



Exova Jones Environmental

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Attention : Kevin Smith
Date : 28th November, 2017
Your reference : UPM
Our reference : Test Report 17/5910 Batch 32
Location : W1 - WFD Priority and Haz Substances
Date samples received : 26th October, 2017
Status : Final report
Issue : 1

Eight samples were received for analysis on 26th October, 2017 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied. All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

A handwritten signature in black ink, appearing to read 'S. Gomery'.

Simon Gomery BSc
Project Manager

Client Name: Exova Catalyst - Head Office
Reference: UPM
Location:
Contact: Kevin Smith
JE Job No.: 17/5910

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HN₃

| J E Sample No. | 233-241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | | | | | |
|---------------------------|------------|------------|------------|------------|------------|------------|------------|------------|--|--|---------|-------|------------|
| Sample ID | W1 | E1 (1) | E1 (2) | E1 (3) | E1 (4) | E1 (5) | E1 (6) | E1 (7) | | | | | |
| Depth | | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V G | P | P | P | P | P | P | P | | | | | |
| Sample Date | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | | | | | |
| Batch Number | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | | | | | |
| Date of Receipt | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | | |
| | | | | | | | | | | | LOD/LOR | Units | Method No. |
| Dissolved Arsenic | 6.6 | - | - | - | - | - | - | - | | | <0.9 | ug/l | TM30/PM14 |
| Dissolved Cadmium | <0.03 | - | - | - | - | - | - | - | | | <0.03 | ug/l | TM30/PM14 |
| Dissolved Lead | <0.4 | - | - | - | - | - | - | - | | | <0.4 | ug/l | TM30/PM14 |
| Dissolved Nickel | 2.8 | - | - | - | - | - | - | - | | | <0.2 | ug/l | TM30/PM14 |
| Mercury Dissolved by CVAf | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM61/PM38 |
| PAH MS | | | | | | | | | | | | | |
| Naphthalene | <0.1 | - | - | - | - | - | - | - | | | <0.1 | ug/l | TM4/PM30 |
| Acenaphthylene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Acenaphthene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Fluorene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Phenanthrene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Anthracene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Fluoranthene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Pyrene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Benzo(a)anthracene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Chrysene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Benzo(bk)fluoranthene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Benzo(a)pyrene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Indeno(123cd)pyrene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Dibenzo(ah)anthracene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Benzo(ghi)perylene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| PAH 16 Total | <0.1 | - | - | - | - | - | - | - | | | <0.1 | ug/l | TM4/PM30 |
| Benzo(b)fluoranthene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| Benzo(k)fluoranthene | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM4/PM30 |
| PAH Surrogate % Recovery | 78 | - | - | - | - | - | - | - | | | <0 | % | TM4/PM30 |
| VOC TICs | ND | - | - | - | - | - | - | - | | | | None | TM15/PM10 |
| Low level Benzo(a)pyrene | <0.005 | | | | | | | | | | <0.0002 | ug/l | |
| Low level Fluoranthene | <0.0060 | | | | | | | | | | <0.0060 | ug/l | |

Please see attached notes for all abbreviations and acronyms

Client Name: Exova Catalyst - Head Office
Reference: UPM
Location:
Contact: Kevin Smith
JE Job No.: 17/5910

