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Test Report

No.: ETR23C02359M09

Date: 19-Dec-2023

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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

The following sample(s) was/were submitted and identified by the applicant as:


Sample Submitted By : RESONAC CORPORATION
Sample Name : DIE ATTACH FILM
Style/Item No. : HR-5104 SERIES

Sample Receiving Date : 13-Dec-2023
Testing Period : 13-Dec-2023 to 19-Dec-2023

Test Requested : (1) As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).
(2) Please refer to next pages for the other item(s).

Test Results : Please refer to following pages.

Conclusion : (1) Based on the performed tests on selected part of submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.


Troy Chang / Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei



PIN CODE: 742058DB

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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

Test Part Description

No.1 : WHITE FILM (EXCLUDING THE DOUBLE RELEASE FILM)

Test Result(s)

| Test Item(s) | Method | Unit | MDL | Result | Limit |
|----------------------------|--|-------|-----|--------|-------|
| | | | | No.1 | |
| Cadmium (Cd) | With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. | 100 |
| Lead (Pb) | | mg/kg | 2 | n.d. | 1000 |
| Mercury (Hg) | With reference to IEC 62321-4: 2013+AMD1: 2017, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. | 1000 |
| Hexavalent Chromium Cr(VI) | | mg/kg | 8 | n.d. | 1000 |
| Monobromobiphenyl | With reference to IEC 62321-6: 2015, analysis was performed by GC/MS. | mg/kg | 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. | - |
| Sum of PBBs | | mg/kg | - | n.d. | 1000 |
| Monobromodiphenyl ether | | mg/kg | 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. | - |
| Sum of PBDEs | | mg/kg | - | n.d. | 1000 |



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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

| Test Item(s) | Method | Unit | MDL | Result | Limit |
|--|---|-------|-----|--------|-------|
| | | | | No.1 | |
| Butyl benzyl phthalate (BBP) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | 1000 |
| Dibutyl phthalate (DBP) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | 1000 |
| Di-(2-ethylhexyl) phthalate (DEHP) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | 1000 |
| Diisobutyl phthalate (DIBP) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | 1000 |
| Fluorine (F) (CAS No.: 14762-94-8) | With reference to BS EN 14582: 2016, analysis was performed by IC. | mg/kg | 50 | n.d. | - |
| Chlorine (Cl) (CAS No.: 22537-15-1) | With reference to BS EN 14582: 2016, analysis was performed by IC. | mg/kg | 50 | 146 | - |
| Bromine (Br) (CAS No.: 10097-32-2) | With reference to BS EN 14582: 2016, analysis was performed by IC. | mg/kg | 50 | n.d. | - |
| Iodine (I) (CAS No.: 14362-44-8) | With reference to BS EN 14582: 2016, analysis was performed by IC. | mg/kg | 50 | n.d. | - |
| Antimony (Sb) (CAS No.: 7440-36-0) | With reference to US EPA 3052: 1996, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. | - |
| Antimony trioxide (Sb ₂ O ₃) (CAS No.: 1309-64-4) | Calculated from the result of Antimony. | mg/kg | 2▲ | n.d. | - |

Note :

1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. "-" = Not Regulated
5. ▲ : The MDL was evaluated for element / tested substance.

Conversion Formula : $AX = A \times F$

| AX | A | F |
|---|----------|--------|
| Antimony trioxide (Sb ₂ O ₃) | Antimony | 1.1971 |

Parameter Conversion Table : https://eecloud.sgs.com/Region_TW/DocDownload.aspx?name=Others

6. Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.
7. This is the additional test report of ETR23C02359.

