

## Exposure Limits for TO-15 Compounds

All values are TWA<sup>1</sup> and in ppm unless otherwise noted

| Compound                                   | CAS Number | OSHA PEL <sup>3</sup><br>(ppb) | OSHA PEL <sup>3</sup><br>(PPM) | NIOSH REL <sup>2</sup><br>(PPM) | ACGIH TLV <sup>4</sup><br>(PPM) |
|--------------------------------------------|------------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|
| Propylene <sup>2,3</sup>                   | 115-07-1   | N.E.                           | N.E.                           | N.E.                            | 500                             |
| Freon 12(Dichlorodifluoromethane)          | 75-71-8    | 1000000                        | 1000                           | 1000                            | 1000                            |
| Freon 114(1,2-Dichlorotetrafluoroethane)   | 76-14-2    | 1000000                        | 1000                           | 1000                            | 1000                            |
| Chloromethane                              | 74-87-3    | 100000                         | 100                            | LFC                             | 50                              |
| Vinyl chloride                             | 75-01-4    | 1000                           | 1                              | LFC                             | 1                               |
| 1,3 Butadiene                              | 106-99-0   | 1000                           | 1                              | LFC                             | 2                               |
| Bromomethane <sup>2,3</sup>                | 74-83-9    | 20000                          | 20                             | LFC                             | 1                               |
| Chloroethane                               | 75-00-3    | 1000000                        | 1000                           | LFC                             | 100                             |
| Ethanol                                    | 64-17-5    | 1000000                        | 1000                           | 1000                            | 1000                            |
| Freon 11(Trichlorotrifluoroethane)         | 75-69-4    | 1000000                        | 1000                           | 1000                            | 1000                            |
| Isopropyl Alcohol(2-Propanol)              | 67-63-0    | 400000                         | 400                            | 400                             | 200                             |
| Freon 113(1,1,2-Trichlorotrifluoroethane)  | 76-13-1    | 1000000                        | 1000                           | 1000                            | 1000                            |
| Acetone                                    | 67-64-1    | 1000000                        | 1000                           | 250                             | 500                             |
| 1,1-Dichloroethene <sup>2</sup>            | 75-34-3    | 200000                         | 200                            | 200                             | 200                             |
| Carbon disulfide                           | 75-15-0    | 20000                          | 20                             | 1                               | 10                              |
| Methylene chloride                         | 75-09-2    | 25000                          | 25                             | LFC                             | 50                              |
| Methyl-tert-butyl ether(MTBE) <sup>2</sup> | 1634-04-4  | N.E.                           | N.E.                           | N.E.                            | 50                              |
| trans-1,2-Dichloroethene                   | 156-60-5   | 200000                         | 200                            | 200                             | 200                             |
| n-Hexane                                   | 110-54-3   | 500000                         | 500                            | 50                              | 50                              |
| 1,1-Dichloroethane <sup>2</sup>            | 75-35-4    | 100000                         | 100                            | 100                             | 100                             |
| Vinyl acetate <sup>2</sup>                 | 108-05-4   | N.E.                           | N.E.                           | 4                               | 10                              |
| 2-Butanone(MEK)                            | 78-93-3    | 200000                         | 200                            | 200                             | 200                             |
| cis-1,2 Dichloroethene                     | 156-59-2   | 200000                         | 200                            | 200                             | 200                             |
| Ethyl acetate                              | 141-78-6   | 400000                         | 400                            | 400                             | 400                             |
| Chloroform <sup>2</sup>                    | 67-66-3    | 50000                          | 50                             | 2                               | 10                              |
| Tetrahydrofuran                            | 109-99-9   | 200000                         | 200                            | 200                             | 200                             |
| 1,1,1-Trichloroethane                      | 71-55-6    | 350000                         | 350                            | 350                             | 350                             |
| Cyclohexane                                | 110-82-7   | 300000                         | 300                            | 300                             | 100                             |
| Carbon tetrachloride                       | 56-23-5    | 10000                          | 10                             | 2                               | 5                               |
| n-Heptane                                  | 142-82-5   | 500000                         | 500                            | 85                              | 400                             |
| 1,2 Dichloroethane                         | 107-06-2   | 50000                          | 50                             | 1                               | 10                              |
| Benzene                                    | 71-43-2    | 1000                           | 1                              | 0.1                             | 0.5                             |
| Trichloroethene                            | 79-01-6    | 100000                         | 100                            | 25                              | 50                              |
| 1,2 Dichloropropane                        | 78-87-5    | 75000                          | 75                             | LFC                             | 75                              |
| Bromodichloromethane <sup>2</sup>          | 75-27-4    | N.E.                           | N.E.                           | N.E.                            | N.E.                            |
| 1,4 Dioxane <sup>2</sup>                   | 123-91-1   | 100000                         | 100                            | 1                               | 20                              |
| 4-Methyl-2-pentanone(MIBK)                 | 108-10-1   | 100000                         | 100                            | 50                              | 50                              |
| cis-1,3-Dichloropropene <sup>2</sup>       | 10061-01-5 | N.E.                           | N.E.                           | 1                               | 1                               |
| Toluene                                    | 108-88-3   | 200000                         | 200                            | 100                             | 50                              |
| trans-1,3-Dichloropropene <sup>2</sup>     | 10061-02-6 | N.E.                           | N.E.                           | 1                               | 1                               |
| 1,1,2-Trichloroethane <sup>2</sup>         | 79-00-5    | 10000                          | 10                             | 10                              | 10                              |
| 2-Hexanone(MBK)                            | 591-78-6   | 100000                         | 100                            | 1                               | 5                               |
| Tetrachloroethene                          | 127-18-4   | 100000                         | 100                            | LFC                             | 25                              |
| Dibromochloromethane <sup>2</sup>          | 124-48-1   | N.E.                           | N.E.                           | N.E.                            | N.E.                            |
| 1,2 Dibromoethane                          | 106-93-4   | 20000                          | 20                             | 0.045                           | N.E.                            |
| Chlorobenzene                              | 108-90-7   | 75000                          | 75                             | N.E.                            | 10                              |
| Ethylbenzene                               | 100-41-4   | 100000                         | 100                            | 100                             | 100                             |
| Xylene (para & meta)                       | 1330-20-7  | 100000                         | 100                            | 100                             | 100                             |
| Xylene (Ortho)                             | 95-47-6    | 100000                         | 100                            | 100                             | 100                             |
| Styrene                                    | 100-42-5   | 100000                         | 100                            | 50                              | 20                              |
| Bromoform <sup>2</sup>                     | 75-25-2    | 500                            | 0.5                            | 0.5                             | 0.5                             |
| 1,1,2,2-Tetrachloroethane <sup>2</sup>     | 79-34-5    | 5000                           | 5                              | 1                               | 1                               |
| 4-Ethyltoluene <sup>2</sup>                | 622-96-8   | N.E.                           | N.E.                           | N.E.                            | N.E.                            |
| 1,3,5-Trimethylbenzene <sup>2</sup>        | 108-67-8   | 25000                          | 25                             | 25                              | 25                              |
| 1,2,4-Trimethylbenzene                     | 95-63-6    | 25000                          | 25                             | 25                              | 25                              |
| 1,3-Dichlorobenzene                        | 541-73-1   | N.E.                           | N.E.                           | N.E.                            | N.E.                            |
| 1,4-Dichlorobenzene                        | 106-46-7   | 75000                          | 75                             | LFC                             | 10                              |
| Benzyl chloride                            | 100-44-7   | 1000                           | 1                              | 1                               | 1                               |
| 1,2-Dichlorobenzene                        | 95-50-1    | 50000                          | 50                             | 50                              | 25                              |
| 1,2,4-Trichlorobenzene <sup>2,3</sup>      | 120-82-1   | N.E.                           | N.E.                           | 5                               | 5                               |
| Hexachloro-1,3-butadiene <sup>2</sup>      | 87-68-3    | N.E.                           | N.E.                           | 0.02                            | 0.02                            |



