



Test Report

Report No : TUV(I)/NL-667/25-26/NL-1025000396

Date : 23 Oct 2025

ULR : TC1382225000005204F

Name and address of customer : **MADAN ELECTRO**
G-60, SECTOR-63, Gautam Buddha Nagar,
Noida
Pin Code: 201301

Reg No. : NL-667/25-26

CA No. : NL-1025000396

Name of the sample : **HDPE**

Batch No. : -

Discipline : Chemical

Product Category : Polymer

Date of sample receipt : 15 Oct 2025

Date(s) of analysis : 15 Oct 2025 - 18 Oct 2025

Sample drawn by : Customer

Objectives of Examination : As per RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Requirement : RoHS 10E

Results Summary [Please refer to the following pages for the complete analysis results and details observations]

Based on the performed tests on submitted sample(s), the results of Cadmium, Lead, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) **Comply** with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU



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| Sample No. | Material Description | Remarks |
|------------|----------------------|---------|
| 1 | HDPE | - |

| Sr. No. | Name of Test | Unit | Result | LOQ | Limits as per (EU) 2015/863 |
|---------|-------------------------------------|--------------|-----------|----------|-----------------------------|
| 1 | Cadmium (Cd) | mg/kg | ND | 10 | 100 |
| 2 | Lead (Pb) | mg/kg | ND | 50 | 1000 |
| 3 | Mercury (Hg) | mg/kg | ND | 25 | 1000 |
| 4 | Hexavalent Chromium (CrVI) | mg/kg | ND | 25 | 1000 |
| 5 | Sum of PBBs | mg/kg | ND | - | 1000 |
| 5.1 | Monobromobiphenyl | mg/kg | ND | 50 | - |
| 5.2 | Dibromobiphenyl | mg/kg | ND | 50 | - |
| 5.3 | Tribromobiphenyl | mg/kg | ND | 50 | - |
| 5.4 | Tetrabromobiphenyl | mg/kg | ND | 50 | - |
| 5.5 | Hexabromobiphenyl | mg/kg | ND | 50 | - |
| 5.6 | Pentabromobiphenyl | mg/kg | ND | 50 | - |
| 5.7 | Heptabromobiphenyl | mg/kg | ND | 50 | - |
| 5.8 | Octabromobiphenyl | mg/kg | ND | 50 | - |
| 5.9 | Nonabromobiphenyl | mg/kg | ND | 50 | - |
| 5.10 | Decabromobiphenyl | mg/kg | ND | 50 | - |
| 6 | Sum of PBDEs | mg/kg | ND | - | 1000 |
| 6.1 | Monobromodiphenyl ether | mg/kg | ND | 50 | - |
| 6.2 | Dibromodiphenyl ether | mg/kg | ND | 50 | - |
| 6.3 | Tribromodiphenyl ether | mg/kg | ND | 50 | - |
| 6.4 | Tetrabromodiphenyl ether | mg/kg | ND | 50 | - |
| 6.5 | Pentabromodiphenyl ether | mg/kg | ND | 50 | - |
| 6.6 | Hexabromodiphenyl ether | mg/kg | ND | 50 | - |
| 6.7 | Heptabromodiphenyl ether | mg/kg | ND | 50 | - |
| 6.8 | Octabromodiphenyl ether | mg/kg | ND | 50 | - |
| 6.9 | Nonabromodiphenyl ether | mg/kg | ND | 50 | - |
| 6.10 | Decabromodiphenyl ether | mg/kg | ND | 50 | - |
| | Phthalates | | | | |
| 7 | Dibutyl phthalate (DBP) | mg/kg | ND | 50 | 1000 |
| 8 | Butyl benzyl phthalate (BBP) | mg/kg | ND | 50 | 1000 |
| 9 | Bis (2-ethylhexyl) phthalate (DEHP) | mg/kg | ND | 50 | 1000 |
| 10 | Diisobutyl Phthalates (DIBP) | mg/kg | ND | 50 | 1000 |

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Remarks:

1. 1mg/kg=0.0001%
2. LOQ = Limit of Quantification
3. ND = Not Detected, (Considered as <LOQ)
4. - = not regulated

Test Method:

1. IEC 62321-5:2013, Cadmium by AAS.
2. IEC 62321-5:2013, Lead by AAS.
3. IEC 62321-4:2017, Mercury by AAS.
4. IEC 62321-7-2:2017, Hexavalent Chromium by Colorimetric Method using UV-Vis Spectrophotometer and/or with reference to IEC 62321-5:2013, Total Chromium by AAS.
5. IEC 62321-12:2023, PBBs and PBDEs by GC-MS
6. IEC 62321-12:2023, phthalates by GC-MS.

