100 ppt
Uranium(U) max	100 ppt	100 ppt	100 ppt	100 ppt
Yttrium(Y) max	100 ppt	100 ppt	100 ppt	100 ppt
Zinc(Zn) max	100 ppt	100 ppt	100 ppt	100 ppt
Zirconium(Zr) max	100 ppt	-	100 ppt	100 ppt

# Ultrapur Acid Specification

Item		Acetic Acid CH <sub>3</sub> COOH	Hydrochloric Acid HCl	Hydrofluoric Acid HF	Nitric Acid 1.38 HNO <sub>3</sub>
Purity	%	99.0%	-	-	-
Concentration	%	-	30.0-32.0%	46.0-51.0%	60.0-62.0%
Silver(Ag)	max	1 ppt	1 ppt	0.5 ppt	1 ppt
Aluminium(Al)	max	10 ppt	10 ppt	5 ppt	10 ppt
Arsenic(As)	max	-	5 ppt	-	5 ppt
Gold(Au)	max	5 ppt	5 ppt	0.5 ppt	5 ppt
Barium(Ba)	max	5 ppt	5 ppt	2.5 ppt	5 ppt
Beryllium(Be)	max	1 ppt	1 ppt	0.5 ppt	1 ppt
Bismuth(Bi)	max	1 ppt	1 ppt	0.5 ppt	1 ppt
Calcium(Ca)	max	20 ppt	5 ppt	8 ppt	5 ppt
Cadmium(Cd)	max	5 ppt	5 ppt	2.5 ppt	5 ppt
Cobalt(Co)	max	5 ppt	5 ppt	0.5 ppt	5 ppt
Chromium(Cr)	max	5 ppt	5 ppt	2.5 ppt	5 ppt
Copper(Cu)	max	10 ppt	10 ppt	5 ppt	10 ppt
Europium(Eu)	max	-	1 ppt	0.5 ppt	1 ppt
Iron(Fe)	max	10 ppt	10 ppt	10 ppt	10 ppt
Gallium(Ga)	max	-	10 ppt	10 ppt	10 ppt
Germanium(Ge)	max	-	10 ppt	2.5 ppt	5 ppt
Mercury(Hg)	max	-	5 ppt	-	5 ppt
Indium(In)	max	10 ppt	10 ppt	10 ppt	10 ppt
Potassium(K)	max	10 ppt	5 ppt	2.5 ppt	5 ppt
Lithium(Li)	max	1 ppt	1 ppt	0.5 ppt	1 ppt
Magnesium(Mg)	max	20 ppt	5 ppt	2.5 ppt	5 ppt
Manganese(Mn)	max	5 ppt	5 ppt	2.5 ppt	5 ppt
Molybdenum(Mo)	max	-	5 ppt	2.5 ppt	5 ppt
Sodium(Na)	max	10 ppt	5 ppt	5 ppt	5 ppt
Niobium(Nb)	max	10 ppt	10 ppt	10 ppt	10 ppt
Nickel(Ni)	max	30 ppt	10 ppt	5 ppt	10 ppt
Lead(Pb)	max	5 ppt	5 ppt	2.5 ppt	5 ppt
Platinum(Pt)	max	10 ppt	10 ppt	2.5 ppt	5 ppt
Rubidium(Rb)	max	1 ppt	1 ppt	0.5 ppt	1 ppt
Rhodium(Rh)	max	-	1 ppt	0.5 ppt	1 ppt
Antimony(Sb)	max	5 ppt	5 ppt	2.5 ppt	5 ppt
Selenium(Se)	max	-	10 ppt	-	10 ppt
Tin(Sn)	max	10 ppt	10 ppt	5 ppt	5 ppt
Strontium(Sr)	max	1 ppt	1 ppt	0.5 ppt	1 ppt
Tantalum(Ta)	max	10 ppt	1 ppt	0.5 ppt	1 ppt
Thorium(Th)	max	0.05 ppt	0.005 ppt	0.005 ppt	0.005 ppt
Uranium(U)	max	0.02 ppt	0.002 ppt	0.002 ppt	0.002 ppt
Tungsten(W)	max	-	10 ppt	5 ppt	10 ppt
Yttrium(Y)	max	10 ppt	10 ppt	10 ppt	10 ppt
Zinc(Zn)	max	10 ppt	5 ppt	2.5 ppt	5 ppt
Zirconium(Zr)	max	10 ppt	10 ppt	-	10 ppt

