

MEMORANDUM

TO: Pittsburgh Associates  
George Heym  
Pittsburgh Paralegals

FROM: JMS

DATE: September 21, 1998

RE: Eisenreich/US Steel

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Approximately a week ago, I issued a memo advising all of the associates and relevant parties to read the rather lengthy US Steel memo which I prepared. In my memo I described the air sampling done by John Masaitis at US Steel Neville Island in 1972. Mr. Masaitis looked at five US Steel mechanics/insulators installing and/or removing asbestos. In my memo I advised you that I had contacted the steelworkers, more specifically, Lou Kelly, to find out the status of the five steelworkers. Three of the steelworkers who participated in the air sampling are deceased; one is currently working for Aristech, and the other gentleman's whereabouts are unknown. I indicated that I was going to attach the letter I received from the steelworkers and I failed to do so. Attached for your review is a copy of the study that was done, the letter from a staff rep from the steelworkers and the 1958 threshold limit value prepared by the ACGIH. I had indicated in my memo that I attached all of those documents but I failed to do so.

I am requesting that Dave Goldberg and George Heym work together in tracking down Mr. Jagieski and seeing if we can determine the whereabouts of John Anderson. I would like both of you to work on securing an affidavit from Jagieski regarding the air sampling study in 1972. The gist of the affidavit would essentially be that it was the previous practice of the mechanics to use power tools or saws when cutting the asbestos-containing pipecovering. Prior to this air sampling that Masaitis completed, Jagieski and other mechanics never utilized a wet down procedure. It was Mr. Masaitis who told them, for purposes of this air sampling, to wet down the insulation. Thank you for your anticipated cooperation.

# UNITED STEELWORKERS OF AMERICA



ANDREW V. PALM, DIRECTOR  
DISTRICT 10  
PENNSYLVANIA

390 OHIO RIVER BOULEVARD BADEN, PA 15005  
PHONE (724) 869-3933 FAX (724) 869-5869



August 31, 1998

Janice M. Savinis, Attorney At Law  
Goldberg, Persky, Jennings, & White P.C.  
Third Floor  
1030 Fifth Avenue  
Pittsburgh, PA 15219-6295

**RE: Request for information on Neville Island employees**

Dear Ms. Savinis:

Please be advised that employees' Leidy, Ravlish, and Diczno are deceased.

Henry Jagieski is presently employed at the same location, but with the new (1985) owners, Aristech Chemical Corp. Mr. Jagieski can be reached at (412) 778-3337, which is the maintenance shop number.

John Anderson took an early pension (30 years), and his whereabouts is unknown.

Sincerely yours,

Charles F. Leonard  
Staff Representative

:jd

c: J. Johnson, Assistant to the Director  
L. Kelley, Assistant to the Director



Interorganization Correspondence

Date: September 21, 1972

To: Peter M. Serokis  
Plant Manager  
Neville Island Plant  
USS Chemicals

From: Kenneth M. Morse, Director  
Environmental Health

Subject: Asbestos Survey  
Insulation Work

Pursuant to your request, the asbestos exposures of mechanics doing insulation work were evaluated at the Neville Island Plant by our Environmental Health Engineer, Mr. Jack Masaitis, during the periods of August 29-30 and September 7-8, 1972.

This study was accomplished by collecting 36 samples in the employees' breathing zone while removing deteriorated insulation, cutting, installing and finishing new insulation. The results of the samples are presented on the attached table, along with the Federal standards, and are the basis for the following conclusions and recommendations.

Conclusions

1. The mechanics' time-weighted average exposure to asbestos while doing insulation work were all well below the current Federal standard and also below the established standard that will become effective as of July 1, 1976.
2. The highest short-term exposure was 3.5 fibers/ml, and this occurred during a 15-minute period when old insulation was being removed. This exposure is below the allowable excursion limit of 10 fibers/ml which cannot be exceeded.

Recommendations

Although the mechanics' asbestos exposures were not excessive, it is being suggested that the practice of wetting the insulation before handling be continued to minimize the asbestos exposures.

Results of the Survey

During the four-day period comprising this survey, normal tasks involved with removing the old insulation and installing new insulation were performed. The highest exposures occurred from the dust generated when the old insulation was removed and from cutting and handling the new insulation.

