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PLAINTIFF'S EXHIBIT

UC-2974

UNION CARBIDE INTERNAL CORRESPONDENCE

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To (Name) OH Team
C&P Industrial Hygienists
Exposure Guidelines Committee
(See Distribution List)

Date July 18, 1977

Originating Dept SHARE - Occupational Health

Subject Industrial Hygiene Manual

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The enclosed information is forwarded to you for your interest and information.

Robert E. Peele

Robert E. Peele

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INDUSTRIAL HYGIENE MANUAL

CHAPTER I
INDUSTRIAL HYGIENE AND OCCUPATIONAL HEALTH

A. Introduction

This chapter sets forth guidelines for the handling of health inspections and citations. Health hazards discussed in this chapter are environmental conditions present in the workplace which may cause illness or injury to the worker.

1. Scope

a. This chapter contains general instructions and policies on field compliance operations, with special emphasis on the assessment of health hazards found in the workplace. It supplements instructions and policies discussed in other chapters of the Field Operations Manual (FOM). It provides additional technical and management guidance for field health compliance operations. This chapter will be supplemented by a detailed Industrial Hygiene Manual and technological methodology for assessing workplace health hazards on a substance by substance basis.

b. Health compliance operations involve several technical and professional disciplines (i.e., Industrial Hygienists, Safety Engineers, Safety Specialist). Therefore the processing of all health inspections and citations requires close coordination between industrial hygienists, engineering specialists and local, regional and National staff. In addition, nonagency assistance either from outside consultants or from other agencies such as NIOSH may be required.

c. Within OSHA, a Compliance Safety and Health Officer (CSHO) with primary health expertise is an industrial hygienist. In this chapter, the designation of "I.H." refers to an industrial hygienist and "CSHO" refers to a safety specialist.

2. Responsibilities

a. The National Office shall coordinate the technical aspects of health programming among the regions through the Technical and Analytical Assistance Unit.

b. A Regional Industrial Hygienist will be designated in each Regional Office who will be responsible to the Regional Administrator through the Assistant Regional Administrator for Technical Support for coordinating the technical aspects of the health program within the region. Consultation and technical assistance on health related activities will be provided by the Regional I.H. and made available to the Regional staff, the Area Offices and the Regional Solicitor's staff. This responsibility shall include, but is not limited to, providing guidelines for the determination of noncompliance, case file preparation, contested case preparation and training in the use of technical equipment in accordance with criteria provided by the National Office.

c. As stated in Chapter III of the FOM, the Area Director shall administer the field compliance program within the designated geographic area. Each Area Director shall designate a Senior Industrial Hygienist who is responsible for the technical aspects of the health compliance program and for the determination and implementation of health inspection priorities on an area-wide basis.

d. Some inspections require a team effort involving more than one specialty. In such cases, the Area Director shall designate the team leader to coordinate such compliance efforts. Such assignments shall be made with special attention to the nature of the total inspection and personnel qualification. The Senior I.H. shall provide guidance in health inspection procedures.

e. The I.H. shall conduct health inspections in industries in accordance with priorities established by the Area Director. A health inspection can be either a complete survey of a particular workplace for all health hazards or a special survey such as an accident investigation.

f. The industrial hygiene trainee is an industrial hygienist who does not have the authority independently to inspect a workplace and recommend citations until his training is completed. The trainee can accompany a compliance officer to a workplace and assist in an inspection. Industrial hygiene samples collected by a trainee are valid if overseen by an I.H.

B. Inspection Priorities

1. Generally, OSHA's priority system for conducting inspections for health hazards follows the programming set forth in Chapter IV. In addition, periodic health alerts and special programs generated by the National Office will receive priority as assigned by the National Office. The investigation of health complaints will follow the procedures outlined in Chapter VI of the FOM. Health complaints will be investigated by an I.H. or a CSHO who has received training to recognize health hazards and evaluate the conditions. Complaints involving the appropriateness of unusual medical testing or questionable results of medical findings shall be discussed with the Regional I.H. and the Technical and Analytical Assistance Unit.

2. Regional Scheduled Inspection/Referral Inspections

a. The Senior I.H. and the Area Director shall prepare a priority inspection system for approval by the Regional

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Office. The Regional I.H. shall consult with the Technical and Analytical Assistance Unit and the Regional Program Director for NIOSH in the development of regionally scheduled inspections.

b. The compliance activity must be determined on the Area Office level due to the unequal distribution of industrial health hazards from area to area. General considerations for scheduled inspection activity are as follows:

- Referrals from CSHO review.
- Industry inventory (paragraph C. of this chapter contains details).
- Knowledge from past inspection activity.
- New industries or operations.
- Number and type of industries.
- Estimated number of workers at risk.
- Severity of hazard (i.e., all carcinogens, high noise levels, accumulative toxicants).
- Duration and extent of exposure.
- Status of promulgated standards.
- Injury and illness statistics.

3. The Regional Administrator, with the assistance of the Regional I.H. shall annually assess the scheduled inspection programs in the region. A written report shall be submitted by January 30 of each year to the Assistant Secretary or his designee.

C. Workplace Inventory

1. Each Area Office shall establish an inventory of workplaces within the area. The purpose of the inventory is to collect information for scheduling and preparing inspections and for general use. The inventory shall be maintained by company name and shall include, as a minimum, the following:

- Company name.
- Company location.
- Company telephone number.
- SIC codes and subcodes.
- Type of industry.
- Size of workplace.
- Estimated number of workers.
- Manufactured products and by products.
- Process information.
- Beginning materials and process intermediates.
- List of potential health hazards and the location of likely occurrence.
- Inspection records.
- Status of compliance with health standards.
- Variances.
- Injury and illness statistics.
- Personal protective equipment utilized.
- Extent of control measures utilized.

2. The workplace inventory information can be obtained through research literature, trade associations, NIOSH evaluations, State Directory of Industries, Regional Office data, National Office data, when necessary, and CSHO inspections.

3. The inventory shall be updated whenever new information is available to the Area Office and during January of each year.

D. Health Hazards Uncovered During CSHO Safety Inspection

1. After training in recognition and evaluation of health hazards the CSHO shall collect health hazard information for referral to the I.H. Priorities of inspection by the I.H. based on referrals are to be incorporated into the regular inspection schedule.

2. During the safety inspection, the CSHO shall carry a sound level meter and a detector tube kit. The detector tubes should be specific for the gases anticipated at the worksite based on the industry inventory. Spot samples shall be collected when a health hazard is suspected.

a. A health hazard can be suspected when any of the following occur:

(1) Eye irritation is felt when entering the work area.

(2) A strong odor is noticed when entering the work area.

(3) Visible dust clouds are observed coming from the operation into the workplace.

(4) Visible clouds are observed coming from poorly maintained ventilation systems such as holes in ducts.

(5) The local ventilation system is not capturing all of the contaminants, which are therefore being released into the workplace.

(6) Visible fumes are released into the workplace. For example, in welding operations, local exhaust is not used by the welder.

(7) The noise levels require raising the voice to be heard.

(8) Chemicals are mishandled as evidenced by chemical spills and careless handling of highly toxic materials.

(9) Substances which are hazardous under normal conditions of control and handling such as carcinogens are located at the worksite.

(10) Worker's comments and symptoms indicate exposure to contaminant.

b. During a routine safety inspection, if the CSHO observes a potential health hazard for which he has the training to determine full-shift time weighted average exposures, the CSHO must return to the plant and collect the appropriate samples if he is unable to do so during the safety inspection.

c. When a health hazard is suspected, during the course of safety inspection the CSHO shall make a written notation consisting of the following, as applicable:

- Name of plant.
- Suspected health hazard(s).
- Description of operation.
- Description of location of operation in the plant.
- Reason for suspecting the health hazard.
- Worker comments regarding the health hazards.
- Number of employees affected.
- Results of spot samples.
- Date and time.
- Signature of CSHO and CSHO number.

d. The CSHO shall collect samples and make referrals only when personal protective equipment is not worn or utilized

3. The Area Director shall carefully screen all referrals to determine their appropriateness and inspec-

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tion priority. The Senior I.H. shall make recommendations to the Area Director concerning CSHO referrals. Where a referral reveals a potential imminent danger or a potential serious violation, immediate inspection by an I.H. is necessary. For less severe hazards, referrals may be delayed and scheduled as general or regular health inspections by the Area Director but no later than 60 days after the CSHO safety inspection.

4. The Regional Administrator with the assistance of the Regional I.H. shall annually assess the referral practices in the region. A written report shall be submitted by January 30 of each year to the Assistant Secretary or his designee.

E. The Health Inspection

An industrial hygiene inspection of an establishment is often complex and time consuming. The following are the essential elements: preinspection planning, opening conference, walkthrough inspection, collecting samples and closing conference.

1. *Preinspection Planning.* Preinspection preparation is necessary to expedite the process of an industrial hygiene inspection in the wide varieties of industries and associated health hazards.

a. The I.H. shall carefully review all information contained in the workplace inventory for a particular industry or plant. The I.H. shall be familiar with the general process information and size of the industry or plant.

b. The I.H. shall review appropriate standards and sampling methods.

c. If the planned inspection is a referral visit to a workplace that has been previously inspected by a CSHO, the I.H. shall review all information contained in the previous inspection data and reports.

d. Based on his experience and the workplace inventory, the I.H. may be able to anticipate the field instruments necessary for the inspection. If so, the I.H. shall prepare instruments and equipment according to the standard methods of sampling and calibration.

2. *Opening Conference.* Upon entering the workplace, the industrial hygienist shall conduct the opening conference procedures found in Chapter V of the FOM as follows:

a. The I.H. shall obtain complete process flow charts and plant layouts from the plant management at the beginning of the inspection. If the plant layout chart is not available, the I.H. shall sketch a plant layout, identifying the operations, distribution of equipment, including engineering controls, and approximate dimensions of the plant.

b. A brief examination shall be made of all required records of the workplace. Some valuable insights can be determined from such records (i.e., nature of injuries or illnesses, dermatitis, respirator usage, monitoring data, ventilation tests, process flow sheets, and a log of hazardous materials received) which will assure a more effective inspection. Recordkeeping requirements shall be determined at the closing conference after the inspection has been made or after sampling results have been analyzed.

3. *Walkthrough Inspections.* A walkthrough is required for all health inspections, regardless of whether the plant was previously inspected. (See Chapter V. D. of the FOM.)

a. The main purpose of a walkthrough inspection is to identify potential health hazards in the workplace. The identification of potential health hazards requires that during the walkthrough the I.H. becomes familiar with plant processes, collects information of physical and chemical agents, observes workers' activities and surveys existing engineering controls. The information is needed to prepare for the field measurement phase of the inspection. As the I.H. proceeds with the walkthrough inspection, he or she shall identify and record on the plant layout or sketch, the potential sources of health hazards, locations of the workers, types of engineering controls, and the usage of protective devices including types of respirators.

b. Data collection of physical and chemical agents.

(1) As the I.H. proceeds with the walkthrough inspection, he or she shall obtain all information concerning substances used and produced, and intermediate substances, if any. Estimated volumes of these substances present in the plant and a complete storeroom inventory shall be obtained. In addition a request shall be made for a list of raw materials received at the loading dock.

(2) The I.H. shall obtain all information concerning potential physical agents, such as noise and heat, present in the plant. It is also essential that the sources of these agents be identified and recorded.

(3) Utilizing visual and olfactory means and instrumentation, the I.H. shall estimate the diffusion of these agents within the plant. All openings to the external environment shall be identified and recorded.

c. Observation of worker activities.

(1) The I.H. shall observe worker activities throughout the plant, particularly concentrating on potential health hazard areas. Estimated numbers of workers at each such area shall be recorded on the plant layout or sketch.

(2) Employee interviews are encouraged during this phase of the inspection. The I.H. shall observe and record the general mobility of the workers and indicate whether they are engaged in stationary or transient activities.

d. Survey of existing engineering controls.

(1) The I.H. shall sketch, identify and record the layout of existing engineering controls on the plant layout or sketch. Ventilation measurements shall be made and recorded on the plant sketch at strategic locations in the duct system.

(2) The I.H. shall request information from the plant manager concerning a preventive maintenance program for engineering controls.

e. The I.H. must keep alert for all imminent dangers during the walkthrough inspection and take action as described in Chapter IX of the FOM.

f. In a very small plant, sampling for obvious health hazards can be initiated soon after the opening conference and details of the walkthrough can be accomplished while collecting samples.

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g. Photographs shall be used to document the survey and the plant sketch, and to record all employees who are not wearing personal protective equipment.

4. *Collecting Samples.* After the initial walkthrough inspection, the I.H. shall prepare a sampling schedule utilizing information collected during the walkthrough survey. The sampling schedule shall identify potential chemical and physical hazards, number of samples to be taken and the locations of potential health hazards.

a. Representative jobs must be selected for sampling and personal sampling devices prepared accordingly. Occupations with the highest expected exposure should be monitored.

b. It is suggested that the sampling program should be planned, if possible, to follow the particular industrial process from its beginning to the final product. If the processes are mixed throughout the plant, such as in a machine shop, the sampling program should follow each operation (degreasing, welding, machinery, etc.)

c. All sampling equipment shall be checked and calibrated according to standard calibration methods. A record of each calibration must be included in the inspection report. The following are requirements for the sampling procedure:

(1) All sampling, calibration and analysis shall be performed according to standard methods described in the Industrial Hygiene Manual.

(2) The levels of both physical and chemical agents in the work environment shall be measured as they relate to the workers. Unless otherwise specified in a standard, the measurements shall represent the personal exposure of the employee. The I.H. shall take measurements in close proximity to the employee (i.e., breathing zone for air contaminants, hearing zone for noise, etc.).

(3) Airborne concentrations of materials in Tables Z-1, Z-2, and Z-3 of 29 CFR 1910.1000, air contaminants, and other promulgated standards such as noise and asbestos, must be measured on the basis of 8-hour time weighted averages (except for ceiling limits).

(4) The I.H. should collect samples that represent a full-shift exposure when the determination of time weighted average concentration or action level is made, unless a ceiling level applies. A minimum of 7 hours of sampling is required to evaluate a full 8-hour shift. A single sample or a series of samples that represent a 7-hour sampling can be utilized.

(5) A minimum of one full-shift, time weighted average concentration shall be determined for each employee selected for the inspection. When the results indicate that the values are at or near the time weighted average required by the standard, additional samples shall be collected. In order to determine the extent of exposure in a potentially hazardous area, the I.H. may collect several dozen samples. He should remain at the workplace until all of the necessary samples are obtained. When several spot samples are collected to determine an employee exposure, the time weighted average shall be used to determine the full-shift exposure.

d. For the evaluation of ceiling limit, a short sampling time is necessary. Instantaneous sampling should be used to determine ceiling limits so long as multiple samplings can be made in a period of time specified by the standard. Where time periods for exposure to ceiling limits are not specified in the standard, 15 minutes should generally be used to determine peak limits.

e. Records and notes shall be kept as described in the standard methods for sampling, calibrations and analysis found in the Industrial Hygiene Manual.

5. *Closing Conference.* The general procedure described in Chapter V of the FOM shall be followed. An immediate explanation of available inspection results shall be given along with general guidelines in controlling the hazards.

a. Since the I.H. may not have the results of environmental measurements at the end of the inspection or during the closing conference, an ultimate or second closing conference may be held by telephone, in person or by letter. At that time, if the results indicate noncompliance, discussions shall be held on alleged violations, abatement procedures, and interim methods of control. Employees or their representatives shall be informed of the inspection results at that time.

b. At the closing conference, written information on the employer's occupational health program is gathered for evaluation. The evaluation can be made onsite or if assistance of the Senior Industrial Hygienist or Area Director is required, in the OSHA office.

c. Information on the following aspects of the employer's occupational health program must be gathered during the inspection for evaluation. They are discussed in the closing conference and are later considered in relation to requirements of the standards and as evidence of good faith in the proposal of penalties.

(1) Monitoring program. Detailed information concerning the industrial hygiene program shall be obtained, which includes qualified personnel, necessary sampling and calibration equipment, ventilation, measurement equipment and laboratory servicees.

(2) Medical program. Detailed information concerning the employer's medical program shall be obtained. The I.H. shall investigate whether the employer provides his employees with preemployment and regular medical examinations. The medical examination protocol shall be obtained to determine the extent of the medical examination.

(3) Education and training program. Detailed information concerning the employee education and training program shall be obtained. A special effort shall be made to evaluate the employee's knowledge about the hazards which exist in the plant; the extent to which the program covers precautions to be taken, emergency procedures and personal protective equipment; and the extent of employee participation in the education and training program.

(4) Recordkeeping program. The I.H. shall investigate the employer's recordkeeping program, including types and duration of recordkeeping. It is also required that the I.H. determine the accessibility of these records to the employees.

(5) Compliance program.

(a) Engineering controls. The I.H. shall determine the employer's implementation of engineering controls, including work practices with appropriate equipment and preventive maintenance. The I.H. should evaluate a

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specific engineering control in the context of the plant.

