



ICP Test Report Certification Packet

Company name: Littelfuse, Inc.

Product Series: 297 series

Product #: 297 series

Issue Date: June 4, 2010

It is hereby certified by Littelfuse, Inc. that there is neither RoHS (EU Directive 2002/95/EC)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes.

In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by: 
KRISTEEN BACILA

<Global EHS Engineer >

(1) Parts, sub-materials and unit parts

This document covers the 297 series RoHS-Compliant series products manufactured by Littelfuse, Inc.

< Raw Materials Used

Please see Table 1

(2) The ICP data on all measurable substances

Please see appropriate pages as identified in Table 1

Remarks :



Table 1: List of Raw Materials covered by this report

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	NA	Zinc Strip	3-6
2	NA	Blue colorant	7-10
3	NA	Element	11-14

TEST REPORT

Applicant : LITTLEFUSE TRIAD.INC
Address : Rm 202, Korea Trade Tower 159-1, Samsung-dong, Kangnam-gu,
Seoul, 135-729 Korea

Page: 1 of 4

Report No. RT10R-S2205-008-E

Date: May 26, 2010

Sample Description : The following submitted sample(s) said to be:-

Name/Type of Product : Zinc Strip
Sample ID No. : RT10R-S2205-008
Item No. : 955408
Manufacturer/Vender : LITTLEFUSE TRIAD.INC

Sample received : May 24, 2010
Testing Date : May 24, 2010 ~ May 26, 2010
Testing Laboratory : Intertek Testing Center
Testing Environment : Temperature : (24 ± 2) °C, Humidity : (60 ± 5) % R.H.

Test Type : RoHS wet chemical analysis
Test Method(s) : Please see the following page(s).
Test Result(s) : Please see the following page(s).

* Note 1 : The test results presented in this report relate only to the object tested.

* Note 2 : This report shall not be reproduced except in full without the written approval of the testing laboratory.

* Note 3 : The item no. is assigned by client and indicated according to their requirement and guarantee letter.

Approved by,



Jade Jang / Lab. Technical Manager

Authorized by,



Bo Park / Lab. General Manager

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Intertek Testing Services Korea Ltd.

TEST REPORT

Report No. RT10R-S2205-008-E

Sample ID No. : RT10R-S2205-008

Sample Description : Zinc Strip

Test Item	Unit	Test Method	MDL	Result
Cadmium (Cd)	mg/kg	With reference to IEC 62321 Edition 1.0 : 2008, by acid digestion and determined by ICP-OES	0.5	4
Lead (Pb)	mg/kg		5	11
Mercury (Hg)	mg/kg		2	N.D.
Hexavalent Chromium (Cr ⁶⁺) (For metal)	-	With reference to IEC 62321 Edition 1.0 : 2008, by Spot test	(Threshold of 1 mg/kg)	Negative
Hexavalent Chromium (Cr ⁶⁺) (For metal)	-	With reference to IEC 62321 Edition 1.0 : 2008, by boiling water extraction and determined by UV-VIS Spectrophotometer	(Threshold of 0.02 mg/kg with 50 cm ²)	Negative

Tested by : Nikkie Lee, Peter Kim

Notes : mg/kg = ppm = parts per million
mg/kg with 50 cm² = milligram per kilogram with 50 square centimeter
< = Less than
N.D. = Not detected (<MDL)
MDL = Method detection limit

Positive = A positive test result indicated the presence of Cr(VI) at the time of testing, equal to or greater than threshold of 1 mg/kg for spot test procedures or 0.02 mg/kg for boiling water extraction procedures with a sample surface area of 50 cm² used. However, it shall not be interpreted as the Cr(VI) concentration in the coating layer of the sample and should not be used as a method detection limit for this qualitative test.

Negative = A negative test result indicates above positive observation was not found at the time of testing. When the spot test showed a negative result, the boiling water extraction procedure shall be used to verify the result.