USEI000045

The effects of wetting insulation before handling is somewhat manifested by comparing the September 7 and 8 exposures of Henry Jagielski. This employee did the bulk of removing the old insulation and fitting of the pre-formed insulation shells on these days. As indicated, his exposure was 1.1 fibers/ml on September 7 when the insulation was not wetted, as compared to 0.7 fibers/ml on September 8 when the practice of wetting the insulation was initiated. The mechanics showing the lowest time-weighted average exposures were, for the most part, involved in finish-type work.

The results of this survey indicate that the mechanics doing insulation work are not subjected to excessive asbestos concentrations. In view of this, and the major manufacturers commencing to producing asbestos-free insulation in the upcoming year, no health problems from asbestos are anticipated at the Neville Island Plant from insulation work.

JBM/mdd

**Attachment**

USEI000046

Plant: Neville Island  
 Dates of Survey: 8-29, 30, 9-7,  
 Project No. 72-211  
 Survey Eng. J. R. Masaitis 72

| Test Location |                 | Asbestos Exposure - Full shift Fibers/Ml |           |   |      |           |     |     |           |          |     |           |  | Area Concentration - (ug/m <sup>3</sup> ) |           |  |      |           |  |     |           |  |     |           |  |  |
|---------------|-----------------|------------------------------------------|-----------|---|------|-----------|-----|-----|-----------|----------|-----|-----------|--|-------------------------------------------|-----------|--|------|-----------|--|-----|-----------|--|-----|-----------|--|--|
|               |                 | 8/29                                     |           |   | 8/30 |           |     | 9/7 |           |          | 9/8 |           |  | Dust                                      |           |  | Fume |           |  | No. |           |  | No. |           |  |  |
|               |                 | No.                                      | $\bar{X}$ |   | No.  | $\bar{X}$ |     | No. | $\bar{X}$ |          | No. | $\bar{X}$ |  | No.                                       | $\bar{X}$ |  | No.  | $\bar{X}$ |  | No. | $\bar{X}$ |  | No. | $\bar{X}$ |  |  |
| Dept.         | Job             |                                          |           |   |      |           |     |     |           |          |     |           |  |                                           |           |  |      |           |  |     |           |  |     |           |  |  |
| Maintenance   | Ambros          |                                          |           |   |      |           |     |     |           |          |     |           |  |                                           |           |  |      |           |  |     |           |  |     |           |  |  |
|               | Leidy           | 3                                        | 0.1       | 2 | 0.6  | 3         | 0.4 | 2   | 0.3       | DECLASED |     |           |  |                                           |           |  |      |           |  |     |           |  |     |           |  |  |
|               | Henry Jagielski | 3                                        | 0.7       | 2 | 0.4  | 4         | 1.1 | 3   | 0.7       | DECLASED |     |           |  |                                           |           |  |      |           |  |     |           |  |     |           |  |  |
|               | Joseph Pavelish | 3                                        | 0.3       | 2 | 0.1  | 2         | 0.1 | 2   | 0.3       | DECLASED |     |           |  |                                           |           |  |      |           |  |     |           |  |     |           |  |  |
|               | Andy Diclenzo   | 1                                        | 0.7       |   |      |           |     |     |           |          |     |           |  | DECLASED                                  |           |  |      |           |  |     |           |  |     |           |  |  |
|               | John Anderson   |                                          |           |   |      |           | 2   | 0.2 | 2         | 0.2      |     |           |  |                                           |           |  |      |           |  |     |           |  |     |           |  |  |
|               |                 |                                          |           |   |      |           |     |     |           |          |     |           |  |                                           |           |  |      |           |  |     |           |  |     |           |  |  |
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|               |                 |                                          |           |   |      |           |     |     |           |          |     |           |  |                                           |           |  |      |           |  |     |           |  |     |           |  |  |

**Federal Side.:**

Percent-5 fibers/milliliter > 5 micron in length  
Effective-2 fibers/milliliter > 2 micron in length  
July 1, 1956

**Notes:**

|             |                 |
|-------------|-----------------|
| No. —       | Number of Tests |
| $\bar{X}$ — | Mean Avg. Value |

Date of Report:

Exceeds 10 fibers/milliliter (Cannot exceed)

## **Threshold Limit Values for 1958**

*Adopted at the 20th Annual Meeting of the American  
Conference of Governmental Industrial Hygienists  
Atlantic City, April 19-22, 1958*

*Reprinted from the A. M. A. Archives of Industrial Health  
August 1958, Vol. 18, pp. 178-182  
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USEI000107