(b) Work-practice and administrative controls. These control techniques include isolation of operations, rotation of employees, sanitation and housekeeping practices. A detailed description of such controls shall be obtained. It is essential that work-practice controls and the education program be implemented simultaneously. The overall effect of such practices and programs shall be evaluated, emphasizing the employees' knowledge of their exposures.

(c) Protective devices. The I.H. shall determine whether an effective protective device program exists in the plant. A detailed investigation of the personal protection program shall be made to determine compliance with 29 CFR 1910.134. If there is a written program, it should be obtained and evaluated. Special emphasis shall be given to the determination of sanitary condition of the equipment, of maintenance of the equipment and of the training program on the selection and usage of protective devices. The I.H. shall also obtain information concerning any medical examinations which are required prior to the issuance of a respirator.

(6) Regulated areas. The I.H. shall investigate procedures for regulated areas, as required by certain standards, as follows:

(a) Regulated areas are clearly identified and known to all employees.

(b) Sampling has been utilized to determine designation of regulated areas.

(c) The regulated area designations are maintained according to the prescribed criteria of the standard.

(d) Daily rosters are maintained of authorized personnel entering and leaving the regulated area. Summaries of such rosters are acceptable.

(e) Regulated areas are established based on employee exposures in excess of prescribed levels.

(7) Emergency procedures. Some standards provide for specific emergency procedures to be developed in handling certain hazardous substances. The I.H. and CSHO shall evaluate the emergency program for the following:

(a) Inclusion of all potential emergency conditions in the written plan.

(b) Explanation of such emergency conditions to employees.

(c) Training scheme for the protection of affected employees.

(d) Delegation of authority for the implementation of the operational plan for emergency situations.

F. Evaluation of Sampling Data

The I.H. and Area Director must use professional judgment in the evaluation of the data and conditions to confirm the sampling results. The following are guidelines to be weighed.

1. The I.H.'s past experiences must indicate that the sampling results are reasonable.

2. The sampling results in the plant must correlate with each other. For example, the occupation that is expected to be dusty should have higher dust concentrations measured than those expected to be less dusty.

3. The sampling results should reasonably correlate with previous measurements made by OSHA, the company and labor, taking into account variations due to weather, production, breakdowns, etc.

4. The sampling results indicate exposure with allowance made for instrument accuracy.

5. All sampling must be performed according to OSHA standard methods and the industrial hygienists record must so state.

G. Issuance of Citations

1. A detailed description of the issuance of citations and classification of violations as serious or other-than-serious is provided in the Industrial Hygiene Manual.

2. The I.H. shall make a maximum effort to discover whether appropriate personal protective equipment as required by 29 CFR 1910.95(a), 1910.134, 1910.1000(e) and 1910.1000(d) is being fitted and worn by all employees exposed to toxic substances.

a. Where respirators or other personal protective equipment are not properly fitted or worn, and the affected employee is exposed to a toxic substance in excess of the permissible exposure limits required by the applicable standard, a citation shall be issued with classification as serious or other than serious, determined according to the hazard as described in the Industrial Hygiene Manual.

b. For purposes of proposing a penalty, the gravity of the serious health violation will depend on (1) the number of employees exposed without personal protective equipment, as compared with the number of employees properly wearing personal protective equipment; (2) the potential health consequences of the compound or condition to which the employee is exposed. More specific penalty guidelines will be given with the publication of Chapter XI.

3. An employer shall be cited for an other than serious violation where he has not established written operating procedures governing the use of respirators, has not trained and instructed employees in their proper use, and has not regularly cleaned and disinfected the respirators, even though such respirators are properly fitted and worn.

4. When appropriate personal protective equipment is being properly used, citations will be issued for failure to utilize administrative or engineering controls when the I.H. has a reasonable belief that such controls are feasible. Generally, such citations will be other than serious unless available data indicates that the personal protective equipment, even when properly fitted and worn, is not effective in fully reducing exposure to acceptable limits as required by the applicable standard.

5. During the course of the inspection, the I.H. will carefully investigate the source or cause of observed hazards to determine if some type of engineering or administrative control or combination thereof may be applied which would significantly reduce employee exposure. In order to cite, the OSHA representative's knowledge need not establish that the controls would reduce exposure to the limits prescribed by the applicable standard.

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6. Work practices and personal hygiene.

a. Citations for serious violations should be issued where an air contaminant's route of ingress into the human body may be through ingestion or absorption and when employees consume food or drink where such contaminants are present. The proper citation would be for 29 CFR 1910.141(g)(2) for allowing an employee to consume beverages or food "in any area exposed to a toxic material." A "toxic material" is defined in 29 CFR 1910.141(a)(2)(viii) as "a material in concentration or amount which exceeds the applicable limit established by a standard, such as §§1910.1000 and 1910.1001 or, in the absence of an applicable standard, which is of such toxicity so as to constitute a recognized hazard that is causing or is likely to cause death or serious physical harm."

b. The following paragraph is an explanation of the definition of toxic material as per 1910.141(a)(2)(viii). Where a compound's permissible exposure limit is listed in Table Z-1 of 29 CFR 1910.1000, citation for improper work practices or personal hygiene will *not* depend on measurements of airborne levels in excess of those required by Table Z-1, which is only relevant when the hazards of airborne concentrations are present. Thus where a compound is either listed in Table Z-1 and Table Z-2 or is a recognized hazard and employees are exposed to the hazards of ingestion or absorption in an area where they are allowed to consume beverages or food, a citation should be issued under 1910.141(g)(2).

c. Citations for specific work practices and personal hygiene requirements for carcinogenic substances; e.g., 29 CFR 1910.1004(c)(4)(iii), should be issued under the applicable standard.

7. Where ingestion or absorption dangers to Table Z-1 and Table Z-2 substances or recognized hazards are present in *nonconsumption* areas a serious citation should be issued under section 5(a)(1) of the Act if it is a recognized hazard after consultation with the Regional Office with directions provided by the Technical and Analytical Assistance Unit. Thus, where airborne, ingestive or absorptive exposure to a toxic substance is not governed by a specific standard, a citation under the general duty clause should be issued if the exposure constitutes a recognized hazard likely to cause death or serious physical harm. Particular attention should be given to establishing the systemic effects of this substance upon the human body, the levels of exposure, the number of employees affected, the effectiveness of the respirator program and the recognition of the hazard in the applicable industry. A toxic substance may be regulated for airborne exposures in 29 CFR 1910.1000 but not regulated for ingestive or absorptive exposures. These are also subject to the general duty clause as specified above.

H. Feasible Engineering and Administrative Controls

1. Administrative Control

Any procedure which significantly limits daily exposure by control or manipulation of the work schedule. The use of personal protective equipment *is not* considered a means of administrative control.

2. Engineering Control

Any procedure other than administrative control or the use of personal protective equipment that reduces exposure at its sources or close to the employee; e.g., hearing zone, breathing zone, etc. Proper work practices and personal hygiene facilities are defined as engineering controls.

3. Feasibility

Existence of general technical knowledge as to materials or methods which are available or adaptable to specific circumstances with a reasonable possibility that employee exposure to violative conditions of noise, dust or other substances or conditions will be reduced.

a. Determining Feasibility.

(1) Engineering controls are feasible when the I.H. using directions and guidelines provided by the Technical and Analytical Assistance Unit through the Regional Technical Support possesses general knowledge as to present or developing technology based upon, but not limited to, one of the following sources:

(a) Similar situations observed elsewhere with adequate engineering controls to reduce employee exposure.

(b) Written source materials or conference presentations that indicate equipment and designs are available to reduce employee exposure in similar situations.

(c) Studies by a qualified consulting firm, professional engineer, industrial hygienist, or insurance carrier that show engineering controls are technically feasible.

(d) Studies and materials collected and prepared by the Technical and Analytical Assistance Unit.

(e) Equipment catalogs and suppliers that indicate engineering controls are technically feasible and are or will become available within the citation's abatement period.

(2) General knowledge of industry and available and developing technology indicates that feasible engineering controls will exist in most cases.

b. Economics and Feasibility.

(1) The employer's economic cost of abatement will not be considered to be a factor in the issuance of a citation. However, if the cost of utilization of effective engineering or administrative controls, or combination, which would bring the employer into compliance with permissible exposure limits would so seriously jeopardize his financial condition as to result in the probable shutdown of his establishment or a substantial part, then only a personal protective equipment program should be required in the interim, and an extended abatement date should be granted to permit the extended implementation of feasible engineering or administrative controls taking into account the employer's financial condition. The burden of proof of economic infeasibility rests upon the employer. Any abatement date based on economic grounds shall be approved by the Regional Administrator.

(a) Wherever feasible engineering controls which can be instituted are not sufficient to reduce exposures to, at, or below the permissible exposure limit, they shall be

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used nonetheless to reduce exposure to the lowest practicable level.

(b) Where a personal protective equipment program is being followed but feasible engineering and/or administrative controls have not been implemented, other-than-serious citations shall be issued. However, in light of the difficulty of discovering irregularities in a personal protective equipment program, as well as the presumptive inadequacy of personal protective equipment, an exceptional penalty schedule should be established for other-than-serious violations of feasibility requirements. For example, if exposure levels are very high and no controls have been put in place, an unadjusted penalty of $1000 should be proposed, subject to adjustment for size, good faith and past history.

Abatement

1. Abatement Dates

Under Section 9(a) of the Act, the citation for feasible engineering or administrative controls must "fix a reasonable time for abatement of the violation." In the implementation of such controls, a step-by-step program for abatement is of paramount importance. Therefore, the citation as reflected by the Standard Alleged Violation examples shall contain the following abatement elements with specific abatement dates for their completion as determined by the I.H., using guidelines of the Technical and Analytical Assistance Unit, in consultation with the Regional Technical Support.

a. The employer shall immediately insure the use of effective and appropriate personal protective equipment as an interim measure until feasible engineering or administrative controls can be developed and implemented.

b. By a date certain, a written detailed schedule of abatement shall be submitted to the Area Director, outlining the program for feasible engineering or administrative controls. (Note: With regard to the noise standard, engineering and administrative controls are equivalent abatement priorities; with regard to air contaminants, engineering controls must be exhausted before an employer may rely upon administrative controls.) The employer should be advised that the schedule should include target dates for such items as:

(1) Hiring of identified engineering consultant;

(2) Completion of preliminary surveys and engineering studies;

(3) Decision on optimally feasible abatement program;

(4) Completion of design phase;

(5) Selection of contractor;

(6) Ordering of equipment and materials; and

(7) Submission of regular progress reports.

c. By a date certain, the feasible engineering controls must be determined. This date should reflect the progress in b. (3) above which provides for a "decision on optimally feasible abatement program."

d. By a date certain, all feasible engineering or administrative controls will be in place, thereby reducing employee exposure to the levels required by the relevant standard.

2. Monitoring of Abatement Plans

A multistep, extended abatement plan must be closely monitored by the Area Office in order to determine whether the schedule is being met and whether maximum effort is being directed toward the implementation of feasible controls. Although no formal approval of plans will be given by OSHA in the context of uncontested citation, OSHA shall acknowledge receipt of the plan in writing. Where an Area Office discovers apparent deficiencies in the employer's proposed plan, the employer should be urged to correct such deficiencies if the abatement efforts are to be successful. The specific elements of such a monitoring program are as follows:

a. Careful analysis of the detailed abatement schedule and of all progress reports submitted pursuant thereto. Such analysis will require close coordination with the AARD for Technical Support, the Technical and Analytical Assistance Unit and National Office personnel familiar with the state of the technical art;

b. Monitoring visits conducted one or two times per year to insure that target dates are being met and that controls are being expeditiously implemented. Such monitoring visits shall involve not only an evaluation of engineering progress, but also the sampling of employee exposures and the detailed examination of all medical data to determine the extent of continuing exposure and its effect upon the employees. In those instances where severe symptomology is detected by licensed physicians at any time, including during the course of abatement, serious consideration should be given to instituting imminent danger proceedings pursuant to Chapter IX of the FOM in coordination with the Regional Solicitor and the Technical Assistant and Analytical Unit.

3. Petitions for Modification of Abatement Dates

The Secretary has promulgated regulations, 29 CFR 1903.14a, governing the disposition of petitions for modification of abatement dates. Before the Area Director grants such a petition, the following procedure is to be followed:

a. No petition may be granted unless all five requirements in 29 CFR 1903.14a(b)(1)-(5) are set forth in detail in the employer's petition.

b. Before an extension is granted, a monitoring inspection must be conducted to insure that the employer's representations are true and in good faith and that the employer has attempted to implement controls as expeditiously as possible. This monitoring inspection can be conducted before the petition for modification of abatement is received providing the inspection adequately represents the conditions at the time the detection for modification of abatement date is received.

c. Where it is determined that the employer has not made a good faith effort to comply with the abatement requirements by the dates contained in the original citation, a failure to abate notification should be issued in conjunction with the objection of the petition for modification of abatement date. The latter document must be forwarded to the Commission pursuant to 29 CFR 1903.14a(d).

d. Where employees comment on an extension of

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abatement date, written notation of the fact and details must be recorded and placed in the case file.

4. Consultation with Affected Employees and Their Representatives

It should be emphasized that the implementation of engineering controls and work practices in the context of a long-range abatement plan vitally affects employees and their working conditions. Accordingly, in order to maximize the effectiveness of any abatement plan, close coordination and consultation with affected employees or their representatives is imperative. Specifically, the following actions should be taken:

a. All abatement schedules and progress reports shall be made available to affected employees or their representatives, subject to any trade secret protections of Section 15 of the Act.

b. All monitoring visits shall be conducted with the full opportunity for participation by employee representatives.

In such cases where an employee or his representative files objections, the petition is treated as a contested case pursuant to 29 CFR 1903.14a(d).

5. Failure to Abate

a. Where a determination is made during a monitoring visit and prior to the expiration of the final abatement date (see 1.2.) the employer has failed to maintain the schedule for abatement, no failure to abate notification shall be issued unless the employer has not made a good faith effort to meet the target dates set forth in his abatement plan and such failure will make it impossible to complete abatement by the final date established in the citation.

b. A thorough investigation of the extent of abatement must be made at the expiration of a final abatement date. This investigation shall include analysis of the employer's final abatement report and an inspection of the worksite. Where the employer has failed to implement any controls, a failure to abate notification shall be issued. Where the employer has implemented some controls, but other technology was available during the abatement period which would have brought the levels of airborne concentrations or noise within the regulatory requirements, a failure to abate notification shall be issued. Where failure to abate by means of engineering controls is found to be due to infeasibility of technology, no failure to abate notification shall be issued for a failure to implement feasible engineering controls; however, if proper adminsitrative controls, work practices or personal protective equipment are not utilized, a failure to abate notification shall be issued.

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CLASSIFICATION OF HEALTH VIOLATIONS

Figure I

OSHA/ACGIH SUBSTANCE TOXICITY REPORT

EXPLANATION OF TABLE HEADINGS

FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
1	2	3	4	5		6		7	8

1---CODE NUMBER ASSIGNED TO EACH HEALTH HAZARD CATEGORY: TOTAL CATEGORY NUMBERS=60. FOR SUBSTANCES WHERE THE PEL(TLV) HAS BEEN ESTABLISHED TO GUARD AGAINST ONE PRINCIPAL EFFECT, NUMBERS 1 THROUGH 19 WERE ASSIGNED IN RANK ORDER FROM MOST SERIOUS HEALTH HAZARD TO LEAST SERIOUS HEALTH HAZARD. (EXAMPLE: CANCER-CAUSING AGENTS CURRENTLY REGULATED AS SUCH (CODE #1)). CUMULATIVE TOXIC SUBSTANCES ALSO SUSPECTED AS CARCINOGENS (CODE #2) ...MARKED IRRITANTS(CODE #13)...GOOD HOUSEKEEPING/LOW HAZARD POTENTIAL(CODE #19). FOR SUBSTANCES WHERE THE PEL(TLV) HAS BEEN ESTABLISHED TO GUARD AGAINST TWO OR MORE PRINCIPAL EFFECTS, NUMBERS 20 THROUGH 60 WERE ASSIGNED ON AN ARBITRARY BASIS.

2---FIELD NUMBER CURRENTLY ASSIGNED BY OSHA FOR REPORTING SPECIFIC VIOLATIONS IN THE FIELD. WHERE SUBSTANCES DO NOT HAVE A CODE NUMBER, IT MEANS THAT THEY ARE MOST LIKELY NEW ADDITIONS TO THE ACGIH TLV LIST. PREFIX C -- CARCINOGEN: PREFIX P -- PESTICIDE.

3---CHEMICAL NAME OF SUBSTANCE AS CITED BY OSHA(29 CFR 1910.1000, TABLES Z-1,Z-2,OR Z-3) AND ACGIH(1975 TLV LIST).

4---PHYSICAL STATE OF SUBSTANCE: S-SOLID: L-LIQUID: G-GAS: FUM-FUME: MIX-MIXTURE: VAR-VARIES WITH INDIVIDUAL COMPOUNDS: VAP-VAPOR.