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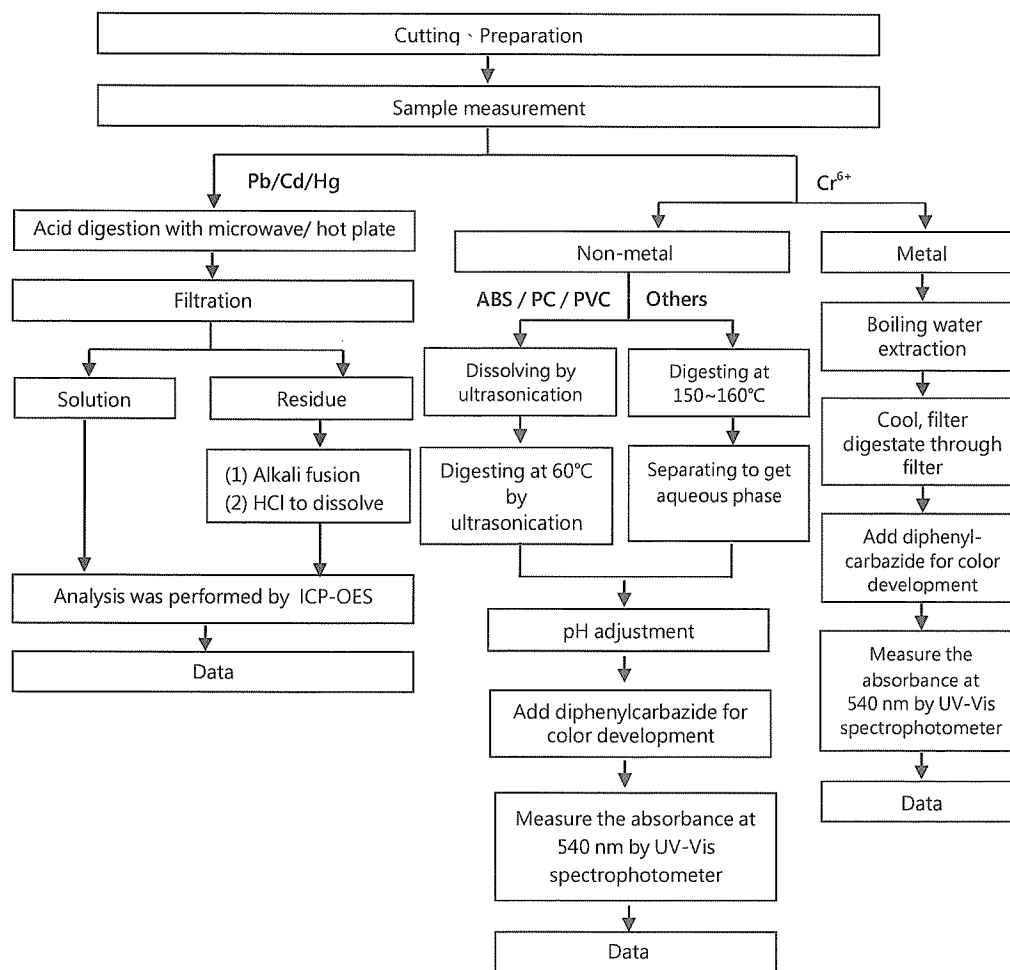
RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

Analytical flow chart of heavy metal

These samples were dissolved totally by pre-conditioning method according to below flow chart.

(Cr⁶⁺ test method excluded)





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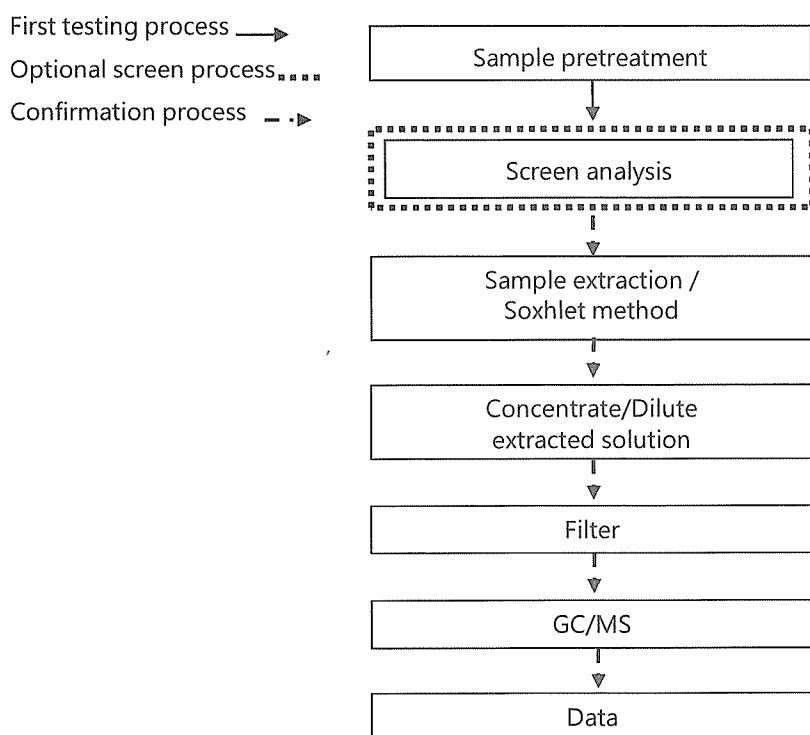
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14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

