

Current ERPG[®] Values (2016)

| Chemical (CAS Number) | ERPG-1 | ERPG-2 | ERPG-3 | LEL*** <i>[Caution: See Footnotes]</i> |
|--|-----------|-----------------------|-----------------------|---|
| Acetaldehyde (75-07-0)..... | 10 ppm★ | 200 ppm | 1000 ppm | |
| Acetaldehyde (75-07-0)..... | 10 ppm★ | 200 ppm | 1000 ppm | |
| Acetic Acid (64-19-7)..... | 5 ppm★ | 35 ppm | 250 ppm | |
| Acetic Anhydride (108-24-7)..... | 0.5 ppm★ | 15 ppm | 100 ppm | |
| Acrolein (107-02-8)..... | 0.05 ppm★ | 0.15 ppm | 1.5 ppm | |
| Acrylic Acid (79-10-7)..... | 1 ppm★ | 50 ppm | 250 ppm | |
| Acrylonitrile (107-13-1)..... | 10 ppm★ | 35 ppm | 75 ppm | |
| Allyl Chloride (107-05-1)..... | 3 ppm★ | 40 ppm | 300 ppm | |
| Ammonia (7664-41-7)..... | 25 ppm★ | 150 ppm | 1500 ppm | |
| Arsine (7784-42-1)..... | NA† | 0.5 ppm | 1.5 ppm | |
| Benzene (71-43-2)..... | 50 ppm★ | 150 ppm | 1000 ppm | |
| Benzene, ethylenated, by-products from (Dowtherm Q) (68987-42-8)..... | ID‡ | 150 mg/m ³ | ID‡ | |
| Benzoyl Chloride (98-88-4)..... | 0.3 ppm★ | 5 ppm | 20 ppm | |
| Benzyl Chloride (100-44-7)..... | 1 ppm★ | 10 ppm | 50 ppm | |
| Beryllium (7440-41-7)..... | NA† | 25 µg/m ³ | 100 µg/m ³ | |

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|--|---------------------------|-----------------------|-----------------------|------------------------------------|
| Bis (Chloromethyl) Ether (542-88-1)..... | ID‡ | 0.1 ppm | 0.5 ppm | |
| Boron Trifluoride (7637-07-2)..... | 2 mg/m ³ ⊕ | 30 mg/m ³ | 100 mg/m ³ | |
| Bromine (7726-95-6)..... | 0.1 ppm⊕ | 0.5 ppm | 5 ppm | |
| 1,3-Butadiene (106-99-0)..... | 10 ppm⊕ | 500 ppm | 5000 ppm | 20,000 ppm |
| n-Butyl Acetate (123-86-4)..... | 5 ppm⊕ | 200 ppm | 3000 ppm | 17,000 ppm |
| n-Butyl Acrylate (141-32-2)..... | 0.05 ppm⊕ | 25 ppm | 250 ppm | |
| n-Butyl Isocyanate (111-36-4)..... | 0.01 ppm | 0.05 ppm | 1 ppm | |
| Carbon Disulfide (75-15-0)..... | 1 ppm⊕ | 50 ppm | 500 ppm | |
| Carbon Monoxide (630-08-0)..... | 200 ppm | 350 ppm | 500 ppm | |
| Carbon Tetrachloride (56-23-5)..... | 20 ppm⊕ | 100 ppm | 750 ppm | |
| Chlorine (7782-50-5)..... | 1 ppm⊕ | 3 ppm | 20 ppm | |
| Chlorine Dioxide (10049-04-4)..... | NA† | 0.5 ppm | 3 ppm | |
| Chlorine Trifluoride (7790-91-2) * | 0.1 ppm⊕ | 1 ppm | 10 ppm | |
| Chloroacetyl Chloride (79-04-9)..... | 0.05 ppm⊕ | 0.5 ppm | 10 ppm | |
| o-Chlorobenzylidene Malononitrile (2698-41-1)..... | 0.005 mg/m ³ ⊕ | 0.1 mg/m ³ | 25 mg/m ³ | |
| Chloroform (67-66-3)..... | NA† | 50 ppm | 5000 ppm | |
| Chloromethyl Methyl Ether (107-30-2)..... | NA† | 1 ppm | 10 ppm | |
| Chloropicrin (76-06-2)..... | 0.075 ppm | 0.15 ppm | 1.5 ppm | |
| Chlorosulfonic Acid (7790-94-5)..... | 2 mg/m ³ ⊕ | 10 mg/m ³ | 30 mg/m ³ | |