5---OSHA STANDARD AS PRESENTED IN 29 CFR 1910.1000, TABLES Z-1,Z-2,OR Z-3: PPM-PARTS PER MILLION PARTS OF AIR: MG/M3-MILLIGRAMS PER CUBIC METER OF AIR. IN CASE OF CATEGORY #1 - CANCER, STD 1910.10-- REFER TO WORK PRACTICE STANDARDS LISTED IN 29 CFR. I C-CEILING LIMIT: NONE-INDICATES NO OSHA STANDARD.

6---PEL(TLV) ADOPTED(A) AND PROPOSED(P) BY THE AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS(ACGIH) TLV COMMITTEE FOR 1975. HNDL-HANDLING: PROD-PRODUCTION: WHERE THERE IS AN A OR P DESIGNATION FOR ANY VALUE IN THIS COLUMN, IT MEANS THAT THESE SUBSTANCES WERE ADOPTED OR PROPOSED BY ACGIH AFTER 1968. THE YEAR FROM WHICH OSHA PEL(TLV) STANDARDS WERE DERIVED. IN SOME CASES, THE 1975 ACGIH VALUE WILL BE LOWER THAN THE CURRENT OSHA VALUE.

7---PRINCIPAL EFFECT(S) OF EACH SUBSTANCE FOR WHICH THE PEL(TLV) WAS ESTABLISHED TO PREVENT OR DIMINISH.

8---RATING OF VIOLATION AS SERIOUS(S) OR OTHER(O) BASED ON DATA IN DOCUMENTATION OF THRESHOLD LIMIT VALUES ACGIH, THIRD EDITION(1971), AND SUPPLEMENTS PUBLISHED SINCE 1971.

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT

CRITERIA FOR RATING A SUBSTANCE SERIOUS OR OTHER

IN CATEGORIZING SUBSTANCES AS EITHER SERIOUS OR OTHER, ONLY THE TOXICOLOGIC PROPERTIES OF A CHEMICAL SUBSTANCE WERE USED. NO ATTEMPT WAS MADE TO INCLUDE AN EVALUATION OF THE INDUSTRIAL PROCESSES FOR SUBSTANCES OR THE LIKLIHOOD THAT ANY GIVEN MATERIAL COULD EXCEED THE PEL. BASICALLY, EIGHT MAJOR CATEGORIES WERE USED AS FOLLOWS:

MAJOR HEALTH HAZARD CATEGORY	SUBSET EXPLANATION	CODE #
I CANCER	REGULATED AT PRESENT AS CARCINOGENS BY OSHA; CHIEFLY WORK PRACTICE STANDARDS	1
II CHRONIC(CUMULATIVE) TOXICITY	SUSPECT CARCINOGENS ALSO	2
	NO EVIDENCE OF CANCER POTENTIAL AT PRESENT	3
III ACUTE SYSTEMIC TOXICITY		4
IV NERVOUS SYSTEM DISTURBANCES	CHOLINESTERASE INHIBITION	5
	CNS EFFECTS OTHER THAN NARCOSIS	6
	NARCOSIS	7
V RESPIRATORY EFFECTS OTHER THAN IRRITATION	RESPIRATORY SENSITIZATION(ASTHMA)	8
	CUMULATIVE LUNG DAMAGE(PNEUMOCONIOSIS)	9
	ACUTE LUNG DAMAGE WITH EDEMA	10
VI HEMATOLOGIC(BLOOD) DISTURBANCES	HEMOLYTIC ANEMIA	11
	METHEMOGLOBINEMIA	12
VII IRRITATION-EYE,NOSE,THROAT,	MARKED	13
	MODERATE	14
	MILD	15
VIII GENERAL LOW RISK HEALTH EFFECTS	ASPHYXIANTS;ANOXIANTS	16
	"INERT"(NUISANCE) PARTICULATES	17
	ODOR	18
	GOOD HOUSEKEEPING	19

THE DOCUMENTATION PRESENTED BY ACGIH FOR EACH SUBSTANCE WAS REVIEWED AND GREAT WEIGHT WAS GIVEN TO ACGIH'S REASONS FOR ESTABLISHING THE PEL AS WELL AS SCIENTIFIC EVIDENCE FROM EITHER HUMAN OR ANIMAL EXPERIENCE. AN EXPOSURE ABOVE THE PEL WAS CONSIDERED TO BE A POTENTIALLY SERIOUS VIOLATION IF THE SUBSTANCE WAS DOCUMENTED AS CAPABLE OF PRODUCING THE EFFECTS AT THE SPECIFIED PEL(OTHER THAN CODES 15,17,18,&19). IF THE TOXIC EFFECTS WERE CUMULATIVE) AND/OR IF THE TOXIC EFFECTS WERE POTENTIALLY IRREVERSIBLE. ALL OTHERS WERE EITHER NONSERIOUS OR NONSERIOUS WITH SOME UPPER LIMIT ABOVE THE TLV WHERE CONTINUED EXPOSURE WOULD LEAD TO IRREVERSIBLE EFFECTS.

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
*** FILE SORTED BY SUBSTANCE ***

NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
5	P0005	ABATE	S	NONE	NONE	A -	10	CHOLINESTERASE INHIBITION	O-UP TO 3XPEL S-ABOVE 3XPEL
13	0010	ACETALDEHYDE	L	200	360	A 100	180	MARKED IRRITATION - EYE, NOSE, THROAT, SKIN	S-AT CURRENT OSHA PEL OF 200 PPM
13	0020	ACETIC ACID	L	10	25	10	25	MARKED IRRITATION- EYE, NOSE, THROAT, SKIN	O-UP TO 3XPEL S-ABOVE 3XPEL
13	0030	ACETIC ANHYDRIDE	L	5	20	A C 5	20	MARKED IRRITATION- EYE, NOSE, THROAT SKIN	S- ABOVE 5 PPM
7	0040	ACETONE	L	1000	2400	1000	2400	MILD IRRITATION-EYE , NOSE, THROAT/ NARCOSIS	O- UP TO 3XPEL S- ABOVE 3XPEL
4	0060	ACETONITRILE	L	40	70	40	70	MILD IRRITATION - EYE, NOSE, THROAT/ ACUTE TOXICITY (CYANOSIS)	S
1	C0065	2-ACETYLAMINOFLUORENE	S	STD 1910.1014		NONE	NONE	CANCER	S
16	0070	ACETYLENE	G	NONE	NONE	A F	-	SIMPLE ASPHYXIATION	O-BELOW 5000 PPM S-ABOVE 5000 PPM
3	0080	ACETYLENE TETRABROMIDE	L	1	14	1	14	CUMULATIVE LIVER & LUNG DAMAGE	S
13	0110	ACROLEIN	L	0.1	0.25	0.1	0.25	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS , SKIN	S
6	0115	ACRYLAMIDE - SKIN	S	-	0.3	-	0.3	ACUTE SYSTEMIC TOXICITY (CNS)	S
4	0120	ACRYLONITRILE - SKIN	L	20	45	20	45	MODERATE IRRITATION- EYE, NOSE, THROAT/ ACUTE TOXICITY (CYANOSIS)	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
2	0125	ALDRIN - SKIN	S	-	0.25	-	0.25	CUMULATIVE LIVER DAMAGE/SUSPECT CARCINOGEN	S
17	0160	ALLUNDUM(AL203)	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
13	0130	ALLYL ALCOHOL - SKIN	L	2	5	2	5	MARKED IRRITATION - EYE, NOSE, THROAT, SKIN/CUMULATIVE EYE DAMAGE	S
3	0140	ALLYL CHLORIDE	L	1	3	1	3	MARKED IRRITATION - EYE, NOSE, THROAT, SKIN/CUMULATIVE LIVER DAMAGE	S
13	0145	ALLYL GLYCIDYL ETHER (AGE) SKIN	L	C 10	45	A 5	22	MARKED IRRITATION - EYE, NOSE, THROAT SKIN/CONTACT ALLERGY SKIN	S
13	0150	ALLYL PROPYL DISULFIDE	L	2	12	2	12	MARKED IRRITATION- EYE, NOSE, THROAT	S
13	0618	ALPHA-CHLOROACETOPHENONE	L/S	0.05	0.3	0.05	0.03	MARKED IRRITATION- EYE, NOSE, THROAT, LUNGS, SKIN	S
14	1778	ALPHA-METHYL STYRENE	L	C 100	480	C 100	480	MODERATE IRRITATION- EYE, NOSE, THROAT	S-ABOVE CEILING LIMIT
1	C1815	ALPHA-NAPHTHYLAMINE	S	STD 1910.1004		NONE	NONE	CANCER-BLADDER (SUSPECT)	S
1	C0162	4-AMINODIPHENYL-SKIN	S	STD 1910.1011		A1B	-	CANCER	S
3	0165	2-AMINOPYRIDINE	S	0.5	2	0.5	2	CUMULATIVE TOXICITY INCREASED BLOOD PRESSURE	O-UP TO 3XPEL S-ABOVE 3XPEL
13	0170	AMMONIA	G	50	35	A 25	18	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS	S-ABOVE 25 PPM

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
15	0175	AMMONIUM CHLORIDE	S	NONE	NONE	A -	10	MILD IRRITATION - EYE, NOSE, THROAT	0
15	0185	AMMONIUM SULFAMATE	S	-	15	A -	10	MILD IRRITATION - EYE, NOSE, THROAT	0
14	0190	N-AMYL ACETATE	L	100	525	100	525	MODERATE IRRITATION- EYE, NOSE, THROAT	0-UP TO 2XPEL S-ABOVE 2XPEL
14	0191	AMYL ACETATE-SEC	L	125	650	125	650	MODERATE IRRITATION- EYE, NOSE, THROAT	0-UP TO 2XPEL S-ABOVE 2XPEL
12	0220	ANILINE - SKIN	L	5	19	5	19	METHEMOGLOBIN FORMATION/ACUTE TOXIC (SYSTEMIC) EFFECTS	0-UP TO 2XPEL S-ABOVE 2XPEL
3	0225	ANISIDINE (O,P - ISOMERS)	L	-	0.5	-	0.5	METHEMOGLOBIN FORMATION/CUMULATIVE TOXICITY	0-UP TO 3XPEL S-ABOVE 3XPEL
3	0230	ANTIMONY & COMPOUNDS (AS SB)	S	-	0.5	P HNOL.5,PROD	.05	CUMULATIVE LIVER AND HEART DAMAGE	S
3	0235	ANTU (ALPHA NAPHTHYL THIOUREA)	S	-	0.3	-	0.3	CUMULATIVE ENDOCRINE (THYROID AND ADRENAL) DAMAGE	S
16	0240	ARGON	G	NONE	NONE	A F	-	SIMPLE ASPHYXIATION	0-IF OXYGEN IS GREATER THAN 18% BY VOL
2	0260	ARSENIC & COMPOUNDS (AS AS)	S	-	0.5	P HNOL .25,PROD	.05	CUMULATIVE SYSTEMIC POISON/SUSPECT CARCINOGEN	S
4	0270	ARSINE	G	0.05	0.2	0.05	0.2	ACUTE SYSTEMIC TOXICITY	S
1	9020	ASBESTOS (ALL FORMS)	S	STD 1910.1001		2 FIBERS/CC		ASBESTIOSIS/CANCER	S
2	0290	ASPHALT (PETROLEUM) FUMES	FUM	NONE	NONE	A -	5	GOOD HOUSEKEEPING PRACTICE/SUSPECT CARCINOGEN	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
5	P0300	AZINPHOS METHYL-SKIN	S	-	0.2	-	0.2	CHOLINESTERASE INHIBITION	O-UP TO 3XPEL S-ABOVE 3XPEL
3	0310	BARIUM (SOLUBLE COMPOUNDS)	S	-	0.5	-	0.5	CUMULATIVE HEART, LUNG, & BRAIN DAMAGE	S
5	____	DAYGON (PROPOXUR)	S	NONE	NONE	A -	0.5	CHOLINESTERASE INHIBITION	O-UP TO 10XPEL S-ABOVE 10XPEL
2	0320	BENZENE - SKIN	L	10	30	10A2	30	CUMULATIVE BONE MARROW DAMAGE/ SUSPECT LEUKEMOGEN	S
1	C0330	BENZIDINE - SKIN	S	STD 1910.1010		A	1B	CANCER OF BLADDER	S
2	0335	BENZOYL PEROXIDE	S	-	5	-	5	MODERATE IRRITATION EYE, NOSE, THROAT/ SUSPECT CARCINOGEN	S
2	0340	BENZYL CHLORIDE	L	1	5	1	5	MARKED IRRITATION - EYE, NOSE, THROAT/ SUSPECT CARCINOGEN	S
2	0360	BERYLLIUM AND COMPOUNDS	S	-	0.002	-	0.002	CUMULATIVE LUNG DAMAGE (BERYLLIOSIS) /SUSPECT CARCINOGEN	S
1	C1820	BETA-NAPHTHYLAMINE	S	STD 1910.1009		A1B	-	CANCER-BLADDER	S
1	C2163	BETA-PROPRIOLACTONE	L	STD 1910.1013		A 2	-	ACUTE SYSTEMIC TOXICITY (HIGH)/ CANCER	S
14	1011	BIPHENYL (DIPHENYL)	S	0.2	1	0.2	1	MODERATE IRRITATION EYE, NOSE, THROAT, LUNGS	O-UP TO 3XPEL S-ABOVE 3XPEL
1	C2630	BIS-CHLOROMETHYL ETHER	L	STD 1910.1008		A1A	-	CANCER (LUNG)	S
17	0370	BISMUTH TELLURIDE	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O

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FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
3	0370	BISMUTH TELLURIDE (SE-DOPED)	S	NONE	NONE	A -	5	CUMULATIVE LUNG DAMAGE	S
14	____	BORATES,TETRA,SODIUM SALT,ANHYDRATE	S	NONE	NONE	P -	1	MODERATE IRRITATION- EYE, NOSE, THROAT, SKIN	O-UP TO 3XPEL S-ABOVE 3XPEL
14	____	BORATES,TETRA,SODIUM SALT,DECAHYDRATE	S	NONE	NONE	P -	5	MODERATE IRRITATION- EYE, NOSE, THROAT, SKIN	O-UP TO 3XPEL S-ABOVE 3XPEL
14	____	BORATES,TETRA,SODIUM SALT,PENTAHYDRATE	S	NONE	NONE	P -	1	MODERATE IRRITATION - EYE, NOSE, THROAT SKIN	O-UP TO 3XPEL S-ABOVE 3XPEL
17	0380	BORON OXIDE	S	-	15	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
13	0381	BORON TRIBROMIDE	L	NONE	NONE	A 1	10	MARKED IRRITATION- EYE, NOSE, THROAT, LUNGS	S
10	0382	BORON TRIFLUORIDE	G	C 1	3	C 1	3	ACUTE AND CHRONIC LUNG IRRITATION (PNEUMONIA)	S
13	0390	BROMINE	L	0.1	0.7	0.1	0.7	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS	S
13	0391	BROMINE PENTAFLUORIDE	L	NONE	NONE	A 0.1	0.7	MARKED IRRITATION- EYE, NOSE, THROAT, LUNGS	S
3	0400	BROMOFORM - SKIN	L	0.5	5	0.5	5	MARKED IRRITATION- EYE, NOSE, THROAT/ CUMULATIVE LIVER DAMAGE	S
14	0410	BUTADIENE (1,3 - BUTADIENE)	G	1000	2200	1000	2200	MODERATE IRRITATION EYE, NOSE, THROAT	O-UP TO 3XPEL S-ABOVE 3XPEL
7	0420	BUTANE	G	NONE	NONE	P 600	1450	NARCOSIS	O-UP TO 3XPEL S-ABOVE 3XPEL

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
7	0430	2-BUTANONE (MEK)	L	200	590	200	590	MILD IRRITATION - EYE, NOSE, THROAT/ NARCOSIS	O-UP TO 2XPEL S-ABOVE 2XPEL
3	0435	2-BUTOXYETHANOL-SKIN	L	50	240	50	240	MILD IRRITATION- EYE, NOSE, THROAT/ CUMULATIVE RBC & KIDNEY DAMAGE	O-UP TO 2XPEL S-ABOVE 2XPEL
14	0440	N-BUTYL ACETATE	L	150	710	150	710	MODERATE IRRITATION- EYE, NOSE, THROAT, LUNGS (UPPER)	O-UP TO 2XPEL S-ABOVE 2XPEL
14	0441	BUTYL ACETATE-SEC	L	200	950	200	950	MODERATE IRRITATION- EYE, NOSE, THROAT, LUNGS (UPPER)	O-UP TO 2XPEL S-ABOVE 2XPEL
14	0442	BUTYL ACETATE-TERT	L	200	950	200	950	MODERATE IRRITATION- EYE, NOSE, THROAT, LUNGS (UPPER)	O-UP TO 2XPEL S-ABOVE 2XPEL
7	0461	BUTYL ALCOHOL-SEC	L	150	450	150	450	MODERATE IRRITATION- EYE, NOSE, THROAT/ NARCOSIS	O-UP TO 2XPEL S-ABOVE 2XPEL
14	0460	N-BUTYL ALCOHOL-SKIN	L	100	300	P 50	150	MODERATE IRRITATION- EYE, NOSE, THROAT	S-AT CURRENT OSHA PEL
14	0462	BUTYL ALCOHOL-TERT	S	100	300	100	300	MODERATE IRRITATION- EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
2	0473	BUTYL CHROMATE-TERT (AS CRO3)-SKIN	S	C -	0.1	C -	0.1	MARKED IRRITATION - EYE, NOSE, THROAT SKIN/SUSPECT CARCINOGEN (CRO3 BASIS)	S
15	0477	N-BUTYL GLYCIDYL ETHER (BGE)	L	50	270	50	270	MILD IRRITATION- EYE, NOSE, THROAT, SKIN	O-UP TO 2XPEL S-ABOVE 2XPEL
14	____	BUTYL LACTATE	L	NONE	NONE	P 5	25	MODERATE IRRITATION- EYE, NOSE, THROAT, LUNGS	S-AT PROPOSED PEL. OLD 1 PPM LEVEL SAFER