Analytical flow chart – PBBs / PBDEs





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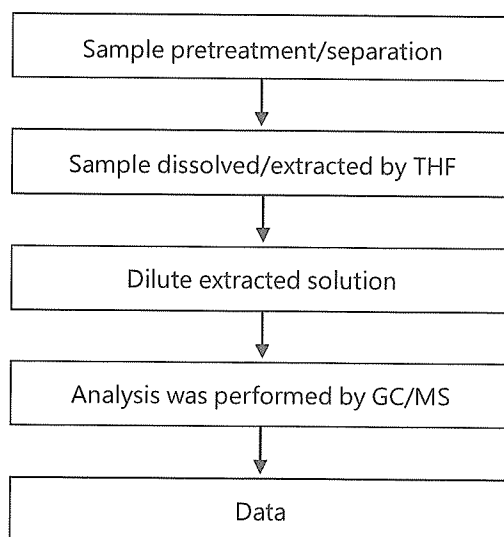
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14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

Analytical flow chart - Phthalate

【 Test method: IEC 62321-8 】





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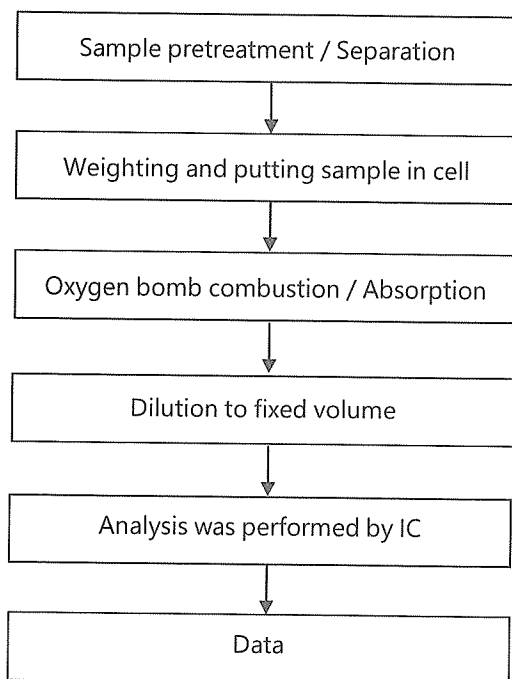
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14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

Analytical flow chart - Halogen





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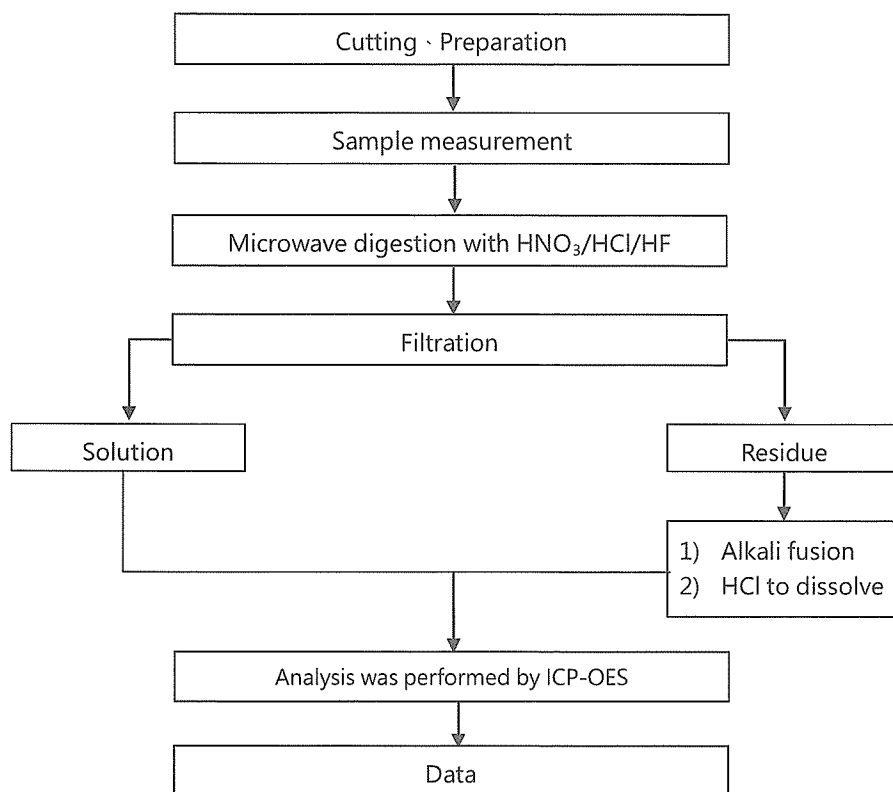
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14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

Analytical flow chart of elements (Heavy metal included)

These samples were dissolved totally by pre-conditioning method according to below flow chart.