## Threshold Limit Values for 1958

*Adopted at the 20th Annual Meeting of the American  
Conference of Governmental Industrial Hygienists  
Atlantic City, April 19-22, 1958*

Threshold limits should be used as guides in the control of health hazards and should not be regarded as fine lines between safe and dangerous concentrations. They represent conditions under which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse effect. The values listed refer to time-weighted average concentrations for a normal work day. The amount by which these figures may be exceeded for short periods without injury to health depends upon a number of factors, such as the nature of the contaminant, whether very high concentrations even for short periods produce acute poisoning, whether the effects are cumulative, the frequency with which high concentrations occur, and the duration of such periods. All must be taken into consideration in arriving at a decision as to whether a hazardous situation exists. Special consideration should be given to the application of these values in the evaluation of the health hazards which may be associated with exposure to combinations of two or more substances.

Threshold limits are based on the best available information from industrial experience, from experimental studies, and, when possible, from a combination of the two. These values are based on various criteria of toxic effects or on marked discomfort; thus, they should not be used as a common denominator of toxicity, nor should they be considered as the sole criterion in proving or disproving diagnosis of suspected occupational disease.

These limits are intended for use in the field of industrial hygiene and should be employed by persons trained in this field. They are not intended for use, or for modification for use, in the evaluation or control of community air pollution or air-pollution nuisances.

These values are reviewed annually by the Committee on Threshold Limits for changes, revisions, or additions as further information becomes available. The Committee welcomes the suggestion of substances to be added to the list and also comments, references, or reports of experience with these materials.

Submitted for publication May 5, 1958.

### RECOMMENDED VALUES

#### Gases and Vapors

| SUBSTANCE              | PPM*  | Approx.<br>Mg. per<br>Cu. M.† | SUBSTANCE                 | PPM* | Approx.<br>Mg. per<br>Cu. M.† |
|------------------------|-------|-------------------------------|---------------------------|------|-------------------------------|
| Acetaldehyde .....     | 200   | 360                           | Allyl propyl disulfide .. | 2    | 12                            |
| Acetic acid .....      | 10    | 25                            | Ammonia .....             | 100  | 70                            |
| Acetic anhydride ..... | 5     | 20                            | Amyl acetate .....        | 200  | 1,050                         |
| Acetone .....          | 1,000 | 2,400                         | Amyl alcohol              |      |                               |
| Acrolein .....         | 0.5   | 1.2                           | (isoamyl alcohol) ....    | 100  | 360                           |
| Acrylonitrile .....    | 20    | 45                            | Aniline .....             | 5    | 19                            |
| Allyl alcohol .....    | 5     | 12                            | Arsine .....              | 0.05 | 0.2                           |
| Allyl chloride .....   | 5     | 15                            | Benzene (benzol) .....    | 25   | 80                            |