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Ulsan Lab. Address : #340-2, Yongam-Ri, Chongryang-Myun, Ulsu-Gun, Ulsan 689-865 Korea

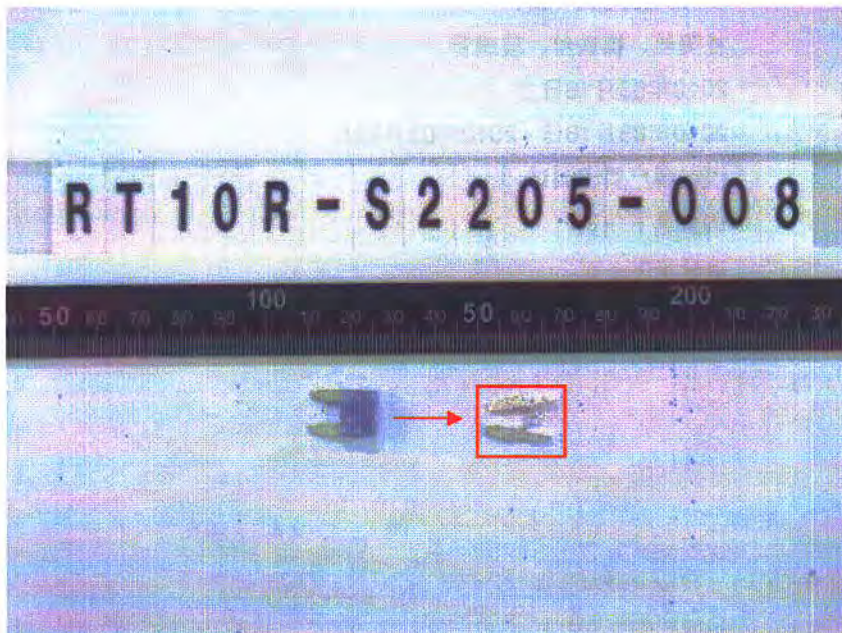
TEST REPORT

Report No. RT10R-S2205-008-E

Sample ID No. : RT10R-S2205-008

Sample Description : Zinc Strip

* View of sample as received;-



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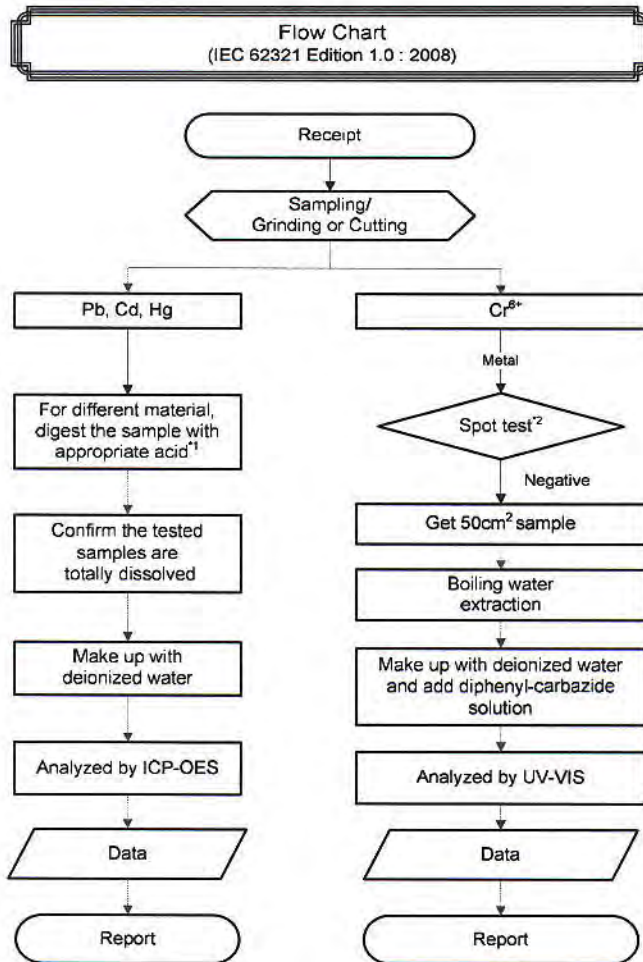
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TEST REPORT

Report No. RT10R-S2205-008-E

Sample ID No. : RT10R-S2205-008

Sample Description : Zinc Strip



Remarks :

*1 : List of appropriate acid :

Material	Acid added for digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

*2 : If the result of spot test is positive, Chromium (VI) would be determined as detected. No further analysis is required.