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|---|------------------------------|------------------------------|------------------------|------------------------------------|
| Chlorotrifluoroethylene (79-38-9)..... | 20 ppm | 100 ppm | 300 ppm | |
| Cobalt Hydrocarbonyl (16842-03-8) (Values are given as Cobalt.)..... | ID‡ | 0.9 mg/m ³ | 3 mg/m ³ | |
| Crotonaldehyde (4170-30-3)..... | 0.2 ppm★ | 5 ppm | 15 ppm | |
| Cyanogen Chloride (506-77-4)..... | NA† | 0.05 ppm | 4 ppm | |
| Diborane (19287-45-7)..... | NA† | 1 ppm | 3 ppm | |
| 1,2-Dichloroethane (107-06-2)..... | 50 ppm★ | 200 ppm | 300 ppm | |
| 2,4-Dichlorophenol (120-83-2)..... | 0.2 ppm★ | 2 ppm | 20 ppm | |
| Dicyclopentadiene (77-73-6)..... | 0.01 ppm★ | 5 ppm | 75 ppm | |
| Diesel Fuel and Other Middle Distillate | | | | |
| Fuels (68334-30-5)..... | 300 mg/m³★ | 1000 mg/m³ | Not Established | |
| Diethylbenzenes, mixed isomers (Dowtherm J) (25340-17-4)..... | 10 ppm★ | 100 ppm | 500 ppm | |
| Diketene (674-82-8)..... | 1 ppm★ | 5 ppm | 50 ppm | |
| Dimethylamine (124-40-3)..... | 0.6 ppm★ | 100 ppm | 350 ppm | |
| Dimethyl Disulfide (624-92-0)..... | 0.01 ppm★ | 50 ppm | 250 ppm | |
| Dimethylformamide (68-12-2)..... | 2 ppm★ | 100 ppm | 200 ppm | |
| Dimethyl Sulfide (75-18-3) * | 0.5 ppm★ | 1000 ppm | 5000 ppm | 22,000 ppm |
| Epichlorohydrin (106-89-8)..... | 5 ppm★ | 20 ppm | 100 ppm | |

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|---|---------------------|----------------------|----------------------|------------------------------------|
| Ethanol (64-17-5)..... | 1800 ppm⊕ | 3300 ppm | NA† | 33,000 ppm |
| Ethyl Acrylate (140-88-5) * | 0.01 ppm⊕ | 30 ppm | 300 ppm | |
| Ethyl Chloroformate (541-41-3)..... | ID‡ | 5 ppm | 10 ppm | |
| 2-Ethyl Hexanol (104-76-7)..... | 0.1 ppm⊕ | 100 ppm | 200 ppm | |
| Ethylene Oxide (75-21-8) * | NA† | 50 ppm | 500 ppm | |
| Ethylidene Norbornene (16219-75-3) * | 0.2 ppm⊕ | 100 ppm | 500 ppm | |
| Fluorine (7782-41-4)..... | 0.5 ppm⊕ | 5 ppm | 20 ppm | |
| Fluorosulfonic acid (7789-21-1)..... | 2 mg/m ³ | 10 mg/m ³ | 30 mg/m ³ | |
| Formaldehyde (50-00-0)..... | 1 ppm⊕ | 10 ppm | 40 ppm | |
| Formic Acid (64-18-6)..... | 3 ppm⊕ | 25 ppm | 250 ppm | |
| Furfural (98-01-1) * | 2 ppm⊕ | 10 ppm | 50 ppm | |
| Gasoline (86290-81-5)..... | 200 ppm⊕ | 1000 ppm | 4000 ppm | 14,000 ppm |
| Glutaraldehyde (111-30-8)..... | 0.2 ppm⊕ | 1 ppm | 5 ppm | |
| HCFC-123 (2,2-Dichloro-1,1,1-Trifluoroethane) (306-83-2)..... | ID‡ | 1000 ppm | 10,000 ppm | |
| HCFC-124 (2-Chloro-1,1,1,2-Tetrafluoroethane) (2837-89-0)..... | 1000 ppm | 5000 ppm | 10,000 ppm | |
| HCFC-142b (1-Chloro-1,1-Difluoroethane) (75-68-3)..... | 10,000 ppm | 15,000 ppm | 25,000 ppm | 60,000 ppm |

