FORM 3A-OR
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name : Alliance Technical Group, LLC Contract : 68HERH20D0011

Lab Code : Case No. : RFP 905 MA No .: SDG No. :

Analytical Method : VOA Level : LOW

Matrix Soil

EPA Sample No.(Matrix Spike/Matrix Spike Duplicate): P001-CLAY-CF01-01

Instrument ID : MSVOA_Y GC Column RXI-624 ID : 0.25 (mm)

Concentration Units (ug/L,mg/L ug/kg): ug/Kg

| ANALYTE | SPIKE ADDED | SAMPLE CONCENTRATION | MS CONCENTRATION | MS %R # | QC Limits %R |
|---|---|---|---|---|---|
| Dichlorodifluoromethane | 66 | 0 | 68 | 103 | 40 - 150 |
| Chloromethane | 66 | 0 | 68.1 | 103 | 24 - 175 |
| Vinyl chloride | 66 | 0 | 72.9 | 110 | 21 - 175 |
| Bromomethane | 66 | 0 | 72.8 | 110 | 46 - 150 |
| Chloroethane | 66 | 0 | 77.8 | 118 | 30 - 175 |
| Trichlorofluoromethane | 66 | 0 | 71.3 | 108 | 53 - 150 |
| 1,1,2-Trichlorotrifluoroethane | 66 | 0 | 65.9 | 100 | 60 - 135 |
| 1,1-Dichloroethene | 66 | 0 | 68.6 | 104 | 63 - 136 |
| Acetone | 330 | 54.6 | 290 | 71 | 41 - 175 |
| Carbon disulfide | 66 | 0 | 64.5 | 98 | 45 - 126 |
| Methyl tert-butyl Ether | 66 | 0 | 70.1 | 106 | 56 - 175 |
| Methyl Acetate | 66 | 0 | 85.9 | 130 | 32 - 175 |
| Methylene Chloride | 66 | 0 | 76.7 | 116 | 59 - 175 |
| trans-1,2-Dichloroethene | 66 | 0 | 68.3 | 103 | 63 - 137 |
| 1,1-Dichloroethane | 66 | 0 | 70.4 | 107 | 62 - 154 |
| Cyclohexane | 66 | 0 | 55.3 | 84 | 41 - 131 |
| 2-Butanone | 330 | 0 | 290 | 88 | 48 - 174 |
| Carbon Tetrachloride | 66 | 0 | 61.1 | 93 | 48 - 149 |
| cis-1,2-Dichloroethene | 66 | 0 | 69.1 | 105 | 59 - 153 |
| Bromochloromethane | 66 | 0 | 56.9 | 86 | 54 - 172 |
| Chloroform | 66 | 0 | 72.4 | 110 | 60 - 159 |
| 1,1,1-Trichloroethane | 66 | 0 | 68.1 | 103 | 60 - 149 |
| Methylcyclohexane | 66 | 0 | 46.6 | 71 | 19 - 135 |
| Benzene | 66 | 0 | 65.5 | 99 | 59 - 140 |
| 1,2-Dichloroethane | 66 | 0 | 66.6 | 101 | 63 - 153 |
| Trichloroethene | 66 | 0 | 60.4 | 92 | 45 - 154 |
| 1,2-Dichloropropane | 66 | 0 | 65 | 98 | 67 - 141 |
| Bromodichloromethane | 66 | 0 | 65.2 | 99 | 54 - 160 |
| 4-Methyl-2-Pentanone | 330 | 0 | 280 | 85 | 54 - 164 |
| Toluene | 66 | 0 | 59.7 | 90 | 61 - 134 |
| t-1,3-Dichloropropene | 66 | 0 | 58.6 | 89 | 47 - 155 |
| cis-1,3-Dichloropropene | 66 | 0 | 59.8 | 91 | 56 - 141 |
| 1,1,2-Trichloroethane | 66 | 0 | 61.4 | 93 | 69 - 148 |
| 2-Hexanone | 330 | 0 | 270 | 82 | 43 - 164 |
| Dibromochloromethane | 66 | 0 | 60.2 | 91 | 65 - 143 |
| 1,2-Dibromoethane | 66 | 0 | 58.2 | 88 | 63 - 144 |
| Tetrachloroethene | 66 | 0 | 64.3 | 97 | 27 - 175 |
| Chlorobenzene | 66 | 0 | 61.6 | 93 | 66 - 127 |
| Ethyl Benzene | 66 | 0 | 63.6 | 96 | 54 - 134 |
| m/p-Xylenes | 130 | 0 | 120 | 92 | 51 - 137 |
| o-Xylene | 66 | 0 | 62.1 | 94 | 57 - 139 |
| Styrene | 66 | 0 | 47.1 | 71 | 47 - 136 |
| Bromoform | 66 | 0 | 64.7 | 98 | 64 - 144 |