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
14	0480	BUTYL MERCAPTAN	L	10	35	A 0.5	1.5	ODOR/MODERATE IRRITATION-EYE, NOSE, THROAT	S-AT CURRENT OSHA PEL
3	0485	P-TERT-BUTYL TOLUENE	L	10	60	10	60	CUMULATIVE LIVER, KIDNEY, CNS DAMAGE	S
13	0470	BUTYLAMINE - SKIN	L	C 5	15	C 5	15	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS, SKIN	S
2	0490	CADMIUM (METAL DUST & SOLUBLE SALTS)	S	-	0.2	-	0.2	CUMULATIVE KIDNEY & LUNG DAMAGE/SUSPECT CARCINOGEN	S
2	0491	CADMIUM OXIDE (FUME)	FUM	-	0.1	A -	0.05	CUMULATIVE KIDNEY & LUNG DAMAGE/SUSPECT CARCINOGEN	S
2	0500	CALCIUM ARSENATE AS AS	S	-	1	-	1	CUMULATIVE SYSTEMIC AS POISONING/ SUSPECT CARCINOGEN	S
17	0505	CALCIUM CARBONATE	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0
14	0510	CALCIUM CYANAMIDE	S	NONE	NONE	P -	0.5	MODERATE IRRITATION EYE, NOSE, THROAT SKIN	S
13	____	CALCIUM HYDROXIDE	S	NONE	NONE	P -	2	MARKED IRRITATION- EYE, NOSE, THROAT, SKIN	S
13	0520	CALCIUM OXIDE	S	-	5	-	5	MARKED IRRITATION - EYE, NOSE, THROAT, SKIN	S
4	0522	CAMPHOR (SYNTHETIC)	S	2	12	2	12	MODERATE IRRITATION EYE, NOSE, THROAT/ ACUTE TOXICITY	S
15	____	CAPROLACTAM DUST	S	NONE	NONE	A -	1	MILD IRRITATION - EYE, NOSE, THROAT, SKIN	0-UP TO 2XPEL S-ABOVE 2XPEL

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
15	____	CAPROLACTAM VAPOR	VAP	NONE	NONE	A 5	20	MILD IRRITATION-EYE, NOSE, THROAT, SKIN	0-UP TO 2XPEL S-ABOVE 2XPEL
8	____	CAPTAFOL (DIFOLATAN) SKIN	S	NONE	NONE	P -	0.1	RESPIRATORY SENSITIZATION (ASTHMA)/PHOTOTOXIC DERMATITIS	S
3	____	CAPTAN	S	NONE	NONE	P -	5	CUMULATIVE SYSTEMIC TOXICITY/POTENTIAL MUTAGEN	S
3	P0525	CARBARYL (SEVIN)	S	-	5	-	5	CHOLINESTERASE INHIBITION/ CUMULATIVE LIVER DAMAGE	S
5	____	CARBOFURAN	S	NONE	NONE	P -	0.1	CHOLINESTERASE INHIBITION	0-UP TO 2XPEL S-ABOVE 2XPEL
2	0527	CARBON BLACK	S	-	3.5	-	3.5	CUMULATIVE HEART DAMAGE/SUSPECT CARCINOGEN	S
16	0530	CARBON DIOXIDE	G	5000	9000	5000	9000	SIMPLE ASPHYXIATION	0-UP TO 10XPEL S-ABOVE 10XPEL
3	0540	CARBON DISULFIDE-SKIN	L	20	60	20	60	CUMULATIVE CNS DAMAGE	S
16	0560	CARBON MONOXIDE	G	50	55	50	55	CHEMICAL ANOXIA AND ASPHYXIATION	0-UP TO 1.5XPEL S-ABOVE 1.5XPEL
3	____	CARBON TETRABROMIDE	S	NONE	NONE	A 0.1	1.4	ACUTE AND CHRONIC TOXIC EFFECTS ON LUNGS, LIVER, AND KIDNEYS	S
2	0570	CARBON TETRACHLORIDE - SKIN	L	10	65	10	65	CUMULATIVE LIVER DAMAGE/SUSPECT CARCINOGEN	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
3	____	CATECHOL (PYROCATECHOL)	S	NONE	NONE	P -	20	CUMULATIVE LIVER, KIDNEY & SKIN DAMAGE	S
17	0575	CELLULOSE (PAPER FIBER)	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
15	____	CESIUM HYDROXIDE	S	NONE	NONE	A -	2	MILD IRRITATION - EYES, NOSE, THROAT, SKIN	O
2	P0611	CHLORDANE - SKIN	L	-	0.5	-	0.5	CUMULATIVE LIVER DAMAGE/SUSPECT CARCINOGEN	S
3	0612	CHLORINATED CAMPHENE - SKIN	S	-	0.5	-	0.5	CUMULATIVE LIVER DAMAGE	S
3	0613	CHLORINATED DIPHENYL OXIDE	S	-	0.5	-	0.5	CUMULATIVE LIVER DAMAGE	S
9	0640	CHLORINE	G	1	3	1	3	CUMULATIVE LUNG DAMAGE/& ACUTE TOXICITY	S
13	0614	CHLORINE DIOXIDE	G	0.1	0.3	0.1	0.3	MARKED IRRITATION- EYE, NOSE, THROAT, LUNGS	S
13	0615	CHLORINE TRIFLUORIDE	G/L	C 0.1	0.4	C 0.1	0.4	MARKED IRRITATION - EYES, NOSE, THROAT, LUNGS	S
14	0660	1-CHLORO-1-NITROPROPANE	L	20	100	20	100	MODERATE IRRITATION- EYE, NOSE, THROAT, SKIN	0-UP TO 3XPEL S-ABOVE 3XPEL
19	____	2-CHLORO-6-(TRICHLOROMETHYL) PYRIDINE	S	NONE	NONE	A -	10	GOOD HOUSEKEEPING PRACTICE (ACCUMULATION IN LUNGS)	0-UP TO 3XPEL S-ABOVE 3XPEL
13	0617	CHLOROACETALDEHYDE	L	C 1	3	C 1	3	MARKED IRRITATION - EYES, NOSE, THROAT, LUNGS SKIN	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
7	0620	CHLOROBENZENE	L	75	350	75	350	NARCOSIS/CUMULATIVE SYSTEMIC TOXICITY	O-UP TO 2XPEL S-ABOVE 2XPEL
13	0623	O-CHLOROBENZYLIDENE MALONONITRILE-SKIN	S	0.05	0.4	0.05	0.4	MARKED IRRITATION - EYES, NOSE, THROAT , SKIN	S
3	0627	CHLOROBROMOMETHANE	L	200	1050	200	1050	CUMULATIVE HEART, LIVER, KIDNEY DAMAGE	S
19	____	CHLORODIFLUOROMETHANE (F22)	G	NONE	NONE	A 1000	3500	GOOD HOUSEKEEPING PRACTICE	O-UP TO 3XPEL S-ABOVE 3XPEL
3	0630	CHLORODIPHENYL (42% CL)-SKIN	S	-	1	-	1	CUMULATIVE LIVER DAMAGE/CHLORACNE (SKIN)	S
2	0630	CHLORODIPHENYL (54% CL)-SKIN	S	-	0.5	-	0.5	CUMULATIVE LIVER DAMAGE/CHLORACNE/ SUSPECT CARCINOGEN	S
2	0670	CHLOROFORM	L	C 50	240	A 25	120	CUMULATIVE LIVER AND KIDNEY DAMAGE/ SUSPECT CARCINOGEN	S
13	0675	CHLOROPICRIN	L	0.1	0.7	0.1	0.7	MARKED IRRITATION - EYES, NOSE, THROAT	S
7	0680	CHLOROPRENE-SKIN	L	25	90	25	90	NARCOSIS/ACUTE TOXIC EFFECTS ON KIDNEY, LIVER, LUNGS	O-UP TO 3XPEL S-ABOVE 3XPEL
5	____	CHLOROPYRIFOS (DURSBAN)-SKIN	S	NONE	NONE	A -	0.2	CHOLINESTERASE INHIBITION	O-UP TO 10XPEL S-ABOVE 10XPEL
3	____	O-CHLOROSTYRENE	L	NONE	NONE	A 50	285	CUMULATIVE LIVER & KIDNEY DAMAGE	O-UP TO 2XPEL S-ABOVE 2XPEL
7	____	O-CHLOROTOLUENE	L	NONE	NONE	A 50	250	NARCOSIS	O-UP TO 3XPEL S-ABOVE 3XPEL
2	0685	CHROMATES, CERTAIN INSOL. FORMS	S	-	1	-	1	CUMULATIVE LUNG DAMAGE/SUSPECT CARCINOGEN	S

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2	0605	CHROMIC ACID & CHROMATES	L	-	0.1	-	0.1	CUMULATIVE LUNG DAMAGE/SUSPECT CARCINOGEN	S
2	0690	CHROMIUM, SOL. CHROMATES SALTS	S	-	0.5	-	0.5	CUMULATIVE LUNG DAMAGE/SUSPECT CARCINOGEN	S
17	____	CLOPIDOL (COYDEN)	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O-UP TO 3XPEL S-ABOVE 3XPEL
2	0700	COAL TAR PITCH VOLATILES	MIX	-	0.2	-	0.2	CUMULATIVE LUNG CHANGES/SUSPECT CARCINOGEN	S
3	0720	COBALT, METAL, FUME & DUST	S	-	0.1	P -	0.01	CUMULATIVE LUNG CHANGES (ASTHMA)	S
15	0730	COPPER DUSTS & MISTS	S	-	1	-	1	MILD IRRITATION - EYES, NOSE, THROAT, SKIN	O-UP TO 2XPEL S-ABOVE 2XPEL
15	0730	COPPER FUME	S	-	0.1	A -	0.2	MILD IRRITATION- EYE, NOSE, THROAT	O-UP TO 4XPEL S-ABOVE 4XPEL
17	1016	CORUNDUM (AL2O3)	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
9	0735	COTTON DUST (RAW)	S	-	1	A -	0.2	CUMULATIVE LUNG DAMAGE (BYSSINOSIS)	S
3	P0737	CRAG HERBICIDE (SESONE)	S	-	15	A -	10	CUMULATIVE LIVER DAMAGE	S
6	0760	CRESOL (ALL ISOMERS)-SKIN	S/L	5	22	5	22	MARKED IRRITATION-SKIN/ACUTE TOXICITY (CNS)	S
13	0770	CROTONALDEHYDE	L	2	6	2	6	MARKED IRRITATION-EYE, NOSE, THROAT +LUNGS	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
5	____	CRUFOMATE (RUELENE)	S	NONE	NONE	A -	5	CHOLINESTEMASE INHIBITION	O
7	0780	CUMENE-SKIN	L	50	245	50	245	NARCOSIS	O-UP TO 2XPEL S-ABOVE 2XPEL
4	____	CYANAMIDE	S	NONE	NONE	P -	2	MARKED IRRITATION - EYE, NOSE, THROAT, SKIN/ACUTE TOXICITY	S
15	0790	CYANIDES (AS CN)-SKIN	S	-	5	-	5	MILD IRRITATION - EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
4	0800	CYANOGEN	G	NONE	NONE	A 10	20	MODERATE IRRITATION - EYE, NOSE THROAT/ACUTE TOXICITY (CYANOSIS)	S
7	0810	CYCLOHEXANE	L	300	1050	300	1050	MODERATE IRRITATION - EYE, NOSE THROAT/NARCOSIS	O- UP TO 2XPEL S- ABOVE 2XPEL
3	0820	CYCLOHEXANOL	S	50	200	50	200	MILD IRRITATION - EYE, NOSE, THROAT/ CUMULATIVE LIVER & KIDNEY DAMAGE	O- UP TO 2XPEL S- ABOVE 2XPEL
3	0830	CYCLOHEXANONE	L	50	200	50	200	MARKED IRRITATION - EYE, NOSE, THROAT/ CUMULATIVE LIVER & KIDNEY DAMAGE	S -
3	0840	CYCLOHEXENE	L	300	1016	300	1015	MODERATE IRRITATION - EYE, NOSE, THROAT/CUMULATIVE SYSTEMIC TOXICITY	O- UP TO 2XPEL S- ABOVE 2XPEL
2	____	CYCLOHEXYLAMINE-SKIN	L	NONE	NONE	A 10	40	MARKED IRRITATION - EYE, NOSE, THROAT, SKIN/SUSPECT CARCINOGEN	S
14	0845	CYCLOPENTADIENE	L	75	200	75	200	MODERATE IRRITATION - EYE, NOSE, THROAT	O- UP TO 2XPEL S- ABOVE 2XPEL

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
4	0846	2,4-D(2,4-DICHLOROPHENOXY-ACETIC ACID)	S	-	10	-	10	ACUTE SYSTEMIC TOXICITY	0-UP TO 3XPEL S-ABOVE 3XPEL
2	P0047	DDT - SKIN	S	-	1	-	1	CUMULATIVE TOXICITY /SUSPECT CARCINOGEN	S
4	0053	DECABORANE-SKIN	S	0.05	0.3	0.05	0.3	ACUTE CNS TOXICITY	S
5	P0857	DEMETON(SYSTOX)-SKIN	L	-	0.1	-	0.1	CHOLINESTERASE INHIBITION	S
19	1015	DI-SEC, OCTYL PHTHALATE	S	-	5	-	5	GOOD HOUSEKEEPING PRACTICE	0
14	0860	DIACETONE ALCOHOL	L	50	240	50	240	MODERATE IRRITATION - EYE, NOSE, THROAT	0- UP TO 2XPEL S- ABOVE 2XPEL
5	P2720	DIAZINON - SKIN	L	NONE	NONE	A -	0.1	CHOLINESTERASE INHIBITION	S
2	0861	DIAZOMETHANE	G	0.2	0.4	0.2	0.4	MARKED EDEMA - LUNGS/SUSPECT CARCINOGEN	S
6	____	DIBORANE	G	0.1	0.1	0.1	0.1	MARKED EDEMA - LUNGS/ACUTE CNS TOXIN	S
5	P0932	DIBROM	S	-	3	-	3	CHOLINESTERASE INHIBITION	0- UP TO 2XPEL S- ABOVE 2XPEL
2	1140	1,2-DIBROMOETHANE(ETHYLENEDIBROMIDE)SKIN	L	20	145	20	145	SUSPECT CARCINOGEN	S
15	0863	DIBUTYL PHOSPHATE	L	1	5	1	5	MILD IRRITATION - EYE, NOSE, THROAT, LUNGS (UPPER)	0
5	____	2-N-DIBUTYLAMINOETHANOL-SKIN	L	NONE	NONE	A 2	14	CHOLINESTERASE INHIBITION	0- UP TO 3XPEL S- ABOVE 3XPEL
19	0864	DIBUTYLPHTHALATE	L	-	5	-	5	GOOD HOUSEKEEPING PRACTICE (ACCUMULATION IN LUNGS)	0

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
4	0890	1,1-DICHLORO-1-NITROETHANE	L	C 10	60	10	60	ACUTE SYSTEMIC TOXICITY (LUNGS, HEART, LIVER, KIDNEYS)	S
13	0872	1,3-DICHLORO-5,5-DIMETHYL HYDANTOIN	S	-	0.2	-	0.2	MARKED IRRITATION - EYE, NOSE THROAT, LUNGS (UPPER)	0- UP TO 3XPEL S- ABOVE 3XPEL
3	0865	DICHLOROACETYLENE	L	NONE	NONE	C 0.1	0.4	CUMULATIVE CNS TOXIN; DISABLING NAUSEA	S
13	0867	O-DICHLOROBENZENE	L	C 50	300	C 50	30	MARKED IRRITATION - EYE, NOSE, THROAT	S
3	0868	P-DICHLOROBENZENE	S	75	450	75	450	CUMULATIVE SYSTEMIC TOXICITY	S
1	C0869	3,3-DICHLOROBENZIDINE-SKIN	S	STD 1910.1007		A	2	CANCER (BLADDER)	S
19	0871	DICHLORODIFLUOROMETHANE (F12)	G	1000	4950	1000	4950	GOOD HOUSEKEEPING PRACTICE (ACCUMULATION IN LUNGS)	0
3	1160	1,1-DICHLOROETHANE	L	100	400	A 200	820	CUMULATIVE LIVER DAMAGE	0-UP TO 3X CURRENT OSHA PEL S-ABOVE 3XPEL
3	0874	1,2-DICHLOROETHANE (ETHYLENE DICHLORIDE)	L	50	200	50	200	CUMULATIVE LIVER DAMAGE	S
11	0880	DICHLOROETHYL ETHER - SKIN	L	C 15	90	A 5	30	MARKED IRRITATION - EYES, NOSE, THROAT, LUNGS	S- AT CURRENT OSHA PEL
7	0876	1,2-DICHLOROETHYLENE	L	200	790	200	790	NARCOSIS	0- UP TO 3XPEL S- ABOVE 3XPEL
19	0887	DICHLOROMONOFLUOROMETHANE (F21)	G	1000	4200	1000	4200	GOOD HOUSEKEEPING (ATTAINABLE) PRACTICE	0- UP TO 3XPEL S- ABOVE 3XPEL