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|--|-------------------|-------------------|-------------------|------------------------------------|
| Hexachlorobutadiene (87-68-3)..... | 1 ppm | 3 ppm | 10 ppm | |
| Hexafluoroacetone (684-16-2) * | NA† | 1 ppm | 50 ppm | |
| Hexafluoropropylene (116-15-4)..... | 10 ppm | 50 ppm | 500 ppm | |
| 1-Hexene (592-41-6)..... | NA† | 500 ppm | 5000 ppm | 12,000 ppm |
| HFC-152a (1,1-Difluoroethane) (75-37-6)..... | 10,000 ppm | 15,000 ppm | 25,000 ppm | 39,000 ppm |
| HFO-1234yf (2,3,3,3-Tetrafluoropropene) (754-12-1)..... | NA† | 24,000 ppm | NA† | 65,000 ppm |
| HFO-1234ze (1,3,3,3-Tetrafluoropropylene) (29118-24-9)..... | NA† | 15,000 ppm | 69,000 ppm | |
| Hydrazine (302-01-2)..... | 0.5 ppm | 5 ppm | 30 ppm | |
| Hydrogen Chloride (7647-01-0) * | 3 ppm★ | 20 ppm | 150 ppm | |
| Hydrogen Cyanide (74-90-8)..... | NA† | 10 ppm | 25 ppm | |
| Hydrogen Fluoride (7664-39-3)**..... | 2 ppm★ | 20 ppm | 50 ppm | |
| Hydrogen Peroxide (7722-84-1)..... | 10 ppm | 50 ppm | 100 ppm | |
| Hydrogen Selenide (7783-07-5)..... | NA† | 0.2 ppm | 2 ppm | |
| Hydrogen Sulfide (7783-06-4)..... | 0.1 ppm★ | 30 ppm | 100 ppm | |
| Iodine (7553-56-2)..... | 0.1 ppm★ | 0.5 ppm | 5 ppm | |
| Isobutyronitrile (78-82-0)..... | ID‡ | 30 ppm | 100 ppm | |
| 2-Isocyanatoethyl Methacrylate (30674-80-7)..... | ID‡ | 0.1 ppm | 1 ppm | |

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|--|-------------------------|-----------------------|-----------------------|------------------------------------|
| Isoprene (78-79-5)..... | 5 ppm⊕ | 1000 ppm | 4000 ppm | 15,000 ppm |
| Isopropyl Chloroformate (108-23-6)..... | ID‡ | 5 ppm | 20 ppm | |
| Lithium Hydride (7580-67-8) * | 0.025 mg/m ³ | 0.1 mg/m ³ | 3.0 mg/m ³ | |
| Maleic Anhydride (108-31-6) * | 0.2 ppm | 5 ppm | 20 ppm | |
| MDI (Methylene Diphenyl Diisocyanate) (101-68-8)..... | NA† | 5 mg/m ³ | 55 mg/m ³ | |
| Mercury Vapor (7439-97-6)..... | NA† | 0.25 ppm | 0.5 ppm | |
| Methanol (67-56-1)..... | 200 ppm | 1000 ppm | 5000 ppm | |
| Methyl Bromide (74-83-9)..... | NA† | 50 ppm | 200 ppm | |
| Methyl Chloride (74-87-3)..... | 150 ppm⊕ | 1000 ppm | 3000 ppm | |
| Methyl Chloroformate (79-22-1)..... | NA† | 2 ppm | 5 ppm | |
| Methyl Iodide (74-88-4)..... | 25 ppm | 50 ppm | 125 ppm | |
| Methyl Isocyanate (624-83-9) * | 0.025 ppm | 0.25 ppm | 1.5 ppm | |
| Methyl Mercaptan (74-93-1)..... | 0.005 ppm⊕ | 25 ppm | 100 ppm | |
| Methyl tert-Butyl Ether (MTBE) (1634-04-4)..... | 50 ppm⊕ | 1000 ppm | 5000 ppm | 16,000 ppm |
| Methylene Chloride (75-09-2)..... | 300 ppm⊕ | 750 ppm | 4000 ppm | |
| Monomethylamine (74-89-5)..... | 10 ppm⊕ | 100 ppm | 500 ppm | |
| Nitric Acid WFNA (7697-37-2)..... | 1 ppm⊕ | 10 ppm | 78 ppm | |
| Nitrogen Dioxide (10102-44-0) * | 1 ppm⊕ | 15 ppm | 30 ppm | |

