CRITERIA DOCUMENT DEVELOPMENT PROCESS

National Institute for Occupational Safety and Health

The development of criteria documents as a basis for standards for the occupational exposure to chemical and physical hazards is a continuing activity of the National Institute for Occupational Safety and Health (NIOSH). These criteria documents are publications which are prepared from a critical evaluation of all known, relevant published or otherwise publicly available medical, biological, engineering, chemical, and trade information and data for the purpose of establishing a recommended occupational health standard including, but not limited to, the concentration of a substance in the occupational environment which has been found to cause no adverse effects in people exposed for a normal working lifetime. It is the goal of the Institute to identify in a candid and unbiased manner the injurious effects produced by an occupational hazard and to determine what amount of that hazard produced these effects. In pursuing this goal, all published or publicly available evidence that has been found or that has been offered to the Institute in response to requests through the Federal Register is collected and reviewed. All evidence is carefully reviewed to determine what hazardous effects are relevant in developing criteria for the proposed standards. The extent of hazard that produces the effects selected is then calculated from the best available data. The methods of sampling and analysis are evaluated to ensure that those selected can quantitate the substances in the concentrations that are expected to be found in the working environment. The first draft of a criteria document is then prepared for the second step in the critical review process. For certain documents, where the issues are found to be extremely complex, external consultation from others such as selected experts from universities is obtained prior to finalizing the first draft.

NIOSH recognizes the possibility of bias entering into the formulation process of these criteria documents. Professional bias can enter into the preparation by many different avenues through even the most well-meaning and honest efforts. Bias could occur from employment experiences, professional association and the selectivity of personal experiences. In order to reduce, as much as possible, any such bias, an advocate-adversary process has been developed. In the process, the advocate must present the evaluation of all potentially acceptable data and develop the rationale for the acceptance of the basis for the proposed standards that were selected in preference to other possibilities. The first draft is submitted and defended by the preparing advocates during the review and critique by professional occupational health personnel who have been selected not only for their experience with the subject of the document but also for their employment associations. This selection process is intended to include divergent views from that of the originators and the NIOSH staff and other disparate attitudes not already presented. The

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consultants selected for this review and critique should have had direct personal experience with control of the criteria document hazard and will reflect professional experience in occupational medicine, engineering, chemistry, toxicology or other pertinent sciences. Consultants are selected whose background is from industry, state or local government occupational health staffs, organized labor, and universities. The selected consultants should provide by this process a reasonably balanced group with strongly based experience. None of the selected participants shall have been involved in the initial formulation of the specific criteria docurent. Recognizing that NIOSH may also introduce bias through its various selection processes, societies whose membership includes experienced professionals in the occupational health field are invited to review the criteria document draft. The societies which have been involved include: Society of Toxicology, the American Industrial Hygiene Association, the American Occupational Medical Association, the American Conference of Governmental Industrial Hygienists, the American Academy of Occupational Medicine, the American Academy of Industrial Hygiene, the Society for Occupational and Environmental Health, and the American Medical Association. The only constraints placed upon the selection of reviewers by these organizations is that they be members of that particular organization and that they not have been involved in any of the other past or current preparation activities of the criteria document being reviewed. Additional viewpoints are solicited from governmental agencies which may have interest and experience in the control of occupational or environmental hazards.

Comments and critiques of all reviewers are organized with the final draft and are submitted to the Director of NIOSH for his review and critique. This step involves a thorough review by senior NIOSH professionals selected to provide the Director with a broad-cross section of experiences. The "criteria for a recommended standard for occupational exposure to..." (a hazardous substance) is readied after the Director's review and approval for transmittal to the Department of Labor. The final document does not necessarily, therefore, offer a true consensus view nor coincide with views of all of the reviewers.

The resulting criteria document thereby provides a valid detailed support for the standard as recommended by NIOSH for the Department of Health, Education, and Welfare to be used by the Department of Labor as a basis for its promulgation of a standard.

The recommendations are of course also then available to foreign, state and local governments as well as the general public for development of standards where the need may exist.

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Criteria Documents and Recommended Standards Transmitted to the Department of Labor

Document Name	Transmitted Month	Day	Year
Acetylene	06	30	76
Allyl Chloride	09	21	76
Ammonia	07	15	74
Arsenic	01	21	74
Arsenic (revised)	06	23	75
Asbestos	01	21	72
Benzene	07	24	74
Benzene (revised)	08	20	76
Beryllium	06	30	72
Cadmium	08	23	76
Carbaryl	09	30	76
Carbon Dioxide	08	11	76
Carbon Monoxide	08	03	72
Carbon Tetrachloride	12	22	75
Carbon Tetrachloride (revised)	06	09	76
Chlorine	05	25	76
Chloroform	09	11	74
Chloroform (revised)	06	09	76
Chromic Acid	07	17	73
Chromium(VI)	12	01	75
Coke Oven Emissions	02	28	73
Cotton Dust	09	26	74
Emergency Egress	12	01	75
Epichlorohydrin	09	17	76
Ethylene Dichloride	03	09	76
Fluorides	06	30	75
Hazardous Materials	12	20	74
Hot Environments	06	30	72
Hydrogen Fluoride	03	09	76
Inorganic Cyanides	10	05	76
Inorganic Lead	01	05	73
Inorganic Lead (revised)	08	04	75
Inorganic Mercury	08	13	73
Isopropyl Alcohol	03	09	76
Logging	07	01	76
Malathion	06	30	76
Methyl Alcohol	03	22	76
Methylene Chloride	03	09	76
Methyl Parathion	09	30	76
Nitric Acid	03	09	76
Noise	08	10	72
Oxides of Nitrogen	03	22	76

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Criteria Documents and Recommended Standards Transmitted to the Department of Labor (Cont.)