【Reference method : US EPA 3051A 、 US EPA 3052 】



* US EPA 3051A method does not add HF.



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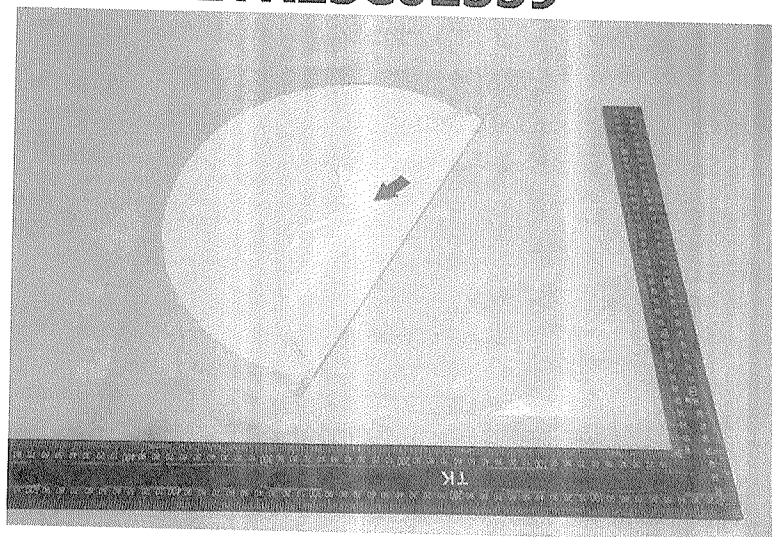
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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

* The tested sample / part is marked by an arrow if it's shown on the photo. *

ETR23C02359



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Test Report

No.: ETR23C02359M18

Date: 19-Dec-2023

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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

The following sample(s) was/were submitted and identified by the applicant as:

Sample Submitted By : RESONAC CORPORATION

Sample Name : DIE ATTACH FILM

Style/Item No. : HR-5104 SERIES

Sample Receiving Date : 13-Dec-2023

Testing Period : 13-Dec-2023 to 19-Dec-2023

Test Requested : Testing item(s) is/are specified by client. Please refer to result table for testing item(s).

Test Results : Please refer to following pages.

Troy Chang

Troy Chang / Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.

Chemical Laboratory - Taipei



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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

Test Part Description

No.1 : WHITE FILM (EXCLUDING THE DOUBLE RELEASE FILM)

Test Result(s)

| Test Item(s) | Method | Unit | MDL | Result |
|---|---|-------|------|--------|
| | | | | No.1 |
| PFOS and its salts (CAS No.: 1763-23-1 and its salts) | With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS. | mg/kg | 0.01 | n.d. |
| PFOA and its salts (CAS No.: 335-67-1 and its salts) | With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS. | mg/kg | 0.01 | n.d. |

Note :

1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. This is the additional test report of ETR23C02359.



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RESONAC CORPORATION

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PFAS Remark :

The quantitative technology of PFAS is to analyze the specific structure of PFAS substances. However, PFAS acid and its salts with the same carbon number group have the same specific structure that can be identified. The tested results of the analyzed specific structure cannot be distinguished to identify the contribution from PFAS acid or its salts. Therefore, the tested results display the sum of concentrations of PFAS acids and its salts with the same carbon number group. The concentration of PFAS substances in the below table have been included in the tested results, please refer to the table for relevant information: (The listed PFAS substances are examples only, it do not include all PFAS salts with the same carbon number group.)