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

| J E Sample No. | 233-241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | | | | |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|--|---------|-------|-------------|
| Sample ID | W1 | E1 (1) | E1 (2) | E1 (3) | E1 (4) | E1 (5) | E1 (6) | E1 (7) | | | | |
| Depth | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | |
| Containers | V G | P | P | P | P | P | P | P | | | | |
| Sample Date | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | | | | |
| Batch Number | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | | | | |
| Date of Receipt | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | |
| | | | | | | | | | | LOD/LOR | Units | Method No. |
| VOC MS | | | | | | | | | | | | |
| Dichlorodifluoromethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Methyl Tertiary Butyl Ether | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Chloromethane | <0.5 | - | - | - | - | - | - | - | | <0.5 | ug/l | TM128/PM115 |
| Vinyl Chloride | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Bromomethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Chloroethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Trichlorofluoromethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,1-Dichloroethene (1,1 DCE) | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Dichloromethane (DCM) | <2 | - | - | - | - | - | - | - | | <2 | ug/l | TM128/PM115 |
| trans-1-2-Dichloroethene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,1-Dichloroethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| cis-1-2-Dichloroethene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 2,2-Dichloropropane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Bromochloromethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Chloroform | 0.18 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,1,1-Trichloroethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,1-Dichloropropene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Carbon tetrachloride | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,2-Dichloroethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Benzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Trichloroethene (TCE) | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,2-Dichloropropane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Dibromomethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Bromodichloromethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| cis-1-3-Dichloropropene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Toluene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| trans-1-3-Dichloropropene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,1,2-Trichloroethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Tetrachloroethene (PCE) | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,3-Dichloropropane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Dibromochloromethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,2-Dibromoethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Chlorobenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,1,1,2-Tetrachloroethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Ethylbenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| p/m-Xylene | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM128/PM115 |
| o-Xylene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Styrene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Bromoform | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Isopropylbenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,1,2,2-Tetrachloroethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| Bromobenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |
| 1,2,3-Trichloropropane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 |

Please see attached notes for all abbreviations and acronyms

Client Name: Exova Catalyst - Head Office
Reference: UPM
Location:
Contact: Kevin Smith
JE Job No.: 17/5910

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

| J E Sample No. | 233-241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | | | | | |
|---|------------|------------|------------|------------|------------|------------|------------|------------|--|---------|-------|-------------|--|
| Sample ID | W1 | E1 (1) | E1 (2) | E1 (3) | E1 (4) | E1 (5) | E1 (6) | E1 (7) | | | | | |
| Depth | | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V G | P | P | P | P | P | P | P | | | | | |
| Sample Date | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | | | | | |
| Batch Number | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | | | | | |
| Date of Receipt | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | | |
| | | | | | | | | | | LOD/LOR | Units | Method No. | |
| VOC MS Continued | | | | | | | | | | | | | |
| Propylbenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 2-Chlorotoluene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 1,3,5-Trimethylbenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 4-Chlorotoluene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| tert-Butylbenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 1,2,4-Trimethylbenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| sec-Butylbenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 4-Isopropyltoluene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 1,3-Dichlorobenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 1,4-Dichlorobenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| n-Butylbenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 1,2-Dichlorobenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 1,2-Dibromo-3-chloropropane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 1,2,4-Trichlorobenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Hexachlorobutadiene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Naphthalene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 1,2,3-Trichlorobenzene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Diethyl Ether | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Methyl iodide | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 3-Chloropropene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Acrylonitrile | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Hexane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Propionitrile | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Methyl Acrylate | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Methacrylonitrile | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM128/PM115 | |
| Tetrahydrofuran (THF) | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| 1-Chlorobutane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Methyl Methacrylate | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Ethyl Methacrylate | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Trans-1,4-Dichloro-2-butene | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Hexachloroethane | <0.05 | - | - | - | - | - | - | - | | <0.05 | ug/l | TM128/PM115 | |
| Nitrobenzene | <0.5 | - | - | - | - | - | - | - | | <0.5 | ug/l | TM128/PM115 | |
| Surrogate Recovery Toluene D8 | 100 | - | - | - | - | - | - | - | | <0 | % | TM128/PM115 | |
| Surrogate Recovery 4-Bromofluorobenzene | 82 | - | - | - | - | - | - | - | | <0 | % | TM128/PM115 | |
| SVOC TICs | ND | - | - | - | - | - | - | - | | | None | TM16/PM30 | |
| Octyl phenol | <100 | | | | | | | | | <100 | None | TM16/PM30 | |

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Contact: Kevin Smith
JE Job No.: 17/5910