Document	Transmitted Month	Day	Year
Parathion	06	30	76
Phenol	06	30	76
Phosgene	02	23	76
Silica	11	11	74
Sodium Hydroxide	09	16	75
Sulfur Dioxide	02	11	74
Sulfuric Acid	06	06	74
Tetrachloroethylene	07	01	76
Toluene	07	23	73
Toluene Diisocyanate	07	13	73
Trichloroethylene	07	23	73
Ultraviolet Radiation	12	20	72
Vinyl Chloride	03	11	74
Xylene	05	23	75
Zinc Oxide	10	10	75
1,1,1-Trichloroethane	07	01	76

CBY 2390238

Criteria Documents to be Transmitted
to the Department of Labor in FY 77

Document Name

* Acrylamide
* Alkanes (C_5-C_8)
* Anesthetic Gases
Antimony Compounds
Asphalt Fumes
Benzoyl Peroxide
* Boron Trifluoride
Carbon Disulfide/Hydrogen Sulfide
Chloroprene
Coal Tar Products
Cresols
Dioxane
Ethylene Dibromide
Fibrous Glass
Fluorocarbons
Fluorine
* Formaldehyde
Hydroquinone
Methyl Silicate
Nickel and Its Inorganic Compounds (Nickel Carbonyl)
Oil Mists
Polychlorinated Biphenyls
Refined Petroleum
Styrene
Teflon Decomposition Products
Thallium and Its Compounds
Tungsten and Its Compounds
Vanadium and Its Compounds
1,1,2,2-Tetrachloroethene
* ORGANICS

* RELEASED CRITERIA DOCUMENTS
TOTAL OF 56 CRITERIA DOCUMENTS ON SPECIFIC MATERIALS OR PHYSICAL AGENTS

CBY 2390239

Criteria Documents to be Transmitted
to the Department of Labor in FY 78

Document Name

Alkali Metal Hydroxides
Benzyl Chloride
Boron Compounds
Carbon Black
Cement Industry
Chlorinated Benzenes
Cobalt Diazomethane
Dichloroacetylene
Dichloroethyl Ether
Ethylene Chlorohydrin
Furfuryl Alcohol
Glycidyl Ethers
Hydrazines
Ketones and Acetone
Mercaptans
Nitroglycerine and EGD
o-Tolidine
Oxalic Acid
Ozone
Roofing Industry
Vinyl Compounds
Welding and Brazing
Wood Dust-Non Allergenic

CBY 2390240

Tentative List of Criteria Documents
to be Transmitted to the
Department of Labor in FY 79

Document Name

Acrylonitrile
Amines
Bromine and Its Compounds
Chloropicrin
Cold Environments
Ethylene Glycol Monomethyl Ether
Flame Retardants
Foundries
Hydrogen Chloride
Iron and Its Compounds
Manganese and Its Compounds
Methyl Chloride
Nitrobenzenes
Nitrophenols
Nitrotoluenes
Organic Arsenicals
Organic Lead Compounds
Organic Mercury Compounds
Organo-Isocyanates
Printing Industry
Slaughtering & Rendering Plants
Talc
Tri Cresyl Phosphate
Vibration

CBY 2390241

Weyerhaeuser Company, Jackson, Miss., is contesting a nonserious citation for 1910.95(b)(1) for failure to reduce noise (No. 76-3766).

Ted Wilkerson, Inc., Kansas City, Kan., is contesting a serious citation and a $900 penalty for 1926.105(a) for failure to provide safety nets (No. 76-3795).

O. L. Williams Contracting Company, Atlanta, Ga., is contesting a willful, repeated, and serious citation and a $1,800 penalty for 1926.652(c) for failure to shore a trench (No. 76-3762).

Wulff Brothers Masonry Corporation, Columbia, Mo., is contesting a nonserious citation and a $25 penalty for 1926.25(a) for failure to keep a construction site clear of debris and waste material, 1926.351(b)(2) for failure to use a welder's cable free from repair or splices for a minimum distance of 10 feet from the cable end to which the electrode holder was connected, 1926.450(a)(10) for failure to secure a portable wood ladder, and 1926.451(a)(4) for failure to guard scaffolding (No. 76-3715).