Notes:

1. The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
2. http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25
3. Test has been performed as per client's request.
4. The result of Hexavalent Chromium (Cr(VI)) is "ND" as the result of Chromium (Cr) is "ND", and confirmation test of Hexavalent Chromium (Cr(VI)) is not required.
5. If the Chromium (Cr) content is greater than the MDL of Hexavalent Chromium (Cr(VI)), confirmation test of Hexavalent Chromium (Cr(VI)) is required.
6. On 13 Mar 2015, Commission Directive (EU) 2015/863 was published in the Official Journal of the European Union (OJEU) to include the phthalates BBP, DBP, DEHP and DIBP into ANNEX II of the RoHS Recast Directive. The new law restricts each phthalate to no more than 0.1% in each homogeneous material of an electrical product.
7. The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.
8. The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021.
9. The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.
10. The Process flow for analysis mentioned as under are carried out & verified by authorized personnel.



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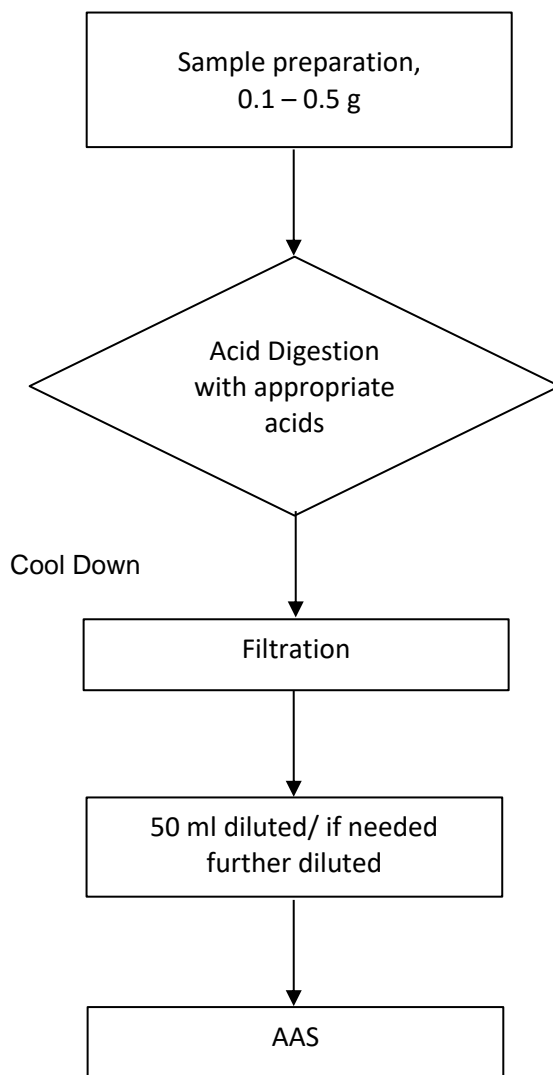
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Process Flow for analysis of metal contents in plastics, metals and electronic components sample