Report : Liquid

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| J E Sample No. | 233-241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | | | | | |
|----------------------------------|---------------------|------------|------------|------------|------------|------------|------------|------------|--|---------|-------|------------|--|
| Sample ID | W1 | E1 (1) | E1 (2) | E1 (3) | E1 (4) | E1 (5) | E1 (6) | E1 (7) | | | | | |
| Depth | | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V G | P | P | P | P | P | P | P | | | | | |
| Sample Date | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | | | | | |
| Batch Number | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | | | | | |
| Date of Receipt | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | | |
| | | | | | | | | | | LOD/LOR | Units | Method No. | |
| Pesticides | | | | | | | | | | | | | |
| Organochlorine Pesticides | | | | | | | | | | | | | |
| Aldrin | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Alpha-HCH (BHC) | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Beta-HCH (BHC) | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Chlorothalonil | <2.50 _{AC} | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| cis-Chlordane | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Delta-HCH (BHC) | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Dieldrin | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Endosulphan I | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Endosulphan II | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Endosulphan sulphate | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Endrin | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Gamma-HCH (BHC) | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Heptachlor | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Heptachlor Epoxide | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Hexachlorobenzene | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Isodrin | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| o,p'-DDE | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| o,p'-DDT | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| o,p'-Methoxychlor | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| o,p'-TDE | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| p,p'-DDE | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| p,p'-DDT | <0.02 _{AA} | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| p,p'-Methoxychlor | <0.02 _{AA} | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| p,p'-TDE | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Pendimethalin | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Permethrin I | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Permethrin II | <0.02 _{AA} | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Quintozene (PCNB) | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Tecnazene | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Telodrin | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| trans-Chlordane | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Triadimefon | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Triallate | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |
| Trifluralin | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 | |

Please see attached notes for all abbreviations and acronyms

Client Name: Exova Catalyst - Head Office
Reference: UPM
Location:
Contact: Kevin Smith
JE Job No.: 17/5910

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

| J E Sample No. | 233-241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | | | | |
|------------------------------------|---------------------|------------|------------|------------|------------|------------|------------|------------|--|---------|-------|------------|
| Sample ID | W1 | E1 (1) | E1 (2) | E1 (3) | E1 (4) | E1 (5) | E1 (6) | E1 (7) | | | | |
| Depth | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | |
| Containers | V G | P | P | P | P | P | P | P | | | | |
| Sample Date | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | | | | |
| Batch Number | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | | | | |
| Date of Receipt | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | |
| | | | | | | | | | | LOD/LOR | Units | Method No. |
| Pesticides | | | | | | | | | | | | |
| Organophosphorus Pesticides | | | | | | | | | | | | |
| Azinphos ethyl | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Azinphos methyl | <0.05 ^{AB} | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Carbophenothion | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Chlorfenvinphos | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Chlorpyrifos | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Chlorpyrifos-methyl | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Diazinon | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Dichlorvos | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Disulfoton | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Dimethoate | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Ethion | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Ethyl Parathion (Parathion) | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Etrimpfos | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Fenitrothion | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Fenthion | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Malathion | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Methyl Parathion | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Mevinphos | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Phosalone | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Pirimiphos Methyl | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Propetamphos | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Triazophos | <0.01 | - | - | - | - | - | - | - | | <0.01 | ug/l | TM149/PM30 |
| Benazolin | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Bentazone | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Bromoxynil | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Clopyralid | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| 4 - CPA | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| 2,4 - D | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| 2,4 - DB | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Dicamba | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Dichloroprop | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Diclofop | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Fenoprop | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Flamprop | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Flamprop – isopropyl | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| loxynil | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| MCPA | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| MCPB | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Mecoprop | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Picloram | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |
| Pentachlorophenol | <0.1 | - | - | - | - | - | - | - | | <0.1 | ug/l | TM42/PM30 |

Please see attached notes for all abbreviations and acronyms

Client Name: Exova Catalyst - Head Office
Reference: UPM
Location:
Contact: Kevin Smith
JE Job No.: 17/5910

