AsahiKASEI

ASAHI KASEI CORPORATION

Asaclean R&D Dept.
R&D Planning Business Development
1-3-1, Yakoh, Kawasaki-Ku, Kawasaki-City, Kanagawa, 210-0863, Japan
Phone +81-(0)44-271-2503, Fax +81-(0)44-271-2333

January 22, 2019

To: whom it may concern

## Certificate not to use the substances

We, Asahi Kasei Corporation, hereby certify that we do not use any of the following substances listed below, intentionally in the manufacture of our products (as listed below):

1. Substances
   1) Pb (Lead)
   2) Cd (Cadmium)
   3) Hg (Mercury)
   4) Cr (Chromium)
   5) PBB ( Polybrominated Biphenyls)
   6) PBDE (Polybrominated Diphenyl Ether)
   7) DEHP (Bis(2-ethylhexyl) phthalate)
   8) BBP (Bis(butylbenzyl) phthalate)
   9) DBP (Dibutyl phthalate)
   10) DIBP (Diisobutyl phthalate)

2. Products certified hereunder:
   ASACLEAN™ U, UE, newE, SA, IMX, SL, UP, newUP, HP, UF2,
   UL2, UB, SX, PT, PF, newM, FD, GL2, C, CP (,HR ,SN )

We hope the above certification will meet your requirements.

Yours faithfully,

.....
Shigeru Endo
General manager
Asaclean R&D Dept.
R&D Planning Business Development

# Analytical Data

3. Analytical results:

ppm (mg/kg)

| Element | ASACLEAN™ U,UE,newE,SA,IMX,SL,UP, newUP,HP,UF2,UL2,UB,SX, PT,PF,newM,FD,GL2,C,CP (,HR,SN) | Detection Limit |
|---|---|---|
| Cd (Cadmium) | N. D. | 5 |
| Pb (Lead) | N. D. | 10 |
| Hg (Mercury) | N. D. | 10 |
| Cr (Chromium) | N. D. | 10 |
| Br (Bromine) | N. D. | 5 |
| DEHP | N. D. | 20 |
| BBP | N. D. | 20 |
| DBP | N. D. | 20 |
| DIBP | N. D. | 20 |

(Note) N.D. (= Not Detected) means that the content was lower than the corresponding Detection Limit.

*The test results are provided by an adapted test in ISO/IEC 17025:2005. DEHP, DBP, DBP and DIBP are exempted from application of accreditation for ISO/IEC17025. (Because the test item is not accredited objects.)

4. Analytical procedure:

(1) For Cd, Cr, Pd
- Standard Procedures for Measuring the Specified Metals in Chemical Products (METI: 2003) Acid Decomposition in Closed System B – ICP-AES Method
- Analyzer: Inductively coupled plasma atomic emission spectrometer (ICP-AES)/ Model: iCAP6300 Duo (Thermo Fisher Scientific K.K.)

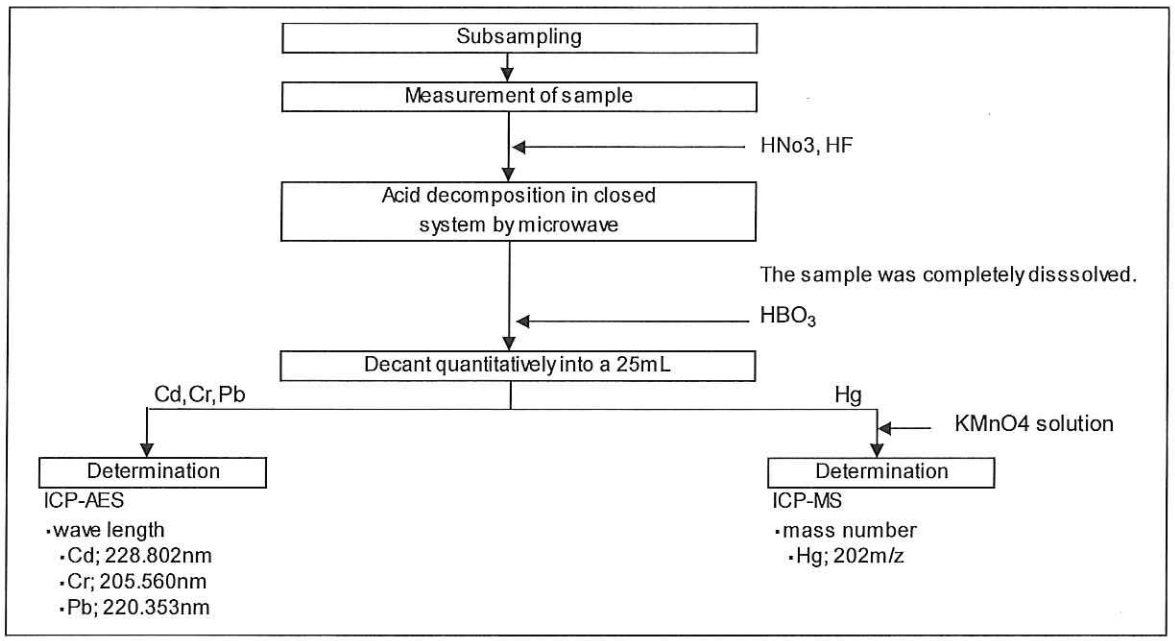
(2) For Hg
- Standard Procedures for Measuring the Specified Metals in Chemical Products (METI: 2003) Acid Decomposition in Closed System B – ICP-MS Method
- Analyzer: Inductively coupled plasma mass spectrometer (ICP-MS)/ Model: X-Series 2 (Thermo Fisher Scientific K.K.)