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
19	0900	DICHLOROTETRAFLUOROETHANE	G	1000	7000	1000	7000	GOOD HOUSEKEEPING (ATTAINABLE) PRACTICE	O- UP TO 3XPEL S- ABOVE 3XPEL
5	P0850	DICHLORVOS (DDVP)-SKIN	L	-	1	-	1	CHOLINESTERASE INHIBITION	O- UP TO 2XPEL S- ABOVE 2XPEL
5	____	DICROTOPHOS (BIDRIN)-SKIN	L	NONE	NONE	P -	0.25	CHOLINESTERASE INHIBITION	S
3	____	DICYCLOPENTADIENE	L	NONE	NONE	P 5	30	MILD IRRITATION - EYE, NOSE, THROAT /CUMULATIVE LIVER & KIDNEY DAMAGE	S
19	____	DICYCLOPENTADIENYL-IRON	S	NONE	NONE	A -	10	GOOD HOUSKEEPING PRACTICE	O
2	P0905	DIELDRIN-SKIN	S	-	0.25	-	0.25	CUMULATIVE LIVER DAMAGE/SUSPECT CARCINOGEN	S
13	0910	DIETHYLAMINE	L	25	75	25	75	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS, SKIN	S
13	0920	DIETHYLAMINOETHANOL-SKIN	L	10	50	10	50	MARKED IRRITATION - EYE, NOSE, THROAT	S
8	0921	DIETHYLENE TRIAMINE-SKIN	L	NONE	NONE	A 1	4	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS, SKIN/ASTHMA	S
15	____	DIETHYLPHTHALATE	L	NONE	NONE	A 0.65	5	MILD IRRITATION - EYE, NOSE THROAT	O
3	0922	DIFLUORODIBROMOMETHANE	L	100	860	100	860	CUMULATIVE LIVER AND CNS DAMAGE	S
3	0923	DIGLYCIDYL ETHER (DGE)	L	C 0.5	2.8	C 0.5	2.8	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS, SKIN/ CUMULATIVE TOXICITY	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
7	0924	DIISOBUTYL KETONE	L	50	290	A 25	150	MODERATE IRRITATION - EYE, NOSE, THROAT/NARCOSIS	0- UP TO 2XPEL S- ABOVE 2XPEL
13	0925	DIISOPROPYLAMINE-SKIN	L	5	20	5	20	MARKED IRRITATION- EYE, NOSE, THROAT, LUNGS	S
3	0927	DIMETHYL ACETAMIDE-SKIN	L	10	35	10	35	CUMULATIVE LIVER DAMAGE	S
1	C0929	4-DIMETHYL AMINOAZOBENZENE	S	STD 1910.1015		NONE	NONE	CANCER	S
2	0960	DIMETHYL SULFATE-SKIN	L	1	5	C 0.1	A2	ACUTE LUNG EFFECTS SUSPECT CARCINOGEN	S- AT CURRENT OSHA PEL
3	0928	DIMETHYLAMINE	G	10	18	10	18	MARKED IRRITATION - EYE, NOSE, THROAT, SKIN/CUMULATIVE LIVER DAMAGE	S
12	0931	DIMETHYLANILINE-SKIN	L	5	25	5	25	METHEMOGLOBINEMIA	0- UP TO 2XPEL S- ABOVE 2XPEL
3	0930	DIMETHYLFORMAMIDE-SKIN	L	10	30	10	30	CUMULATIVE LIVER DAMAGE	S
2	0940	1,1-DIMETHYLHYDRAZINE-SKIN	L	0.5	1	0.5	1	ACUTE CNS TOXICITY AND ANEMIA/SUSPECT CARCINOGEN	S
19	0950	DIMETHYLPHTHALATE	L	-	5	-	5	GOOD HOUSEKEEPING PRACTICE	0
3	0975	DINITRO-O-CRESOL-SKIN	S	-	0.2	-	0.2	CUMULATIVE SYSTEMIC (METABOLIC) TOXIN	S
3	____	3,5-DINITRO-O-TOLUAMIDE (ZOALENE)	S	NONE	NONE	A -	5	CUMULATIVE LIVER DAMAGE	0- UP TO 2XPEL S- ABOVE 2XPEL
4	0970	DINITROBENZENE(ALL ISOMERS)-SKIN	S	-	1	-	1	METHEMOGLOBINEMIA/ HIGH ACUTE TOXICITY	S
12	0970	DINITROTOLUENE-SKIN	S	-	1.5	-	1.5	METHEMOGLOBINEMIA/ ANEMIA	S

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
2	1010	DIOXANE TECHNICAL GRADE-SKIN	L	100	360	A 50	180	CUMULATIVE KIDNEY AND LIVER DAMAGE/ SUSPECT CARCINOGEN	S- AT CURRENT OSHA PEL
5	P2740	DIOXATHION (DELVAR)	L	NONE	NONE	P -	0.2	CHOLINESTERASE INHIBITION	0- UP TO 2XPEL S- ABOVE 2XPEL
3	0926	DIPHENYLAMINE	S	NONE	NONE	A -	10	CUMULATIVE LIVER, KIDNEY, BLADDER DAMAGE	S
3	1014	DIPROPYLENE GLYCOL METHYL ETHER SKIN	L	100	600	100	600	MODERATE IRRITATION EYE, NOSE, THROAT/ CUMULATIVE LIVER & LUNG DAMAGE	S
3	____	DIQUAT	S	NONE	NONE	A -	0.5	CUMULATIVE EFFECTS ON EYES (CATARACTS)	S
4	____	DISULFURAM	S	NONE	NONE	P -	2	ACUTE TOXICITY (ANTABUSE-LIKE EFFECTS)	0
5	P2680	DISYSTON-SKIN	S	NONE	NONE	A -	0.1	CHOLINESTERASE INHIBITION	S
19	____	2,6-DITERT-BUTYL-P-CRESOL	S	NONE	NONE	A -	10	GOOD HOUSEKEEPING PRACTICE	0
5	____	DYFONATE	S	NONE	NONE	P -	0.1	CHOLINESTERASE INHIBITION	S
17	1016	EMERY	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0
3	2425	ENDOSULFAN (THIODAN)-SKIN	S	NONE	NONE	A -	0.1	ACUTE CNS TOXIN/ CUMULATIVE KIDNEY DAMAGE	S
2	P1017	ENDRIN	S	-	0.1	-	0.1	ACUTE TOXICITY/ SUSPECT CARCINOGEN	S
3	0645	EPICHLORHYDRIN-SKIN	L	5	19	5	19	CUMULATIVE KIDNEY DAMAGE/MARKED SKIN IRRITATION	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
5	P1014	EPN-SKIN	L	-	0.5	-	0.5	CHOLINESTEPASE INHIBITION	0-UP TO 3XPEL S-ABOVE 3XPEL
16	1025	ETHANE	G	NONE	NONE	A F	-	SIMPLE ASPHYXIATION	0
3	1030	ETHANOLAMINE	L	3	6	3	6	CUMULATIVE LIVER, LUNG AND KIDNEY DAMAGE	S
5	P2750	ETHION (INIALATE)-SKIN	L	NONE	NONE	P -	0.4	CHOLINESTERASE INHIBITION	S
3	1033	2-ETHOXYETHANOL	L	200	740	A 100	370	CUMULATIVE BLOOD DAMAGE	S- AT CURRENT OSHA PEL
3	1037	2-ETHOXYETHYLACETATE-SKIN	L	100	540	100	540	CUMULATIVE KIDNEY DAMAGE	S
15	1040	ETHYL ACETATE	L	400	1400	400	1400	MILD IRRITATION - EYE, NOSE, THROAT, LUNGS (UPPER)	0- UP TO 3XPEL S- ABOVE 3XPEL
13	1050	ETHYL ACRYLATE-SKIN	L	25	100	25	100	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS	S
14	1060	ETHYL ALCOHOL	L	1000	1900	1000	1900	MODERATE IRRITATION - EYE, NOSE, THROAT	0-UP TO 5XPEL S-ABOVE 5XPEL
14	1080	ETHYL BENZENE	L	100	435	100	435	MODERATE IRRITATION - EYE, NOSE, THROAT	0- UP TO 2XPEL S- ABOVE 2XPEL
3	1090	ETHYL BROMIDE	L	200	890	200	890	NARCOSIS/CUMULATIVE LIVER, KIDNEY, AND HEART DAMAGE	S
7	1100	ETHYL BUTYL KETONE	L	50	230	50	230	MILD IRRITATION - EYE, NOSE, THROAT/ NARCOSIS	0- UP TO 3XPEL S- ABOVE 3XPEL

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FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
7	1110	ETHYL CHLORIDE	G	1000	2600	1000	2600	NARCOSIS	0- UP TO 5XPEL S- ABOVE 5XPEL
7	1210	ETHYL ETHER	L	400	1200	400	1200	MILD IRRITATION - EYE, NOSE, THROAT/ NARCOSIS	0- UP TO 2XPEL S- ABOVE 2XPEL
15	1155	ETHYL FORMATE	L	100	300	100	300	MILD IRRITATION - EYE, NOSE, THROAT	0- UP TO 2XPEL S- ABOVE 2XPEL
4	1220	ETHYL MERCAPTAN	L	C 10	25	A 0.5	1	ODOR/ACUTE SYSTEMIC TOXICITY	S- AT CURRENT OSHA PEL
14	1075	ETHYL SEC-AMYL KETONE	L	25	130	25	130	MODERATE IRRITATION - EYE, NOSE, THROAT	0- UP TO 2XPEL S- ABOVE 2XPEL
3	1230	ETHYL SILICATE	L	100	850	100	850	MILD IRRITATION - EYE, NOSE, THROAT/ CUMULATIVE KIDNEY DAMAGE	S
13	1070	ETHYLAMINE	L	10	18	10	18	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS	S
16	____	ETHYLENE	G	NONE	NONE	A F	-	SIMPLE ASPHYXIATION	0- AT OXYGEN LEVELS GREATER THAN 18% BY VOLUME
4	1120	ETHYLENE CHLOROHYDRIN-SKIN	L	5	16	P 1	3	ACUTE TOXICITY (LOCAL & SYSTEMIC)	S-AT CURRENT OSHA PEL AND ACGIH
14	1130	ETHYLENE DIAMINE	L	10	25	10	25	MODERATE IRRITATION - EYE, NOSE, THROAT, SKIN / CONTACT ALLERGY	0- UP TO 2XPEL S- ABOVE 2XPEL
3	1910	ETHYLENE GLYCOL DINITRATE-SKIN	L	C 0.2	1.2	C 0.2	1.2	CUMULATIVE EFFECT ON BLOOD PRESSURE, FIBRILLATION	S
3	1170	ETHYLENE GLYCOL MONOMETHYL ETHERACETATE-	L	25	120	25	120	CUMULATIVE CNS AND BLOOD (ANEMIA) EFFECTS	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
14	____	ETHYLENE GLYCOL, PARTICULATE	L	NONE	NONE	A -	10	MODERATE IRRITATION - EYE, NOSE & THROAT	O- UP TO 2XPEL S- ABOVE 2XPEL
14	____	ETHYLENE GLYCOL, VAPOR	VAP	NONE	NONE	A 100	250	MODERATE IRRITATION - EYE, NOSE, THROAT	O- UP TO 2XPEL S- ABOVE 2XPEL
3	1190	ETHYLENE OXIDE	G	50	90	50	90	CUMULATIVE LUNG LIVER & KIDNEY DAMAGE	S
1	C1175	ETHYLENEIMINE-SKIN	L	STD 1910.1012		0.5	1	CANCER	S
3	____	ETHYLIDENE NORBORNENE	S	NONE	NONE	C A 5	25	MODERATE IRRITATION-EYE, NOSE, THROAT/ CUMULATIVE LIVER DAMAGE	S
14	1225	N-ETHYLMORPHOLINE-SKIN	L	20	94	20	94	MODERATE IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
5	____	FENSULFOTHION(DASANIT)	S	NONE	NONE	P -	0.1	CHOLINESTERASE INHIBITION	O-UP TO 5XPEL S-ABOVE 5XPEL
15	P1263	FERBAM	S	-	15	A -	10	MILD IRRITATION-EYE, NOSE, UPPER RESPIRATORY	O
14	1267	FERRO VANADIUM DUST	S	-	1	-	1	MODERATE IRRITATION-UPPER RESPIRATORY	O-(WIDE MARGIN OF SAFETY)
3	1280	FLUORIDE (AS F)	S	-	2.5	-	2.5	MARKED IRRITATION-EYE, NOSE, THROAT/ CUMULATIVE BONE DAMAGE	S
10	1270	FLUORINE	G	0.1	0.2	A 1	2	MODERATE EDEMA-LUNGS	O-AT CURRENT OSHA PEL
6	1285	FLUOROTRICHLOROMETHANE(F11)	L	1000	5600	1000	5600	ACUTE CNS EFFECTS (MANIFESTED AS TREMORS)	O-UP TO 3XPEL S-ABOVE 3XPEL

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
13	1290	FORMALDEHYDE	L	3		C A 2		3 MARKED IRRITATION- EYES, LUNGS, SKIN	S-AT CURRENT OSHA PEL
3	____	FORMAMIDE	L	NONE	NONE	A 20		30 CUMULATIVE SYSTEMIC TOXICITY	S
13	1310	FORMIC ACID	L	5	9		5	9 MARKED IRRITATION- EYES, NOSE, THROAT LUNGS	S
14	____	FURFURAL-SKIN	L	5	20		5	20 MODERATE IRRITATION- EYE, NOSE, THROAT	0-UP TO 2XPEL S-ABOVE 2XPEL
7	1330	FURFURYL ALCOHOL	L	50	200	A	5	20 MODERATE IRRITATION- EYES, LUNGS/NARCOSIS	S-AT CURRENT OSHA PEL
3	1340	GASOLINE	L	NONE	NONE	A	-	82 MILD IRRITATION/ CUMULATIVE BLOOD EFFECTS	0-AS HEALTH HAZARD S-AS FLAMA- BILITY HAZARD
4	1360	GERMANIUM TETRAHYDRIDE	G	NONE	NONE	A	0.2	0.6 ACUTE SYSTEMIC TOXICITY (HEMOLYSIS)	S
17	1300	GLASS, FIBROUS OR DUST	S	NONE	NONE	A	-	10 "INERT" PARTICULATE (LUNG ACCUMULATION)/ SKIN IRRITATION	0
13	____	GLUTARALDEHYDE	L	NONE	NONE	C P	2	8 MARKED IRRITATION- EYE, NOSE, THROAT SKIN/ALLERGY	S
13	____	GLUTARALDEHYDE (ALKALINE ACTIVATED)	L	NONE	NONE	P	-	0.25 MARKED IRRITATION- EYE, NOSE, THROAT, SKIN/ALLERGY	S
17	1363	GLYCERIN MIST	L	NONE	NONE	A	-	10 "INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0
7	1365	GLYCIDOL	L	50	150		50	150 MODERATE IRRITATION- EYE, NOSE, THROAT, SKIN/NARCOSIS	0-UP TO 2XPEL S-ABOVE 2XPEL