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|---|---------------------|----------------------|-----------------------|------------------------------------|
| Nitrogen Trifluoride (7783-54-2) * | 200 ppm | 400 ppm | 800 ppm | |
| 1-Octanol (111-87-5)..... | 5 ppm★ | 20 ppm | 150 ppm | |
| 1-Octene (111-66-0)..... | 40 ppm★ | 800 ppm | 2000 ppm | 8000 ppm |
| Oleum (8014-95-7) [See Sulfuric Acid] | | | | |
| Perchloroethylene (127-18-4)..... | 100 ppm★ | 200 ppm | 1000 ppm | |
| Perfluoroisobutylene (382-21-8)..... | NA† | 0.1 ppm | 0.3 ppm | |
| Phenol (108-95-2)..... | 10 ppm★ | 50 ppm | 200 ppm | |
| Phenyl isocyanate (103-71-9) | 0.1 ppm | 0.4 ppm | 1.2 ppm | |
| Phosgene (75-44-5)..... | NA† | 0.5 ppm | 1.5 ppm | |
| Phosphine (7803-51-2)..... | NA† | 0.5 ppm | 5 ppm | |
| Phosphoric Acid (7664-38-2)..... | 3 mg/m ³ | 30 mg/m ³ | 150 mg/m ³ | |
| Phosphorus Pentoxide (1314-56-3)..... | 1 mg/m ³ | 10 mg/m ³ | 50 mg/m ³ | |
| Phosphorus Trichloride (7719-12-2)..... | 0.5 ppm | 3 ppm | 15 ppm | |
| Propylene Glycol Methyl Ether Acetate (108-65-6 a-isomer) (70657-70-4 b-isomer)..... | 50 ppm★ | 1000 ppm | 5000 ppm | 15,000 ppm |
| Propylene Oxide (75-56-9)..... | 50 ppm★ | 250 ppm | 750 ppm | |
| Silane, Dimethyldichloro- (75-78-5) | 2 ppm★ | 10 ppm | 75 ppm | |
| Silane, Methyltrichloro- (75-79-6) * | 1 ppm★ | 3 ppm | 25 ppm | |
| Silane, Tetrachloro- (10026-04-7) | 0.75 ppm★ | 5 ppm | 37 ppm | |

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|--|-----------------------|----------------------|-----------------------|--|
| Silane, Tetraethoxy- (78-10-4)..... | 25 ppm⊕ | 100 ppm | 300 ppm | |
| Silane, Tetramethoxy- (681-84-5)..... | NA† | 10 ppm | 20 ppm | |
| Silane, Trichloro- (10025-78-2)..... | 1 ppm⊕ | 3 ppm | 25 ppm | |
| Silane, Triethoxy- (998-30-1)..... | 0.5 ppm | 4 ppm | 10 ppm | |
| Silane, Trimethoxy- (2487-90-3)..... | 0.5 ppm | 2 ppm | 5 ppm | |
| Silane, Trimethylchloro- (75-77-4)..... | 3 ppm⊕ | 20 ppm | 150 ppm | |
| Silane, Vinyl Trichloro- (75-94-5)..... | 0.5 ppm⊕ | 5 ppm | 50 ppm | |
| Sodium Hydroxide (1310-73-2)..... | 0.5 mg/m ³ | 5 mg/m ³ | 50 mg/m ³ | |
| Stibine (7803-52-3)..... | ID‡ | 0.5 ppm | 1.5 ppm | |
| Styrene (100-42-5)..... | 50 ppm⊕ | 250 ppm | 1000 ppm | |
| Sulfur Dioxide (7446-09-5)..... | 0.3 ppm⊕ | 3 ppm | 25 ppm | |
| Sulfur Trioxide (7446-11-9) [See Sulfuric Acid] | | | | |
| Sulfuric Acid (Oleum [8014-95-7], Sulfur Trioxide [7446-11-9], and Sulfuric Acid [7664-93-9])..... | 2 mg/m ³ ⊕ | 10 mg/m ³ | 120 mg/m ³ | |
| Sulfuryl Chloride (7791-25-5)..... | 0.3 ppm⊕ | 3 ppm | 15 ppm | |
| TDI (Toluene 2,4- (2,6-) Diisocyanate) (584-84-9), (91-08-7)..... | 0.01 ppm⊕ | 0.15 ppm | 0.6 ppm | |
| Tetrafluoroethylene (116-14-3)..... | 200 ppm | 1000 ppm | 10,000 ppm | 100,000 ppm |