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Concentration Units (ug/L,mg/L ug/kg): ug/Kg

| ANALYTE | SPIKE ADDED | SAMPLE CONCENTRATION | MS CONCENTRATION | MS %R # | QC Limits %R |
|---|---|---|---|---|---|
| Isopropylbenzene | 66 | 0 | 97.3 | 147 | 44 - 160 |
| 1,1,2,2-Tetrachloroethane | 66 | 0 | 110 | 167 | 18 - 175 |
| 1,3-Dichlorobenzene | 66 | 0 | 56.2 | 85 | 55 - 131 |
| 1,4-Dichlorobenzene | 66 | 0 | 56.5 | 86 | 57 - 129 |
| 1,2-Dichlorobenzene | 66 | 0 | 57 | 86 | 54 - 140 |
| 1,2-Dibromo-3-Chloropropane | 66 | 0 | 89.4 | 135 | 46 - 175 |
| 1,2,4-Trichlorobenzene | 66 | 0 | 18.3 | 28 | 12 - 127 |
| 1,2,3-Trichlorobenzene | 66 | 0 | 17.6 | 27 | 10 - 160 |

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Instrument ID : MSVOA_Y GC Column RXI-624 ID : 0.25 (mm)

Concentration Units (ug/L,mg/L ug/kg): ug/Kg

| ANALYTE | SPIKE ADDED | SAMPLE CONCENTRATION | MS CONCENTRATION | MS %R # | QC Limits %R |
|---|---|---|---|---|---|

| ANALYTE | SPIKE AADDED | MSD CONCENTRATION | MSD %R # | RPD | QC Limits RPD | QC Limits %R |
|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 80.5 | 70 | 87 | 17 | 20 | 40 - 150 |
| Chloromethane | 80.5 | 69.6 | 86 | 18 | 20 | 24 - 175 |
| Vinyl chloride | 80.5 | 75.9 | 94 | 16 | 20 | 21 - 175 |
| Bromomethane | 80.5 | 74.8 | 93 | 17 | 20 | 46 - 150 |
| Chloroethane | 80.5 | 80.1 | 100 | 17 | 20 | 30 - 175 |
| Trichlorofluoromethane | 80.5 | 75.9 | 94 | 14 | 20 | 53 - 150 |
| 1,1,2-Trichlorotrifluoroethane | 80.5 | 73.7 | 92 | 9 | 20 | 60 - 135 |
| 1,1-Dichloroethene | 80.5 | 71.4 | 89 | 16 | 20 | 63 - 136 |
| Acetone | 400 | 380 | 81 | 13 | 20 | 41 - 175 |
| Carbon disulfide | 80.5 | 67.1 | 83 | 16 | 20 | 45 - 126 |
| Methyl tert-butyl Ether | 80.5 | 75.2 | 93 | 13 | 20 | 56 - 175 |
| Methyl Acetate | 80.5 | 76.6 | 95 | 31 * | 20 | 32 - 175 |
| Methylene Chloride | 80.5 | 76.1 | 95 | 21 * | 20 | 59 - 175 |
| trans-1,2-Dichloroethene | 80.5 | 67.7 | 84 | 21 * | 20 | 63 - 137 |
| 1,1-Dichloroethane | 80.5 | 70.5 | 88 | 20 | 20 | 62 - 154 |
| Cyclohexane | 80.5 | 66.1 | 82 | 2 | 20 | 41 - 131 |
| 2-Butanone | 400 | 340 | 85 | 3 | 20 | 48 - 174 |
| Carbon Tetrachloride | 80.5 | 69.2 | 86 | 7 | 20 | 48 - 149 |
| cis-1,2-Dichloroethene | 80.5 | 66.8 | 83 | 23 * | 20 | 59 - 153 |
| Bromochloromethane | 80.5 | 75.5 | 94 | 8 | 20 | 54 - 172 |
| Chloroform | 80.5 | 70.4 | 87 | 23 * | 20 | 60 - 159 |
| 1,1,1-Trichloroethane | 80.5 | 69.4 | 86 | 18 | 20 | 60 - 149 |
| Methylcyclohexane | 80.5 | 72.9 | 91 | 25 * | 20 | 19 - 135 |
| Benzene | 80.5 | 68.1 | 85 | 16 | 20 | 59 - 140 |
| 1,2-Dichloroethane | 80.5 | 74.2 | 92 | 9 | 20 | 63 - 153 |
| Trichloroethene | 80.5 | 65.4 | 81 | 12 | 20 | 45 - 154 |
| 1,2-Dichloropropane | 80.5 | 66.9 | 83 | 17 | 20 | 67 - 141 |