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FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
9	9090	GRAPHITE (NATURAL)	S	-	15 MPPCF	-	15 MPPCF	CUMULATIVE LUNG DAMAGE-SILICOSIS	S
9	1366	GRAPHITE (SYNTHETIC)	S	NONE	NONE	A -	10	CUMULATIVE LUNG DAMAGE-SILICOSIS	S
17	1367	GYPSUM	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
3	1368	HAFNIUM	S	-	0.5	-	0.5	CUMULATIVE LIVER DAMAGE	S
16	1400	HELIUM	G	NONE	NONE	A F	-	SIMPLE ASPHYXIATION	O-IF OXYGEN IS GREATER THAN 18% BY VOLUME
2	P1369	HEPTACHLOR-SKIN	S	-	0.5	-	0.5	CUMULATIVE LIVER DAMAGE/SUSPECT CARCINOGEN	S
3	1371	HEPTANE	L	500	2000	P 400	1600	MODERATE IRRITATION-EYE, NOSE, LUNGS/ POLYNEUPITIS	S
3	____	HEXACHLOROCYCLOPENTADIENE	L	NONE	NONE	A 0.01	0.11	MARKED EDEMA-LUNGS/ CUMULATIVE (VARIED) ORGAN DAMAGE	S
3	1372	HEXACHLOROETHANE-SKIN	S	1	10	1	10	CUMULATIVE ORGAN DAMAGE (VAPIOUS)	S
3	P1373	HEXACHLORONAPHTHALENE-SKIN	S	-	0.2	-	0.2	CUMULATIVE LIVER DAMAGE	S
3	____	HEXAFLUOROACETONE	L	NONE	NONE	A 0.1	0.7	CUMULATIVE LUNG, KIDNEY, TESTES DAMAGE	S
7	1380	N-HEXANE	L	500	1800	P 100	360	NARCOSIS/ POLYNEUPITIS	S-AT CURRENT OSHA PEL
3	1690	2-HEXANONE (MBK)-SKIN	L	100	410	P 25	100	MODERATE IRRITATION-EYE, NOSE, THROAT/ PERIPHERAL NEUROPATHY	S-AT CURRENT OSHA PEL

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FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
14	1305	HEXONE (MIBK)-SKIN	L	100	410	100	410	MODERATE IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
15	1387	HEXYLACETATE-SEC	L	50	300	50	300	MILD IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
7	----	HEXYLENE GLYCOL	L	NONE	NONE	C A 25	125	MILD IRRITATION-EYE, NOSE, THROAT, SKIN/NAUSEOSIS	O
2	1390	HYDRAZINE-SKIN	L	1	1.3	P 0.1	0.1	MARKED IRRITATION/CUMULATIVE LIVER DAMAGE/SUSPECT CARCINOGEN	S
16	1410	HYDROGEN	G	NONE	NONE	A F	*	SIMPLE ASPHYXIATION	O-IF OXYGEN IS GREATER THAN 18% BY VOLUME
13	1420	HYDROGEN BROMIDE	G	3	10	3	10	MARKED IRRITATION-EYE, NOSE, THROAT	S
13	1430	HYDROGEN CHLORIDE	G	C 5	7	C 5	7	MARKED IRRITATION-EYE, NOSE, THROAT	S
4	1440	HYDROGEN CYANIDE-SKIN	G	10	11	10	11	ACUTE AND CUMULATIVE SYSTEMIC TOXICITY (CYANOSIS)	S
3	1460	HYDROGEN FLUORIDE	G	3	2	3	2	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS/CUMULATIVE BONE DAMAGE	S
13	1470	HYDROGEN PEROXIDE, 90%	L	1	1.4	1	1.4	MARKED IRRITATION-EYE, NOSE, THROAT, SKIN	S
4	1475	HYDROGEN SELENIDE	G	0.05	0.2	0.05	0.2	MARKED ACUTE LUNG DAMAGE AND SYSTEMIC TOXICITY	S
4	1480	HYDROGEN SULFIDE	G	C 20	30	A 10	15	MARKED IRRITATION EYE(CONJUNCTIVITIS), LUNGS/ACUTE SYSTEMIC TOXICITY	S-AT CURRENT OSHA PEL AND ACGIH

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FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
3	____	HYDROGENATED TERPHENYLS	S	NONE	NONE	P 0.5	5	CUMULATIVE LIVER, KIDNEY, LUNG DAMAGE	S
3	____	HYDROQUINONE	S	-	2	-	2	CUMULATIVE CORNEAL (EYE) DAMAGE	S
4	1500	INDENE	L	NONE	NONE	A 10	45	MARKED IRRITATION-EYE, NOSE, THROAT/ ACUTE SYSTEMIC TOXICITY	S
10	1510	INDIUM & COMPOUNDS, AS IN	S	NONE	NONE	A -	0.1	CUMULATIVE LUNG DAMAGE	S
13	1515	IODINE	S	C 0.1	1	C 0.1	1	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS	S
4	____	IODOFORM	S	NONE	NONE	P 0.2	3	MODERATE IRRITATION-EYE, NOSE, THROAT, LUNGS/ACUTE CNS EFFECTS	S
2	1520	IRON OXIDE FUME	FUM	-	10	A B 4	5	LUNG CHANGES (SIDEROSIS)/ SUSPECT CARCINOGEN (HAEMATITE MINES)	S-AT CURRENT OSHA PEL
4	1520	IRON PENTACARBONYL	L	NONE	NONE	A 0.01	0.08	ACUTE TOXICITY(CNS)	S
14	1520	IRON SALTS, SOLUBLE, AS FE	S	NONE	NONE	A -	1	MODERATE IRRITATION-UPPER RESPIRATORY TRACT, SKIN	0-UP TO 2XPEL S-ABOVE 2XPEL
14	1530	ISOAMYL ACETATE	L	100	525	100	525	MODERATE IRRITATION-UPPER RESPIRATORY TRACT	0-UP TO 2XPEL S-ABOVE 2XPEL
7	1532	ISOAMYL ALCOHOL	L	100	360	100	360	MILD IRRITATION-EYE, NOSE, THROAT/ NARCOSIS	0-UP TO 2XPEL S-ABOVE 2XPEL
15	1534	ISOBUTYL ACETATE	L	150	700	150	700	MILD IRRITATION-EYE, NOSE, THROAT	0-UP TO 3XPEL S-ABOVE 3XPEL

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
15	1536	ISOBUTYL ALCOHOL	L	100	300	P 50	150	MILD IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
7	1538	ISOPHORONE	L	25	140	P C 5	25	MARKED IRRITATION-EYE, NOSE, THROAT/ NARCOSIS (FATIGUE AND MALAISE)	S-AT CURRENT OSHA PEL
8	----	ISOPHORONE DIISOCYANATE-SKIN	L	NONE	NONE	P 0.01	0.06	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS, SKIN/ALLERGY	S
15	1540	ISOPROPYL ACETATE	L	250	950	250	950	MILD IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
7	1560	ISOPROPYL ALCOHOL-SKIN	L	400	980	400	980	MILD IRRITATION-EYE, NOSE, THROAT/ NARCOSIS	S
13	1562	ISOPROPYL AMINE	L	5	12	5	12	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS	O-UP TO 2XPEL S-ABOVE 2XPEL
15	1565	ISOPROPYL ETHER	L	500	2100	A 250	1050	MILD IRRITATION-EYE, NOSE, THROAT	O-AT CURRENT OSHA PEL
9	1567	ISOPROPYL GLYCIDYL ETHER (IGE)	L	50	240	50	240	MODERATE IRRITATION-EYE, NOSE, THROAT/ CUMULATIVE LUNG DAMAGE	O-UP TO 2XPEL S-ABOVE 2XPEL
17	----	KAOLIN	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
13	----	KETENE	G	0.5	0.9	0.5	<0.9	MARKED IRRITATION-LUNGS (EDEMA)	S
2	1590	LEAD ARSENATE, AS PB	S	-	0.15	-	0.15	CUMULATIVE INTOXICATION (VAPIED)/ SUSPECT CARCINOGEN	S
3	1590	LEAD, INORG., FUMES & DUSTS, AS PB	S	-	0.2	A -	0.15	CUMULATIVE INTOXICATION (BLOOD, NEUROLOGIC)	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
17	1593	LIMESTONE	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0
2	P1595	LINDANE-SKIN	S	-	0.5	-	0.5	CUMULATIVE LIVER & CNS DAMAGE/ SUSPECT CARCINOGEN	S
13	1503	LITHIUM HYDRIDE	S	-	0.025	-	0.025	MARKED IRRITATION- EYE, NOSE, THROAT	S
7	1830	LPG (LIQUIFIED PETROLEUM GAS)	G	1000	1800	1000	1800	NARCOSIS	0-UP TO 2XPEL S-ABOVE 2XPEL
17	1615	MAGNESITE	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0
17	1610	MAGNESIUM OXIDE FUME	S	-	15	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS/FUME FEVER	0
5	P1616	MALATHION-SKIN	L	-	15	-	15	CHOLINESTERASE INHIBITION	0-UP TO 2XPEL S-ABOVE 2XPEL
8	1618	MALEIC ANHYDRIDE	S	0.25	1	0.25	1	MARKED IRRITATION- EYE, NOSE, THROAT, LUNGS, SKIN/CONTACT ALLERGY/ASTHMA	S
3	1620	MANGANESE AND COMPOUNDS	S	C -	5	C -	5	CUMULATIVE CNS DAMAGE	S
3	____	MANGANESE CYCLOPENTADIENYL TRICARBONYL	S	NONE	NONE	A -	0.1	CUMULATIVE KIDNEY AND CNS DAMAGE	S
17	____	MARBLE	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0
3	1630	MERCURY (ALKYL COMPOUNDS)-SKIN AS HG	VAR	C 0.04	0.04	A 0.001	0.01	CUMULATIVE CNS DAMAGE	S
3	1630	MERCURY (INORGANIC) AS HG-SKIN	VAR	-	0.1	A -	0.05	CUMULATIVE CNS DAMAGE	S

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
13	1635	MESITYL OXIDE	L	25	100	25	100	MARKED IRRITATION-EYE, NOSE, THROAT	0-UP TO 2XPEL S-ABOVE 2XPEL
16	1640	METHANE	G	NONE	NONE	A F	-	SIMPLE ASPHYXIATION	0-IF OXYGEN IS GREATER THAN 18% BY VOLUME
5	____	METHOMYL (LANNATE)	S	NONE	NONE	A -	2.5	CHOLINESTERASE INHIBITION	0-UP TO 3XPEL S-ABOVE 3XPEL
4	1646	METHOXYCHLOR	S	-	15	A	10	ACUTE SYSTEMIC TOXICITY (LOW)	0-UP TO 3XPEL S-ABOVE 3XPEL
3	0590	2-METHOXYETHANOL-SKIN (METHYL CELLULOSE)	L	25	80	25	80	CUMULATIVE CNS, KIDNEY AND LIVER DAMAGE	S
14	1735	METHYL 2-CYANOACRYLATE	L	NONE	NONE	A 2	8	MODERATE IRRITATION-EYE, NOSE, THROAT	0-UP TO 2XPEL S-UP TO 2XPEL
15	1650	METHYL ACETATE	L	200	610	200	610	MILD IRRITATION-EYE, NOSE, THROAT, LUNGS/METHANOL TOXICITY	S-ABOVE 200PPM
19	1651	METHYL ACETYLENE	G	1000	1650	1000	1650	GOOD HOUSEKEEPING PRACTICE ("INERT" VAPOR)	0
19	1652	METHYL ACETYLENE-PROPADIENE MIX (MAPP)	G/L	1000	1800	1000	1800	GOOD HOUSKEEPING PRACTICE ("INERT" VAPOR)	0
13	1653	METHYL ACRYLATE-SKIN	L	10	35	10	35	MARKED IRRITATION-EYE, NOSE, THROAT, SKIN	0-UP TO 3XPEL S-ABOVE 3XPEL
3	____	METHYL ACRYLONITRILE-SKIN	L	NONE	NONE	A 1	3	ACUTE TOXICITY/ CUMULATIVE LIVER & CNS DAMAGE	0-UP TO 3XPEL S-ABOVE 3XPEL
4	1660	METHYL ALCOHOL-SKIN	L	200	260	200	260	ACUTE TOXICITY (NARCOSIS, EYE DAMAGE)	0-UP TO 1.5XPEL S-ABOVE 1.5XPEL

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
13	1665	METHYL AMINE	G	10	12	10	12	MARKED IRRITATION-EYE, NOSE, THROAT, SKIN	S
6	1680	METHYL BROMIDE-SKIN	G	C 20	80	A 15	60	MARKED EDEMA-LUNGS/CNS DAMAGE	S
6	1710	METHYL CHLORIDE	G	100	210	100	210	ACUTE AND CHRONIC CNS EFFECTS	S
15	1720	METHYL CHLOROFORM	L	350	1900	350	1900	MILD IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
1	C2640	METHYL CHLOROMETHYL ETHER	L	STD 1910.1006		NONE	NONE	CANCER (LUNG)	S
7	1740	METHYL CYCLOHEXANE	L	500	2000	P 400	1600	MILD IRPITATION-EYE, NOSE, THROAT/NARCOSIS	O-UP TO 2XPEL S-ABOVE 2XPEL
3	1760	METHYL CYCLOHEXANOL	L	100	470	A 50	235	NARCOSIS/CUMULATIVE LIVER AND KIDNEY DAMAGE	S
7	1765	O-METHYL CYCLOHEXANONE-SKIN	L	100	460	50	230	MODERATE IRRITATION-EYE, NOSE, THROAT/NARCOSIS	S-AT CURRENT OSHA PEL
13	____	METHYL ETHYL KETONE PEROXIDE	L	NONE	NONE	C A 0.2	1.5	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS	S-ABOVE CEILING LIMIT
14	1770	METHYL FORMATE	L	100	250	100	250	MODERATE IRRITATION-EYE, NOSE, THROAT, LUNGS	O-UP TO 3XPEL S-ABOVE 3XPEL
3	1772	METHYL IODIDE-SKIN	L	5	28	5	28	CUMULATIVE CNS DAMAGE	S
14	____	METHYL ISOAMYL KETONE	L	NONE	NONE	A 100	475	MODERATE IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
13	1670	METHYL ISOBUTYLCARBINOL-SKIN	L	25	100	25	100	MARKED IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
8	1773	METHYL ISOCYANATE-SKIN	L	0.02	0.05	0.02	0.05	MARKED IRRITATION-EYE, NOSE, THROAT, SKIN, LUNGS/ASTHMA	S
14	1643	METHYL MERCAPTAN	L	C 10	20	A 0.5	1	ODOR/MODERATE IRRITATION-EYE, NOSE, THROAT	S-AT CURRENT OSHA PEL
15	1774	METHYL METHACRYLATE	L	100	410	100	410	MILD IRRITATION-EYE, NOSE, THROAT	0-UP TO 2XPEL S-ABOVE 2XPEL
7	1675	METHYL N-AMYL KETONE	L	100	465	100	465	MODERATE IRRITATION-EYE, NOSE, THROAT /NARCOSIS	0-UP TO 3XPEL S-ABOVE 3XPEL
5	P1775	METHYL PARATHION-SKIN	S	NONE	NONE	A -	0.2	CHOLINESTERASE INHIBITION	0-UP TO 3XPEL S-ABOVE 3XPEL
13	1777	METHYL SILICATE	S	NONE	NONE	C A 5	30	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS	S-ABOVE CEILING LIMIT
3	1655	METHYLAL	L	1000	3100	1000	3100	CUMULATIVE SYSTEMIC TOXICITY	0-UP TO 3XPEL S-ABOVE 3XPEL
3	____	METHYLCYCLOPENTADIENYL MANGANESE TRICARB	S	NONE	NONE	A 0.1	0.2	CUMULATIVE KIDNEY & CNS DAMAGE	S
5	____	METHYLDEMETON-SKIN	S	NONE	NONE	A -	0.5	CHOLINESTERASE INHIBITION	S
8	____	METHYLENE BIS (4-CYCLOHEXYLISOCYANATE)	S	NONE	NONE	A C 0.01	0.11	MARKED IRRITATION OF SKIN/ASTHMA	S
1	C2650	4,4-METHYLENE BIS(2-CHLOROANILINE)(MOCA)	S	STD 1910.1005		NONE	NONE	CANCER	S
8	1073	METHYLENE BISPHENYL ISOCYANATE (MDI)	S	C 0.02	0.2	C 0.02	0.2	MARKED IRRITATION-EYE, NOSE, THROAT, SKIN/ASTHMA	S-ABOVE CEILING LIMIT
7	1730	METHYLENE CHLORIDE	L	500	1800	P 200	720	NARCOSIS/CHRONIC SYSTEMIC TOXICITY (METABOLIC CONVERSION TO CO)	S-AT CURRENT OSHA PEL