BNA

Full Text

10-7-76

CURRENT STATUS OF NIOSH-OSHA STANDARDS COMPLETION PROJECT BY SET AND LIST OF DRAFT STANDARDS WITHHELD

Substance	Set	Status
acetone	A	Transmitted to OSHA 9-30-76
2- butanone (methyl ethyl ketone or MEK)	A	FR Proposed Rule 5-8-75
cyclohexanone	A	FR Proposed Rule 5-8-75
hexone (methyl isobutyl ketone (or) MIBK)	A	FR Proposed Rule 5-8-75
hydrogen sulfide	A	Transmitted to OSHA 9-30-76
manganese	A	Transmitted to OSHA 9-30-76
2- pentanone	A	FR Proposed Rule 5-8-75
camphor	B	FR Proposed Rule 10-8-75
ethyl butyl ketone (3-heptanone)	B	FR Proposed Rule 5-8-75
mesityl oxide	B	FR Proposed Rule 10-8-75
methyl (n-amyl) ketone (2-heptanone)	B	FR Proposed Rule 5-8-75
5- methyl - 3-heptanone	B	FR Proposed Rule 10-8-75
ozone	B	FR Proposed Rule 10-8-75
p-tert- butyltoluene	C	FR Proposed Rule 10-8-75
cumene (isopropyl benzene)	C	FR Proposed Rule 10-8-75
cyclohexane	C	FR Proposed Rule 10-8-75
ethyl benzene	C	FR Proposed Rule 10-8-75
alpha- methyl styrene	C	FR Proposed Rule 10-8-75
styrene (phenyl ethylene or vinyl benzene)	C	FR Proposed Rule 10-8-75
terphenyls	C	Transmitted to OSHA 02-27-76
vinyl toluene	C	FR Proposed Rule 10-8-75
sec- amyl acetate (alpha-methyl butyl acetate)	D	FR Availability Notice 3-14-75
sec- butyl acetate	D	FR Availability Notice 3-14-75
tert- butyl acetate	D	FR Availability Notice 3-14-75
butyl acetate (n-butyl acetate)	D	FR Availability Notice 3-14-75
dibutylphthalate	D	Transmitted to OSHA 9-23-76
2- ethoxyethylacetate	D	FR Availability Notice 3-14-75
ethyl acrylate	D	FR Availability Notice 3-14-75

Substance	Set	Status
ethyl formate	D	FR Availability Notice 3-14-75
sec- hexyl acetate (1,3-dimethyl butyl acetate)	D	FR Availability Notice 3-14-75
isoamyl acetate	D	FR Availability Notice 3-14-75
isobutyl acetate	D	FR Availability Notice 3-14-75
methyl acetate	D	FR Availability Notice 3-14-75
methyl acrylate	D	FR Availability Notice 3-14-75
methyl cellosolve acetate	D	FR Availability Notice 3-14-75
di-sec- octyl phthalate (di-2-ethylhexylphthalate)	D	Transmitted to OSHA 9-23-76
n- propyl acetate	D	FR Availability Notice 3-14-75
allyl alcohol	E	Transmitted to OSHA 02-27-76
n- amyl acetate	E	FR Availability Notice 4-21-75
butyl alcohol (n-butyl alcohol)	E	FR Availability Notice 4-21-75
sec- butyl alcohol	E	FR Availability Notice 4-21-75
tert- butyl alcohol	E	FR Availability Notice 4-21-75
cyclohexanol	E	FR Availability Notice 4-21-75
diacetone alcohol (4-hydroxy-4-methyl-2-pentanone)	E	FR Availability Notice 4-21-75
ethyl acetate	E	FR Availability Notice 4-21-75
isoamyl alcohol	E	FR Availability Notice 4-21-75
isobutyl alcohol	E	FR Availability Notice 4-21-75
isopropyl acetate	E	FR Availability Notice 4-21-75
isopropyl alcohol (isopropanol)	E	FR Availability Notice 4-21-75
methyl alcohol (methanol)	E	FR Availability Notice 4-21-75
methyl isobutyl carbinol	E	FR Availability Notice 4-21-75
propyl alcohol (propanol)	E	FR Availability Notice 4-21-75
2- butoxy ethanol (butyl cellosolve)	F	FR Availability Notice 7-8-75
n- butyl glycidyl ether (BGE)	F	FR Availability Notice 7-8-75
chlorinated camphene (toxaphene)	F	Transmitted to OSHA 02-27-76
cyclohexene	F	FR Availability Notice 7-8-75
dipropylene glycol methyl ether	F	FR Availability Notice 7-8-75
ethyl ether	F	FR Availability Notice 7-8-75
glycidol (2,3-epoxy-1-propanol)	F	FR Availability Notice 7-8-75
isopropyl glycidyl ether	F	FR Availability Notice 7-8-75
methyl cellosolve (2-methoxyethanol)	F	FR Availability Notice 7-8-75
methylal (dimethoxymethane)	F	FR Availability Notice 7-8-75
phenyl ether	F	Transmitted to OSHA 02-27-76
phenyl ether-biphenyl mixture (Dowtherm A)	F	Transmitted to OSHA 02-27-76
phenyl glycidyl ether (PGE)	F	FR Availability Notice 7-8-75
propylene oxide (1,2-epoxypropane)	F	Transmitted to OSHA 02-27-76
tetrahydrofuran	F	FR Availability Notice 7-8-75
butadiene (1,3-butadiene)	G	FR Availability Notice 11-4-75
dioxane (diethylene dioxide)	G	FR Availability Notice 11-4-75
heptane	G	FR Availability Notice 11-4-75
ketene	G	Transmitted to OSHA 02-27-76
LPG	G	Transmitted to OSHA 02-27-76
methylcyclohexane	G	FR Availability Notice 11-4-75
naptha, coal tar (coal tar naptha)	G	FR Availability Notice 11-4-75
octachloronaphthalene	G	Transmitted to OSHA 02-27-76
octane	G	FR Availability Notice 11-4-75
pentachloronapthalene	G	Transmitted to OSHA 9-23-76
pentane	G	FR Availability Notice 11-4-75