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

| J E Sample No. | 233-241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | | | | | |
|-----------------|---------------------|------------|------------|------------|------------|------------|------------|------------|--|--|---------|-------|------------|
| Sample ID | W1 | E1 (1) | E1 (2) | E1 (3) | E1 (4) | E1 (5) | E1 (6) | E1 (7) | | | | | |
| Depth | | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V G | P | P | P | P | P | P | P | | | | | |
| Sample Date | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | | | | | |
| Batch Number | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | | | | | |
| Date of Receipt | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | 26/10/2017 | | | | | |
| | | | | | | | | | | | LOD/LOR | Units | Method No. |
| 2,4,5 - T | <0.1 | - | - | - | - | - | - | - | | | <0.1 | ug/l | TM42/PM30 |
| 2,3,6 - TBA | <0.1 | - | - | - | - | - | - | - | | | <0.1 | ug/l | TM42/PM30 |
| Tricopyr | <0.1 | - | - | - | - | - | - | - | | | <0.1 | ug/l | TM42/PM30 |
| Atrazine | <0.01 | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM149/PM30 |
| Simazine | <0.02 ^{AA} | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM149/PM30 |
| Dibutyltin | <0.1 | - | - | - | - | - | - | - | | | <0.1 | ug/l | TM94/PM48 |
| Tributyltin | <0.1 | - | - | - | - | - | - | - | | | <0.1 | ug/l | TM94/PM48 |
| Triphenyltin | <0.1 | - | - | - | - | - | - | - | | | <0.1 | ug/l | TM94/PM48 |
| Monuron | <0.05 ^{AB} | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM97/PM55 |
| Diuron | 0.07 ^{AB} | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM97/PM55 |
| Linuron | <0.05 ^{AB} | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM97/PM55 |
| Isoproturon | <0.05 ^{AB} | - | - | - | - | - | - | - | | | <0.01 | ug/l | TM97/PM55 |

Please see attached notes for all abbreviations and acronyms

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 17/5910

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

| | |
|---------|--|
| # | ISO17025 (UKAS Ref No. 4225) accredited - UK. |
| SA | ISO17025 (SANAS Ref No.T0729) accredited - South Africa. |
| B | Indicates analyte found in associated method blank. |
| DR | Dilution required. |
| M | MCERTS accredited. |
| NA | Not applicable |
| NAD | No Asbestos Detected. |
| ND | None Detected (usually refers to VOC and/SVOC TICs). |
| NDP | No Determination Possible |
| SS | Calibrated against a single substance |
| SV | Surrogate recovery outside performance criteria. This may be due to a matrix effect. |
| W | Results expressed on as received basis. |
| + | AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page. |
| ++ | Result outside calibration range, results should be considered as indicative only and are not accredited. |
| * | Analysis subcontracted to a Jones Environmental approved laboratory. |
| AD | Samples are dried at 35°C ±5°C |
| CO | Suspected carry over |
| LOD/LOR | Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS |
| ME | Matrix Effect |
| NFD | No Fibres Detected |
| BS | AQC Sample |
| LB | Blank Sample |
| N | Client Sample |
| TB | Trip Blank Sample |
| OC | Outside Calibration Range |
| AA | x2 Dilution |
| AB | x5 Dilution |
| AC | x250 Dilution |

JE Job No: 17/5910

| Test Method No. | Description | Prep Method No. (if appropriate) | Description | ISO 17025 (UKAS/IS ANAS) | MCERTS (UK soils only) | Analysis done on As Received (AR) or Dried (AD) | Reported on dry weight basis |
|-----------------|---|----------------------------------|---|--------------------------|------------------------|---|------------------------------|
| TM4 | Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS. | PM30 | Water samples are extracted with solvent using a magnetic stirrer to create a vortex. | | | | |
| TM15 | Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS. | PM10 | Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis. | | | | |
| TM16 | Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS. | PM30 | Water samples are extracted with solvent using a magnetic stirrer to create a vortex. | | | | |
| TM30 | Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry), Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009 | PM14 | Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required. | | | | |
| TM37 | Modified USEPA 160.2. Gravimetric determination of Total Suspended Solids. Sample is filtered and the resulting residue is dried and weighed. | PM0 | No preparation is required. | | | | |
| TM38 | Soluble Ion analysis using the Thermo Aqualem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1 | PM0 | No preparation is required. | | | | |
| TM38/TM125 | Total Nitrogen/Organic Nitrogen by calculation | PM0 | No preparation is required. | | | | |
| TM42 | Modified US EPA method 8270. Pesticides and herbicides by GC-MS | PM30 | Water samples are extracted with solvent using a magnetic stirrer to create a vortex. | | | | |
| TM61 | Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence. | PM38 | Samples are brominated to reduce all mercury compounds to Mercury (II) which is analysed using method TM061. | | | | |
| TM94 | Derivatisation and extraction of Organotinols. Analysis by GC-MS | PM48 | Samples are pretreated and derivatised. The derivatised organotins are then extracted using hexane. | | | | |