# THRESHOLD LIMIT VALUES FOR 1958

| SUBSTANCE                                  | PPM*  | Approx.<br>Mg. per<br>Cu. M. † | SUBSTANCE                                          | PPM*  | Approx.<br>Mg. per<br>Cu. M. † |
|--------------------------------------------|-------|--------------------------------|----------------------------------------------------|-------|--------------------------------|
| Benzyl chloride .....                      | 1     | 5                              | Dimethylaniline                                    |       |                                |
| Bromine .....                              | 1     | 7                              | (N-dimethylaniline) ..                             | 5     | 25                             |
| Butadiene                                  |       |                                | Dimethylsulfate .....                              | 1     | 5                              |
| (1,3-butadiene) .....                      | 1,000 | 2,200                          | Dioxane (diethylene<br>dioxide) .....              | 100   | 360                            |
| Butanone                                   |       |                                | Ethyl acetate .....                                | 400   | 1,400                          |
| (methyl ethyl ketone) .                    | 250   | 740                            | Ethyl acrylate .....                               | 25    | 100                            |
| Buryl acetate                              |       |                                | Ethyl alcohol (ethanol) ..                         | 1,000 | 1,900                          |
| (n-butyl acetate) ....                     | 200   | 950                            | Ethylamine .....                                   | 25    | 45                             |
| Buryl alcohol                              |       |                                | Ethylbenzene .....                                 | 200   | 870                            |
| (n-butanol) .....                          | 100   | 300                            | Ethyl bromide .....                                | 200   | 890                            |
| Butylamine .....                           | 5     | 15                             | Ethyl chloride .....                               | 1,000 | 2,600                          |
| Buryl cellosolve                           |       |                                | Ethyl ether .....                                  | 400   | 1,200                          |
| (2-butoxyethanol) ....                     | 50    | 240                            | Ethyl formate .....                                | 100   | 300                            |
| Carbon dioxide .....                       | 5,000 | 9,000                          | Ethyl silicate .....                               | 100   | 850                            |
| Carbon disulfide .....                     | 20    | 60                             | Ethylene chlorohydrin ..                           | 5     | 16                             |
| Carbon monoxide .....                      | 100   | 110                            | Ethylenediamine .....                              | 10    | 30                             |
| Carbon tetrachloride ....                  | 25    | 160                            | Ethylene dibromide                                 |       |                                |
| Cellosolve                                 |       |                                | (1,2-dibromoethane) ..                             | 25    | 190                            |
| (2-ethoxyethanol) ....                     | 200   | 740                            | Ethylene imine .....                               | 5     | 9                              |
| Cellosolve acetate                         |       |                                | Ethylene oxide .....                               | 50    | 90                             |
| (2-ethoxyethyl acetate) ..                 | 100   | 540                            | Fluorine .....                                     | 0.1   | 0.2                            |
| Chlorine .....                             | 1     | 3                              | Fluorotrichloromethane .                           | 1,000 | 5,600                          |
| Chlorine trifluoride ....                  | 0.1   | 0.4                            | Formaldehyde .....                                 | 5     | 6                              |
| Chlorobenzene                              |       |                                | Furfural .....                                     | 5     | 20                             |
| (monochlorobenzene) ..                     | 75    | 350                            | Gasoline .....                                     | 500   | 2,000                          |
| Chloroform                                 |       |                                | Heptane (n-heptane) ...                            | 500   | 2,000                          |
| (trichloromethane) ...                     | 100   | 490                            | Hexane (n-hexane) ...                              | 500   | 1,800                          |
| 1-Chloro-1-nitropropane .                  | 20    | 100                            | Hexanone (methyl butyl<br>ketone) .....            | 100   | 410                            |
| Chloropicrin .....                         | 1     | 7                              | Hexone (methyl isobutyl<br>ketone) .....           | 100   | 410                            |
| Chloroprene                                |       |                                | Hydrazine .....                                    | 1     | 1.3                            |
| (2-chloro-1,3-butadiene) ..                | 25    | 90                             | Hydrogen bromide .....                             | 5     | 17                             |
| Cresol (all isomers) ...                   | 5     | 22                             | Hydrogen chloride .....                            | 5     | 7                              |
| Cyclohexane .....                          | 400   | 1,400                          | Hydrogen cyanide .....                             | 10    | 11                             |
| Cyclohexanol .....                         | 100   | 410                            | Hydrogen fluoride .....                            | 3     | 2                              |
| Cyclohexanone .....                        | 100   | 400                            | Hydrogen peroxide, 90% ..                          | 1     | 1.4                            |
| Cyclohexene .....                          | 400   | 1,350                          | Hydrogen selenide .....                            | 0.05  | 0.2                            |
| Cyclopropane .....                         | 400   | 690                            | Hydrogen sulfide .....                             | 20    | 30                             |
| Decaborane .....                           | 0.05  | 0.3                            | Iodine .....                                       | 0.1   | 1                              |
| Diacetone alcohol                          |       |                                | Isophorone .....                                   | 25    | 140                            |
| (4-hydroxy-4-methyl-<br>2-pentanone) ..... | 50    | 240                            | Isopropylamine .....                               | 5     | 12                             |
| Diborane .....                             | 0.1   | 0.1                            | Mesityl oxide .....                                | 25    | 100                            |
| o-Dichlorobenzene .....                    | 50    | 300                            | Methyl acetate .....                               | 200   | 610                            |
| Dichlorodifluoromethane ..                 | 1,000 | 4,950                          | Methyl acrylene .....                              | 1,000 | 1,650                          |
| 1,1-Dichloroethane .....                   | 100   | 400                            | Methyl acrylate .....                              | 10    | 35                             |
| 1,2-Dichloroethane                         |       |                                | Methyl alcohol                                     |       |                                |
| (ethylene dichloride) ..                   | 100   | 400                            | (methanol) .....                                   | 200   | 260                            |
| 1,2-Dichloroethylene ....                  | 200   | 790                            | Methyl bromide .....                               | 20    | 80                             |
| Dichloroethyl ether .....                  | 15    | 90                             | Methyl cellosolve                                  |       |                                |
| Dichloromonofluoro-<br>methane .....       | 1,000 | 4,200                          | (2-methoxyethanol) ..                              | 25    | 80                             |
| 1,1-Dichloro-1-nitro-<br>ethane .....      | 10    | 60                             | Methyl cellosolve acetate                          |       |                                |
| Dichlorotetrafluoroethane ..               | 1,000 | 7,000                          | (ethylene glycol mono-<br>methyl ether acetate) .. | 25    | 120                            |
| Diethylamine .....                         | 25    | 75                             | Methyl chloride .....                              | 100   | 210                            |
| Difluorodibromomethane ..                  | 100   | 860                            |                                                    |       |                                |
| Dialobutyl ketone .....                    | 50    | 290                            |                                                    |       |                                |