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|                     |             |                      |           |
|---------------------|-------------|----------------------|-----------|
| Sample Number:      | 280400144-1 | Date of Analysis:    | 3/25/2004 |
| Client Sample Name: | EF-01       | Sampling Volume (L): | 8         |

**Microbial Volatile Organic Compounds (mVOC)  
by GC/FID collected on Sorbent Tubes**

| Compound                      | Rpt. Limit<br>(ug) | Rpt. Limit<br>(ppbv) | Sample<br>Amount<br>(ug) | Sample<br>Amount<br>(ppbv) |
|-------------------------------|--------------------|----------------------|--------------------------|----------------------------|
| 1-Octen-3-ol                  | 1                  | 32                   | ND                       | ND                         |
| 2-Heptanone                   | 1                  | 36                   | ND                       | ND                         |
| 2-Hexanone                    | 1                  | 40                   | ND                       | ND                         |
| 2-Isopropyl-3-methoxypyrazine | 1                  | 27                   | ND                       | ND                         |
| 2-Methyl-2-butanol            | 1                  | 46                   | ND                       | ND                         |
| 2-Methyl-Isoborneol           | 1                  | 24                   | ND                       | ND                         |
| 2-Octen-1-ol                  | 1                  | 32                   | ND                       | ND                         |
| 2-Pentanol                    | 1                  | 46                   | ND                       | ND                         |
| 3-Methyl-1-butanol            | 1                  | 46                   | ND                       | ND                         |
| 3-Methyl-2-butanol            | 1                  | 46                   | ND                       | ND                         |
| 3-Methylfuran                 | 1                  | 50                   | ND                       | ND                         |
| 3-Octanol                     | 1                  | 31                   | ND                       | ND                         |
| 3-Octanone                    | 1                  | 32                   | ND                       | ND                         |
| Geosmin                       | 1                  | 26                   | ND                       | ND                         |

ND denotes not detected

Media: 6 liter canister transferred to SKC Anasorb sorbent tube 226-121

**SWV**  
Analyst

**Scott VanEtten, IH Lab Manager**

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