Substance		Set Status
petroleum distillates (petroleum naptha)	G	FR Availability Notice 11-4-75
propane	G	Transmitted to OSHA 02-27-76
propylene dichloride	G	FR Availability Notice 11-4-75
stoddard solvent	G	Transmitted to OSHA 6-27-75
turpentine	G	FR Availability Notice 11-4-75
benzyl chloride	H	FR Availability Notice 11-4-75
bromoform	H	FR Availability Notice 11-4-75
chlorobromomethane	H	FR Availability Notice 11-4-75
1,2- dichloroethylene (acetylene dichloride)	H	FR Availability Notice 11-4-75
difluorodibromomethane	H	FR Availability Notice 11-4-75
ethyl bromide	H	FR Availability Notice 11-4-75
ethylene dibromide	H	Transmitted to OSHA 02-27-76
hexachloroethane	H	Transmitted to OSHA 5-27-76
hexachloronaphthalene	H	FR Availability Notice 11-4-75
methyl iodide	H	FR Availability Notice 11-4-75
acetylene tetrabromide (tetrabromomethane)	I	FR Availability Notice 11-20-75
allyl chloride	I	FR Availability Notice 11-20-75
chlorobenzene (monochlorobenzene)	I	FR Availability Notice 11-20-75
chlorodiphenyl, 54% chloride	I	FR Availability Notice 11-20-75
chlorinated diphenyl oxide	I	Transmitted to OSHA 9-9-76
1,1- dichloroethane (ethylidene chloride)	I	FR Availability Notice 11-20-75
epichlorhydrin (1-chloro, 2,3-epoxypropane)	I	FR Availability Notice 11-20-75
1,1,2,2- tetrachloro-1,2-difluoroethane	I	FR Availability Notice 11-20-75
1,1,1,2- tetrachloro-2,2-difluoroethane	I	FR Availability Notice 11-20-75
1,1,2,2- tetrachloroethane	I	FR Availability Notice 11-20-75
tetrachloronaphthalene	I	Transmitted to OSHA 9-9-76
1,1,2- trichloro-1,2,2-trifluoroethane (refrigerant 113)	I	FR Availability Notice 11-20-75
trichloronaphthalene	I	Transmitted to OSHA 9-9-76
1,2,3- trichloropropane	I	FR Availability Notice 11-20-75
trifluoromonobromomethane	I	FR Availability Notice 11-20-75
arsine	J	FR Availibility Notice 11-20-75
carbon tetrachloride (tetrachloromethane)	J	FR Availibility Notice 11-20-75
chloroform	J	NIOSH Criteria Document 9-11-74
diazomethane	J	FR Availibility Notice 11-20-75
o- dichlorobenzene	J	FR Availibility Notice 11-20-75
diethylamine	J	FR Availability Notice 11-20-75
dimethylamine	J	FR Availibility Notice 11-20-75
ethylene dichloride (1,2-dichloroethane)	J	FR Availibility Notice 11-20-75
methyl bromide	J	Transmitted to OSHA 5-27-76
methyl chloroform (1,1,1-trichloroethane)	J	FR Availibility Notice 11-20-75
tetrachloroethylene (perchloroethylene)	J	FR Availibility Notice 11-20-75
1,1,2- trichloroethane	J	FR Availibility Notice 11-20-75
trichloroethylene	J	FR Proposed Rule 10-20-75 (1)
acrylonitrile	K	FR Availability Notice 4-27-76
aniline	K	FR Availability Notice 4-27-76
1,1- dimethylhydrazine	K	Transmitted to OSHA 5-27-76
ethylamine	K	FR Availability Notice 4-27-76
n- ethylmorpholine	K	Transmitted to OSHA 5-27-76
isopropylamine	K	Transmitted to OSHA 5-27-76

