

Test Report

No. 4755003-01

Date: 16/JAN/2019

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Jauch Quartz GmbH
 Mr. Stefan Durczok
 In der Lache 24
 78056 Villingen-Schwenningen
 GERMANY



The following samples were submitted and identified by/on behalf of the client as

SGS Job file : 4755003
 Order date : 15/NOV/2018
 Order number : -
 Sampling : by Client or by a third party acting at the Client's direction
 condition of the samples : appropriate for testing
 Sample receiving Date : 19/NOV/2018
 Testing period : 19/NOV/2018 – 16/JAN/2019
 Analytical scope : According to client's requirements

| Sample No | Sample designation | Sample material |
|-----------|--------------------|----------------------|
| 181153677 | JT53L | electronic component |

Test requested : In accordance with the RoHS Directive 2011/65/EU and subsequent amendments

Test Method(s) (1) Determination of Cadmium by ICP-OES, acc. IEC 62321-5:2013
 (2) Determination of Lead by ICP-OES, acc. IEC 62321-5:2013
 (3) Determination of Mercury by CV-AAS, acc. IEC 62321-4:2013
 (4) Determination of Chromium by ICP-OES, acc. IEC 62321-5:2013
 (5) Determination of Chromium (VI) acc. IEC 62321:
 A) (metal samples) Determination after extraction with hot water and derivatisation with 1,5-diphenyl-carbazide based on IEC 62321-7-1:2015 (metal samples), ion chromatography
 B) (non-metallic samples) Determination after alkaline extraction and derivatisation with 1,5-diphenyl-carbazide based on IEC 62321, Ed1, 2008, C5 (polymer and electronic samples), ion chromatography
Remark: Due to its highly reactive nature the concentration of CrVI in a corrosion-protection changes drastically with time and storage conditions. The results obtained by IEC 62321-7-1:2015 can therefore only give an indication of the presence/absence of Cr(VI) within the limitations of the method at the time of testing.
 (6) Determination of PBB/PBDE by GC/MS, acc. IEC 62321-6:2015
Remark: Please note that acc. to IEC the testing of metals for PBB/PBDE is gratuitous

Test Result(s) : Please refer to next page(s)

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Conclusion : Based on the performed tests on submitted sample(s), the test results of Lead, Mercury, Cadmium, hexavalent Chromium **comply** with the limits as set by RoHS Directive 2011/65/EU, Annex 2 and subsequent amendments

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Test results by chemical method (Unit: mg/kg)

| Sample No. | | 181153677 | | |
|-------------------------------|-------------------|-----------|-----|--|
| Test Item(s): | Method (refer to) | | RL | RoHS Limit |
| Cadmium(Cd) | (1) | n.d. | 1 | 100 |
| Lead (Pb) | (2) | n.d. | 10 | 1000 |
| Mercury (Hg) | (3) | n.d. | 0,5 | 1000 |
| Chromium, hexavalent (Cr(VI)) | (5 B) | n.d. | 1 | 1000 |
| Sum of PBDEs | (6) | - | - | 1000 (Sum of polybrominated diphenyl ether) |
| Monobromodiphenyl ether | | n.a. | 50 | |
| Dibromodiphenyl ether | | n.a. | 50 | |
| Tribromodiphenyl ether | | n.a. | 50 | |
| Tetrabromodiphenyl ether | | n.a. | 50 | |
| Pentabromodiphenyl ether | | n.a. | 50 | |
| Hexabromodiphenyl ether | | n.a. | 50 | |
| Heptabromodiphenyl ether | | n.a. | 50 | |
| Octabromodiphenyl ether | | n.a. | 50 | |
| Nonabromodiphenyl ether | | n.a. | 50 | |
| Decabromodiphenyl ether | | n.a. | 50 | |
| Sum of PBBs | | - | - | |
| Monobromobiphenyl | | n.a. | 50 | |
| Dibromobiphenyl | | n.a. | 50 | |
| Tribromobiphenyl | | n.a. | 50 | |
| Tetrabromobiphenyl | | n.a. | 50 | |
| Hexabromobiphenyl | | n.a. | 50 | |
| Pentabromobiphenyl | | n.a. | 50 | |
| Heptabromobiphenyl | | n.a. | 50 | |
| Octabromobiphenyl | | n.a. | 50 | |
| Nonabromobiphenyl | | n.a. | 50 | |
| Decabromobiphenyl | | n.a. | 50 | |