***** End of Report *****

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TEST REPORT

Applicant : LITTLEFUSE TRIAD.INC
Address : Rm 202, Korea Trade Tower 159-1, Samsung-dong, Kangnam-gu,
Seoul, 135-729 Korea

Page: 1 of 4

Report No. RT10R-S2205-007-E

Date: May 26, 2010

Sample Description : The following submitted sample(s) said to be:-

Name/Type of Product : Colorant-Blue
Sample ID No. : RT10R-S2205-007
Item No. : 057879
Manufacturer/Vender : LITTLEFUSE TRIAD.INC

Sample received : May 24, 2010
Testing Date : May 24, 2010 ~ May 26, 2010
Testing Laboratory : Intertek Testing Center
Testing Environment : Temperature : (24 ± 2) °C, Humidity : (60 ± 5) % R.H.

Test Type : RoHS wet chemical analysis
Test Method(s) : Please see the following page(s).
Test Result(s) : Please see the following page(s).

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Approved by,



Jade Jang / Lab. Technical Manager

Authorized by,



Bo Park / Lab. General Manager

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Intertek Testing Services Korea Ltd.

TEST REPORT

Report No. RT10R-S2205-007-E

Page: 2 of 4
Date: May 26, 2010

Sample ID No. : RT10R-S2205-007

Sample Description : Colorant-Blue

Test Item	Unit	Test Method	MDL	Result
Cadmium (Cd)	mg/kg	With reference to IEC 62321 Edition 1.0 : 2008, by acid digestion and determined by ICP-OES	0.5	N.D.
Lead (Pb)	mg/kg		5	N.D.
Mercury (Hg)	mg/kg		2	N.D.
Hexavalent Chromium (Cr ⁶⁺) (For non-metal)	mg/kg	With reference to IEC 62321 Edition 1.0 : 2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1	N.D.
Polybrominated Biphenyl (PBBs)				
Monobromobiphenyl	mg/kg	With reference to IEC 62321 Edition 1.0 : 2008, by solvent extraction and determined by GC/MS	5	N.D.
Dibromobiphenyl	mg/kg		5	N.D.
Tribromobiphenyl	mg/kg		5	N.D.
Tetrabromobiphenyl	mg/kg		5	N.D.
Pentabromobiphenyl	mg/kg		5	N.D.
Hexabromobiphenyl	mg/kg		5	N.D.
Heptabromobiphenyl	mg/kg		5	N.D.
Octabromobiphenyl	mg/kg		5	N.D.
Nonabromobiphenyl	mg/kg		5	N.D.
Decabromobiphenyl	mg/kg		5	N.D.
Polybrominated Diphenyl Ether (PBDEs)				
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321 Edition 1.0 : 2008, by solvent extraction and determined by GC/MS	5	N.D.
Dibromodiphenyl ether	mg/kg		5	N.D.
Tribromodiphenyl ether	mg/kg		5	N.D.
Tetrabromodiphenyl ether	mg/kg		5	N.D.
Pentabromodiphenyl ether	mg/kg		5	N.D.
Hexabromodiphenyl ether	mg/kg		5	N.D.
Heptabromodiphenyl ether	mg/kg		5	N.D.
Octabromodiphenyl ether	mg/kg		5	N.D.
Nonabromodiphenyl ether	mg/kg		5	N.D.
Decabromodiphenyl ether	mg/kg		5	N.D.