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
9	_____	MICA	S		20 MPPCF		20 MPPCF	PNEUMOCONIOSIS (ACCUMULATION IN LUNGS)	O
17	_____	MINERAL WOOL FIBER	S	NONE	NONE	A	10	"INERT" PARTICULATE	O
3	1790	MOLYBDENUM, AS MO (INSOLUBLES)	S	-	15	A -	10	CUMULATIVE SYSTEMIC TOXICITY/LIVER AND KIDNEYS	S
3	1790	MOLYBDENUM, AS MO (SOLUBLES)	S	-	5	-	5	CUMULATIVE SYSTEMIC TOXICITY/LIVER AND KIDNEYS	S
5	P2690	MONOCROTOPHOS (AZODRIN)	S	NONE	NONE	P -	0.25	CHOLINESTERASE INHIBITION	S
2	1794	MONOMETHYL HYDRAZINE-SKIN	L	C 0.2	0.35	C 0.2	0.35	ACUTE LUNG,CNS AND BLOOD DAMAGE/SUSPECT CARCINOGEN	S-ABOVE CEILING LIMIT
12	1972	MONOMETHYLANILINE-SKIN	L	2	9	2	9	METHEMOGLOBINEMIA	S
14	1797	MORPHOLINE-SKIN	L	20	70	20	70	MODERATE IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
7	0710	NAPHTHA (COAL TAR)	L	100	400	100	400	MODERATE IRRITATION-EYE, NOSE, THROAT/ NARCOSIS	O-UP TO 3XPEL S-ABOVE 3XPEL
11	1810	NAPHTHALENE	S	10	50	10	50	MARKED IRRITATION-EYE, NOSE, THROAT/ ANEMIA	S
16	1850	NEON	G	NONE	NONE	A F	-	SIMPLE ASPHYXIATION	O-IF OXYGEN IS GREATER THAN 18% BY VOLUME
2	1840	NICKEL (SOLUBLE COMPOUNDS)	S	-	1	P -	0.1	CUMULATIVE LUNG DAMAGE/SUSPECT CARCINOGEN	S
2	1841	NICKEL CARBONYL	L	0.001	0.007	P 0.05	0.035	ACUTE SYSTEMIC TOXICITY/SUSPECT CARCINOGEN	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
2	1840	NICKEL, METAL & INSOLUBLE COMPOUNDS	S	-	1	-	1	CUMULATIVE LUNG DAMAGE/SUSPECT CARCINOGEN	S
4	1855	NICOTINE-SKIN	L	-	0.5	-	0.5	ACUTE SYSTEMIC TOXICITY	O-UP TO 2XPEL S-ABOVE 2XPEL
13	1860	NITRIC ACID	L	2	5	2	5	MARKED IRRITATION-EYE, NOSE, THROAT, SKIN	O-UP TO 5XPEL S-ABOVE 5XPEL
6	1890	NITRIC OXIDE	G	25	30	25	30	METHEMOGLOBINEMIA/CNS EFFECTS	O-UP TO 2XPEL S-ABOVE 2XPEL
3	1865	P-NITROANILINE-SKIN	S	1	6	1	6	METHEMOGLOBINEMIA/CUMULATIVE LIVER DAMAGE	S
12	1870	NITROBENZENE-SKIN	L	1	5	1	5	METHEMOGLOBINEMIA	O-UP TO 3XPEL S-ABOVE 3XPEL
1	C1875	4-NITROBIPHENYL	S	STD 1910.1003		418	-	CANCER-BLADDER	S
12	1872	P-NITROCHLOROBENZENE-SKIN	S	-	1	-	1	METHEMOGLOBINEMIA	O-UP TO 2XPEL S-ABOVE 2XPEL
7	1880	NITROETHANE	L	100	310	100	310	MODERATE IRRITATION/NARCOSIS	O-UP TO 3XPEL S-ABOVE 3XPEL
16	1900	NITROGEN	G	NONE	NONE	F	-	SIMPLE ASPHYXIATION	O-IF OXYGEN IS GREATER THAN 18% BY VOLUME
10	1903	NITROGEN DIOXIDE	G	5	9	A C 5	9	CUMULATIVE LUNG DAMAGE (BRONCHITIS AND EMPHYSEMA)	S
3	1907	NITROGEN TRIFLUORIDE	G	10	29	10	29	METHEMOGLOBINEMIA/CUMULATIVE LIVER & KIDNEY DAMAGE	S
3	1912	NITROGLYCERIN-SKIN	L	C 0.2	2	C 0.2	2	CUMULATIVE EFFECT ON BLOOD PRESSURE, FIBRILLATION	S-ABOVE CEILING LIMIT

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ACGIH/OSHA SUBSTANCE TOXICITY REPORT
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CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
7	1020 NITROMETHANE	L	100	250	100	250	MARKED IRRITATION-EYE, NOSE, THROAT/ NARCOSIS	O-UP TO 2XPEL S-ABOVE 2XPEL
10	1040 1-NITROPROPANE	L	25	90	25	90	MODERATE IRRITATION-EYE, NOSE, THROAT/ CUMULATIVE LIVER DAMAGE	S
11	1060 2-NITROPROPANE	L	25	90	25	90	MODERATE IRRITATION-EYE, NOSE, THROAT/ CUMULATIVE LIVER DAMAGE	S
[illegible]	1062 N-NITROSODIMETHYLAMINE-SKIN	L	STD 1910.1016			A 2	CANCER	S
12	1065 NITROTOLUENE-SKIN	L	5	30	5	30	METHEMOGLOBINEMIA	O-UP TO 2XPEL S-ABOVE 2XPEL
14	1953 NITROUS OXIDE	G	NONE	NONE	A F	-	SIMPLE ASPHYXIATION	O-IF OXYGEN IS GREATER THAN 19% BY VOLUME
15	[illegible]ODRANE	L	NONE	NONE	P 200	1050	ODOR/UNKNOWN TOXIC POTENTIAL (OCTANE ANALOGY)	O
9	1955 OCTACHLORO NAPHTHALENE-SKIN	S	-	0.1	-	0.1	CUMULATIVE LIVER DAMAGE	S
16	1957 OCTANE	L	500	2350	P 300	1450	ODOR	O
19	2010 OIL MIST, PARTICULATE	S	-	5	-	5	GOOD HOUSEKEEPING PRACTICE	O
17	2010 OIL MIST, VAPOR	VAP	NONE	NONE	A B 2	-	GOOD HOUSEKEEPING PRACTICE	O
13	1960 OSMIUM TETROXIDE, AS OS	S	-	0.002	-	0.002	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS	S
18	[illegible] OXALIC ACID	S	-	1	-	1	MARKED IRRITATION-EYE, NOSE, THROAT, SKIN	S

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FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
3	1975	OXYGEN DIFLUORIDE	G	0.05	0.1	0.05	0.1	MARKED EDEMA-LUNGS/ CUMULATIVE KIDNEY DAMAGE	S
3	1980	OZONE	G	0.1	0.2	0.1	0.2	MARKED IRRITATION-LUNGS/CUMULATIVE RADIOMIMETRIC (AGING) EFFECTS	S
15	____	PARAFFIN WAX FUME	S	NONE	NONE	A -	2	MILD IRRITATION-EYE, NOSE, THROAT	O
3	P1982	PARAQUAT-SKIN	S	-	0.5	-	0.5	CUMULATIVE SYSTEMIC & LUNG DAMAGE	S
5	P1984	PARATHION-SKIN	L	-	0.11	-	0.11	CHOLINESTERASE INHIBITION	S
3	1986	PENTABORANE	L	0.005	0.01	0.005	0.01	CUMULATIVE CNS DAMAGE	S
3	1988	PENTACHLORONAPHTHALENE-SKIN	S	-	0.5	-	0.5	CUMULATIVE LIVER DAMAGE & CHLORACNE	S
4	1989	PENTACHLOROPHENOL-SKIN	S	-	0.5	-	0.5	ACUTE SYSTEMIC TOXICITY & VASCULAR INJURY	S
17	1987	PENTAERYTHRITOL	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
7	1990	PENTANE	L	1000	2950	P 600	1800	MILD IRRITATION/ NARCOSIS	O
7	2010	2-PENTANONE	L	200	700	200	700	MARKED IRRITATION-EYE, NOSE, THROAT/ NARCOSIS	O=UP TO 2XPEL S=ABOVE 2XPEL
3	2020	PERCHLOROETHYLENE-SKIN	L	100	670	100	670	CUMULATIVE LIVER & CNS DAMAGE	S
13	2030	PERCHLOROMETHYLMERCAPTAN	L	0.1	0.8	0.1	0.8	MARKED IRRITATION-EYE, NOSE, THROAT	S

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
3	2033	PENTACHLORYL FLUORIDE	G	3	13.5	3	13.5	MODERATE IRRITATION-EYE, NOSE, THROAT/ CUMULATIVE BONE DAMAGE	S
17	____	PERLITE	S	NONE	NONE	P -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
7	2037	PETROLEUM DISTILLATES-(NAPTHA)	L	500	2000	A,B 3	-	MODERATE IRRITATION/ NARCOSIS	O-(DEPENDING UPON MIXTURE OF AROMATICS)
3	2040	PHENOL-SKIN	S	5	19	5	19	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS/CUMULATIVE LIVER, LUNG KIDNEY DAMAGE	S
14	____	PHENOTHIAZINE-SKIN	S	NONE	NONE	A -	5	MODERATE IRRITATION-SKIN/PHOTOSENSITIZATION - SKIN	O-UP TO 2XPEL S-ABOVE 2XPEL
14	2047	PHENYL ETHER (VAPOR)	L	1	7	1	7	MODERATE IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
14	2053	PHENYL ETHER-DIPHENYL MIX (VAPOR)	L	1	7	1	7	MODERATE IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
8	2042	P-PHENYLENE DIAMINE-SKIN	S	-	0.1	-	0.1	RESPIRATORY SENSITIZATION-ASTHMA	S
7	2057	PHENYLGLYCIDYL ETHER (PGE)	L	10	60	10	60	MODERATE IRRITATION-EYE, NOSE, THROAT/ NARCOSIS	O-UP TO 2XPEL S-ABOVE 2XPEL
11	2060	PHENYLHYDRAZINE-SKIN	L	5	22	5	22	HEMOLYTIC ANEMIA/ SKIN IRRITATION	S
3	____	PHENYLPHOSPHINE	L	NONE	NONE	C 0.05	0.25	CUMULATIVE BLOOD DAMAGE (ANEMIA)	S-ABOVE CEILING LIMIT
5	____	PHORATE (THIMET)-SKIN	L	NONE	NONE	A -	0.05	CHOLINESTERASE INHIBITION	S

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FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
5	P2065	PHOSDRIN (MEVINPHOS)-SKIN	L	-	0.1	-	0.1	CHOLINESTERASE INHIBITION	S
10	2070	PHOSGENE	G	0.1	0.4	C 0.05	0.2	MARKED EDEMA-LUNGS	S-AT CURRENT OSHA PEL
4	2080	PHOSPHINE	G	0.3	0.4	0.3	0.4	ACUTE SYSTEMIC TOXICITY	S
13	2085	PHOSPHORIC ACID	L	-	1	-	1	MARKED IRRITATION-EYE, NOSE, THROAT	O-UP TO 2XPEL S-ABOVE 2XPEL
3	2090	PHOSPHORUS (YELLOW)	S	-	0.1	-	0.1	CUMULATIVE BONE AND LIVER DAMAGE	S
10	2091	PHOSPHORUS PENTACHLORIDE	S	-	1	-	1	MARKED IRRITATION & DAMAGE TO LUNGS (EDEMA)	S
13	2092	PHOSPHORUS PENTASULFIDE	S	-	1	-	1	MARKED IRRITATION & H2S HAZARD	S
13	2093	PHOSPHORUS TRICHLORIDE	L	0.5	3	0.5	3	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS	S
8	2110	PHTHALIC ANHYDRIDE	S	2	12	P 1	6	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS/ASTHMA	S
17	----	M-PHTHALODINITRILE	S	NONE	NONE	P -	5	"INERT" PARTICULATE (LOW TOXICITY)	O
17	----	PICLORAM (TORDON)	S	NONE	NONE	A -	10	"INERT" PARTICULATE (LOW TOXICITY)	O
3	2120	PICRIC ACID-SKIN	S	-	0.1	-	0.1	CUMULATIVE KIDNEY, LIVER & RBC DAMAGE/ DERMATITIS	S
3	P2125	PIVAL	S	-	0.1	-	0.1	CUMULATIVE ANTI-COAGULANT EFFECTS (WARFARIN ANALOGY)	S

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
17	2127	PLASTER OF PARIS	S	NONE	NONE	A -	10 "INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0	
8	2130	PLATINUM (SOLUBLE SALTS) AS PT.	S	-	0.002	-	0.002 RESPIRATORY SENSITIZATION (ASTHMA)	S	
4	2135	POLYTETRAFLUOROETHYLENE DECOMP. PRODUCTS	VAR	NONE	NONE	A -	B 1 ACUTE TOXIC EFFECTS (POLYMER FUME FEVER)	S	
17	0577	PORTLAND CEMENT	S		50 MPPCF		30 MPPCF "INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0-IF QUARTZ CONTENT<1% S-OTHERWISE	
13	2140	POTASSIUM HYDROXIDE	S	NONE	NONE	C A -	2 MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS, SKIN	S-ABOVE CEILING LIMIT	
7	2150	PROPANE	G	1000	1800	A F	- NARCOSIS/ ASPHYXIATION	0	
13	2167	PROPARGYL ALCOHOL-SKIN	L	1	2	1	2 MARKED IRRITATION-EYE, NOSE, THROAT, SKIN	S	
15	2180	N-PROPYL ACETATE	L	200	840	200	840 MILD IRRITATION-EYE, NOSE, THROAT	0	
15	2170	PROPYL ALCOHOL-SKIN	L	200	500	200	500 MILD IRRITATION-EYE, NOSE, THROAT	0	
3	2185	N-PROPYL NITRATE	L	25	110	25	110 CUMULATIVE SYSTEMIC EFFECTS (METHEMO-GLOBINEMIA, HYPO-TENSION)	S	
3	2190	PROPYLENE DICHLORIDE	L	75	350	75	350 CUMULATIVE LIVER DAMAGE	S	
3	----	1,2-PROPYLENE GLYCOL DINITRATE-SKIN	L	NONE	NONE	P 0.05	0.35 CUMULATIVE BLOOD PRESSURE & CNS CHANGES (HEADACHE), FIBRILLATION	S	

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
18	____	PROPYLENE GLYCOL MONOMETHYL ETHER	L	NONE	NONE	A 100	350	0000	0-UP TO 2XPEL S-ABOVE 2XPEL
4	2213	PROPYLENE IMINE-SKIN	L	2	5	2	5	MODERATE IRRITATION-EYE, NOSE, THROAT/ ACUTE TOXICITY	S
3	2215	PROPYLENE OXIDE	L	100	240	100	240	CUMULATIVE CNS, KIDNEY & LIVER DAMAGE	S
15	P2216	PYRETHRUM	S	-	5	-	5	MILD IRRITATION-LUNGS	0-UP TO 3XPEL S-ABOVE 3XPEL
3	2220	PYRIDINE	L	5	15	5	15	CUMULATIVE LIVER, KIDNEY & NONE MARROW DAMAGE	S
3	2222	QUINONE	S	0.1	0.4	0.1	0.4	CUMULATIVE EYE (CORNEAL) DAMAGE	S
6	2224	ROX-SKIN(CYCLOTRIMETHYLENE TRINITRAMINE)	S	-	1.5	-	1.5	ACUTE CNS EFFECTS (NAUSEA,CONVULSIONS)	S
14	____	RESORCINOL	S	NONE	NONE	P 10	45	MODERATE IRRITATION-EYE, NOSE, THROAT, SKIN	0-UP TO 3XPEL S-ABOVE 3XPEL
8	2225	RHODIUM, METAL FUME & DUSTS (AS RH)	S	-	0.1	-	0.1	RESPIRATORY SENSITIZATION (ASTHMA)	S
8	2225	RHODIUM, SOLUBLE SALTS	S	0.	0.001	0.	0.001	RESPIRATORY SENSITIZATION (ASTHMA)	S
5	2226	RONNEL	S	-	10	-	10	CHOLINESTERASE INHIBITION	0-UP TO 3XPEL S-ABOVE 3XPEL
13	____	ROSIN CORE SOLDER PYROLYSIS PRODUCTS(AS	VAR	NONE	NONE	A -	0.1	MARKED IRRITATION-EYE, NOSE, THROAT	S
2	P2228	ROTENONE	S	-	5	-	5	CUMULATIVE SYSTEMIC TOXICITY/SUSPECT CARCINOGEN	S

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
17	2229	ROUGE	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
3	----	RUBBER SOLVENT	L	NONE	NONE	P 4	-	CUMULATIVE CENTRAL & PERIPHERAL NERVOUS SYSTEM DAMAGE	S
3	2230	SELENIUM COMPOUNDS (AS SE)	S	-	0.2	-	0.2	MODERATE IRRITATION- EYE, NOSE, THROAT/ CUMULATIVE LUNG, LIVER, KIDNEY DAMAGE	S
10	2231	SELENIUM HEXAFLUORIDE, AS SE	G	0.05	0.4	0.05	0.4	ACUTE LUNG DAMAGE (EDEMA)	S
9	9050	SILICA (AMORPHOUS)	S		20 MPPCF		20 MPPCF	GOOD HOUSEKEEPING PRACTICE/POSSIBLE SILICOSIS	S
9	9013	SILICA (FUSED)	S	USE QUARTZ FORMULA		USE QUARTZ FORMULA		PNEUMOCONIOSIS (SILICOSIS)	S
9	9010	SILICA (QUARTZ) RESPIRABLE	S	100MG/M3 / %SIO2+2		100MG/M3 / %SIO2+2		PNEUMOCONIOSIS (SILICOSIS)	S
17	----	SILICON	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
17	2236	SILICON CARBIDE	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
4	----	SILICON TETRAHYDRIDE (SILANE)	G	NONE	NONE	A 0.5	0.7	ACUTE SYSTEMIC TOXICITY BY ANALOGY WITH OTHER METAL HYDRIDES	S- UNTIL NEW EVIDENCE IS OBTAINED
3	2240	SILVER, METAL & SOLUBLE COMPOUNDS, AS AG	S	-	0.01	-	0.01	CUMULATIVE SKIN PIGMENTATION AND KIDNEY DAMAGE	S