A.M.A. ARCHIVES OF INDUSTRIAL HEALTH

| SUBSTANCE                                            | PPM * | Approx.<br>Mg. per<br>Cu. M. † | SUBSTANCE                                       | PPM * | Approx.<br>Mg. per<br>Cu. M. † |
|------------------------------------------------------|-------|--------------------------------|-------------------------------------------------|-------|--------------------------------|
| Methylal (dimethoxy-<br>methane) .....               | 1,000 | 3,100                          | Phosphine .....                                 | 0.05  | 0.07                           |
| Methyl chloroform<br>(1,1,1-trichloroethane) .....   | 500   | 2,700                          | Phosphorus trichloride ..                       | 0.5   | 3                              |
| Methylcyclohexane .....                              | 500   | 2,000                          | Propyl acetate .....                            | 200   | 840                            |
| Methylcyclohexanol .....                             | 100   | 470                            | Propyl alcohol<br>(isopropyl alcohol) ..        | 400   | 980                            |
| Methylcyclohexanone .....                            | 100   | 460                            | Propyl ether<br>(isopropyl ether) ....          | 500   | 2,100                          |
| Methyl formate .....                                 | 100   | 250                            | Propylene dichloride<br>(1,2-dichloropropane) . | 75    | 350                            |
| Methyl isobutyl carbinol<br>(methyl amyl alcohol) .. | 25    | 100                            | Propylene imine .....                           | 25    | 60                             |
| Methylene chloride<br>(dichloromethane) ....         | 500   | 1,750                          | Pyridine .....                                  | 10    | 30                             |
| Naphtha (coal tar) ....                              | 200   | 800                            | Quinone .....                                   | 0.1   | 0.4                            |
| Naphtha (petroleum) ...                              | 500   | 2,000                          | Stibine .....                                   | 0.1   | 0.5                            |
| Nickel carbonyl .....                                | 0.001 | 0.007                          | Stoddard solvent .....                          | 500   | 2,900                          |
| Nitric acid .....                                    | 10    | 25                             | Styrene monomer<br>(phenylethylene) .....       | 100   | 420                            |
| p-Nitroaniline .....                                 | 1     | 6                              | Sulfur dioxide .....                            | 5     | 13                             |
| Nitrobenzene .....                                   | 1     | 5                              | Sulfur hexafluoride ....                        | 1,000 | 6,000                          |
| Nitroethane .....                                    | 100   | 310                            | Sulfur monochloride ....                        | 1     | 6                              |
| Nitrogen dioxide .....                               | 5     | 9                              | Sulfur pentafluoride ....                       | 0.025 | 0.25                           |
| Nitroglycerin .....                                  | 0.5   | 5                              | p-Tertiarybutyltoluene ..                       | 10    | 60                             |
| Nitromethane .....                                   | 100   | 250                            | 1,1,2,2-Tetrachloroethane                       | 5     | 35                             |
| 2-Nitropropane .....                                 | 50    | 180                            | Tetrahydrofuran .....                           | 200   | 590                            |
| Nitrotoluene .....                                   | 5     | 30                             | Terranitromethane .....                         | 1     | 8                              |
| Octane .....                                         | 500   | 2,350                          | Toluene (toluol) .....                          | 200   | 750                            |
| Ozone .....                                          | 0.1   | 0.2                            | o-Toluidine .....                               | 5     | 22                             |
| Pentane .....                                        | 1,000 | 2,950                          | Trichloroethylene .....                         | 200   | 1,050                          |
| Pentanone<br>(methyl propyl ketone) ..               | 200   | 700                            | Trifluoromonobromo-<br>methane .....            | 1,000 | 6,100                          |
| Perchloroethylene<br>(tetrachloroethylene) .         | 200   | 1,350                          | Turpentine .....                                | 100   | 560                            |
| Phenol .....                                         | 5     | 19                             | Vinyl chloride<br>(chloroethylene) .....        | 500   | 1,300                          |
| Phenyldiazine .....                                  | 5     | 22                             | Xylene (xylol) .....                            | 200   | 870                            |
| Phosgene<br>(carbonyl chloride) ..                   | 1     | 4                              |                                                 |       |                                |