| Classification of Substance Concentration | Substance Name | CAS No. |
|--|--|-------------|
| PFOS, its salts & derivatives | PFOS | 1763-23-1 |
| | Potassium perfluorooctanesulfonate (PFOS-K) | 2795-39-3 |
| | Perfluorooctanesulfonic acid, lithium salt (PFOS-Li) | 29457-72-5 |
| | Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH ₄) | 29081-56-9 |
| | Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(OH) ₂) | 70225-14-8 |
| | Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C ₂ H ₅) ₄) | 56773-42-3 |
| | N-decyl-N,N-dimethyldecyl-1-aminium 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluorooctane-1-sulfonate (PFOS-DDA) | 251099-16-8 |
| | Perfluorooctane sulfonyl fluoride (POSF) | 307-35-7 |
| | Perfluorooctanesulfonic acid, magnesium salt (PFOS-Mg) | 91036-71-4 |
| | Perfluorooctanesulfonic acid, sodium salt (PFOS-Na) | 4021-47-0 |
| | Piperidine 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluorooctanesulfonate | 71463-74-6 |
| PFOA, its salts & derivatives | PFOA | 335-67-1 |
| | Sodium perfluorooctanoate (PFOA-Na) | 335-95-5 |
| | Potassium perfluorooctanoate (PFOA-K) | 2395-00-8 |
| | Silver perfluorooctanoate (PFOA-Ag) | 335-93-3 |
| | Perfluorooctanoyl fluoride (PFOA-F) | 335-66-0 |
| | Ammonium pentadecafluorooctanoate (APFO) | 3825-26-1 |
| | Lithium perfluorooctanoate (PFOA-Li) | 17125-58-5 |



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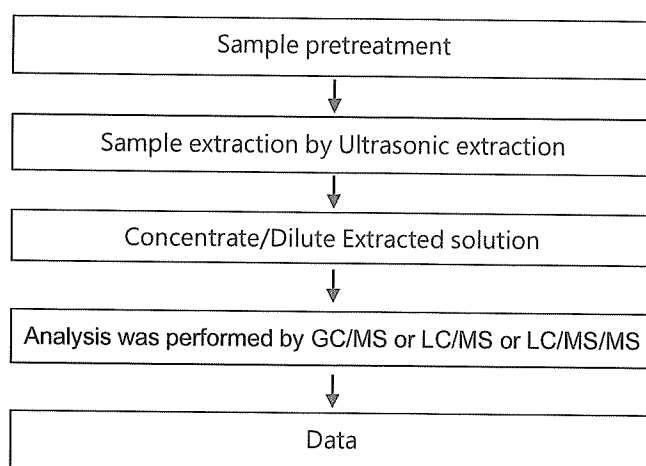
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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)





Test Report

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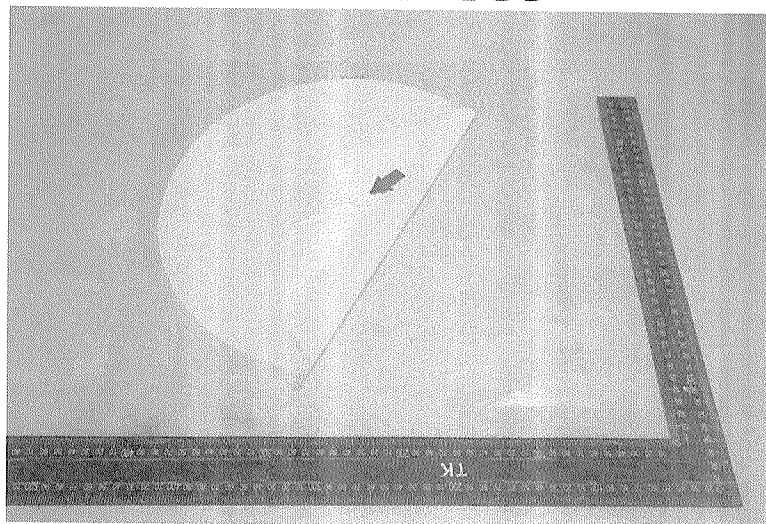
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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

* The tested sample / part is marked by an arrow if it's shown on the photo. *

ETR23C02359



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Test Report

No.: ETR23C02359M45

Date: 19-Dec-2023

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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

The following sample(s) was/were submitted and identified by the applicant as:

Sample Submitted By : RESONAC CORPORATION

Sample Name : DIE ATTACH FILM


Style/Item No. : HR-5104 SERIES

Sample Receiving Date : 13-Dec-2023

Testing Period : 13-Dec-2023 to 19-Dec-2023

Test Requested : Testing item(s) is/are specified by client. Please refer to result table for testing item(s).

Test Results : Please refer to following pages.


Troy Chang / Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei



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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

Test Part Description

No.1 : WHITE FILM (EXCLUDING THE DOUBLE RELEASE FILM)

Test Result(s)

| Test Item(s) | Method | Unit | MDL | Result |
|-------------------------------------|---|-------|-----|--------|
| | | | | No.1 |
| Beryllium (Be) (CAS No.: 7440-41-7) | With reference to US EPA 3052: 1996, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. |

Note :

1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. This is the additional test report of ETR23C02359.



