

## TG 230 Chemical Exposure Guidelines for Deployed Military Personnel Version 1.3 – Updated May 2003

### **USACHPPM TG 230 Version 1.3 Summary:**

This summary sheet is intended to provide users of the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) Technical Guide 230 (TG 230) with updated information that can be printed and inserted into existing hardcopies of the January 2002 edition. Version 1.3 updates the January 2002 publication by incorporating the April and June 2002 errata and provides modified, as well as additional, short-term Air-Military Exposure Guidelines (MEGs) for various chemicals. In addition, some minor editorial changes have been made and references updated. Associated changes have also been made in the companion Reference Document 230 (RD 230), which includes the addition of a summary list of current Force Health Protection policies, doctrine, and technical guidance pertaining to the risk management of chemical exposures during military deployments.

Select short-term Air-MEGs were updated based on recently released Acute Exposure Guideline Levels (AEGs) from the National Research Council (2003) and Emergency Response Planning Guidelines (ERPGs) from the American Industrial Hygiene Association (2003). New short-term (1-hour and 8-hour) Air-MEGs were added for chemicals with existing MEGs in TG 230. Those without MEGs in TG 230 were not added at this time. They will be included in future updates. The only exception is two chemicals noted with \* in Table 2. These were added based on prioritization by the International Task Force 40 (ITF-40) project.

Table 1 identifies corrections incorporated into Version 1.3. Users with hard copies of Version 1.3 will see that these changes were implemented. Table 2 identifies the chemicals with newly added short-term Air-MEGs based on updated AEGs and ERPGs. Lastly, Table 3 presents existing short-term Air-MEGs that were updated based on changes to the AEGs and ERPGs.

**Table 1. Errata (corrections)**

Page No.	Error	Previous	Correction	Date of Web update/errata insert	Version
C-12	Carbon Monoxide 14-Day Air-MEG	0.70 <del>[0.64]</del>	3.3 [3]	26 April 2002	1.2
C-40	Chlordane CAS No.	<del>57-75-9</del>	57-74-9	26 April 2002	1.2
C-56	Methyl styrene (mixture) CAS No.	<del>2501-31-54</del>	25013-15-4	26 April 2002	1.2
D-43	Arsenic CAS No.	<del>7440-38-4</del>	7440-38-2	26 April 2002	1.2
D-58	Naphthalene 15 L/day 1-yr MEG	4.7	0.17	26 April 2002	1.2
E-16	Heptachlor 1-yr soil MEG	2	52	26 April 2002	1.2
E-25	Trimethylbenzene (1,2,4-) 1-yr soil MEG	<del>5190</del>	5.8	26 April 2002	1.2
E-25	Trimethylbenzene (1,3,5-) 1-yr soil MEG	<del>5190</del>	250	26 April 2002	1.2
C-16	Ethylene oxide 14-day air MEG	0.04	0.048	3 June 2002 – errata only	1.3
C-42	Chromium (VI) (water soluble) CrVI 1-year Air-MEG	<del>0.00068</del>	0.000068	3 June 2002 – errata only	1.3

**TG 230 Chemical Exposure Guidelines for Deployed Military Personnel  
Version 1.3 – Updated May 2003**

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9	Table 2-1 – added ED descriptions to short-term MEGs	None	Sev, Sig, Min	May 2003	1.3
C-34	Ammonia – pot signs and symptoms	Cancer	Deleted (not an identified carcinogen)	May 2003	1.3
C-40	Carbon Monoxide Notes	Section 4.4.1 ref	Section 2.2.2 and Table C-4	May 2003	1.3
C-54	Lead Notes	Section 4.4.1 ref	Section 2.2.2 and Table C-4	May 2003	1.3
C-59	Ozone Notes	Section 4.4.1 ref	Section 2.2.2 and Table C-4	May 2003	1.3
C-59	PM <sub>2.5</sub> Notes	Section 4.4.1 ref	Section 2.2.2 and Table C-4	May 2003	1.3
C-60	PM <sub>10</sub> Notes	Section 4.4.1 ref	Section 2.2.2 and Table C-4	May 2003	1.3
C-62	Sulfur dioxide Notes	Section 4.4.1 ref	Section 2.2.2 and Table C-4	May 2003	1.3
D-64	Chemical Index for Water	Missing	Included	May 2003	1.3