Tested by : Nikkie Lee, Peter Kim, Ellen Jung, Jessica Kang

Notes : mg/kg = ppm = parts per million
 < = Less than
 N.D. = Not detected (<MDL)
 MDL = Method detection limit

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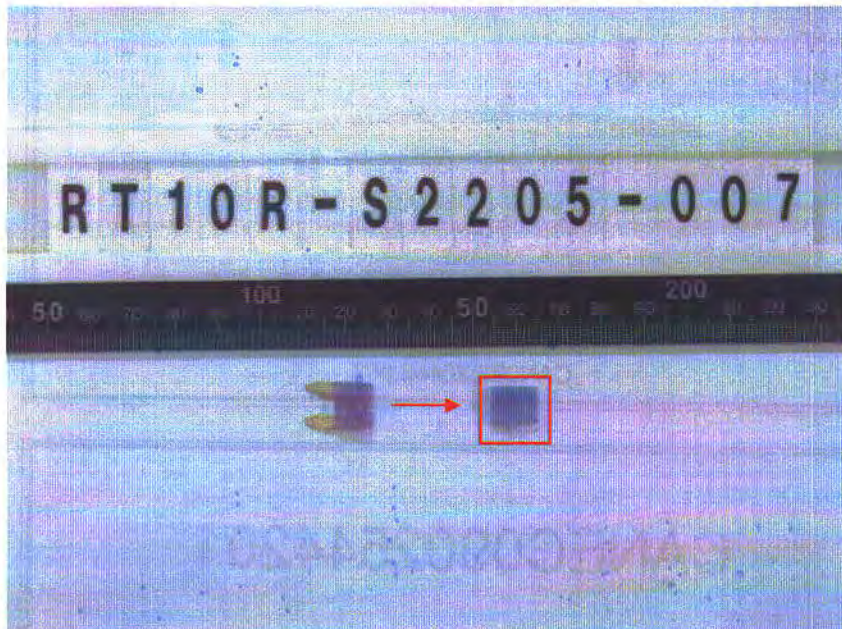
TEST REPORT

Report No. RT10R-S2205-007-E

Sample ID No. : RT10R-S2205-007

Sample Description : Colorant-Blue

* View of sample as received;-



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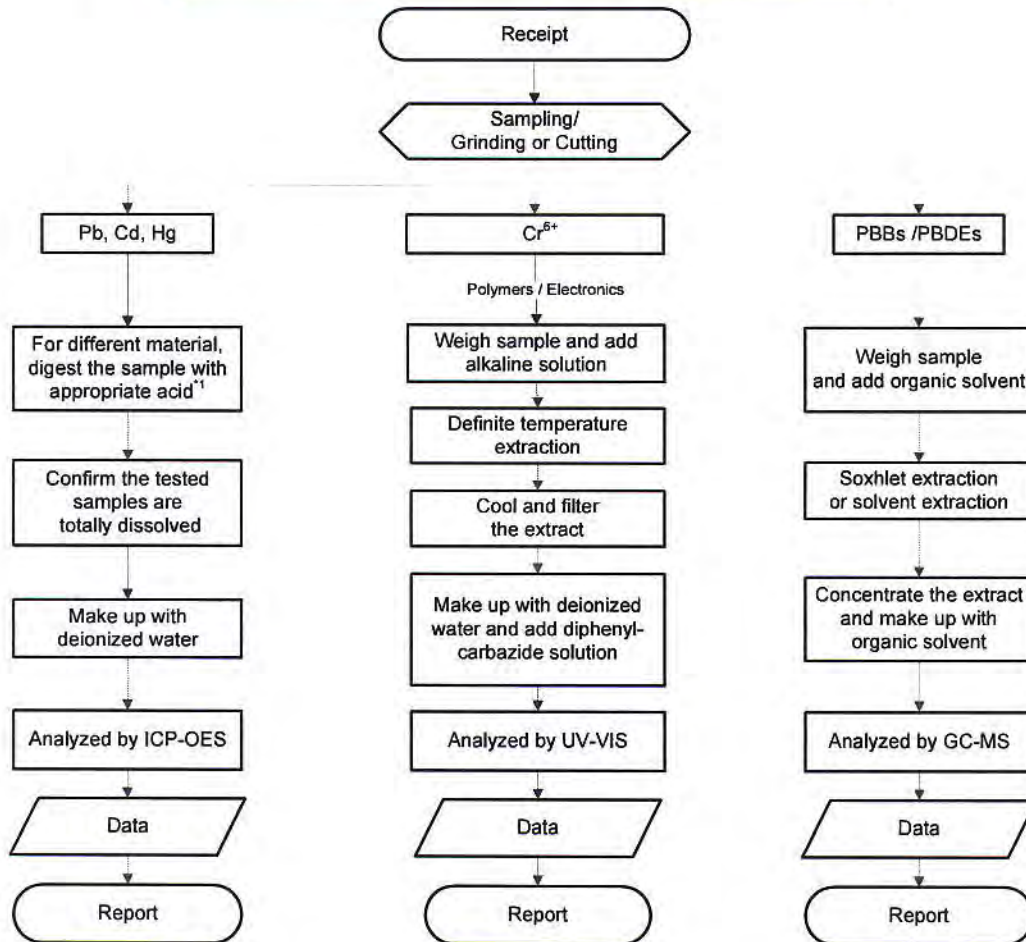
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TEST REPORT