\* Parts of vapor or gas per million parts of air by volume.  
† Approximate milligrams per cubic meter of air.

Toxic Dusts, Fumes, and Mists

| SUBSTANCE                                                                                            | Mg. per<br>Cu. M. † | SUBSTANCE                                                                                                             | Mg. per<br>Cu. M. † |
|------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------|
| Aldrin (1,2,3,4,10,10-hexachloro-<br>1,4,4a,5,8,8a-hexahydro-1,4,5,8-<br>dimethanonaphthalene) ..... | 0.25                | Crag herbicide (sodium 2-[2,4-<br>dichlorophenoxy] ethanol hydrogen<br>sulfate) .....                                 | 15                  |
| Ammate (ammonium sulfamate) ....                                                                     | 15                  | Cyanide (as CN) .....                                                                                                 | 5                   |
| Antimony .....                                                                                       | 0.5                 | 2,4-D (2,4-dichlorophenoxyacetic acid)                                                                                | 10                  |
| ANTU (alpha-naphthyl-thiourea) ...                                                                   | 0.3                 | DDT (2,2-bis[p-chlorophenyl]-1,1,1-<br>trichloroethane) .....                                                         | 1                   |
| Arsenic .....                                                                                        | 0.5                 | Dieldrin (1,2,3,4,10,10-hexachloro-<br>6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-<br>1,4,5,8-dimethano-naphthalene) ..... | 0.25                |
| Barium (soluble compounds) .....                                                                     | 0.5                 | Dinitrobenzene .....                                                                                                  | 1                   |
| Cadmium oxide fume .....                                                                             | 0.1                 | Dinitrotoluene .....                                                                                                  | 1.5                 |
| Calcium arsenate .....                                                                               | 0.1                 | Dinitro-o-cresol .....                                                                                                | 0.2                 |
| Chlordane (1,2,4,5,6,7,8,8-<br>octachloro-3a,4,7,7a-tetrahydro-<br>4,7-methanoindane) .....          | 2                   | EPN (O-ethyl O-p-nitrophenyl<br>thionobenzenephosphonate) .....                                                       | 0.5                 |
| Chlorinated camphene, 60% .....                                                                      | 0.5                 | Ferbam (ferric dimethyl<br>dithiocarbamate) .....                                                                     | 15                  |
| Chlorinated diphenyl oxide .....                                                                     | 0.5                 |                                                                                                                       |                     |
| Chlorodiphenyl (42% chlorine) .....                                                                  | 1                   |                                                                                                                       |                     |
| Chlorodiphenyl (54% chlorine) .....                                                                  | 0.5                 |                                                                                                                       |                     |
| Chromic acid and chromates (as CrO <sub>3</sub> )                                                    | 0.1                 |                                                                                                                       |                     |