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
9	9085	SOAPSTONE	S	-	20 MPPCF	-	20 MPPCF	PNEUMOCONIOSIS (ACCUMULATION IN LUNGS)	S- IF CONTAINS TREMOLITE
3	____	SODIUM AZIDE	S	NONE	NONE	C 0.1	0.3	CUMULATIVE CNS AND BLOOD PRESSURE DAMAGE	S
4	2250	SODIUM FLUOROACETATE (1080) - SKIN	S	-	0.05	-	0.05	ACUTE SYSTEMIC TOXICITY (METABOLIC PATHWAY INHIBITOR)	S
13	2260	SODIUM HYDROXIDE	S	-	2	A C -	2	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS, SKIN	S- ABOVE CEILING LIMIT
17	2263	STARCH	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
4	2267	STIBINE	G	0.1	0.5	0.1	0.5	ACUTE SYSTEMIC TOXICITY (RBC HEMOLYSIS)	S
7	2270	STODDARD SOLVENT	L	500	2950	P 100	575	NARCOSIS/CUMULATIVE SYSTEMIC EFFECTS	S= AT CURRENT OSHA PEL
4	2275	STRYCHNINE	S	-	0.15	-	0.15	ACUTE AND CHRONIC SYSTEMIC TOXICITY (CNS, PARALYSIS)	S
7	2280	STYRENE, MONOMER	L	100	420	100	420	MODERATE IRRITATION - EYE, NOSE, THROAT/NARCOSIS	S
8	9220	SUBTILISINS (PROTEOLYTIC ENZYMES)	S	NONE	NONE	AC -	0.00006	RESPIRATORY ALLERGY (ASTHMA & LUNG DAMAGE	S- ABOVE CEILING LIMIT
17	____	SUCROSE	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	O
13	2290	SULFUR DIOXIDE	G	5	13	5	13	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS	S

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OSHA/ACGIH SUBSTANCE TOXICITY REPORT
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FIELD NO	CUDF	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
19	2300	SULFUR HEXAFLUORIDE	G	1000	6000	1000	6000	GOOD HOUSEKEEPING PRACTICE	O
13	2320	SULFUR MONOCHLORIDE	L	1	6	1	6	MARKED IRRITATION - EYE, NOSE, THROAT, LUNG	S
10	2321	SULFUR PENTAFLUORIDE	G	0.025	0.25	0.025	0.25	MARKED IRRITATION - LUNGS (EDEMA AND DAMAGE)	S
4	____	SULFUR TETRAFLUORIDE	G	NONE	NONE	A 0.1	0.4	MARKED IRRITATION - LUNGS (EDEMA)/ACUTE TOXICITY	S
13	2310	SULFURIC ACID	L	-	1	-	1	MARKED IRRITATION - EYE, NOSE, THROAT, SKIN	S
3	2323	SULFURYL FLUORIDE	G	5	20	5	20	CUMULATIVE LIVER & KIDNEY DAMAGE	S
4	2324	2,4,5-T	S	-	10	-	10	ACUTE SYSTEMIC TOXICITY	S
9	9030	TALC (NON-ASBESTIFORM)	S	-	20 MPPCF	-	20 MPPCF	PNEUCOMONIOSIS (TALCOSIS)	O
15	2325	TANTALUM	S	-	5	-	5	MILD IRRITATION - EYE, NOSE, THROAT, LUNGS	O
5	P2327	TEDP - SKIN	S	-	0.2	-	0.2	CHOLINESTERASE INHIBITION	S
4	2329	TEFLON DECOMPOSITION PRODUCTS	VAR	NONE	NONE	A -	B1	ACUTE SYSTEMIC TOXICITY (POLYMER FUME FEVER)	S
3	2330	TELLURIUM	S	-	0.1	-	0.1	CUMULATIVE LIVER DAMAGE/GARLIC BREATH	S
4	2332	TELLURIUM HEXAFLUORIDE, AS TE	G	0.02	0.2	0.02	0.2	ACUTE SYSTEMIC TOXICITY (HIGH)	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
5	P2334	TEPP - SKIN	L	-	0.05	-	0.05	CHOLINESTERASE INHIBITION	S
13	2335	TERPHENYLS	S	C 1	9	C 1	9	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS	S- ABOVE CEILING LIMIT
3	2370	TETRA METHYL LEAD(AS PB)-SKIN	L	-	0.07	A -	0.15	CUMULATIVE LIVER, CNS, KIDNEY DAMAGE	S
4	2380	TETRA METHYL SUCCINONITRILE - SKIN	S	0.5	3	0.5	3	ACUTE SYSTEMIC TOXICITY (CNS)	S
3	2339	1,1,2,2-TETRACHLORO-1,2-DIFLUOROETHANE	L	500	4170	500	4170	CUMULATIVE LIVER DAMAGE & LEUKOPENIA	S
3	2337	1,1,1,2-TETRACHLORO-2,2 DIFLUOROETHANE	L	500	4170	500	4170	CUMULATIVE LIVER DAMAGE LEUKOPENIA	S
3	2340	1,1,2,2-TETRACHLOROETHANE-SKIN	L	5	35	5	35	CUMULATIVE LIVER DAMAGE	S
3	2350	TETRACHLORONAPHTHALENE-SKIN	S	-	2	-	2	CUMULATIVE LIVER DAMAGE & CHLORACNE	S
3	2360	TETRAETHYL LEAD (AS PB) - SKIN	L	-	0.075	A -	0.1	CUMULATIVE LIVER CNS/KIDNEY DAMAGE	S
7	2390	TETRAHYDROFURAN	L	200	590	200	590	MARKED IRRITATION - EYE, NOSE, THROAT/ NARCOSIS	S
3	2395	TETRANITROMETHANE	L	1	8	1	8	MARKED IRRITATION - EYE, NOSE, THROAT/ CUMULATIVE LUNG, HEART, & CNS DAMAGE	S
3	2410	TETRYL-SKIN	S	-	1.5	-	1.5	CUMULATIVE SYSTEMIC TOXICITY (LIVER)/ CONTACT DERMATITIS	S
3	2420	THALLIUM (SOLUBLE COMPDS)-SKIN	S	-	0.1	-	0.1	CUMULATIVE CNS AND ENDOCRINE DAMAGE	S

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NO	FILL CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
17	____	4,4-THIOBIS (6 TERT BUTYL-M-CRESOL)	S	NONE	NONE	P -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0
4	2427	THIRAM	S	-	5	-	5	ACUTE SYSTEMIC TOXICITY ("ANTABUSE" -LIKE EFFECTS) (LOW)	0
9	2430	TIN (INORGANICS, EXCEPT SNH4 & SNO2)	S	-	2	-	2	PNEUMOCONIOSIS (STANNOSIS) & LUNG DAMAGE	S
3	2431	TIN (ORGANICS)-SKIN AS SN	VAR	-	0.1	-	0.1	CUMULATIVE SYSTEMIC TOXICITY	S
17	2432	TIN OXIDE	S	NONE	NONE	A-	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0
17	2440	TITANIUM DIOXIDE	S	-	15	A -	10	"INERT" PARTICULATE ACCUMULATION IN LUNGS)	0
7	2460	TOLUENE - SKIN	L	200	750	A 100	375	MODERATE IRRITATION - EYE, NOSE, THROAT/NARCOSIS	S- AT CURRENT OSHA PEL
8	2470	TOLUENE-2,4-DIISOCYANATE (TDI)	L	C 0.02	0.14	C 0.02	0.14	MARKED IRRITATION - EYE, NOSE, THROAT, LUNGS/ASTHMA	S- ABOVE CEILING LIMIT
2	2 75	O-TOLUIDINE-SKIN	L	5	22	5	22	METHEMOGLOBINEMIA/ SUSPECT CARCINOGEN	S
14	17	TRIBUTYL PHOSPHATE	L	-	5	-	5	MODERATE IRRITATION - EYE, NOSE, THROAT, LUNGS	0-UP TO 3XPEL S-ABOVE 3XPEL
19	2485	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHAN		1000	7600	1000	7600	GOOD HOUSEKEEPING PRACTICE	0
3	____	1,2,4-TRICHLOROBENZENE	L	NONE	NONE	P 5	40	CUMULATIVE LIVER DAMAGE	0- UP TO 3XPEL S- ABOVE 3XPEL

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FIELD NO	CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
3	2495	1,1,2-TRICHLOROETHANE-SKIN	L	10	45	10	45	NARCOSIS/CUMULATIVE LIVER DAMAGE	5
2	2490	TRICHLOROETHYLENE	L	100	535	100	535	NARCOSIS & ACUTE CARDIAC FAILURE/ SUSPECT CARCINOGEN	5
3	2483	TRICHLORONAPHTHALENE-SKIN	S	-	5	-	5	CUMULATIVE LIVER DAMAGE	5
3	2510	1,2,3-TRICHLOROPROPANE	L	50	300	50	300	MODERATE IRRITATION CUMULATIVE LIVER DAMAGE	5
19	____	TRICYCLOHEXYLTIN HYDROXIDE (PLICTRAN)	S	NONE	NONE	A -	5	GOOD HOUSEKEEPING PRACTICE	0
13	2480	TRIETHYLAMINE	L	25	100	25	100	MARKED IRRITATION - LUNGS, SKIN	5
19	2500	TRIFLUOROMONOBROMOMETHANE	G	1000	6100	1000	6100	GOOD HOUSEKEEPING PRACTICE	0
13	____	TRIMETHYLBENZENE	L	NONE	NONE	A 25	120	MARKED IRRITATION - LUNGS, SKIN	5
3	2530	TRINITROTOLUENE-SKIN	S	-	1.5	-	1.5	METHEMOGLOBINEMIA/ CUMULATIVE EYE (CATARACTS) & LIVER DAMAGE	5
3	2532	TRIORTHOCRESYL PHOSPHATE	L	-	0.1	-	0.1	CUMULATIVE NEUROMUSCULAR DAMAGE (PARALYSIS)	5
5	2535	TRIPHENYL PHOSPHATE	S	-	3	-	3	CHOLINESTERASE INHIBITION	0- UP TO 1.5XPEL 5- ABOVE 1.5XPEL
19	____	TRIPHENYLAMINE	S	NONE	NONE	P -	5	GOOD HOUSEKEEPING PRACTICE	0
9	2537	TUNGSTEN & COMPOUNDS, AS W (INSOLUBLE)	S	NONE	NONE	A -	5	PNEUMOCONIOSIS (LUNG ACCUMULATION)	0

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
6	2537	TUNGSTEN & COMPOUNDS, AS W (SOLUBLE)	S	NONE	NONE	A -	1	ACUTE SYSTEMIC TOXICITY (CNS, ANOXIA)	S
3	2540	TURPENTINE	L	100	560	100	560	MODERATE IRRITATION - EYE, NOSE, THROAT/CUMULATIVE KIDNEY DAMAGE	S
3	2560	URANIUM (NATURAL) INSOLUBLE	S	-	0.25	A -	0.2	CUMULATIVE BLOOD AND KIDNEY DAMAGE	S
3	2560	URANIUM (NATURAL) SOLUBLE	S	-	0.05	-	0.05	CUMULATIVE BLOOD AND KIDNEY DAMAGE	S
13	2570	VANADIUM (V2O5) AS DUST	S	C -	0.5	C -	0.05	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS	S- ABOVE CEILING LIMIT
13	2570	VANADIUM (V2O5) AS FUME	S	C -	0.1	A C -	0.05	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS	S- AT CURRENT OSHA CEILING LIMIT
15	----	VINYL ACETATE	L	NONE	NONE	A 10	30	MILD IRRITATION-EYE, NOSE, THROAT	0- UP TO 2XPEL S- ABOVE 2XPEL
3	----	VINYL BROMIDE	G	NONE	NONE	A 250	1100	CUMULATIVE BROMIDE INTOXICATION	S
1	C2580	VINYL CHLORIDE	G	STD 1910.1017		A	1C	CANCER (LIVER)	S
2	----	VINYL CYCLOHEXENE DIOXIDE	L	NONE	NONE	P 10	60	MARKED IRRITATION-SKIN/SUSPECT CARCINOGEN	S
14	2582	VINYL TOLUENE	L	100	480	100	480	MODERATE IRRITATION-EYE, NOSE, THROAT	0- UP TO 3XPEL S- ABOVE 3XPEL
3	----	VINYLIDENE CHLORIDE	L	NONE	NONE	A 10	40	CUMULATIVE LIVER & KIDNEY DAMAGE	S
7	----	VM & P NAPHTHA	L	NONE	NONE	P 200	400	NARCOSIS/CUMULATIVE SYSTEMIC TOXIC EFFECTS	S

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NO	FIELD CODE	SUBSTANCE	PHY ST	OSHA PEL PPM	OSHA PEL MG/M3	ACGIH PEL PPM	ACGIH PEL MG/M3	HEALTH HAZARD CATEGORY	HEALTH HAZARD CLASSIFICATION
3	P2586	WARFARIN	S	-	0.1	-	0.1	CUMULATIVE ANTI-COAGULANT EFFECT	S
4	____	WELDING FUMES (TOTAL PARTICULATE)	FUM	NONE	NONE	P -	5.B4	MODERATE IRRITATION/ACUTE TOXICITY FROM METAL OXIDES	S
2	9210	WOOD DUST (NONALLERGENIC)	S	NONE	NONE	A -	5	LUNG DAMAGE/ SUSPECT CARCINOGEN	S
7	2590	XYLENE (O-,M-,P-ISOMERS)-SKIN	L	100	435	100	435	MODERATE IRRITATION-EYE, NOSE, THROAT/NARCOSIS	0- UP TO 2XPEL S- ABOVE 2XPEL
14	____	M-XYLENE, ALPHA, ALPHA, DIAMINE	L	NONE	NONE	P -	0.1	MODERATE IRRITATION-EYE, NOSE, THROAT SKIN (CONTACT ALLERGY)	S
4	2600	XYLIDINE-SKIN	L	S	25	S	25	METHEMOGLOBINEMIA/ ACUTE SYSTEMIC TOXICITY	S
9	2602	YTTRIUM	S	-	1	-	1	PNEUMOCONIOSIS (DIFFUSE FIBROSIS)	S
13	2611	ZINC CHLORIDE FUME	S	-	1	-	1	MARKED IRRITATION-EYE, NOSE, THROAT, LUNGS	S
2	____	ZINC CHROMATE, AS CRO3	S	NONE	NONE	P -	0.1	SEE CHROMATES/ SUSPECT CARCINOGEN	S
4	2610	ZINC OXIDE FUME	S	-	5	-	5	ACUTE SYSTEMIC TOXICITY (METAL FUME FEVER)	0
17	____	ZINC STEARATE	S	NONE	NONE	A -	10	"INERT" PARTICULATE (ACCUMULATION IN LUNGS)	0
9	2620	ZIRCONIUM COMPDS (AS ZR)	S	-	5	-	5	PNEUMOCONIOSIS (LOW TOXICITY)	0

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INDUSTRIAL HYGIENE MANUAL

CHAPTER X
VENTILATION

I. Ventilation measurements shall be taken during the industrial hygiene inspection when air quality is being determined. The purpose of the ventilation measurements are as follows:

- Ventilation data can be correlated with air quality measurements when analyzing the air quality results for their reasonableness.
- Knowledge of ventilation increases the reliability of compliance action based on air quality measurements. For example, if measurements indicate that the air quality standards are slightly exceeded, poor ventilation practices increase the certainty that a potential health hazard exists and citations are required.
- Evaluation of existing ventilation systems will assist in determination of feasible engineering controls.
- Citations shall not be issued against improper ventilation unless both of the following conditions exist: (1) the air quality standards are violated (2) specific ventilation requirements exist to require engineering controls, such as for open tanks and spray paint booths. In no case shall citations be issued to require specific volumes of air for ventilating operations.

II. Type of ventilation measurements to be taken. A thorough ventilation survey is time consuming and is not necessary during an OSHA health inspection. The following ventilation data is necessary:

- Types of ventilation systems employed-natural, general forced air, dilution, local exhaust, and combinations.
- Volume of general ventilation, location of air inlet(s).
- General flow of air through plant.
- Locations and type of local exhaust ventilation, face velocities, capture velocities, the appropriateness of the type for the job.
- Operations that are normally ventilated in the industry but are not ventilated in the one being inspected.
- Employer's maintenance on ventilation system, what the employer does and is it enough (example—check pressure drops, clean out elbows periodically, check fan blades).
- Variables that effect ventilation—doors, windows, openings in building, and processes involving high temperature.
- General comments on effectiveness of system.
- Approximate sizes of local exhaust.
- Type and size of fans and collector.
- Make up air, how it is obtained and recirculation volumes.

It will not be necessary to perform detailed velocity traverses in ducts, determine rpm of fan, drill holes in ducts for measurements, measure sizes of ducts and other detailed ventilation work.

Sketches and/or photographs must be used to document ventilation and processes where air quality is poor.

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