**Table 2. Chemicals with Newly Added Short-term Air-MEGs**

Chemical	CAS No.	1-hour Air-MEGs (mg/m <sup>3</sup> )			8-hour	Source
		Minimal	Significant	Severe		
Acrylic acid	79-10-7	3	136	531	3	AEGL
Aniline	62-53-3	30	46	76	3.8	AEGL
Chlorine dioxide	10049-04-4	0.4	3	6.6	0.4	AEGL
Chloromethane	74-87-3	NA	828	2070	ND	ERPG
Dichloroethylene (trans-1,1-)	156-60-5	1112	3970	6749	1112	AEGL
Dichloroethylene (cis-1,2-)	156-59-2	556	1985	3375	556	AEGL
Dimethyl hydrazine (1,1-)*	57-14-7	NA	7.4	27	NA	AEGL
Dimethyl hydrazine (1,2-)*	540-73-8	NA	7.4	27	NA	AEGL
Ethylene glycol	107-21-1	202	810	1210	ND	ERPG
Mercury vapor (inorganic)	7439-97-6	NA	2	4.1	NA	ERPG
Methylacrylonitrile	126-98-7	NA	3	9.3	NA	AEGL
Methylenediphenyl isocyanate	101-68-8	0.2	2	25	ND	ERPG
Nickel carbonyl	126-98-1	NA	0.2	1.1	NA	AEGL
Phenol	108-95-2	17	58	181	7.3	AEGL
Propylene oxide	75-56-9	143	690	1452	26	AEGL
Styrene	100-42-5	213	1065	4260	ND	ERPG
Tetrafluoroethane (1,1,1,2-)	811-97-2	33,360	54,210	112,590	33,360	AEGL
Trichloroethane (1,1,1,1-)	71-55-6	1256	3276	20,748	1256	AEGL
Vinyl acetate	108-05-4	17.6	264	1760	ND	ERPG

\* Newly added chemicals to the TG/RD

NA = Not available; data insufficient to derive value

ND = Not determined, data not yet reviewed to derive value

**TG 230 Chemical Exposure Guidelines for Deployed Military Personnel  
Version 1.3 – Updated May 2003**

**Table 3. Chemicals with Updated Short-term Air-MEGs**

Chemical	CAS No.	Previous MEGs				Updated MEGs				Source
		1-hour Air-MEGs (mg/m <sup>3</sup> )			8-hour	1-hour Air-MEGs (mg/m <sup>3</sup> )			8-hour	
		Minimal	Significant	Severe		Minimal	Significant	Severe		
Allyl alcohol	107-18-6	4.4	18.3	48	4.4	5	10	159	5	AEGL
Boron trifluoride	7637-07-2	2	30	100	2	0.6	16	39	0.6	AEGL*
Carbon monoxide	630-08-0	229	286	572	28	NA	95	380	28	AEGL*
Carbon tetrachloride	56-23-5	75	428	1070	32.5	75	352	1070	33	AEGL
Chlorine	7782-50-5	2.9	5.8	64	1.5	1.5	5.8	58	1.5	AEGL
Chlorine trifluoride	7790-91-2	1.3	11.7	53	0.15	0.5	11.7	53	0.5	AEGL
Fluorine	7782-41-4	3.1	7.8	20.2	1.6	2.6	7.8	20.2	2.6	AEGL
Hydrogen chloride	1333-74-0	2.7	33	155	2.7	2.7	33	149	2.7	AEGL
Hydrogen fluoride	7664-39-3	0.82	19.6	36	0.41	0.82	19.7	36	0.82	AEGL
Hydrogen selenide	7783-07-5	NA	NA	3.3	0.2	NA	0.66	6.6	0.2	ERPG
Hydrogen sulfide	7783-06-4	0.23	39	70	0.15	0.71	38	70	0.46	AEGL
Iron pentacarbonyl	13463-40-6	NA	1.5	4.6	0.8	NA	0.5	1.4	0.02	AEGL
Tetrachloroethylene	127-18-4	237	1560	3323	81	237	1559	8136	237	AEGL
Toluene	108-88-3	309	716	2374	109	754	1923	10,933	754	AEGL

  

Chemical CAS No.	Health Effect Level	Previous Air-MEGs				Updated Air-MEGs				Source
		10-Minute mg/m <sup>3</sup> [ppm]	1-Hour mg/m <sup>3</sup> [ppm]	8-Hour mg/m <sup>3</sup> [ppm]	24-Hour mg/m <sup>3</sup> [ppm]	10-Minute mg/m <sup>3</sup> [ppm]	1-Hour mg/m <sup>3</sup> [ppm]	8-Hour mg/m <sup>3</sup> [ppm]	24-Hour mg/m <sup>3</sup> [ppm]	
VX 50782- 69-9	MINIMAL	0.00020 [0.000018]	0.000080 [0.0000073]	0.000028 [0.0000026]	0.000009 [0.0000009]	0.00057 [0.000052]	0.00017 [0.000016]	0.000071 [0.0000065]	0.000024 [0.0000022]	AEGL
	SIGNIFICANT	0.0024 [0.00022]	0.00098 [0.000090]	0.00035 [0.000032]	0.0001 [0.000011]	0.0072 [0.00065]	0.0029 [0.00027]	0.0010 [0.000095]	0.00033 [0.000032]	AEGL
	SEVERE	0.0096 [0.00088]	0.0033 [0.00030]	0.0013 [0.00012]	0.0004 [0.000040]	0.029 [0.0027]	0.010 [0.00091]	0.0038 [0.00035]	0.0013 [0.00012]	AEGL

\* Previous source was ERPG

NA = Not available; data insufficient to derive value