# THRESHOLD LIMIT VALUES FOR 1958

| SUBSTANCE                                                                | PPM* | Mg. per Cu. M. ‡ | SUBSTANCE                                                | PPM* | Mg. per Cu. M. ‡ |
|--------------------------------------------------------------------------|------|------------------|----------------------------------------------------------|------|------------------|
| Ferrovandium dust .....                                                  | 1    |                  | Strychnine .....                                         | 0.15 |                  |
| Fluoride .....                                                           | 2.5  |                  | Sulfuric acid .....                                      | 1    |                  |
| Hydroquinone .....                                                       | 2    |                  | TEDP (tetraethyl dithionopyrophosphate) .....            | 0.2  |                  |
| Iron oxide fume .....                                                    | 15   |                  | TEPP (tetraethyl pyrophosphate) ..                       | 0.05 |                  |
| Lead .....                                                               | 0.2  |                  | Tellurium .....                                          | 0.1  |                  |
| Lead arsenate .....                                                      | 0.15 |                  | Tetryl (2,4,6-trinitrophenyl-methylnitramine) .....      | 1.5  |                  |
| Lindane (hexachlorocyclohexane, gamma isomer) .....                      | 0.5  |                  | Thiram (tetramethyl thiuram disulfide) .....             | 5    |                  |
| Magnesium oxide fume .....                                               | 15   |                  | Thallium (soluble compounds) .....                       | 0.1  |                  |
| Malathion (O,O-dimethyl dithiophosphate of diethyl mercaptosuccinate) .. | 15   |                  | Titanium dioxide .....                                   | 15   |                  |
| Manganese .....                                                          | 6    |                  | Trichloronaphthalene .....                               | 5    |                  |
| Mercury .....                                                            | 0.1  |                  | Trinitrotoluene .....                                    | 1.5  |                  |
| Mercury (organic compounds) .....                                        | 0.01 |                  | Uranium                                                  |      |                  |
| Methoxychlor (2,2-di-p-methoxyphenyl-1,1,1-trichloroethane) .....        | 15   |                  | (soluble compounds) .....                                | 0.05 |                  |
| Molybdenum                                                               |      |                  | (insoluble compounds) .....                              | 0.25 |                  |
| (soluble compounds) .....                                                | 5    |                  | Vanadium                                                 |      |                  |
| (insoluble compounds) .....                                              | 15   |                  | (V <sub>2</sub> O <sub>5</sub> dust) .....               | 0.5  |                  |
| Nicotine .....                                                           | 0.5  |                  | (V <sub>2</sub> O <sub>5</sub> fume) .....               | 0.1  |                  |
| Parathion (O,O-diethyl O-p-nitrophenyl thiophosphate) .....              | 0.1  |                  | Warfarin (3-[α acetonilybenzyl]-4-hydroxycoumarin) ..... | 0.5  |                  |
| Pentachloronaphthalene .....                                             | 0.5  |                  | Zinc oxide fumes .....                                   | 15   |                  |
| Pentachlorophenol .....                                                  | 0.5  |                  | Zirconium compounds (as Zr) .....                        | 5    |                  |
| Phosphorus (yellow) .....                                                | 0.1  |                  |                                                          |      |                  |
| Phosphorus pentachloride .....                                           | 1    |                  |                                                          |      |                  |
| Phosphorus pentasulfide .....                                            | 1    |                  |                                                          |      |                  |
| Picric acid .....                                                        | 0.1  |                  |                                                          |      |                  |
| Pyrethrum .....                                                          | 2    |                  |                                                          |      |                  |
| Rotenone .....                                                           | 5    |                  |                                                          |      |                  |
| Selenium compounds (as Se) .....                                         | 0.1  |                  |                                                          |      |                  |
| Sodium fluoroacetate (1080) .....                                        | 0.1  |                  |                                                          |      |                  |
| Sodium hydroxide .....                                                   | 2    |                  |                                                          |      |                  |

Radioactivity: For permissible concentrations of radioisotopes in air, see "Maximum Permissible Amounts of Radioisotopes in the Human Body and Maximum Permissible Concentration in Air and Water," Handbook 12, U. S. Department of Commerce, National Bureau of Standards, March, 1953. In addition, see "Permissible Dose from External Sources of Ionizing Radiation," Handbook 59, U. S. Department of Commerce, National Bureau of Standards, Sept. 24, 1954.

Revision of the two publications mentioned above is in progress.

‡ Milligrams of dust, fume, or mist per cubic meter of air.

## Mineral Dusts

| SUBSTANCE                            | MPPCF § | SUBSTANCE                                      | MPPCF § |
|--------------------------------------|---------|------------------------------------------------|---------|
| Aluminum oxide .....                 | 50      | Silica                                         |         |
| ✓ Asbestos .....                     | 5       | high (above 50% free SiO <sub>2</sub> ) ...    | 5       |
| Dust (nuisance, no free silica) .... | 50      | medium (5 to 50% free SiO <sub>2</sub> ) ..    | 20      |
| Mica (below 5% free silica) .....    | 20      | low (below 5% free SiO <sub>2</sub> ) ....     | 50      |
| Portland cement .....                | 50      | Silicon carbide .....                          | 50      |
| Talc .....                           | 20      | Soapstone (below 5% free SiO <sub>2</sub> ) .. | 20      |

§ Millions of particles per cubic foot of air.