Substance	Set	Status
monomethyl aniline	K	Transmitted to OSHA 5-27-76
monomethyl hydrazine	K	Transmitted to OSHA 5-27-76
morpholine	K	FR Availability Notice 4-27-76
triethylamine	K	Transmitted to OSHA 5-27-76
tetramethyl succinonitrile	K	Transmitted to OSHA 5-27-76
acetic anhydride	L	FR Availability Notice 4-27-76
acetonitrile (methyl cyanide)	L	FR Availability Notice 4-27-76
cresol, all isomers	L	FR Availability Notice 4-27-76
dimethylaniline	L	FR Availability Notice 4-27-76
hydrogen bromide	L	FR Availability Notice 4-27-76
hydrogen fluoride	L	FR Availability Notice 4-27-76
phenol	L	FR Availability Notice 4-27-76
phenylhydrazine	L	FR Availability Notice 4-27-76
pyridine	L	FR Availability Notice 4-27-76
sulfuric acid	L	FR Availability Notice 4-27-76
o- toluidine	L	FR Availability Notice 4-27-76
xylidine (dimethylaminobenzene)	L	FR Availability Notice 4-27-76
copper dusts and mists	M	Transmitted to OSHA 2-27-76
molybdenum soluble compounds	M	Transmitted to OSHA 2-27-76
phosphoric acid	M	Transmitted to OSHA 2-27-76
phthalic anhydride	M	Transmitted to OSHA 9-9-76
platinum, soluble salts as Pt	M	Transmitted to OSHA 2-27-76
rhodium, metal fume and dusts as Rh	M	Transmitted to OSHA 2-27-76
rhodium, soluble salts	M	Transmitted to OSHA 2-27-76
selenium compounds	M	Transmitted to OSHA 9-30-76
tellurium hexafluoride	M	Transmitted to OSHA 9-9-76
zirconium compounds	M	Transmitted to OSHA 9-30-76
tin inorganic compounds	N	Transmitted to OSHA 9-30-76
arsenic and compounds as As	N	FR Proposed Rule 1-21-75 (1)
beryllium and beryllium compounds	N	FR Proposed Rule 10-17-75 (1)
calcium oxide	N	Transmitted to OSHA 6-30-76
nickel, metal and soluble compounds as Ni	N	Transmitted to OSHA 6-30-76
soluble barium compounds	N	Transmitted to OSHA 9-30-76
tellurium	N	Transmitted to OSHA 9-30-76
yttrium	N	Transmitted to OSHA 9-30-76
chromic acid and chromates	O	Transmitted to OSHA 6-30-76
chromium metal and insoluble salts	O	Joint Review 11-20-75
chromium, soluble chromic and chromous salts as Cr	O	Transmitted to OSHA 6-30-76
lead and inorganic lead compounds	O	FR Proposed Rule 10-03-75 (1)
magnesium oxide fume	O	Transmitted to OSHA 9-9-76
titanium dioxide	O	Transmitted to OSHA 6-30-76
1,1- dichloro-1-nitroethane	P	Transmitted to OSHA 6-30-76
ethylene glycol dinitrate and/or nitroglycerin	P	Transmitted to OSHA 9-9-76
nitrobenzene	P	Transmitted to OSHA 6-30-76
p- nitrochlorobenzene	P	Transmitted to OSHA 6-30-76

Substance	Set	Status
tributyl phosphate	P	Transmitted to OSHA 9-9-76
triorthocresyl phosphate	P	Transmitted to OSHA 9-9-76
triphenyl phosphate	P	Transmitted to OSHA 6-30-76
hydrazine	Q	Transmitted to OSHA 9-9-76
nitrotoluene	Q	Transmitted to OSHA 9-9-76
n- propyl nitrate	Q	Transmitted to OSHA 9-9-76
tetranitromethane	Q	Transmitted to OSHA 9-9-76
tetryl (2,4,6-trinitrophenylmethylnitramine)	Q	Transmitted to OSHA 9-9-76
cyanide as CN	R	Transmitted to OSHA 9-27-76
dimethyl acetamide	R	Transmitted to OSHA 9-27-76
dimethyl formamide	R	Transmitted to OSHA 9-27-76
hydrogen chloride	R	Transmitted to OSHA 9-27-76
silica, amorphous including natural diatomaceous earth	R	Transmitted to OSHA 9-27-76
talc, non-asbestos form	R	Transmitted to OSHA 9-27-76
carbaryl (Sevin)	S	Transmitted to OSHA 9-30-76
ethyl silicate	S	Transmitted to OSHA 9-30-76
graphite, natural	S	Transmitted to OSHA 9-30-76
mica	S	Transmitted to OSHA 9-30-76
oil mist, mineral	S	Transmitted to OSHA 9-30-76
silica, crystalline (quartz)	S	Transmitted to OSHA 9-30-76
Portland cement	S	Transmitted to OSHA 9-30-76
soapstone	S	Transmitted to OSHA 9-30-76
o- dichlorobenzene	T	Transmitted to OSHA 9-27-76
EPN (o-ethyl-o-p-nitrophenyl thionobenzene phosphonate)	T	Transmitted to OSHA 9-27-76
ethylene oxide	T	Transmitted to OSHA 9-27-76
naphthalene	T	Transmitted to OSHA 9-27-76
nicotine	T	Transmitted to OSHA 9-27-76
parathion	T	Transmitted to OSHA 9-27-76
benzene	U	Transmitted to OSHA 9-30-76
thallium, soluble compounds	U	Transmitted to OSHA 9-30-76
diisobutyl ketone (2,6-dimethyl heptanone)	V	Transmitted to OSHA 9-30-76
isopropylether	V	Transmitted to OSHA 9-30-76
toluene	V	Transmitted to OSHA 9-30-76
cadmium dust	W	Transmitted to OSHA 9-30-76

KEY
(1) Promulgated separately from the Standards Completion Program.