Note : mg/kg = ppm

n.d.= not Detected

RL = Report Limit

n.a.= not analyzed

**= elevated reporting limit due to matrix interferences

Test Report

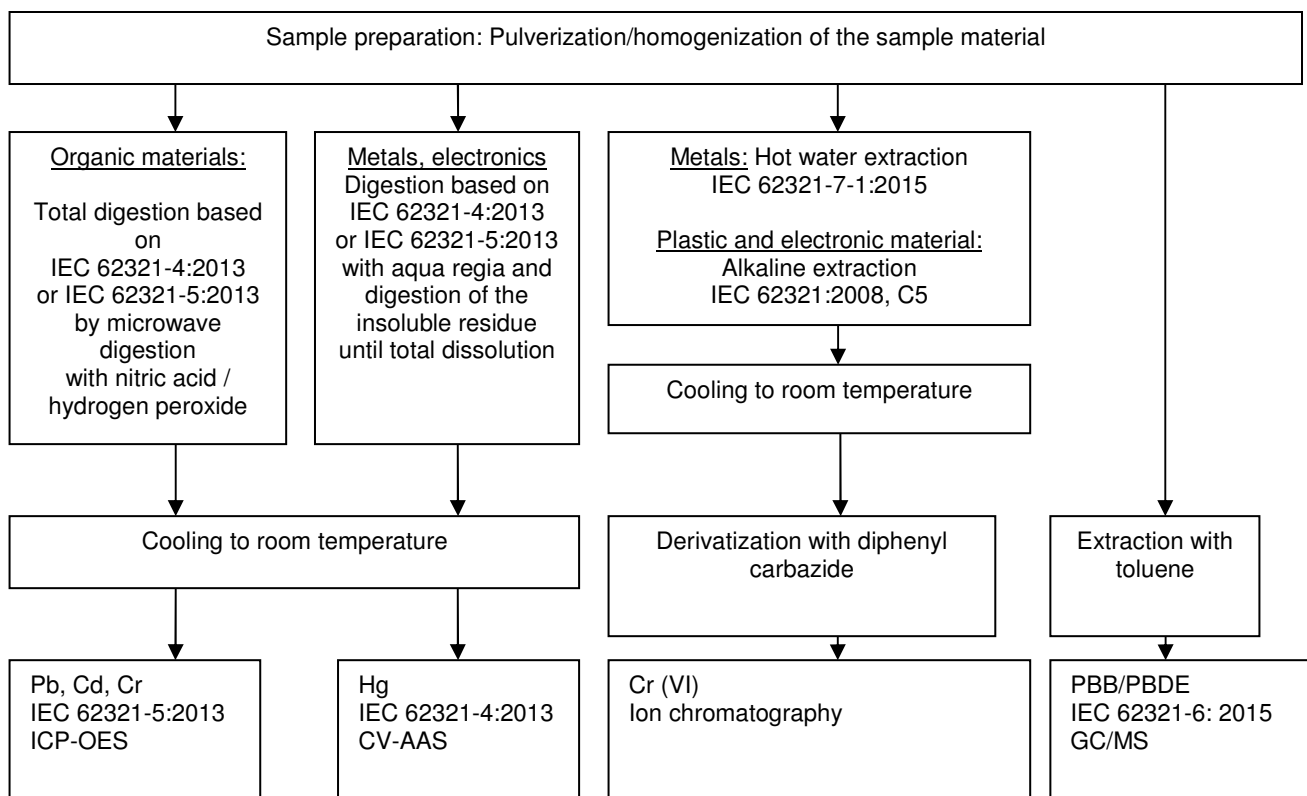
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Flow Chart for the working flow of the performed analysis



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Sample Photo(s)



End of test report

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