

10 February 2011

SUMITOMO METAL TECHNOLOGY, INC. Kashima Div.

Report to : EPSON TOYOCOM CORPORATION

INA PLANT 8548 Nakaminowa, Minowa-machi, Kamiina-gun, Nagano 399-4696, Japan

Report on Content of Cd, Pb, Cr⁶⁺, Hg in Parts.

1. SMT Job No. G11-094

2. Sample Receiving Date : 1 February 2011

3. Test Requested : Analysis of the Cd, Pb, Cr⁶⁺, Hg content in Parts.

4. Sample Name

Sample No.	Sample
	Crystal

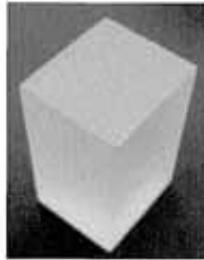


Photo1. Crystal

5. Test Method

Cadmium (Cd)	IEC62321
Lead (Pb)	IEC62321
Hexavalent chromium (Cr ⁶⁺)	IEC62321
Mercury (Hg)	IEC62321

Note : The Samples were dissolved completely.

Analysis was performed by Graphite Furnace Atomic Absorption Spectroscopy (GFAA) and Diphenylcarbazide Spectrophotometer Method and Cold Vaporized Atomic Absorption Spectroscopy (CV-AAS) for Mercury. and Ion Chromatograph (IC) for Bromine & Chlorine.

6. Analysis Result

Table 1 (mass ratio)

Object	Test Method	Result	Unit	D. L.
Cd	GFAA	N. D.	ppm	5
Pb	GFAA	N. D.	ppm	30
Cr ⁶⁺	Spectrophotometer	N. D.	ppm	10
Hg	CV-AAS	N. D.	ppm	1

Note ; N. D. =Not Detected ; D. L. =Detection Limits ; ppm = mg/kg

7. Date of Analysis : 9 February 2011

8. Testing Laboratory

Company Name SUMITOMO METAL TECHNOLOGY, INC.

Division Name Kashima Div.

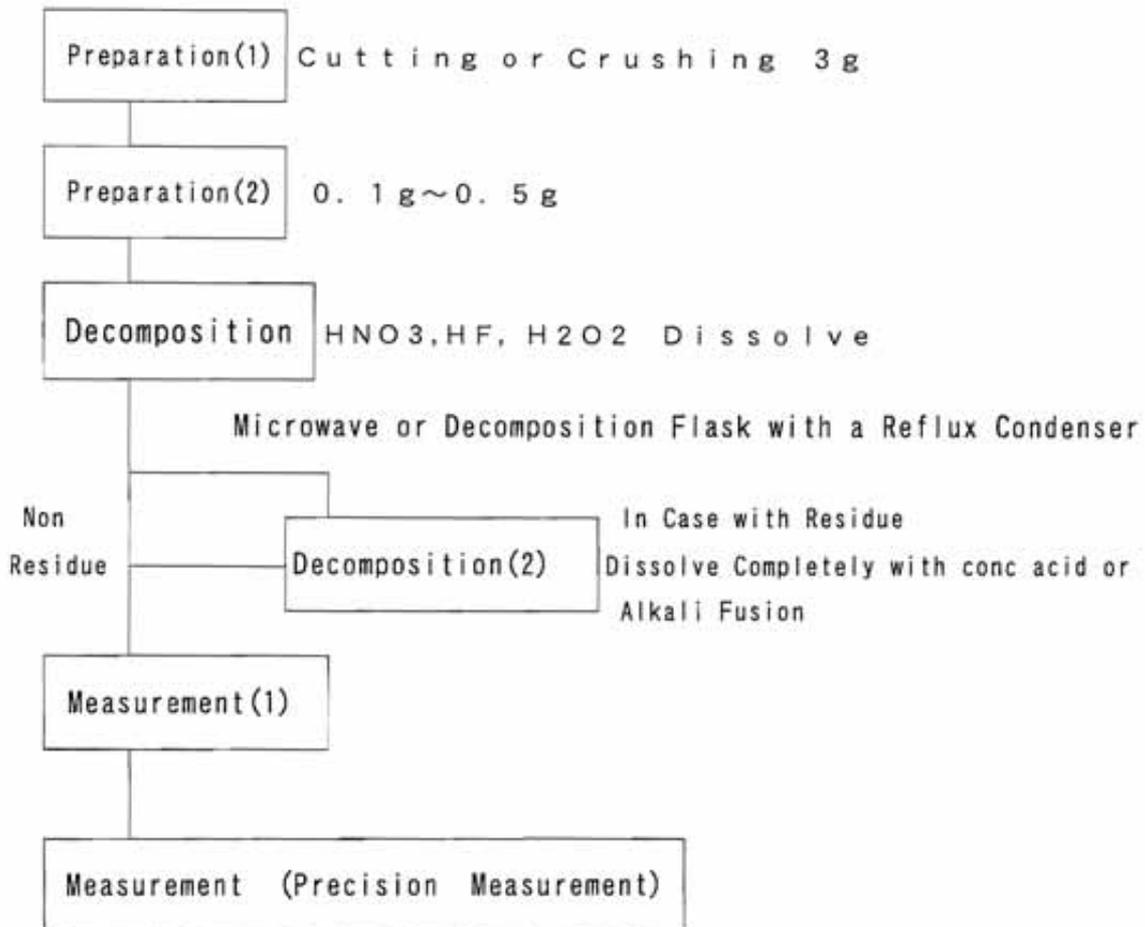
Responsible person for measurement Naonori Kido

Person in charge of measurement Akira Takeuchi

Signature: Haruji Shinada

Approve: Ryuji Ogata

Pre-conditioning and measurement for (Cd, Pb)



< Precision Measurement >

- ① In Case <1000ppm...Cd, Pb, Cr
• ICP/MS (Plastics)
- ② In Case <1000ppm...Cd, Pb, Cr
• FL-AAS (Metal, Ceramics)
- ③ In Case 100ppm< ...Pb
In Case 50ppm< ...Cd, Cr
• ICP/AES (Metal, Ceramics)
- ④ In Case 100ppm< ...Pb
In Case 50ppm< ...Cd, Cr
• AAS (Metal, Ceramics)

Pre-conditioning and measurement for (Cr⁶⁺)

Hexavalent Chromium

Preparation (1)	Crushing Small or as Block.
Preparation (2)	Sample: 2g
Immerse	Pure Water 50ml
Boiling	5min.
Add Sulfuric Acid	H ₂ SO ₄ 4.5mol 3ml
Dilution	250ml
Add Reagent	Diphenylcarbazide
Add Buffer Solution	Ortho disodium hydrogen-phosphate. 25ml
Measurement	Cr ⁶⁺ > 5 μg Spectrometer (Absorbance)

Pre-conditioning and measurement for (Hg)