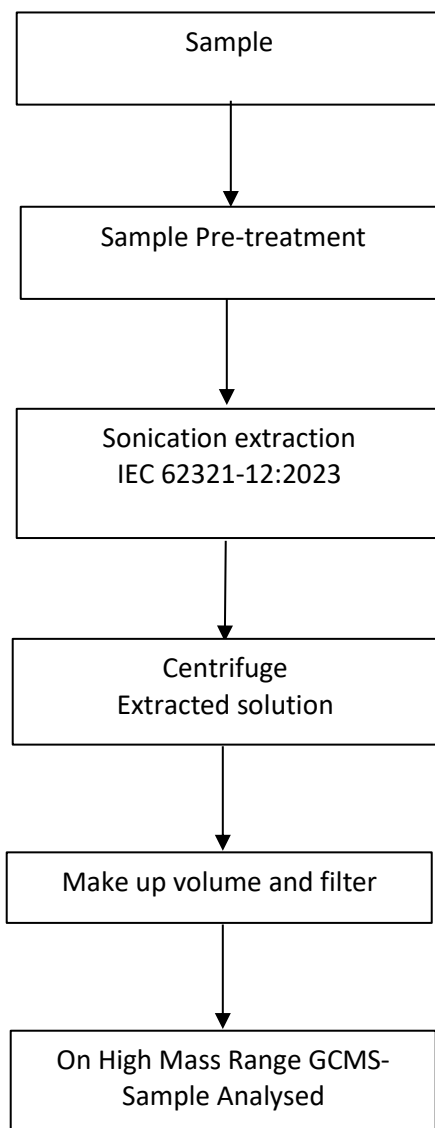



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Process Flow for analysis of Flame Retardants in plastics, metals and electronic components sample

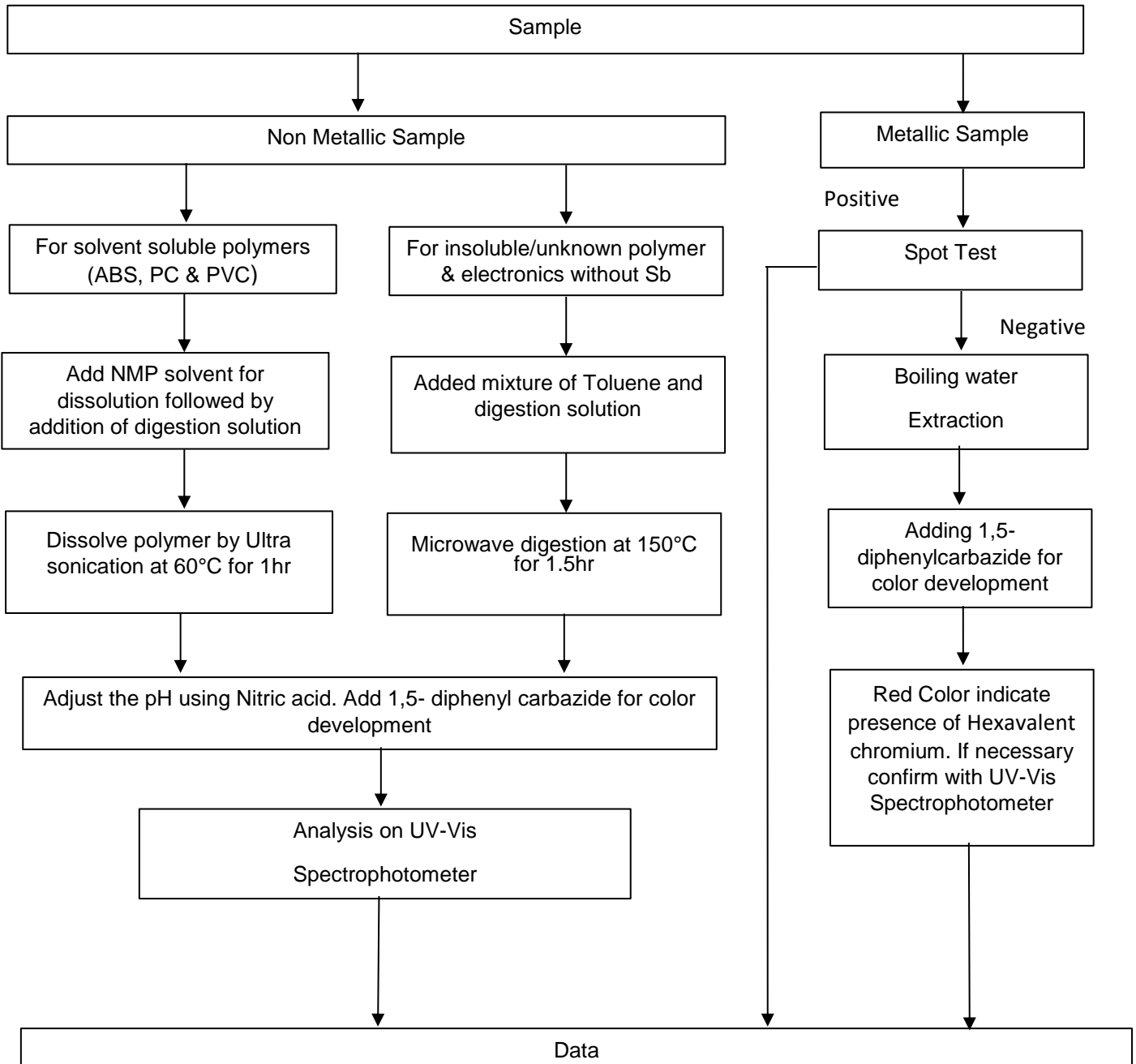



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Process Flow for analysis of Hexavalent chromium contents in plastics, metals and electronic components sample

