



**NM LABORATORY SDN. BHD.** (563645-P)

80, LORONG PERDA SELATAN 1, BANDAR PERDA,  
14000 BUKIT MERTAJAM, PULAU PINANG, MALAYSIA.  
TEL: 04-5388081 (HUNTING LINE) FAX: 04-5378084  
Website: www.nmlab.com.my E-mail: enquiry@nmlab.com.my  
**LABORATORY TESTINGS AND ANALYSIS CONSULTANCY**



MS ISO/IEC 17025  
**TESTING**  
SAMM NO. 188

## **CERTIFICATE OF ANALYSIS**

**To :** NIPPON PIGMENT (M) SDN.BHD.  
2479, Mk-1, Lorong Perusahaan 8B,  
Prai Industrial Estate,  
13600 Prai, Pulau Pinang.  
Attn : Ms Ifa (Purchasing)

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**Certificate No.** : SP / 07-10 / 0487

**Date of Issue** : 18 / 10 / 2007

**Customer Sample Description** : **INOR GANIC PIGMENT**

**Date Of Sample Received** : 10/ 10 / 2007

**Date Of Testing** : 10 / 10 / 2007 - 18 / 10 / 2007

### **Objective of Test**

Determination of Cadmium, Lead, Mercury, Hexavalent Chromium, PBBs and PBDEs in accordance with EU Directive 2002/95/EC (RoHS).



NM LABORATORY SDN. BHD.

Yeap Cheo Mooi, B. Sc (Hons), AMIC  
Chemist



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Customer : NIPPON PIGMENT (M) SDN.BHD.

**Analysis parameter and Standard Method / Equipment / Technique description**

<u>Parameter</u>	<u>Standard Method / Equipment / Technique Description</u>
1. <b>Cadmium</b>	<b>USEPA Method 3052</b> Microwave assisted acid digestion of siliceous and organically based matrices USEPA Method 6010B-Inductive Coupled Plasma-Atomic Emission Spectrometry
2. <b>Lead</b>	<b>USEPA Method 3052</b> Microwave assisted acid digestion of siliceous and organically based matrices USEPA Method 6010B-Inductive Coupled Plasma-Atomic Emission Spectrometry
3. <b>Mercury</b>	<b>USEPA Method 3052</b> Microwave assisted acid digestion of siliceous and organically based matrices USEPA Method 6010B-Inductive Coupled Plasma-Atomic Emission Spectrometry
4. <b>Chromium</b>	<b>USEPA Method 3060A</b> -Alkaline digestion for Hexavalent Chromium
<b>Hexavalent</b>	<b>USEPA Method 7196A</b> – Colorimetric by UV/Vis Spectroscopy
5. <b>PBBs</b>	<b>USEPA Method 3540C</b> - Soxhlet Extraction GC/MS-Gas Chromatography-Mass Spectrometry
6. <b>PBDEs</b>	<b>USEPA Method 3540C</b> - Soxhlet Extraction GC/MS-Gas chromatography-Mass Spectrometry

**Measurement flowchart (Issue upon request)**

Refer to Appendix A – Measurement for Cadmium, Lead and Mercury  
Appendix B - Measurement for Chromium Hexavalent  
Appendix C - Measurement for PBB & PBDE

JOB NO.: SP710/0425

Test performed by : Ms. Choo Mei Xin  
Ms. Tan Hooi Cheng



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Type of Analysis/Parameters/ Properties measured	Analysis Results	Unit	Preconditioning Method / Technique	Measurement Method / Equipment	MDL ; mg/kg	RoHS Limit ; mg/kg
Cadmium (as Cd)	ND	mg/kg	USEPA Method 3052	USEPA Method 6010B	0.5	100
Lead (as Pb)	ND	mg/kg	USEPA Method 3052	USEPA Method 6010B	1	1000
Mercury (as Hg)	ND	mg/kg	USEPA Method 3052	USEPA Method 6010B	5	1000
Chromium Hexavalent (as Cr <sup>6+</sup> )	ND	mg/kg	USEPA Method 3060A	USEPA Method 7196A	1	1000

Chemical compound		Analysis Results	Preconditioning Method	Measurement Method	MDL ; mg/kg	RoHS Limit ; mg/kg
Polybrominated Biphenyls (PBBs)	Monobromobiphenyl	Not Detected	USEPA Method 3540C	GC/MS	5	-
	Dibromobiphenyl	Not Detected				
	Tribromobiphenyl	Not Detected				
	Tetrabromobiphenyl	Not Detected				
	Pentabromobiphenyl	Not Detected				
	Hexabromobiphenyl	Not Detected				
	Heptabromobiphenyl	Not Detected				
	Octabromobiphenyl	Not Detected				
	Nonabromobiphenyl	Not Detected				
	Decabromobiphenyl	Not Detected				
Total PBBs					-	1000

Chemical compound		Analysis Results	Preconditioning Method	Measurement Method	MDL ; mg/kg	RoHS Limit ; mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	Monobromodiphenyl ether	Not Detected	USEPA Method 3540C	GC/MS	5	-
	Dibromodiphenyl ether	Not Detected				
	Tribromodiphenyl ether	Not Detected				
	Tetrabromodiphenyl ether	Not Detected				
	Pentabromodiphenyl ether	Not Detected				
	Hexabromodiphenyl ether	Not Detected				
	Heptabromodiphenyl ether	Not Detected				
	Octabromodiphenyl ether	Not Detected				
	Nonabromodiphenyl ether	Not Detected				
	Decabromodiphenyl ether	Not Detected				
Total PBDEs					-	1000

**Remark** : The test portion was "Totally Dissolved" for Cadmium, Lead & Mercury test by using pre-conditioning method as mentioned above.**Conclusion** : The sample analysis results were not exceed the maximum concentration values for Cd, Pb, Hg, Cr<sup>6+</sup>, PBB and PBDE as stipulated in amendment 2005/618/EC of EU Directive 2002/95/EC (RoHS).