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Concentration Units (ug/L,mg/L ug/kg): ug/Kg

| ANALYTE | SPIKE ADDED | SAMPLE CONCENTRATION | MS CONCENTRATION | MS %R # | | QC Limits %R |
|---|---|---|---|---|---|---|
| Bromodichloromethane | 80.5 | 64.4 | 80 | 21 * | 20 | 54 - 160 |
| 4-Methyl-2-Pentanone | 400 | 340 | 85 | 0 | 20 | 54 - 164 |
| Toluene | 80.5 | 61.8 | 77 | 16 | 20 | 61 - 134 |
| t-1,3-Dichloropropene | 80.5 | 58.2 | 72 | 20 | 20 | 47 - 155 |
| cis-1,3-Dichloropropene | 80.5 | 59.9 | 74 | 20 | 20 | 56 - 141 |
| 1,1,2-Trichloroethane | 80.5 | 65.8 | 82 | 13 | 20 | 69 - 148 |
| 2-Hexanone | 400 | 310 | 78 | 5 | 20 | 43 - 164 |
| Dibromochloromethane | 80.5 | 59 | 73 | 22 * | 20 | 65 - 143 |
| 1,2-Dibromoethane | 80.5 | 63.1 | 78 | 12 | 20 | 63 - 144 |
| Tetrachloroethene | 80.5 | 72.9 | 91 | 7 | 20 | 27 - 175 |
| Chlorobenzene | 80.5 | 63 | 78 | 18 | 20 | 66 - 127 |
| Ethyl Benzene | 80.5 | 67.6 | 84 | 14 | 20 | 54 - 134 |
| m/p-Xylenes | 160 | 130 | 81 | 13 | 20 | 51 - 137 |
| o-Xylene | 80.5 | 65.2 | 81 | 15 | 20 | 57 - 139 |
| Styrene | 80.5 | 53.5 | 66 | 7 | 20 | 47 - 136 |
| Bromoform | 80.5 | 66.5 | 83 | 17 | 20 | 64 - 144 |
| Isopropylbenzene | 80.5 | 91 | 113 | 26 * | 20 | 44 - 160 |
| 1,1,2,2-Tetrachloroethane | 80.5 | 89 | 111 | 40 * | 20 | 18 - 175 |
| 1,3-Dichlorobenzene | 80.5 | 62.9 | 78 | 9 | 20 | 55 - 131 |
| 1,4-Dichlorobenzene | 80.5 | 62.3 | 77 | 10 | 20 | 57 - 129 |
| 1,2-Dichlorobenzene | 80.5 | 61.2 | 76 | 13 | 20 | 54 - 140 |
| 1,2-Dibromo-3-Chloropropane | 80.5 | 77 | 96 | 34 * | 20 | 46 - 175 |
| 1,2,4-Trichlorobenzene | 80.5 | 34.7 | 43 | 43 * | 20 | 12 - 127 |
| 1,2,3-Trichlorobenzene | 80.5 | 33.8 | 42 | 45 * | 20 | 10 - 160 |