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|---|-----------------------|-----------------------|-----------------------|------------------------------------|
| Tetrahydrofuran (109-99-9) * | 100 ppm⊕ | 500 ppm | 5000 ppm | 18,000 ppm |
| Thionyl Chloride (7719-09-7)..... | 0.2 ppm⊕ | 2 ppm | 10 ppm | |
| Titanium Tetrachloride (7550-45-0)..... | 5 mg/m ³ ⊕ | 20 mg/m ³ | 100 mg/m ³ | |
| Toluene (108-88-3)..... | 50 ppm⊕ | 300 ppm | 1000 ppm | |
| 1,1,1-Trichloroethane (71-55-6)..... | 350 ppm⊕ | 700 ppm | 3500 ppm | |
| Trichloroethylene (79-01-6)..... | 100 ppm⊕ | 500 ppm | 5000 ppm | |
| Trimethylamine (75-50-3)..... | 0.1 ppm⊕ | 100 ppm | 500 ppm | |
| Triuranium Octaoxide (1344-59-8)..... | ID‡ | 10 mg/m ³ | 50 mg/m ³ | |
| Uranium Dioxide (1344-57-6)..... | ID‡ | 10 mg/m ³ | 30 mg/m ³ | |
| Uranium Hexafluoride (7783-81-5)..... | 5 mg/m ³ | 15 mg/m ³ | 30 mg/m ³ | |
| Uranium Trioxide (1344-58-7)..... | ID‡ | 0.5 mg/m ³ | 3 mg/m ³ | |
| Vinyl Acetate (108-05-4) * | 5 ppm⊕ | 75 ppm | 500 ppm | |
| Vinyl Chloride (75-01-4)..... | 500 ppm⊕ | 5000 ppm | 20,000 ppm | 36,000 ppm |
| Vinylidene Chloride (75-35-4)..... | ID‡ | 500 ppm | 1000 ppm | |

BOLDED Chemical Name: Part of 2016 Update Set

Bolded with asterisk*: UPDATED chemical

Bolded without asterisk: NEW chemical

** Addendum published in 1999 with new 10-minute values (ERPG-1: 2 ppm; ERPG-2: 50 ppm; ERPG-3: 170 ppm)

NA† = not appropriate

ID‡ = insufficient data

⊕ = Odor should be detectable near ERPG-1. (See introductory text ERPG-1 Odor Detection Indicator and Objectionable Odor.)

***Lower Explosive Limit (LEL) Notations for ERPG values:

100% or more LEL = ***Bold Red Italics Underlined***

50-99% LEL = ***Bold Red Italics***

10-49% LEL = **Bold Red**

<10% LEL = Regular Font

***LEL Column: CAUTION—If LEL value is shown, one or more ERPG values are 10% LEL or more. The lack of an entry in the LEL column should not be interpreted that the chemical is not flammable, but only that the ERPG values for that chemical do not exceed 10% of the LEL. (See introductory text Lower Explosive Limit Warnings.)

NOTE: This information includes all approved ERPG values as of February 2016. ERPG documents reviewed, balloted, and approved by the Committee after this date will be eligible for inclusion in the 2017 ERPG Update Set.