Report No. RT10R-S2205-007-E

Sample ID No. : RT10R-S2205-007
Sample Description : Colorant-Blue

Flow Chart
(IEC 62321 Edition 1.0 : 2008)



Remarks :

*1 : List of appropriate acid :

Material	Acid added for digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

***** End of Report *****

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TEST REPORT

Applicant : LITTLEFUSE TRIAD.INC
Address : Rm 202, Korea Trade Tower 159-1, Samsung-dong, Kangnam-gu,
Seoul, 135-729 Korea

Page: 1 of 4

Report No. RT10R-S2205-004-E

Date: May 26, 2010

Sample Description : The following submitted sample(s) said to be:-

Name/Type of Product : Element
Sample ID No. : RT10R-S2205-004
Item No. : 080625
Manufacturer/Vender : LITTLEFUSE TRIAD.INC

Sample received : May 24, 2010
Testing Date : May 24, 2010 ~ May 26, 2010
Testing Laboratory : Intertek Testing Center
Testing Environment : Temperature : (24 ± 2) °C, Humidity : (60 ± 5) % R.H.

Test Type : RoHS wet chemical analysis
Test Method(s) : Please see the following page(s).
Test Result(s) : Please see the following page(s).

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Approved by,



Jade Jang / Lab. Technical Manager

Authorized by,



Bo Park / Lab. General Manager

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TEST REPORT

Report No. RT10R-S2205-004-E

Page: 2 of 4

Date: May 26, 2010

Sample ID No. : RT10R-S2205-004

Sample Description : Element

Test Item	Unit	Test Method	MDL	Result
Cadmium (Cd)	mg/kg	With reference to IEC 62321 Edition 1.0 : 2008, by acid digestion and determined by ICP-OES	0.5	N.D.
Lead (Pb)	mg/kg		5	N.D.
Mercury (Hg)	mg/kg		2	N.D.
Hexavalent Chromium (Cr ⁶⁺) (For metal)	-	With reference to IEC 62321 Edition 1.0 : 2008, by Spot test	(Threshold of 1 mg/kg)	Negative
Hexavalent Chromium (Cr ⁶⁺) (For metal)	-	With reference to IEC 62321 Edition 1.0 : 2008, by boiling water extraction and determined by UV-VIS Spectrophotometer	(Threshold of 0.02 mg/kg with 50 cm ²)	Negative

Tested by : Nikkie Lee, Peter Kim

Notes : mg/kg = ppm = parts per million

mg/kg with 50 cm² = milligram per kilogram with 50 square centimeter

<= Less than

N.D. = Not detected (<MDL)

MDL = Method detection limit

Positive = A positive test result indicated the presence of Cr(VI) at the time of testing, equal to or greater than threshold of 1 mg/kg for spot test procedures or 0.02 mg/kg for boiling water extraction procedures with a sample surface area of 50 cm² used. However, it shall not be interpreted as the Cr(VI) concentration in the coating layer of the sample and should not be used as a method detection limit for this qualitative test.

Negative = A negative test result indicates above positive observation was not found at the time of testing. When the spot test showed a negative result, the boiling water extraction procedure shall be used to verify the result.