Substance	Set	Reason for Review
antimony	A	Analytical Failure
methylene bisphenyl isocyanate (MDI)	A	Analytical Failure
p- nitroaniline	A	Analytical Failure
chloroacetaldehyde	B	Analytical Failure
alpha- chloroacetophenone (phenacyl chloride)	B	Analytical Failure
Pival (pivalyl-1,3-indandione)	B	Analytical Failure
acrolein	C	Analytical Failure
diphenyl (biphenyl)	C	Analytical Failure
furfural	C	Analytical Failure
dimethylphthalate	D	Analytical Failure
methyl methacrylate	D	Analytical Failure
ethyl alcohol (ethanol)	E	Deleted from SCP
hydroquinone	E	Analytical Failure
cyclopentadiene	F	Analytical Failure
diglycidyl ether	F	Analytical Failure
methyl acetylene (propyne)	F	Analytical Failure
hexane	G	TLV Change
methyl acetylene-propadiene mixture (MAPP)	G	Analytical Failure
chloroprene	H	Analytical Failure
dichlorodifluoromethane	H	Analytical Failure
dichloromonofluoromethane	H	Analytical Failure
dichlorotetrafluoroethane (refrigerant 114)	H	Analytical Failure
ethyl chloride	H	Analytical Failure
ethylene chlorohydrin	H	TLV Change
fluorotrichloromethane	H	Analytical Failure
methyl chloride	H	Analytical Failure
chlorodiphenyl (42% chlorine)	I	Analytical Failure
1,3- dichloro-5,5-dimenthylhydantoin	I	Analytical Failure
butylamine	J	Analytical Failure
diethylamino ethanol	J	Analytical Failure
diisopropylamine	J	Analytical Failure
ethanolamine	J	Analytical Failure
phosgene	J	Analytical Failure
methylene chloride	J	TLV Change
acrylamide	K	Analytical Failure
2- aminopyridine	K	Analytical Failure
o- chlorobenzylidene malononitrile (OCBM)	K	Analytical Failure
ethylenediamine (1,2 diaminoethane)	K	Analytical Failure
methylamine	K	Analytical Failure
p- phenylene diamine	K	Analytical Failure
propylene imine	K	Analytical Failure

Substance	Set	Reason for Review
acetic acid	L	Analytical Failure
allyl propyl disulfide	L	Deleted from SCP
anisidine, ortho and para isomers	L	Analytical Failure
dinitro-o-cresol	L	Analytical Failure
formic acid	L	Analytical Failure
oxalic acid	L	Analytical Failure
crotonaldehyde (beta-methyl acrolein)	M	Analytical Failure
hafnium	M	Analytical Failure
2- hexanone (methyl butyl ketone or MBK)	M	TLV Change
maleic anhydride	M	Analytical Failure
osmium tetroxide	M	Analytical Failure
phosphorus, yellow	M	Analytical Failure
quinone (p-benzoquinone)	M	Analytical Failure
tert- butyl chromate as CrO3	N	Analytical Failure
cadmium fume	N	Analytical Failure
calcium arsenate	N	Analytical Failure
cobalt metal fume and dust	N	TLV Change/Analytical Failure
copper fume	N	Analytical Failure
ferrovandium dust	N	Analytical Failure
lithium hydride	N	Analytical Failure
mercury	N	TLV Change/Analytical Failure
silver metal and soluble compounds	N	Analytical Failure
tantalum	N	Analytical Failure
tin, organic compounds	N	Analytical Failure
hydrogen selenide	O	Analytical Failure
iron oxide fume	O	Analytical Failure
molybdenum insoluble compounds	O	No Analytical Method
phosphine	O	Analytical Failure
stibine	O	Analytical Failure
uranium, insoluble compounds	O	Analytical Failure
uranium, soluble compounds	O	Analytical Failure
vanadium V2O5 dust	O	Analytical Failure
vanadium V2O5 fume	O	Analytical Failure
zinc chloride fume	O	Analytical Failure
zinc oxide fume	O	Analytical Failure
1- chloro-1-nitropropane	P	Analytical Failure
chloropicrin	P	Analytical Failure
dibutyl phosphate	P	Analytical Failure
dimethyl 1-1,2-dibromo -2-2-dichloroethyl phosphate	P	Analytical Failure
dinitrobenzene, all isomers	P	Analytical Failure
dinitrotoluene	P	Analytical Failure
nickel carbonyl	P	Analytical Failure
nitroethane	P	Analytical Failure
nitromethane	P	Analytical Failure
1- nitropropane	P	Analytical Failure
2- nitropropane	P	Analytical Failure