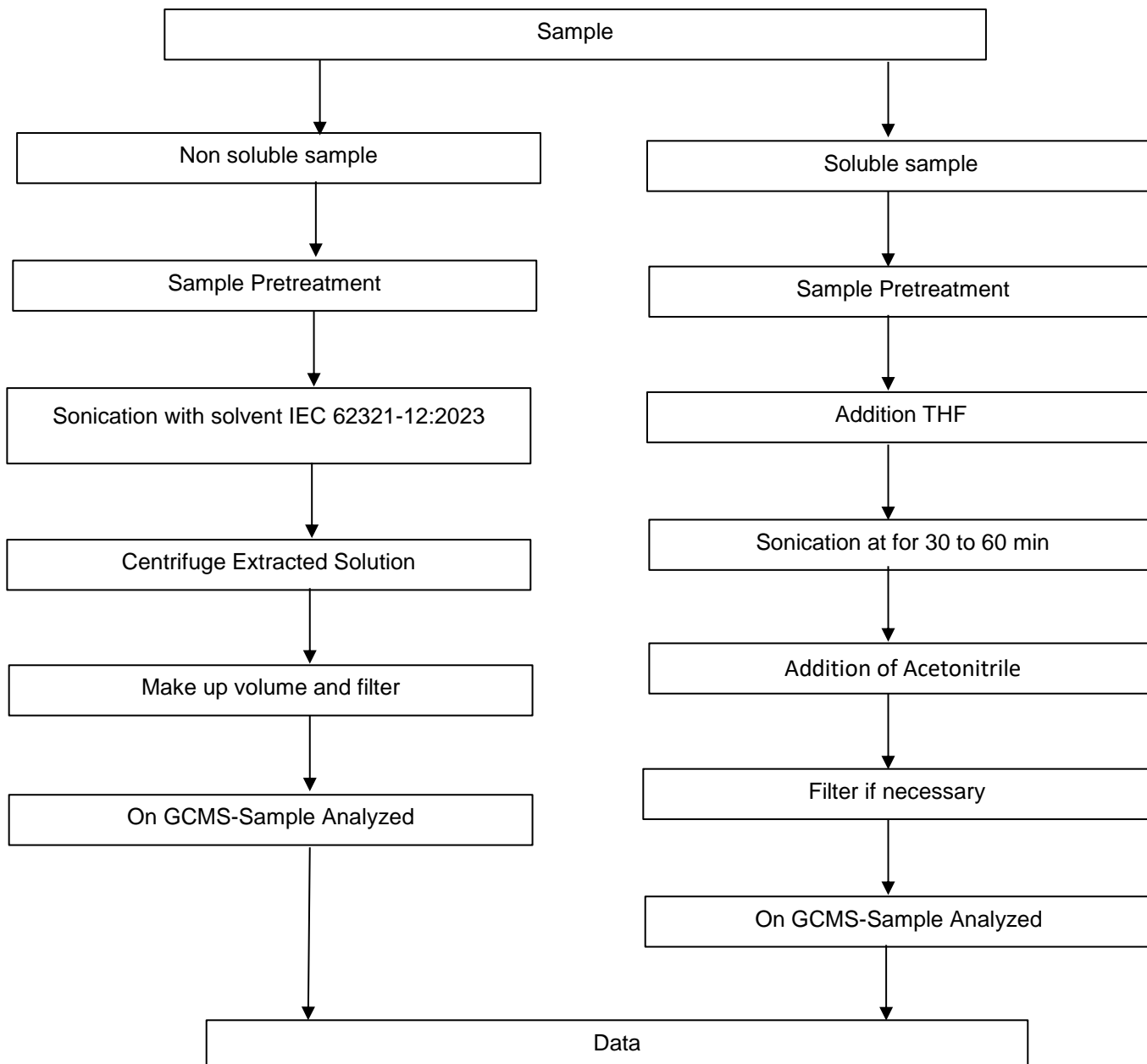



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Process Flow for analysis of Phthalates using soxhlet Extraction or THF Extraction:




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