(3) For Br
- IEC-62321-3-2 (2013), ISO10304-1 (2007) 2nd edition Combustion Ion Chromatography
- Analyzer: Ion Chromatpgraphy(IC) Model: DX-320 (Thermo Fisher Scientific K.K.)

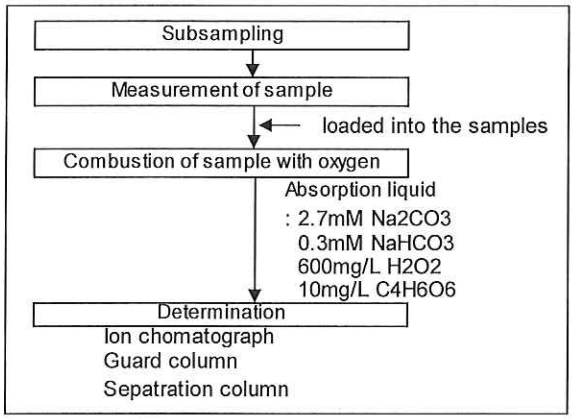
(4) For DEHP, BBP, DBP, DIBP
- Solvent Extraction – GC-MS
- Analyzer: Gas chromatograph mass spectrometer (GC-MS) Model: GC/MSD5975C (Agilent Technologies)

## 5. Measurement flow chart

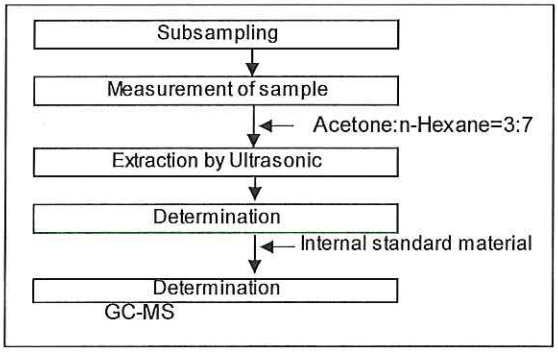
Measurement flow chart of Cd, Cr, Pb, Hg




Measurement flow chart of Br




Measurement flow chart of DEHP, BBP, DBP, DIBP



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1. Substances
   1) Pb (Lead)
   2) Cd (Cadmium)
   3) Hg (Mercury)
   4) Cr(Ⅵ) (Hexavalent chromium )
   5) PBB ( Polybrominated Biphenyls )
   6) PBDE (Polybrominated Diphenyl Ether )
   7) DEHP (Bis(2-ethylhexyl) phthalate)
   8) BBP (Bis(butylbenzyl) phthalate)
   9) DBP (Dibutyl phthalate)
   10) DIBP (Diisobutyl phthalate)

2. Products certified hereunder:
   ASACLEAN™ newEX , PX2, YG, CG

We hope the above certification will meet your requirements.

Yours faithfully,

.....
Shigeru Endo
General manager
Asaclean R&D Dept.
R&D Planning Business Development

# Analytical Data

3. Analytical results:

ppm (mg/kg)

| Element | ASACLEAN™ newEX, PX2,YG,CG | Detection Limit |
|---|---|---|
| Cd (Cadmium) | N. D. | 5 |
| Pb (Lead) | N. D. | 10 |
| Hg (Mercury) | N. D. | 10 |
| Cr(VI)(Hexavalent Chromium) | N. D. | 10 |
| Br (Bromine) | N. D. | 5 |
| DEHP | N. D. | 20 |
| BBP | N. D. | 20 |
| DBP | N. D. | 20 |
| DIBP | N. D. | 20 |

(Note) N.D. (= Not Detected) means that the content was lower than the corresponding Detection Limit.

*The test results are provided by an adapted test in ISO/IEC 17025:2005. DEHP, DBP, DBP and DIBP are exempted from application of accreditation for ISO/IEC17025. (Because the test item is not accredited objects.)

4. Analytical procedure:

(1) For Cd, Pd
- Standard Procedures for Measuring the Specified Metals in Chemical Products (METI: 2003) Acid Decomposition in Closed System B – ICP-AES Method
- Analyzer: Inductively coupled plasma atomic emission spectrometer (ICP-AES)/ Model: iCAP6300 Duo (Thermo Fisher Scientific K.K.)