# Ultrapur Acid • Ultrapure Water Specification

Item		Hydrogen peroxide HClO <sub>4</sub>	Sulfuric Acid H <sub>2</sub> SO <sub>4</sub>	Hydrogen peroxide H <sub>2</sub> O <sub>2</sub>	Ultrapure Water H <sub>2</sub> O
Purity	%	60-62	96	-	-
Concentration	%	-	-	30-32	-
Silver(Ag)	max	5 ppt	10 ppt	1 ppt	1 ppt
Aluminium(Al)	max	20 ppt	20 ppt	10 ppt	5 ppt
Arsenic(As)	max	-	-	5 ppt	5 ppt
Gold(Au)	max	10 ppt	10 ppt	5 ppt	1 ppt
Barium(Ba)	max	-	-	5 ppt	1 ppt
Beryllium(Be)	max	10 ppt	10 ppt	1 ppt	1 ppt
Bismuth(Bi)	max	5 ppt	5 ppt	1 ppt	1 ppt
Calcium(Ca)	max	10 ppt	10 ppt	10 ppt	5 ppt
Cadmium(Cd)	max	10 ppt	10 ppt	5 ppt	5 ppt
Cobalt(Co)	max	10 ppt	10 ppt	5 ppt	1 ppt
Chromium(Cr)	max	20 ppt	10 ppt	5 ppt	1 ppt
Copper(Cu)	max	10 ppt	10 ppt	10 ppt	5 ppt
Europium(Eu)	max	-	-	1 ppt	-
Iron(Fe)	max	20 ppt	20 ppt	10 ppt	5 ppt
Gallium(Ga)	max	10 ppt	10 ppt	10 ppt	-
Germanium(Ge)	max	10 ppt	10 ppt	5 ppt	5 ppt
Mercury(Hg)	max	-	-	-	5 ppt
Indium(In)	max	10 ppt	10 ppt	10 ppt	-
Potassium(K)	max	10 ppt	10 ppt	5 ppt	5 ppt
Lithium(Li)	max	1 ppt	10 ppt	1 ppt	1 ppt
Magnesium(Mg)	max	10 ppt	10 ppt	5 ppt	5 ppt
Manganese(Mn)	max	5 ppt	5 ppt	5 ppt	1 ppt
Molybdenum(Mo)	max	10 ppt	10 ppt	5 ppt	1 ppt
Sodium(Na)	max	20 ppt	20 ppt	5 ppt	5 ppt
Niobium(Nb)	max	10 ppt	10 ppt	10 ppt	-
Nickel(Ni)	max	10 ppt	10 ppt	10 ppt	10 ppt
Lead(Pb)	max	5 ppt	5 ppt	5 ppt	5 ppt
Platinum(Pt)	max	10 ppt	10 ppt	5 ppt	5 ppt
Rubidium(Rb)	max	-	-	1 ppt	1 ppt
Rhodium(Rh)	max	-	-	1 ppt	-
Antimony(Sb)	max	10 ppt	10 ppt	5 ppt	5 ppt
Selenium(Se)	max	-	-	-	10 ppt
Tin(Sn)	max	20 ppt	20 ppt	5 ppt	5 ppt
Strontium(Sr)	max	1 ppt	1 ppt	1 ppt	1 ppt
Tantalum(Ta)	max	10 ppt	10 ppt	1 ppt	1 ppt
Thorium(Th)	max	0.1 ppt	0.1 ppt	0.005 ppt	0.005 ppt
Uranium(U)	max	0.1 ppt	0.1 ppt	0.002 ppt	0.002 ppt
Tungsten(W)	max	-	-	10 ppt	10 ppt
Yttrium(Y)	max	10 ppt	10 ppt	10 ppt	-
Zinc(Zn)	max	10 ppt	10 ppt	5 ppt	5 ppt
Zirconium(Zr)	max	10 ppt	10 ppt	10 ppt	-