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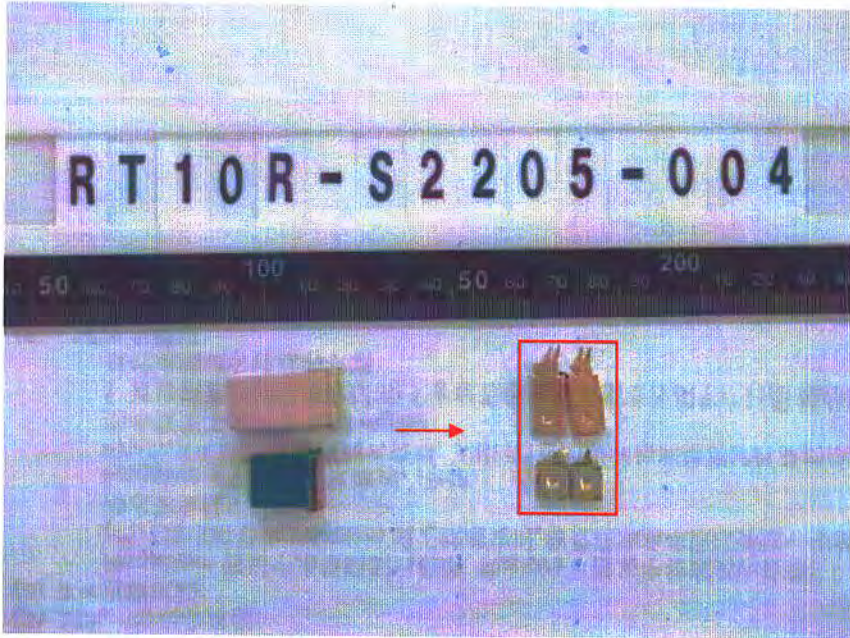
TEST REPORT

Report No. RT10R-S2205-004-E

Page: 3 of 4
Date: May 26, 2010

Sample ID No. : RT10R-S2205-004
Sample Description : Element

* View of sample as received;-



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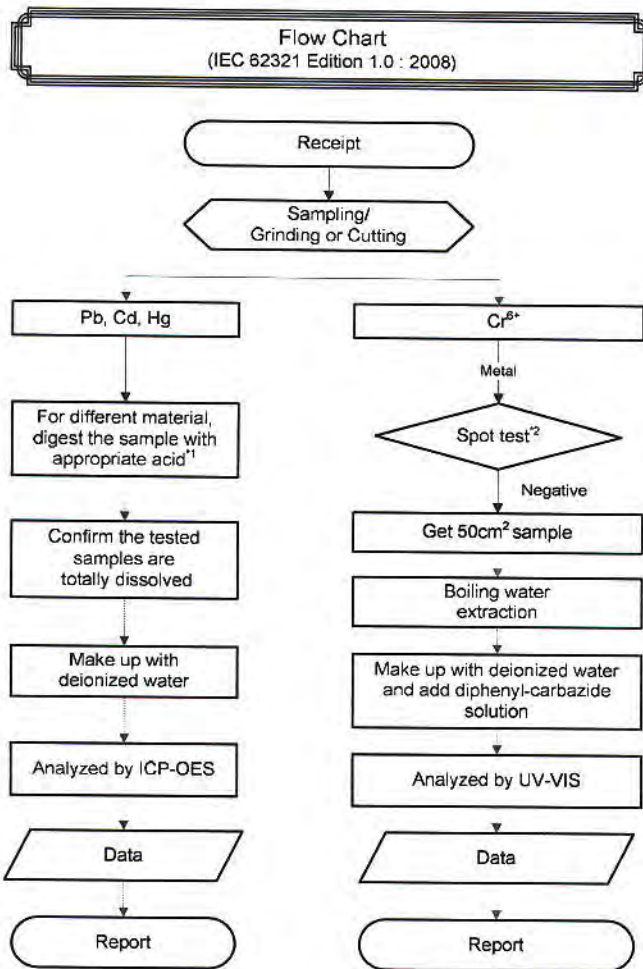
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TEST REPORT

Report No. RT10R-S2205-004-E

Sample ID No. : RT10R-S2205-004
Sample Description : Element



Remarks :

*1 : List of appropriate acid :

Material	Acid added for digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

*2 : If the result of spot test is positive, Chromium (VI) would be determined as detected.
No further analysis is required.

***** End of Report *****

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