## TENTATIVE VALUES

| SUBSTANCE                            | PPM † | Approx. Mg. per Cu. M. ‡ | SUBSTANCE                                          | PPM † | Approx. Mg. per Cu. M. ‡ |
|--------------------------------------|-------|--------------------------|----------------------------------------------------|-------|--------------------------|
| (x) Acetylene tetrabromide .....     | 1     | 14                       | (x) Butyl mercaptan ..                             | 10    | 35                       |
| (x) Allyl glycidyl ether (AGE) ..... | 10    | 45                       | Chlorine dioxide ..                                | 0.1   | 0.3                      |
| (x) Beryllium .....                  |       | 27/m <sup>3</sup>        | (x) Chloroacetaldehyde ..                          | 1     | 3                        |
| (x) Boron trifluoride ..             | 1     | 3                        | (x) Chlorobromomethane (CIBrCH <sub>3</sub> ) .... | 400   | 2,100                    |
| (x) n-Butyl glycidyl ether (BGE) ..  | 50    | 270                      | (x) Diglycidyl ether (DGE) .....                   | 10    | 55                       |

# A.M.A. ARCHIVES OF INDUSTRIAL HEALTH

| SUBSTANCE                                 | PPM <sup>1</sup> | Approx.<br>Mg. per<br>Cu. M. <sup>2</sup> | SUBSTANCE                                        | PPM <sup>1</sup> | Approx.<br>Mg. per<br>Cu. M. <sup>2</sup> |
|-------------------------------------------|------------------|-------------------------------------------|--------------------------------------------------|------------------|-------------------------------------------|
| (x) Dimethyl formamide                    | 20               | 60                                        | Phosphoric acid ...                              |                  | 1                                         |
| 1,1-Dimethyl<br>hydrazine .....           | 0.5              | 1                                         | n-Propyl nitrate ..                              | 25               | 110                                       |
| (x) Dipropylene gly-<br>colmethylether .. | 100              | 600                                       | (x) Propylene oxide ..                           | 100              | 240                                       |
| (x) Ethyl mercaptan ..                    | 250              | 640                                       | (x) Tertiary butyl<br>alcohol .....              | 100              | 300                                       |
| (x) Furfuryl alcohol ..                   | 50               | 200                                       | (x) Toluene-2,4-<br>diisocyanate ....            | 0.1              | 0.7                                       |
| (x) Glycidol .....                        | 50               | 150                                       | 1,2,3-Trichloropropane ..                        | 50               | 300                                       |
| sec-Hexyl acetate                         | 100              | 590                                       | (x) Triethyl amine ....                          | 25               | 100                                       |
| (x) Isopropyl glycidyl<br>ether (IGE) ... | 50               | 240                                       | Tricresyl<br>phosphate .....                     |                  | 0.1                                       |
| (x) Lithium hydride ..                    |                  | 257/m <sup>3</sup>                        | (x) Vinyl toluene ...                            | 100              | 480                                       |
| (x) Methyl mercaptan                      | 50               | 100                                       | (x) Yttrium and in-<br>organic compounds         |                  | 5                                         |
| (x) n-Methyl styrene ..                   | 100              | 480                                       | (x) Xyldine .....                                | 5                | 25                                        |
| (x) Monomethyl aniline                    | 2                | 9                                         | (x) Teflon decomposition<br>products .....       | "                | "                                         |
| (x) Paradichloro-<br>benzene .....        | 75               | 450                                       | (x) Pentaborane (B <sub>5</sub> H <sub>9</sub> ) | "                | "                                         |
| (x) Perchloromethyl<br>mercaptan .....    | 0.1              | 0.8                                       |                                                  |                  |                                           |
| (x) Phenyl glycidyl ether<br>(PGE) .....  | 50               | 310                                       |                                                  |                  |                                           |

<sup>1</sup> Parts of vapor or gas per million parts of air by volume.

<sup>2</sup> Approximate milligrams per cubic meter of air.

(x) These values appeared on the tentative list for 1957.

<sup>3</sup> Until more data are forthcoming, it is important that atmospheric concentrations of these materials to which workers are exposed must be kept as near 0 as possible.

WILLIAM L. BALL  
W. CLARK COOPER

H. E. STOKINGER  
KEITH H. JACOBSON

HERVEY B. ELKINS W. H. REINHART  
ALLAN L. COLEMAN, Chairman