Substance	Set	Reason for Review
boron trifluoride	Q	Analytical Failure
bromine	Q	Analytical Failure
chlorine dioxide	Q	Analytical Failure
chlorine trifluoride	Q	Analytical Failure
decaborane	Q	Analytical Failure
diborane	Q	Analytical Failure
iodine	Q	Analytical Failure
nitrogen trifluoride	Q	Analytical Failure
pentaborane	Q	Analytical Failure
perchloryl fluoride	Q	Analytical Failure
picric acid	Q	Analytical Failure
selenium hexafluoride	Q	Analytical Failure
trinitrotoluene (TNT)	Q	Analytical Failure
benzoyl peroxide	R	Analytical Failure
carbon black	R	No Analytical Method
carbon dioxide	R	Analytical Failure
carbon disulfide	R	No Analytical Method
oxygen difluoride	R	Analytical Failure
phosphorus pentachloride	R	Analytical Failure
phosphorus pentasulfide	R	Analytical Failure
phosphorus trichloride	R	Analytical Failure
sulfur hexafluoride	R	Deleted from SCP
sulfur pentafluoride	R	Analytical Failure
sulfuryl fluoride	R	Analytical Failure
thiram (tetramethyl thiuram disulfide)	R	Analytical Failure
aldrin	S	No Analytical Method
ANTU (alpha-napthyl thiourea)	S	Analytical Failure
azinphos-methyl	S	Analytical Failure
borone oxide	S	No Analytical Method
chlorodane	S	Analytical Failure
DDT (2,2-bis (p-chlorophenyl) 1,1,1-trachlorethane)	S	No Analytical Method
hydrogen peroxide, 90%	S	Analytical Failure
methyl isocyanate	S	Analytical Failure
perchchloromethyl mercaptan	S	Analytical Failure
sulfur monochloride	S	Analytical Failure
2,4- D (2,4-dichlorophenoxyacetic acid)	T	Analytical Failure
Demeton (System)	T	Analytical Failure
dichlorvos (DDVP)	T	Analytical Failure
dieldrin	T	No Analytical Method
endrin	T	Analytical Failure
heptachlor	T	Analytical Failure
hydrogen cyanide	T	Analytical Failure
lead arsenate	T	Analytical Failure
lindane	T	No Analytical Method
methyl formate	T	Analytical Failure
paraquat	T	Analytical Failure
Phosdrin	T	Analytical Failure

Substance	Set	Reason for Review
Crag herbicide (sesone)	U	Analytical Failure
malathion	U	Analytical Failure
nitric acid	U	Analytical Failure
nitric oxide	U	Analytical Failure
nitrogen dioxide	U	Analytical Failure
pentachlorophenol (PCP)	U	Analytical Failure
pyrethrum	U	Analytical Failure
ronnel	U	Analytical Failure
rotenone	U	Analytical Failure
sodium fluoroacetate	U	Analytical Failure
strychnine	U	Analytical Failure
2,4,5- T (2,4,5-trichlorophenoxyacetic acid)	U	Analytical Failure
TEDP (tetraethyl pyrophosphate)	U	Analytical Failure
TEPP (tetraethyl pyrophosphate)	U	Analytical Failure
warfarin	U	Analytical Failure
xylene (xylol or dimethyl benzene)	U	No Analytical Method
acetaldehyde	V	Analytical Failure
allyl glycidyl ether (AGE)	V	Analytical Failure
ammonia	V	Analytical Failure
chlorine	V	Analytical Failure
dichloroethyl ether	V	TLV Change
2- ethoxyethanol	V	Analytical Failure
ethyl mercaptan	V	TLV Change/Analytical Failure
ferbam (ferric dimethyl dithio-cabamate)	V	Analytical Failure
fluorine	V	Analytical Failure
formaldehyde	V	TLV Change/No Analytical Method
furfuryl alcohol	V	TLV Change/Analytical Failure
isophorone	V	TLV Change
methyl mercaptan (methanethiol)	V	TLV Change/Analytical Failure
sulfur dioxide	V	Analytical Failure
toluene-2,4-diisocyanate (TDI)	V	Analytical Failure
ammonium sulfamate (Ammate Herbicide)	W	No Analytical Method
butyl mercaptan (n-butanethiol)	W	TLV Change/Analytical Failure
carbon monoxide	W	Analytical Failure
coal tar pitch volatiles	W	Analytical Failure
cotton dust, raw	W	Analytical Failure
dimethylsulfate	W	Analytical Failure
ethylene imine	W	Deleted from SCP
fluoride in dust (as F)	W	Analytical Failure
methoxychlor	W	Analytical Failure
o- methycyclohexanone	W	Analytical Failure
methylcyclohexanol	W	Analytical Failure
organo (alkyl) mercury	W	Analytical Failure
sodium hydroxide	W	Analytical Failure
tetraethyl lead as Pb	W	Analytical Failure
tetramethyl lead as Pb	W	Analytical Failure

Arthur D Little, Inc

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Standards Completion Project Compounds

Anticipated to Have Action Level Regulations

acetylene tetrabromide
aldrin
allyl chloride
aminopyridine
anisidine (ortho and para isomers)

antimony and compounds
ANTU
aresnic and compounds
azinphos-methyl
barium compounds, soluble

benzene
benzoyl peroxide
benzyl chloride
beryllium and beryllium compounds
bromoform