(2) For Hg
- Standard Procedures for Measuring the Specified Metals in Chemical Products (METI: 2003) Acid Decomposition in Closed System B – ICP-MS Method
- Analyzer: Inductively coupled plasma mass spectrometer (ICP-MS)/ Model: X-Series 2 (Thermo Fisher Scientific K.K.)

(3) For Br
- IEC-62321-3-2 (2013), ISO10304-1 (2007) 2nd edition Combustion Ion Chromatography
- Analyzer: Ion Chromatpgraphy(IC) Model: DX-320 (Thermo Fisher Scientific K.K.)

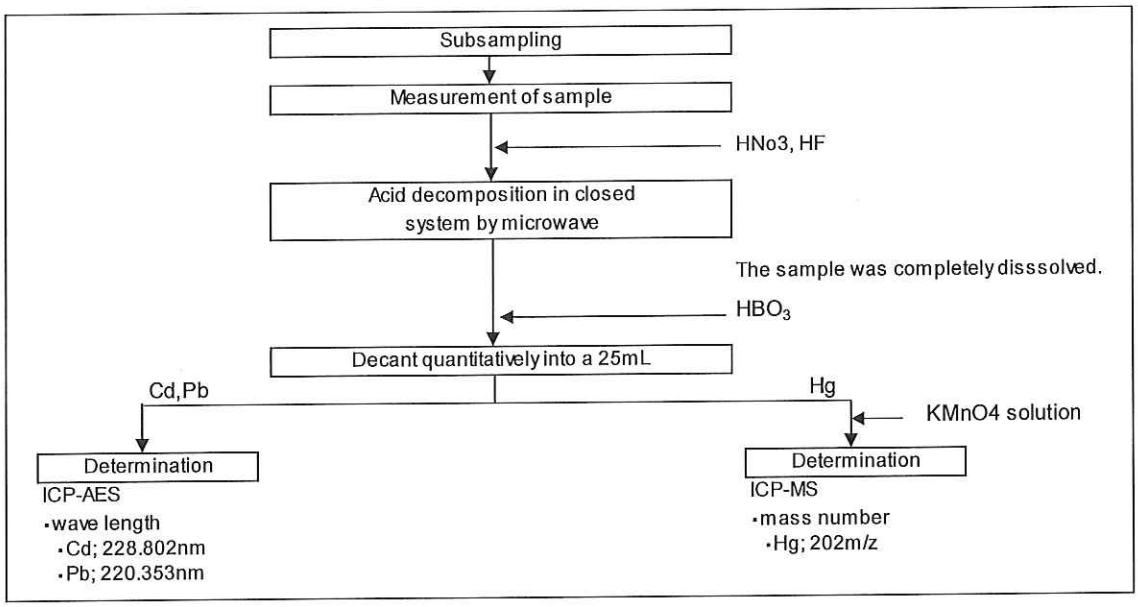
(4) For Cr(VI)
- IEC62321 (2008) 1st edtion Appendix C Alkaline digestion – Absorptiometric analysis

Analyzer: Spectrophotometer Model: V-630 (JASCO Corporation)

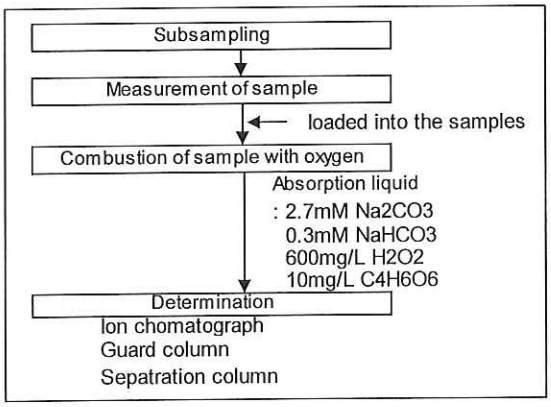
(5) For DEHP, BBP, DBP, DIBP
- Solvent Extraction – GC-MS
- Analyzer: Gas chromatograph mass spectrometer (GC-MS) Model: GC/MSD5975C (Agilent Technologies)

## 5. Measurement flow chart

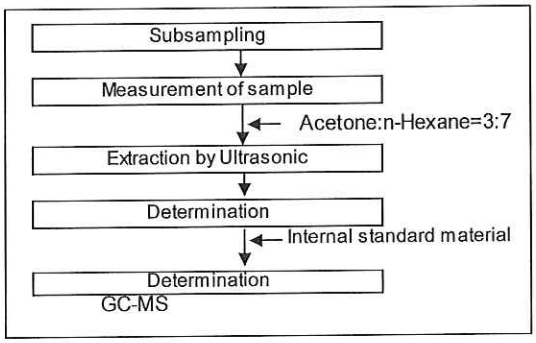
Measurement flow chart of Cd, Pb, Hg




Measurement flow chart of Br




Measurement flow chart of DEHP, BBP, DBP, DIBP




Measurement flow chart of Cr(VI)