## Ultrapur Alkali Specification

Item		Ammonia Solution NH <sub>3</sub>	Potassium Hydroxide Solution KOH	Sodium Hydroxide solution NaOH
Concentration	%	28-30	15	11
Silver(Ag)	max	0.01 ppb	-	-
Aluminium(Al)	max	0.2 ppb	30 ppb	20 ppb
Arsenic(As)	max	0.1 ppb	3 ppb	3 ppb
Barium(Ba)	max	0.01 ppb	10 ppb	10 ppb
Boron(B)	max	0.5 ppb	-	-
Beryllium(Be)	max	0.01 ppb	-	-
Bismuth(Bi)	max	0.01 ppb	-	-
Calcium(Ca)	max	0.5 ppb	2 ppb	2 ppb
Cadmium(Cd)	max	0.01 ppb	1 ppb	1 ppb
Cobalt(Co)	max	0.01 ppb	-	-
Chromium(Cr)	max	0.01 ppb	-	-
Copper(Cu)	max	0.1 ppb	3 ppb	3 ppb
Europium(Eu)	max	-	-	-
Iron(Fe)	max	0.5 ppb	10 ppb	10 ppb
Gallium(Ga)	max	0.01 ppb	-	-
Germanium(Ge)	max	-	-	-
Indium(In)	max	0.01 ppb	-	-
Potassium(K)	max	0.5 ppb	-	-
Lithium(Li)	max	0.01 ppb	-	-
Magnesium(Mg)	max	0.1 ppb	1 ppb	1 ppb
Manganese(Mn)	max	0.01 ppb	-	-
Sodium(Na)	max	0.5 ppb	-	-
Nickel(Ni)	max	0.1 ppb	-	-
Lead(Pb)	max	0.1 ppb	2 ppb	2 ppb
Palladium(Pd)	max	0.01 ppb	-	-
Antimony(Sb)	max	0.1 ppb	-	-
Silicon(Si)	max	1 ppb	-	-
Tin(Sn)	max	0.1 ppb	-	-
Strontium(Sr)	max	0.01 ppb	1 ppb	1 ppb
Thorium(Th)	max	0.01 ppb	-	-
Thallium(Tl)	max	0.1 ppb	-	-
Uranium(U)	max	0.01 ppb	-	-
Zinc(Zn)	max	0.1 ppb	15 ppb	10 ppb

## Ultrapur-100 Product List

Product Code	Product Name	Size
<b>18078-4B</b>	<i>Hydrochloric Acid</i>	<b>500mL</b>
<b>18083-3B</b>	<i>Hydrofluoric Acid</i>	<b>500mL</b>
<b>28163-5B</b>	<i>Nitric Acid</i>	<b>500mL</b>
<b>37390-4B</b>	<i>Sulfuric Acid</i>	<b>500mL</b>

## Ultrapur Product List

Product Code	Product Name	Size
<b>01021-2B</b>	<i>Acetic Acid</i>	<b>250mL</b>
<b>18078-1B</b>	<i>Hydrochloric Acid</i>	<b>250mL</b>
<b>18083-1B</b>	<i>Hydrofluoric Acid</i>	<b>250mL</b>
<b>28163-1B</b>	<i>Nitric Acid</i>	<b>250mL</b>
<b>32059-1B</b>	<i>Perchloric Acid</i>	<b>250mL</b>
<b>37390-1B</b>	<i>Sulfuric Acid</i>	<b>250mL</b>
<b>18084-2B</b>	<i>Hydrogen peroxide</i>	<b>250mL</b>
<b>43001-1B</b>	<i>Ultrapure Water</i>	<b>1L</b>
<b>01266-3B</b>	<i>Ammonia Solution</i>	<b>250mL</b>
<b>32947-1B</b>	<i>Potassium Hydroxide Solution</i>	<b>250mL</b>
<b>37960-1B</b>	<i>Sodium Hydroxide solution</i>	<b>250mL</b>

### <Precautions>

In order to protect the quality of Ultrapur, Ultrapur-100, we recommend you

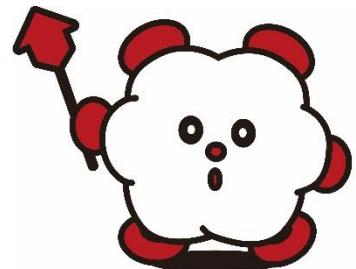
- 1) Handling all in a clean-box, - bench(-hood), or –room of Class 10 or below.
- 2) To take out in order of a) Outer container and b) Inner box(Polyethylene bag with zipper)
- 3) To wear disposable polyethylene gloves and wash it with Ultra pure water.
- 4) To open carefully not to contaminate inside cap.
- 5) DO NOT directly insert pipette to inside bottle, sample directly bottle to another bottle.
- 6) Please immediately cap bottle as soon as using it.
- 7) Please store cool and dark place with putting bottle in plastic bag and putting it back to box.
- 8) **PAY ATTENTION**, Nitrogen Oxide Gas can be permeated though bottle and Acidity Condensation can be appeared on outside of bottle. Please store at cool and dark place with sealed bottle cap.





*Search product, CAS, keyword, ...*

<https://cica-web.kanto.co.jp/CicaWeb/servlet/wsj.front.LogonSvt?lang=En>



**KANTO CHEMICAL CO., INC.**

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