2-butoxy ethanol
tert-butyl chromate
p-tert-butyltoluene
cadmium dust
cadmium fume

calcium arsenate
carbaryl
carbon black
carbon disulfide
carbon tetrachloride

chlordane
chlorinated camphene
chlorinated diphenyl oxice
chlorine
chlorobromomethane

chlorodiphenyl, 42% chloride
chlorodiphynyl, 54% chloride
chloroform
chromic acid and chormates
chromium as soluble chromic and chromous salts
chromium metal and insoluble salts
coal tar pitch volatiles
cobalt metal fume and dust
cotton dust
Crag herbicide

cyclohexanone
cyclohexanol
cyclonexene
DDT
Demeton

diazomethane
p-dichlorobenzene
1,1-dichloroethane
dieldrin
difluorodibromomethane

diglycidyl ether
dimethyl acetamide
dimethyl formamide
dimethylamine
1,1-dimethylhydrazine

dinitro-o-cresol
dioxane
dipropylene glycol methyl ether
endrin
epichlorohydrin

EPN
ethanolamine
2-ethoxyethanol
2-ethoxyethylacetate
ethyl bromide

ethyl silicate
ethylene dibromide
ethylene dichloride
ethylene glycol dinitrate and/or nitroglycerin
ethylene oxide

fluoride
graphite, natural
hafnium
heptachlor
heptane

hexachloroethane
hexachloronaphthalene
2-hexanone
hydrazine
hydrogen fluoride

CBY 2390251

hydroquinone
iron oxide fume
isopropyl glycidyl ether
lead and inorganic lead compounds
lead arsenate

lindane
malthion
manganese
mercury
methyl iodide

methylal
mica
molybdenum soluble compounds
molybdenum insoluble compounds
monomethyl hydrazine

naphthalene
nickel carbonyl
nickel metal and soluble compounds
nitrogen trifluoride
octachloronaphthalene

organo mercury
oxygen difluoride
ozone
paraquat
parathion

pentaborane
pentachloronaphthalene
perchloryl fluoride
phenol
Phosdrin

phosphorus, yellow
picric acid
Pival
n-propyl nitrate
propylene oxide
propylene dichloride

pryidine
quinone
ronnel
rotenone
selenium compounds

silica, amorphous
silica, crystalline
silver metal and soluble compounds
soapstone
sulfuryl fluoride

talc
TEDP
tellurium
TEPP
1,2,2-tetrachloro-1,2-difluoroethane

1,1,2-tetrachloro-2,2-difluoroethane
1,2,2-tetrachloroethane
tetrachloronaphthalene
tetraethyl lead
tetramethyl lead

tetranitromethane
tetryl-
thallium compounds, soluble
tin compounds, organic
tin compounds, inorganic

o-toluidine
1,1,2-trichloroethane
trichloroethylene
trichloronaphthalene
1,2,3-trichloropropane

trinitrotoluene
triorthocresyl phosphate
triphenyl phosphate
turpentine
uranium soluble compounds
uranium insoluble compounds

warfarin
yttrium
zirconium compounds
p-nitroaniline

CBY 2390252

REFERENCE GUIDE TO OSHA'S 14 CARCINOGEN STANDARDS

STANDARD	CARCINOGEN	DESCRIPTION
1910 93c	4 Nitrobiphenyl (PNB)	Shown to cause bladder cancer in men and dogs Listed by the American Conference of Governmental Hygienists (ACGIH) as a human carcinogen
1910 93d	alpha Naphthylamine	Carcinogenicity of its pure form disputed It commonly contains some beta-Naphthylamine, a proven human carcinogen Not listed by the ACGIH as a carcinogen
1910 93e	4, 4'-Methylene bis (2-chloroaniline) (MOCA)	One of the most disputed of the carcinogens Reportedly experimentally shown to cause cancer in rats, but failed to show cancer in dogs Listed by ACGIH as an experimental carcinogen
1910 93f	Methyl chloromethyl ether	Also called Chloromethyl methyl ether (CMME). Shown to cause lung cancer in man Listed by ACGIH as a human carcinogen
1910 93g	3, 3'-Dichlorobenzidine (and its salts) (DCB)	Experimentally shown to cause bladder, liver, and other cancers in hamsters and rats Listed by ACGIH as an experimental carcinogen
1910.93h	bis-Chloromethyl ether (BCME)	Shown to cause lung cancer in men, rats, and mice. Listed by ACGIH as a human carcinogen.
1910 93i	beta-Naphthy amine (BNA)	Has been shown to cause urinary bladder cancer in men, dogs and monkeys Listed by ACGIH as a human carcinogen.
1910 93j	Benzidine	Shown to cause bladder cancer in men and animals Listed by ACGIH as a human carcinogen.
1910.93k	4-Ammodiphenyl (PAB)	Shown to cause bladder cancer in man and animals. Listed by ACGIH as a human carcinogen.
1910 93l	Ethyleneimine (EI)	Experimentally shown to cause lung cancer in mice Listed by ACGIH as an experimental carcinogen
1910 93m	beta Propiolactone (BPL)	Experimentally shown to cause skin tumors in mice. Listed by ACGIH as an experimental carcinogen
1910 93n	2-Acetylaminofluorene (AAF)	Experimentally shown to cause bladder cancer in mice, dogs, rabbits, fowl and cats. Listed by ACGIH as an experimental carcinogen
1910 93o	4 Dimethylaminoazobenzene (DAB)	Experimentally shown to cause liver cancer in rats Listed by ACGIH as an experimental carcinogen.
1910 93p	N-Nitrosodimethylamine (DMN)	Experimentally shown to cause liver and other cancers to several animal species Listed by ACGIH as an experimental carcinogen.