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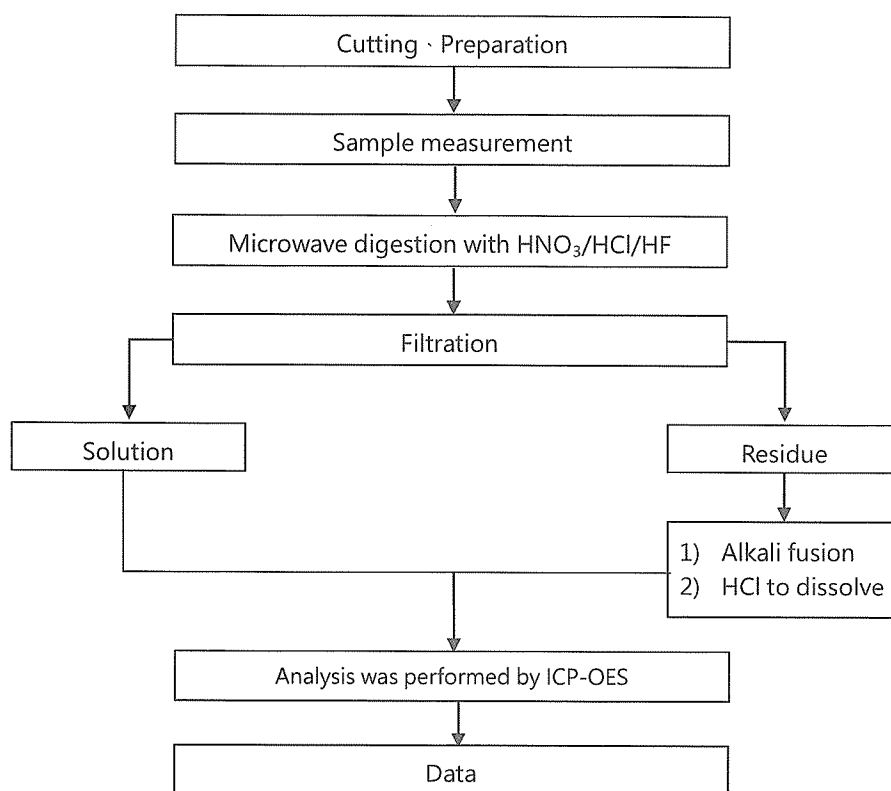
RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

Analytical flow chart of elements (Heavy metal included)

These samples were dissolved totally by pre-conditioning method according to below flow chart.

【Reference method : US EPA 3051A · US EPA 3052】



* US EPA 3051A method does not add HF.



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Date: 19-Dec-2023

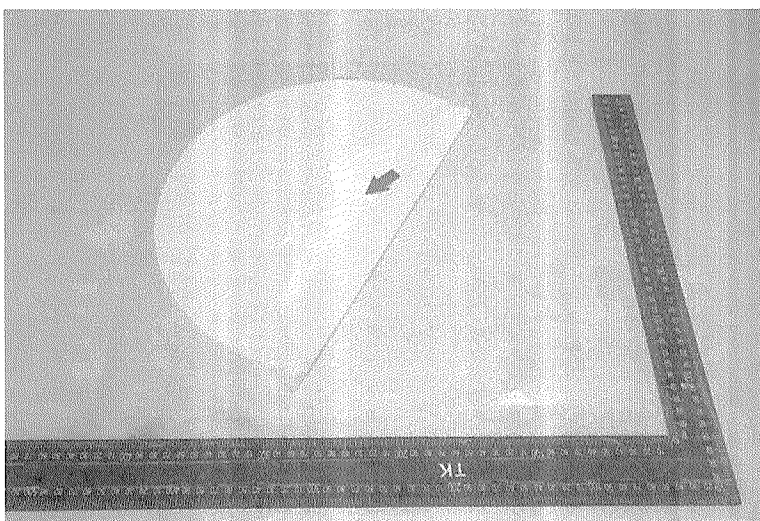
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RESONAC CORPORATION

14 GOIMINAMIKAIGAN ICHIHARA-SHI CHIBA, 290-8567, JAPAN

* The tested sample / part is marked by an arrow if it's shown on the photo. *

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** End of Report **